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RISKS OF VIOLENCE IN MAJOR DAILY ACTIVITIES

UNITED STATES, 2003-2005

By Andrew Michael Lemieux

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Abstract

Risks of Violence in Major Daily Activities
United States, 2003-2005

By Andrew Michael Lemieux

Dissertation Chair: Marcus Felson

The routine activity approach, lifestyle perspective, and environmental criminology, all argue the risk of violence is not distributed evenly across time and space. This dissertation quantifies the risk of violence for different activities and types of place. Using data from the National Crime Victimization Survey and American Time Use Survey, activity- and place-specific rates of violence are calculated to determine (a) which activity or type of place is the most dangerous, (b) the relative risk of activities and types of place, and (c) how activity- and place-specific risks vary between demographic subgroups. Time-based rates are used to account for the reality that Americans do not spend equal amounts of time in activities and types of place. The activity-specific analysis showed sleeping was the safest activity in America; going to and from school was the most dangerous. The risk of violence during the school commute is 285 times higher than it is while sleeping. The place-specific analysis indicated home was the safest place to be while the street was the most dangerous; the risk of violence on the street was 51 times higher than it was at home. When rates of violence were calculated for demographic subgroups of the American population, the race and sex of individuals were found to have little effect on the risk of violence. Age was the only demographic variable included in the analysis that had substantial impact on the risk of victimization in different activities and types of place. These findings indicate crime prevention strategies cannot neglect the role lifestyles play in an individual's risk of victimization. Because the risk of violence varies greatly between activities and types of place it is inappropriate to label demographic subgroups as high risk based on the population size alone. This research indicates it is what people do, not who they are, that determines their risk of violence. Additionally, this research shows risk assessments that do not account for the transient nature of Americans in time and space can produce misleading information as to which activities and types of place are the most dangerous.

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Chapter 1—Dangerous Settings

OVERVIEW

Avoiding danger is a routine part of life. Knowing what is risky and what is safe helps people make decisions that alter their chances of being injured, contracting a disease, or being victimized. The purpose of this dissertation is to quantify the risk of violence Americans are exposed to when they visit different types of place and engage in different activities. To date, there is limited research about how dangerous one type of place is compared to another or how dangerous different activities are. This is crucial information that should be used when devising danger avoidance strategies for individuals, cities and nations. Helping Americans avoid the dangers of violence requires better information about how these attacks are distributed across places and activities. This dissertation provides estimates for the risk of violence in the United States disaggregated by the types of places people visit and the activities they participate in. These risks are further disaggregated by demographic categories to provide the most detailed violence risk estimates available to date.

Numerous pieces of criminological research have shown that crime is concentrated spatially; it is not randomly or evenly distributed on the macro- or micro-level[1] (Guerry, 1833; Quételet, 1842; Sherman et al., 1989; Brantingham and Brantingham, 1993; Block and Block, 1995; Clarke and Eck, 1995; Nelson et al., 2001; Weisburd et al., 2004;

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[1] At the micro-level of analysis, the term "hot spot" has become popular amongst researchers and practitioners to describe the geographical concentration of crime at a specific location during a specific time period (Sherman et al., 1989; Block and Block, 1995; Townsley and Pease, 2002). For example, in their analysis of calls to police, Sherman et al. (1989) discovered 50% of calls were coming from just 3% of the addresses in Minneapolis. With regard to violence, all robberies were located at just 2.2% of the addresses and all rapes at just 1.2%.

Gorman et al., 2005). The concentration of crime in a small number of places has lead one prominent criminologist to ask, "Why aren't we thinking more about wheredunit, rather than just whodunit?" (Sherman, 1995: pg.37). In other words, why do most theories of crime focus on the individuals involved and neglect the physical environments that breed criminality (Sutherland, 1939; Hirschi, 1969; Gottfredson and Hirschi, 1990; Sampson and Laub, 1993)? Exploring the "where" component of criminal events is more than a matter of locations such as map coordinates or street addresses. To understand where crime occurs, we also must sort out the relative danger of various activities and types of place. Knowing what people were doing at the time of a criminal incident can often shed more light on the causes of violence than a geographic location alone. Thus information indicating which activities or types of place are the most dangerous can help predict and prevent crime.

This dissertation is an application of three closely-related criminological theories linked to the ecology of crime: (1) the routine activity approach (Cohen and Felson, 1979), (2) the lifestyle perspective (Hindelang et al., 1978) and (3) environmental criminology (Brantingham and Brantingham, 1981). Each theory argues that for a crime to occur, victims and offenders must converge in time and space. This logic implies that crime concentrates spatially because certain places provide more or easier criminal opportunities than others.

The routine activity approach and lifestyle perspective both emphasize the link between activities and the types of place people frequent. In other words, everyday activities put

potential victims and offenders in contact with one another in certain places and at certain times. Going to school is one example of an activity that concentrates students and teachers in time and space. The third theory applied here, environmental criminology, stresses the importance of studying the location of criminal events when looking for patterns in crime. When combined, these theoretical perspectives argue the risk of a criminal attack is directly related to the places people visit and the activities they engage in. More importantly, they emphasize the reality that *different people visit different places for different reasons and for different amounts of time* which creates an unequal distribution of risk across and within populations.

This dissertation is a macro-level analysis of the danger Americans face when they visit various types of places and participate in different activities. Using victimization and time-use data from the years 2003-2005, the risk of violence in numerous types of place and activities is quantified. In short, the results of this dissertation provide researchers and practitioners information as to which activities and types of place are the most dangerous based on the number of participants or visitors and their time use. Participant-, visitor- and time-based rates of violence are akin to a typical crime rate that divides the number of crimes by the number of residents; however these rates do not assume individuals are immobile in time and space like a Census population does. In essence, they control for the fact that individuals have unique routine activity patterns and are moving throughout time and space over the course of a day. These rates are a better descriptor of risk than looking at the activity or place-specific incidence of violence alone because they account for the number of opportunities for a violent attack (see Chapter 2

for more on risk quantification). Although some research has addressed the topic before (see Cohen and Felson, 1979 and Clarke and Mayhew, 1994), this dissertation is the first to (a) look at the relative risk of activities and (b) look at the relative risk of activities and places in the same study. More than thirty years ago, Cohen and Felson (1979) determined the relative danger of three broad types of place: (1) at home, (2) on the street and (3) elsewhere; unfortunately the limited availability of time use data precluded anything more than a rudimentary analysis. Clarke and Mayhew (1994) calculated time-based rates of car crime for different types of place but their analysis did not include any information about violent crime. These two pieces of work have not been followed up, verified, or elaborated upon until now.

Attempts to determine the relative danger of different activities and places must acknowledge the fact that individuals are transient in time and space. This study addresses this issue by combining two sets of data: (1) the National Crime Victimization Survey (NCVS), and (2) the American Time Use Survey (ATUS). These two datasets provide the information necessary to examine in more detail and in the same study how violence and the American population are distributed across activities and types of place, and how these two distributions are related. The activity-specific and place-specific risks of violence reported in the later chapters of this study are useful for: (a) criminological theory development, (b) urban planning, (c) public policy and (d) devising crime prevention strategies (see Chapter 9). This chapter establishes the theoretical grounding of the study and summarizes previous research on dangerous places and dangerous activities.

VICTIMIZATION RISK THEORY

This dissertation is a victim oriented approach to understanding patterns in violence. The theories employed neglect offender motivation without assuming such motivation to be constant through time and space. However, in order to focus entirely on crime's settings and timing, this dissertation, for scientific convenience, treats offender motivation *as if* it were constant. In addition, victim selection processes are not considered in this study. In short, this dissertation will not attempt to answer some commonly asked questions such as: "Why are some people criminals?", "Why are some people crime victims?", or "Why are certain types of victims chosen by certain types of offenders?" Instead, this study asks questions about the settings of violence such as: (1) "Within what activities do people become the victims of violence?" and (2) "Where does violence occur?" Thus this dissertation will explore the ecology of violent victimizations in America.

Ecological or spatial theories of crime find their roots in the Chicago School of sociological thought. Ernest Burgess's concentric zone theory (1925) was the first attempt in American criminology to explain what parts of a city are best suited for criminal activity. His ideas were tested and refined by Shaw and McKay (1942) who put forth an argument that neighborhood characteristics influence the criminality of those who reside there. However, ecological theories began by including many socioeconomic and neighborhood concepts that are not examined in this dissertation. For example, this analysis is a national-level study; the data used cannot be assigned to a particular neighborhood or city. Thus comparing victimization risk to the socioeconomic or demographic characteristics of either territorial boundary is not possible. Instead, victim

demographics will be used to assess how segments of the American population, not neighborhoods or cities, vary with regard to the risk of violence in different types of places and activities. This section outlines a theoretical framework for the dissertation highlighting links between everyday activities, types of place and crime.

Victimization: The Role of Activities and Types of Place

The Routine Activity Approach

The routine activity approach states criminal opportunities are created and diminished by the everyday movements and convergences of people (Cohen and Felson, 1979). The three elements necessary for a crime to occur are: (1) a likely offender, (2) a suitable victim or target and (3) the absence of a capable guardian. According to the approach, when offenders and victims meet in time and space, crimes can be prevented by third parties known as guardians; when capable guardians are gone, a potential victim is vulnerable. The routine activity approach emphasized commonly seen guardians such as normal everyday citizens whose presence or absence influence the incidence of crime. However, this dissertation does not focus upon the guardianship concept directly. Instead it emphasizes the length of time victims were exposed to potential offenders regardless of whether a capable guardian was present or not. The guardianship concept is discussed in the final chapter when referring to the results of this dissertation and avenues for future research (see Chapter 9).

An easy way to think about the fluid nature of criminal opportunities is the problem analysis triangle (see Figure 1-1) (Clarke and Eck, 1995); while not specifically drawn in

their original work this triangle is attributed to the routine activity approach (Cohen and

Felson, 1979). In the center of the triangle is a criminal event; this could be violent or

non-violent. Each side of the triangle represents one of the three elements necessary for a

criminal event to happen: (1) a likely offender, (2) a potential crime target or victim and

(3) a place where these can converge. For now, assume there is no guardian to prevent

the crime so every time the elements meet a crime occurs. However, if one of these

elements is missing, a crime does not occur. For example, a convenience store usually

has two of the three elements, a place and a potential victim. Until an armed robber

enters the store, the victim and offender have not converged in time and space and there

is no crime. Conversely, if a clerk sees the robber getting out of his car and locks the

store door, they again fail to meet in time and space meaning there is no criminal event.

"This is why criminology is partly a physical science, explaining how bodies move, how

they mix, and how their mixtures produce reactions, even explosions not possible when

separate" (Felson, 1987).

Compare the crime triangle to one commonly used to describe the necessary elements of

a fire. Much like a crime, a fire requires three things: (1) oxygen, (2) fuel and (3) an

ignition source. Imagine a man trying to light his cigarette with a Zippo lighter but

cannot because there is no flame. This means one of the three elements is missing.

Assuming oxygen is present because the man is breathing, three other options are

possible: (1) the lighter has no fuel, (2) the flint stick is missing or (3) there is no flint or

fuel. Knowing which elements of a fire are missing and which are present helps the

smoker solve his problem. For criminologists, the situation is a more difficult. As noted

above, the routine activity approach places emphasis on the absence of capable guardians during a criminal event. In other words, even if the three basic elements of a crime are present, outside forces may prevent a crime from occurring.

From the psychological standpoint, changing the number of people present at a certain place alters what Barker has described as a behavior setting (1965). Behavior settings are the physical and social environments that host a specific type of activity such as school or drinking. According to Barker's work, a behavior setting alters the social interactions of those within it. An easy example to discuss is a classroom with 25 students and one teacher where the students are taking an exam; the deviant action to consider is cheating. Assuming the school is well maintained and not overcrowded, the physical environment of this behavior setting is conducive to students taking their exam without cheating. However, the behavior setting can change rapidly as people enter or exit the room. For example if the teacher leaves, the lack of an authority figure makes cheating easier to accomplish without fear of sanction. At another level, adding students into the classroom who cheat regularly will also alter the behavior setting and perhaps increase cheating amongst these students and others especially if the teacher steps out for a minute. In short, behavior settings are a combination of social and physical factors that alter the psychology of those who are present and influence their actions. With regard to victimization, this means some activities may be more conducive to violence because they not only create criminal opportunities but also provide a behavior setting that may be more accepting of violent outbursts. For example, the concentration of assaults at specific bars within a city could be the result of clientele, management and the physical

structures providing a behavior setting in these locations that encourages or accepts violence. Because this dissertation is a national-level analysis, operationalizing Barker's behavior setting concepts is not possible because specific data about locations and the persons present during an attack is not available. Instead, Barker's idea has been included in this discussion to point out that psychologists and criminologists alike have emphasized the need to understand the activities of individuals when attempting to explain their actions whether it be offending or becoming a victim. The idea of behavior settings also implies that people can prevent crime with their presence; this is conversant with the routine activity approach (Cohen and Felson, 1979).

People who prevent crime even when victims and offenders have converged in time and space can be thought of as crime suppressors or crime controllers (Sherman, 1995). Over the years, a crime suppressor has been identified for each side of the crime triangle. *Guardians* appeared in the original formulation of the routine activity approach as suppressors that protect a victim or target (Cohen and Felson, 1979). Felson (1986) later identified *handlers* as persons who have a strong connection to potential offenders who are capable of preventing them from committing a crime. *Place managers* were proposed by Eck (1994) as people who prevent crimes from happening at a specific place. In short, guardians protect victims, handlers control offenders and place mangers regulate places.

Figure 1-1
The Problem Analysis Triangle

Crime Triangle

Crime Suppression Triangle
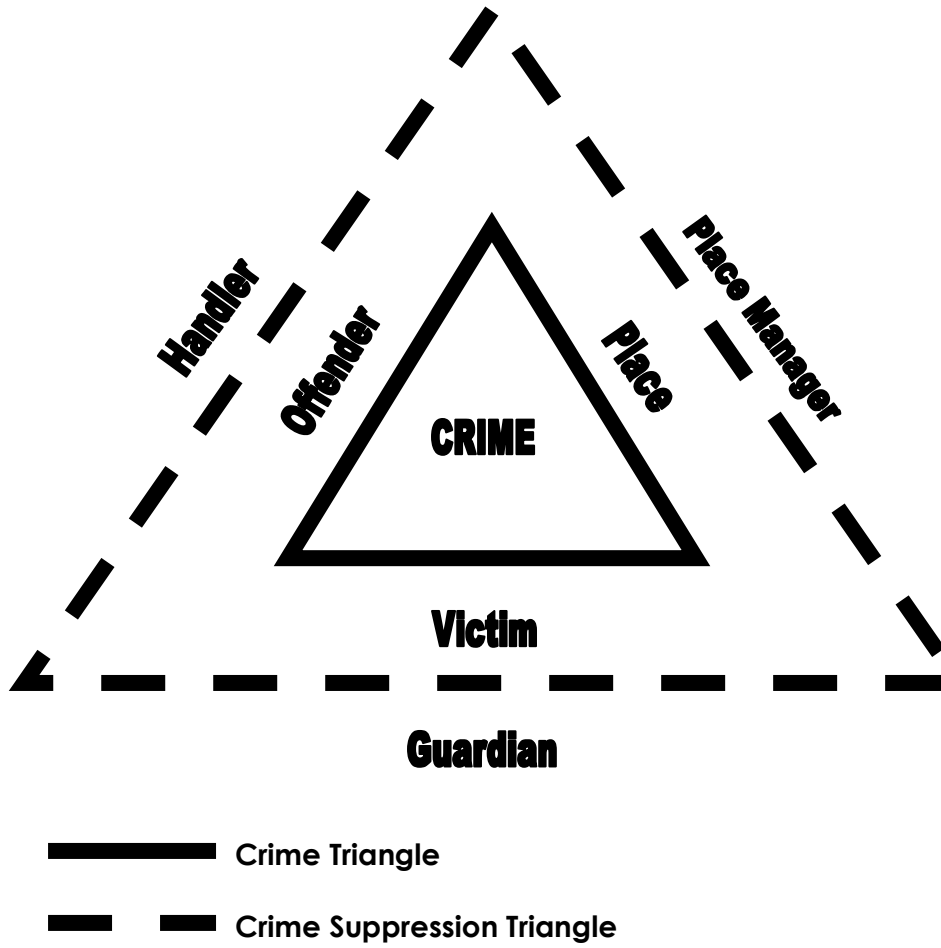
The role of place managers in preventing crime may have entered the criminological literature recently, but the idea of citizens and owners protecting property is not new to the urban planning literature. Jacobs (1961) noted:

> … storekeepers and other small businessmen are typically strong proponents of peace and order themselves; they hate broken windows and holdups; they hate having customers made nervous about safety. They are great street watchers and sidewalk guardians if present in sufficient numbers (pg. 37).

A central hypothesis of the routine activity approach argues increased activity away from home creates more criminal opportunities and generates higher crime rates (Cohen and Felson, 1979). For non-violent crime, one example used was the increase in burglaries within the United States as more women entered the workforce. By leaving their homes unattended during the day, families had created numerous criminal opportunities for burglars that did not exist when only one person worked. This is because unoccupied houses have no guardians or place managers making them better targets. Although this dissertation does not study the micro-level variations of crime risk within a city, these background ideas are very relevant for studying how the activity patterns of daily life influence exposure to the risk of a violent crime victimization. Certain activity patterns are in general much more risky than others, as we shall see.

With regard to violent crime, more time away from home means a greater likelihood of coming into contact with other persons, some of whom may be strangers or offenders. Being amongst strangers is important because anonymity may limit guardianship and informal social control (Wirth, 1938; Roncek, 1981; Roncek and Maier, 1991). In other words, if crime prevention requires one citizen to stand up for the other, those who do not

know one another may be less likely to intervene. Consider the situation of an elderly woman being mugged. Would you be more likely to intervene if she were your grandmother as opposed to a stranger?

Another good example of the effect anonymity has on potential guardians and handlers comes from an experience recorded in New York City by Jane Jacobs (1961):

> Nobody dared to stop them. These were anonymous children, and the identities behind them were an unknown. What if you scolded or stopped them? Who would back you up over there in the blind-eyed Turf? Would you get, instead, revenge? Better to keep out of it (pg. 57).

To summarize, Cohen and Felson's (1979) routine activity approach argues the movement of people in time and space is dictated by everyday activities. These movements cause victims and offenders to converge at specific places thereby creating criminal opportunities. According to the approach, when crime suppressors are absent, these meetings result in predictable spatial and temporal crime patterns. For the purposes of this dissertation, the approach is applied by determining the types of place where violence occurs and the activities victims were engaged in at the time of their attack. Determining where violence is concentrated in space and its prevalence in various activities will aid criminological theory development and crime prevention practices. Perhaps the greatest area of ignorance is not about which activities are risky but rather *how much greater* that risk really is. The current dissertation provides new calculations addressing such risk variations. In so doing, it takes advantage of a number of convergent and conversant theories.

The Lifestyle Perspective

In 1978, Hidelang, Gottfredson and Garofalo proposed a theory of personal victimization based on the lifestyles of individuals. "Briefly, lifestyle refers to routine daily activities, both vocational activities (work, school, keeping house, etc.) and leisure activities" (Hindelang et al., 1978: pg. 241). Much like the routine activity approach, the lifestyle perspective placed emphasis on the link between an individual's everyday activities and their exposure to risk. "The basic premise underlying the lifestyle-exposure theory is that demographic differences in the likelihood of victimization are attributed to differences in lifestyles" (Miethe and Meier, 1994: pg. 32). Although both the routine activity and lifestyle studies were carried out simultaneously, the latter work appeared in print in 1978, while the former appeared in 1979; over the years Cohen and Felson (1979) have received far more attention than Hindelang, Gottfredson and Garafolo (1978)[2].

The lifestyle perspective was formulated after Hindelang and colleagues analyzed victim surveys from 8 cities in the United States. In total, approximately 22,000 interviews were reviewed. The victimizations examined were assaults, sexual assaults, robbery, and pick pocketing; attempts and completed crimes were included. These crime types were grouped as personal crimes. The risk of victimization was determined by calculating the percentage of a population that reported being victimized and/or using a population-based rate. Population-based rates were reported as the number of victimizations per 1,000 persons.

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[2] This additional attention might have resulted from the fact that Cohen and Felson (1979) explicitly linked crime rate trends to lifestyle changes.

According to the authors, when the study began they "…expected to find substantial variation from city to city in personal characteristics associated with the risks of criminal victimization and in characteristics of criminal incidents" (Hindelang et al.,1978: pg. 3). The data showed absolute levels of victimization differed from one city to the next; however the demographic variables associated with the risk of victimization were similar for all 8 cities. The basic conclusions they reached were: (1) young people were victimized at a higher rate, (2) single persons had higher victimization rates than married persons, (3) males had higher victimization rates than females, and (4) victimization rates decreased as income increased. These generalizations parallel those underlying the routine activity approach.

Because demographic variables associated with personal victimizations were stable across the cities, the authors believed the "lifestyles" of individuals could explain why some groups have higher victimization rates than others. In essence, the perspective argues being in public places, interacting with strangers, and interacting with those who harbor offender characteristics all expose individuals to a higher risk of personal victimization (Hindelang et al., 1978). According to the authors, certain lifestyles increase the amount of time spent in these environments and with these people; others minimize a person's exposure to risk. The following paragraph expresses this logic.

> For example, as children mature from infancy through adolescence, they spend a decreasing proportion of their time with family members. In early adulthood, individuals begin to marry and raise families and, consequently, spend an increasing proportion of time with their family of procreation. Because childrearing responsibilities fall disproportionately on women, the result is that, among those who are married, females spend a greater proportion of their time with family members than do males. Also, as noted in our introductory

discussion of lifestyle, as the retirement years approach, contacts outside of the
home, and beyond a narrowing circle of close friends and family members,
generally decrease. (Hindelang, et al., 1978: pgs. 259-260)

The lifestyle perspective was the first published criminological attempt to link

victimization with the routine activities of individuals.[3] Despite data limitations, the

authors made a strong case that what people do, who they do it with and where they do it

is directly related to their risk of a personal victimization. The routine activity approach

(Cohen and Felson, 1979) was published shortly thereafter and complemented many

tenets of the lifestyle perspective. For the purposes of this dissertation, the routine

activity approach and lifestyle perspective are considered complementary and

synonymous.

Environmental Criminology

The majority of the theoretical framework discussed thus far has focused on how routine

activities influence the risk of victimization. Cohen and Cantor (1980) pointed out that

routine activity patterns create opportunities for crime because they dictate the spatial and

temporal movements of a population. In other words, these patterns concentrate people

in time and space in a predictable manner and crime arises from the increased exposure to

others and their property. Spatial organization is a concept of the routine activity theory

that is easy to operationalize. "The fourth dimension of crime is place, a discrete location

in time and space at which the other three dimensions [a law, a target and an offender]

intersect and a criminal event occurs. Environmental criminologists begin their study of

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[3] However, there were precursors that hinted at the link between lifestyles and crime in the work of
Colquhoun (1800), Hawley (1950), Tobias (1967), and Gould (1969).

crime by asking questions about when and where crimes occur" (Brantingham and Brantingham, 1981: pg. 8).

Environmental criminology describes the role of places in explaining the presence or absence of criminal events (Eck and Weisburd, 1995). "Given Cohen and Felson's emphasis on the spatial and temporal ecology of crime, the most appropriate unit of analysis for the routine activity approach would seem to be places" (Sherman et al., 1989: pg. 31). Although environmental criminology most often studies micro-level variations, it is a mistake to think the approach is limited to that. Indeed, the original Patterns in Crime book by Brantingham and Brantingham (1984) distinguished micro-, meso-, and macro- analysis, all of these considering environmental factors. Accordingly the routine activity approach considered crime variations at various levels of analysis. The current dissertation focuses on national calculations of localized activities and exposures to risk which is very conversant with the mindset of environmental criminology.

Environmental criminology is used in this theoretical framework to reemphasize the need to consider the spatial aspects of crime, even if these are aggregated to a national level. The routine activity and lifestyle approaches linked the activities of individuals to their risk of a criminal attack. The underlying assumption in these theories is that different activities occur in different places. By adding environmental criminology to the framework, activities and places can be considered separately when determining the risk of violence. In other words, the dissertation views victimization from two angles: (1) how dangerous certain activities are and (2) how dangerous certain types of places are.

The next section describes the central concepts of the theoretical framework and discusses how they will be operationalized to answer the research questions of this dissertation.

Central Concepts of the Theoretical Framework

Theoretical concepts are the central tenets of any attempt to explain crime, deviance or victimization. Concepts are operationalized and measured to examine the explanatory power of a theory. The theoretical framework used in this dissertation employs three theories that have a total of five concepts; four concepts from the lifestyle approach and one from environmental criminology. The four central concepts of the routine activity or lifestyle approach are: (a) exposure to risk, (b) guardianship, (c) target attractiveness and (d) proximity to crime. The central concept of environmental criminology is place. In total, the theoretical framework of this dissertation has five concepts that could be operationalized. Because the purpose of this study is to describe the risk of violence in different activities an types of place, two of these concepts, exposure to risk and place, are more important than others. The guardianship, target attractiveness and proximity to crime concepts are not operationalized in this dissertation. While these concepts could be added at a later date for a more extensive analysis, the main focus of this work is to determine how exposure to risk is related to victimization. Thus this dissertation omits the other concepts without rejecting them or underscoring their importance. Instead, a major goal of the dissertation is to refine the measurement and operationalization of the exposure to risk concept in an attempt to give researchers a more accurate way of quantifying lifestyles numerically using data that was not available until recently. In the

past, criminologists attempting to operationalize the exposure to risk concept have suffered from data limitations (see Chapter 2). Therefore despite the fact that the current study does not operationalize some concepts of the routine activity approach, the method used to operationalize the exposure to risk concept represents a major refinement from previous attempts. As noted above, with more time, funding and data it would be possible to operationalize the other three routine activity concepts and use them to produce even an even better activity- and place-specific risk assessment for the American public. Adding more conceptual measures to the risk assessment is discussed in the future research suggestions of this dissertation (see Chapter 9).

When considering the importance of the exposure to risk concept for any study on the relative danger of activities and types of place it is important to remember that, "routine activities are assumed to increase or decrease the probability that individuals will be victimized because these activities make the victims or their property more suitable or accessible" (Massey, Krohn and Bonati, 1989: pg. 387). Put another way, "the basic thesis of the routine activity approach is that it is variation in the daily activities of individuals which will either increase or lessen the probability of the convergence of time and space of the three minimal components, which in turn creates the opportunity for many crimes to occur" (Cohen and Cantor, 1980: pg. 143). As the literature review on dangerous activities and places will show, the exposure to risk concept has been understudied due to data limitations. This warrants the current study as more could be learned about the link between exposure to risk and violent victimization. Chapter 2 discusses the limitations of previous attempts to operationalize the concept and describes

how exposure to risk can be measured using the person-hour to quantify the time Americans spend in various activities and types of place.

The concept of place is employed here to disaggregate violence by the locations where it occurs. Because a necessary condition of victimization is the convergence of victims and offenders in time and space, the location of crime is an easy concept to operationalize. As the next section will show, places can be described on the macro- or micro-level. This includes specific categories as GPS coordinates, street addresses, neighborhoods, cities and nations or general categories such at home, away from home, or in-transit. The current analysis explores the place concept by examining how violence is distributed across different types of place in America. The next section presents the problem statement and research questions addressed in this dissertation.

PROBLEM STATEMENT AND RESEARCH QUESTIONS

The theoretical framework of this dissertation suggests the routine activities of individuals are responsible for their exposure to risk. In essence, the theory implies that if it were possible to quantify the lifestyles of individuals this information could be used to predict who has the highest risk of becoming a victim. The theoretical framework also suggests that demographic variables are less important than routine activity patterns when describing the risk of victimization. Remember that according to the approach, lifestyles are a function of demographic characteristics. This is derived from the finding that the demographic characteristics of victims were similar in every city examined by Hindelang et al. (1978) which led the authors to conclude that some demographic groups are

engaged in more high risk activities than others. For example, the young have a higher risk of victimization not because of their age but because their lifestyles are different than the elderly. Thus if the risk of victimization is disaggregated along routine activity variables, people who participate in the same activity or visit the same type of place are exposed to similar levels of risk no matter their demographic makeup. To investigate the link between demographics, lifestyles and victimization it would be best to obtain data that collects this information from individuals simultaneously. *The problem is that American victimization surveys do not include information about the routine activity patterns of individuals and victimization surveys in other nations only collect limited information about the lifestyles of respondents.*

The problem statement above highlights the fact that criminologists, especially those in America, have had limited access to data that would enable them to explore the link between lifestyles and victimization. For example, if a survey such as the NCVS collected information about what Americans did in addition to their demographic makeup and victimization experience, it would be possible to determine (a) if routine activity patterns vary across demographic variables in the predicted direction and (b) how these patterns are related to victimization or the lack thereof. To overcome the limitations of American victimization data, this study combines two large, nationally representative datasets to quantify the routine activity patterns and victimization experiences of individuals in the United States. In doing this it will be possible to link exposure to risk and victimization for a number of activities and types of place. The research questions that will be answered using this data are:

1. How do lifestyles vary between demographic subgroups of the American population?

2. What is the risk of violence in different types of place?

3. What is the risk of violence in different everyday activities?

4. How does the risk of victimization in different activities and types of place vary between demographic subgroups of the American population?

By answering these questions this dissertation will add new and important information to the criminal justice literature. A major contribution will be the addition of lifestyle profiles for the American public. These profiles describe how Americans and demographic subgroups of the American population spend their time in different activities and types of place. The profiles are used in this dissertation to answer the other three research questions but can also be used in the future by other criminologists attempting to link lifestyles with some form of victimization. Thus answering the first research question is important to this dissertation but the utility of this information is not limited to the current study.

The second and third research questions are important because their answers will prove useful for applications well beyond the scope of this dissertation. Without divulging the results presented in later chapters, knowing the relative danger of activities and types of place is useful for criminologists, policy makers, urban planners and law enforcement. To date, there is a limited amount of literature that describes which activity or type of place is the most dangerous. Additionally, there is not much information about the relative danger of different activities and types of place compared to one another.

Knowing this information will better inform criminological theory because it will become

evident that some activities and types of place are much more dangerous than others

therefore explanations of victimization must address this issue. Public policy makers and

urban planners will benefit from this dissertation because the relative risk of activities

and types of place can be used while making funding decisions related to crime

prevention or during zoning hearings where producing a safe environment for citizens is

a major concern. Finally, law enforcement officials can use this information to determine

which areas of a city are likely to have high levels of victimization based on the activities

or types of place present and adjust staffing and patrols appropriately. In short, knowing

which activities and types of place are dangerous is useful information for academics and

practitioners.

The last research question is important because it will provide an answer as to whether or

not demographic variables are still important when describing the risk of violence in

different activities and types of place. For example, one portion of this dissertation will

determine if going to a bar is equally dangerous for men and women or if one sex is more

at risk than the other. Because the routine activity approach emphasizes the importance

of where people go and what they do much more than who they are, answering the fourth

research question will determine if this is a valid theoretical underpinning of the

approach. The answer to this question is also important for crime prevention measures

because if demographics do not have a substantial effect on the risk of violence in

different activities, this would suggest programs should target high risk activities instead

of high risk demographic groups. This is especially true if prevention measures define

high risk groups using victimization rates that are disaggregated by demographics alone neglecting the lifestyles of individuals within those groups. In summary, the fourth research question is important for untangling the relationship between risk, demographics and lifestyles.

The next section is an overview of the literature related to dangerous activities and types of place. The section is meant to describe how criminologists have attempted to answer research questions similar to those presented above. By reading the literature review it will become increasingly clear that the problem statement made in this dissertation is valid and needs to be addressed in some way. The limitations of previous research on topics related to this dissertation are pointed out in the next section as well as in Chapter 2.

DANGEROUS PLACES AND ACTIVITIES

The following is an overview of attempts to determine the relative danger of different activities and types of place. The section begins by providing operational definitions for the terms *activity* and *type of place*. The remaining subsections describe the literature on how dangerous different activities and types of place are. The studies included examine the role different types of place play in generating violence on-site and off. As the literature will show, it is important to determine if certain types of place produce violence in nearby areas. This is a major concern for urban planners and residents alike. To date, scant attention has been paid to the relative danger of activities and types of place. Three major limitations of the literature available are: (a) only a limited number of activity and

place categories are available (b) the studies rarely compare how dangerous one activity or type of place is compared to another and (c) all of the activity-specific data used in the analyses are at least 20 years old. This dissertation not only adds to the existing literature but provides the most complete picture of how the risk of violence varies across activities and types of place.

Defining Activities and Types of Place

Places are commonly referred to using macro- and micro-level terminology. When determining which places are the most dangerous, the question "How is place defined?" must be answered first. For example, a study could determine which city in America is the most dangerous or which bar in Newark, NJ is the most dangerous. Because this dissertation is a national-level analysis it is not possible link victimizations to a specific location. Instead the data can be used to describe the distribution of violence across different types of place that exist in America. T*ypes of place[4] are categories used to describe the physical environment, land use and/or purpose of an area; types of place can be operationalized broadly or specifically.* From this point forward, the term type of place refers to the definition above. The literature review will cover various types of place some of which will not be included in the analysis due to data limitations.

For the purposes of this study, places and activities are considered separate entities that can be analyzed independently or together. Common logic would agree that activities are

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[4] Type of place is similar in meaning and definition to the term "facility" (Felson, 1987; Clarke and Eck, 2007). The term facility is usually used to describe commercial and public locations with some form of organized management; it should not be used to describe a location such as the street or outdoors. This dissertation uses the term type of place to include a wider array of places.

not place dependent. For example, the activity of watching TV can be performed at
home, a friend's house, a bar, or in a college cafeteria. Similarly, leisure activity might
entail going to a movie theater, eating at a restaurant, tanning on the beach, or drinking at
a bar. In both cases, the same activity is performed at different places. This means
activities require a definition that is not place dependent. In this study, *an activity is
defined as a specific behavior or action.* This chapter and Chapter 2 both contain
numerous pieces of literature about the relative danger of participating in various
activities. The sections that follow describe the link, or lack thereof, between crime and
different activities and types of place.

Employment and Crime

This subsection is an overview of the link between employment and crime. Because the
dissertation takes a victim oriented approach this section will not discuss how
employment or unemployment affects offender motivation. Instead, the purpose of the
subsection is to discuss how employment affects the routine activities of individuals and
causes them to spend more or less time away from home, possibly in the company of
strangers. Working is a specific behavior or action that can be defined as an activity; the
workplace is a type of place. Determining the relative danger of working (an activity)
can be a different question than determining the relative danger of the workplace (a type
of place). Because of the similarity between this activity and type of place, it is easier to
just choose one or the other for analysis. In this dissertation, working will be examined
as an activity but the workplace will not be examined as a type of place. The rationale
for this is simple; because working occurs in various types of place it is better to use

more specific place categories instead of combining multiple types of place into the workplace category. Thus the place-specific rates of violence presented in Chapters 6 and 7 can be used to determine a person's risk at work based on the type of place this activity occurs in. This subsection summarizes previous studies that attempt to answer the question, "Is working dangerous?" Previous research has indicated workplace violence is on the rise in America (Flannery, 1996) and this is troubling as it can cause post-traumatic stress syndrome (PTSD) (Bariling, 1996). Even if violence is on the rise in America, it rarely takes the form of serious attacks; instead verbal threats and simple assaults are the most common forms of victimization (Barling, Dupré and Kelloway, 2009). As the literature will show numerous approaches have been used to describe how dangerous working is. One way to quantify the dangers of working is to compare victimization information from those who work to those who do not. Another way is to compare local crime rates to the number of workers in an area. Knowing how dangerous working is represents an intrinsically interesting question for workers, academics and practitioners alike as each of these groups is concerned with workplace safety; even those who do not work would be interested to know how dangerous this activity is especially if they have a spouse or significant other in the workforce.

Working vs. Not Working: Which is more dangerous?

In 1980, Cohen and Cantor tested one of the first activity-specific models of victimization. Using National Crime Survey (NCS) data from 1975-1976, they examined the effect employment had on the likelihood of experiencing a personal larceny. The authors predicted unemployed persons are more likely to be victimized because their

routine activities expose them to a greater number of potential offenders. In essence, looking for a job entails meeting strangers, visiting public places and spending time away from home. While those who go to work or school may visit public places and spend time away from home, the environment of their routine activities is much more structured and familiar. Additionally, the unemployed have more time for leisure activity which could involve drinking or drug use depending on the availability of disposable income.

In their study, participation in the activity working was trichotomized as: (1) employed, (2) unemployed and (3) keeping house (Cohen and Cantor, 1980). Keeping house refers to those who are not in the workforce because they are homemakers, retired, or unable to be employed due to a disability. The employed category includes students and those with full- or part-time jobs. Using a dichotomous dependent variable, victim or non-victim, log-linear analysis was used to determine if those who work are more likely to be victimized.

The log-linear analysis indicated being unemployed was more dangerous than working or keeping house; keeping house was the safest activity (Cohen and Cantor, 1980). In the model presented, age was the only variable able to predict victimization better than being unemployed. The relative safety of keeping house was attributed to the limited exposure these individuals have to strangers and public places. In summary, Cohen and Cantor (1980) determined working was less dangerous than being unemployed. According to their research, those who keep house are the least likely be victimized followed by those with a job. The unemployed have the greatest risk of suffering a personal larceny.

In 1981, Cohen, Kluegel and Land presented a new model of the link between

victimization and employment. This time, the crime types in question were assault,

burglary and personal larceny. Unlike Cohen and Cantor's model (1980), this refinement

paired employment status with other demographic information such as marital status and

having children. Seven categories were used as independent variables:

1. Not married, employed

2. Not married, unemployed

3. Not married, not in labor force

4. Married, both working, no children

5. Married, both working, with children

6. Married, head of household working

7. Married, head of household unemployed.

Log-linear analysis was used to determine how these categories were related to the

dichotomous dependent variable, victim or non-victim. The results indicate that for all

three types of crime, married persons were less likely than their single counterparts to be

the victim of a crime (Cohen et al., 1981). The only exception was married people living

with an unemployed household head. Unmarried, unemployed persons had the greatest

risk of victimization and were much more likely than unmarried, employed people to be

victimized; this category had the largest effect size of any variable for predicting every

type of victimization. Even demographics such as income, age and race were less

powerful predictors than the employment categories. This model reemphasized the fact

that working is less dangerous than being unemployed. The data confirmed this finding for personal larceny and extended it to burglary and assault. Additionally, because the marital status of individuals was included in the model, it was possible to determine that unemployment appears to counteract the increased guardianship of marriage. In general, working or keeping house are much safer activities than being unemployed.

In summary, the findings of these two studies indicate that working is a safer activity than being unemployed; keeping house is the safer than both of these activities. The limitations of both pieces of work are: (1) these studies did not compare the dangers of working to other activities such as going out for leisure or attending school, (2) these studies did not quantify exposure to risk using anything other than a trichotomous categorical variable that says nothing about the actual amount of time spent at work and (3) these studies did not disaggregate risk by occupation. It is important to point out these limitations because this dissertation hopes to overcome some of them. For example, the categories used to quantify exposure to risk are rough estimates of lifestyles whereas this dissertation will quantify exposure to risk using an actual measure of time known as the person-hour (see Chapter 2). The dissertation will also compare the risk of working to the risk of other activities such as the commute to and from work. Because the current studies do not disaggregate victimization by activity, the conclusion that working is safer than being unemployed says nothing about whether the victimizations experienced occurred during work or during the search for work meaning little can be said about how dangerous working really is. While this dissertation will not disaggregate the risk of violence at work by occupation, previous research has shown that

some occupations are much more dangerous than others indicating that there is variation in risk even within the single activity category of working (Block, Felson and Block, 1985; Lynch, 1987). The next subsection explores how dangerous working is by comparing local crime rates to the number of females in the workforce.

Females in the Workforce: Does it produce more crime?

The original formulation of the routine activity approach suggested an increase in American predatory crime was related to more females taking jobs away from home (Cohen and Felson, 1979). Knowing that offenders must converge in time and space, more women working away from home means a greater likelihood of them meeting motivated offenders. A higher percentage of working women also means homes are more likely to be unattended during the day. By this logic, cities with more females in the workforce should see more crime because of an increase in criminal opportunities. In 1991, Miethe, Hughes and McDowall set out to explain the average homicide, robbery and burglary rates 584 cities in the United States; the time period in question was 1960-1980. One explanatory variable used was the percent of females participating in workforce. Their analysis indicated higher levels of female labor-force participation decreased the rates of homicide and burglary in a city but had no effect on robbery; these findings contradict the routine activity approach. In short, more females in the workforce did not mean more crime during the thirty year study period. The current study will expand upon this work by comparing the risk of violence for men and women while working and during the commute to and from work. The next subsection describes Lynch's (1987) domain-specific approach to understanding violence in the workplace.

The Work "Domain": Does What You Do at Work Matter?

In 1987, Lynch introduced the idea of "domain-specific" models of victimization. "This

approach divides both victimization and life activities into 'domains' that are defined by

place and activity" (pg. 285)[5]. In essence, Lynch's model combines the lifestyle and

routine activity approaches with environmental criminology. He argued, "tests of activity

theory are limited both by the internal heterogeneity of crime classes and by the

imprecise measurement of routine activity concepts" (pg. 284). Internal heterogeneity

refers to the notion that within a certain type of crime such as assault, there is a great deal

of situational variation. For example, victimizations occurring at bars between strangers

are considered equal to victimizations occurring at home between intimates. The

domain-specific approach attempts to overcome this problem by dividing victimizations

up according to what victims were doing and where they were doing it.

According to Lynch, "life activity and victimization can be grouped into four domains

including 'at work,' 'at school,' 'at home,' and 'at leisure' (out of the home)" (1987: pg.

285). He believed dividing victimizations into these categories would reduce

heterogeneity because the domain would restrict events to particular places such as

residential homes or workplaces. This would hypothetically lead to better theories of

victimizations because the structural contexts of each domain would be similar. For

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[5] Domains are similar to Barker's (1965) idea of behavior settings however Lynch (1987) does not place as
much emphasis on how domains alter the psychology of individuals. Instead, Lynch is trying to point out
that by dividing victimization into domains, it would be easier to write criminological theory for specific
settings. In essence, Lynch's domain-specific does not reject the idea of behavior settings or create
something better, it merely points out the fact that different domains create different opportunities for crime
at a broad level. Remember that Barker's behavior setting approach emphasizes very specific elements of a
setting while Lynch is less concerned with these. To Lynch, dividing victimizations up into domains is
already a major refinement of any victim-oriented approach.

example, creating a theory of assaults in the leisure domain might be easier than creating one for assaults in general. Lynch chose to analyze the work domain.

The results of Lynch's (1987) analysis were very supportive of the routine activity approach. The most important finding was that in the work domain, age had no effect on the risk of victimization. Race and sex also failed to be significantly related to a higher likelihood of victimization. The activity variables had the greatest explanatory power for victimization in the work domain.

> This analysis tells us many useful things about the risk of victimization at work, beyond a simple taxonomy of risky and safe occupations. What you do at work affects your chances of being victimized while at work. If your employment involves face-to-face contact with large numbers of persons on a routine basis, your risk of victimization is greater than those who are less accessible to the public. If you handle money as part of your job, you are at greater risk than people who do not. Jobs that involve more than a single work site or routine travel (local and extralocal) expose those who occupy these roles to a greater risk of victimization than persons working at a single location. People whose occupation involves all of these features—public accessibility, mobility, and handling money—run the greatest risk of victimization. (Lynch, 1987; pg. 295)

Lynch's work emphasizes the importance of place when explaining victimization. His use of a domain-specific approach to victimization is interesting and represents a novel way of analyzing victimization data. The key finding of his study is that the risk of victimization at work varies by job description and place. Block, Felson and Block (1985) came to a similar conclusion after calculating victimization rates for 246 occupations. Their analysis found a wide range of victimization risk for people of different occupations. These findings indicate that even within the activity category of work, there are substantial differences in risk depending on a person's occupation and the location of their workplace.

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Summary

Working has been studied by criminologists to determine if it is a dangerous or safe activity. The results show that working is safer than being unemployed (Cohen and Cantor, 1980; Cohen et al., 1981) and that victimization is related to how much risk individuals are exposed to at work (Lynch, 1987; Wooldredge et al., 1992). Unfortunately, no work has been performed to determine how dangerous work is when compared to other activities. For example, it is unknown if working is more dangerous than attending school or being at home. The results of this study address the issue by reporting rates of violence at work compared to rates of violence in other activities.

Schools and Crime

Violence at School

Violence at schools in America is of concern to those who frequent them and those who have children in school. In recent years school shootings in America have received a great deal of media attention which portrayed schools as being increasingly violent; in reality, violence has been decreasing since 1992 (Esbensen, 2008). This is an example of Felson's (2002) dramatic fallacy which argues the media's portrayal of crime tends to be vastly different than the actual crime problem. A similar situation during the 1970's led Congress to commission a study on school crime. The final report *Violent Schools—Safe Schools* (National Institute of Education, 1978) provided criminologists with a wealth of information about school crime.

Numerous studies of this dataset have produced findings contrary to the idea that schools are dangerous places. Of main importance, most students and teachers are never victimized while at school; less than 2% of students interviewed were assaulted (Toby, 1980; Gottfredson and Gottfredson, 1985; Verdugo, 1999). Victims reported that most crime at schools is non-violent; violent offenses are rare and usually minor (Esbensen, 2008). The NIE study also indicated junior high school students are much more likely to be victimized than their high school counterpart (Gottfredson and Gottfredson, 1985). In short, schools are relatively safe places for students and teachers.

Studies of the effect schools have on the surrounding area indicate they may be creating crime problems. One researcher even described schools as crime generators (Roman, 2002). High schools (Roncek and Lobosco, 1983; Roncek and Faggiani, 1985) and elementary schools (Kautt and Roncek, 2007) have been shown to increase crime in the blocks harboring them as well as those adjacent to them; the increase is usually linked to property offenses. This spillover effect may be caused by students on their way to and from school.

There is a lack of research on crime that occurs during the commute to and from schools (Kautt and Roncek, 2007; Esbensen, 2008). The NIE study neglected this issue entirely focusing only on victimizations that occurred on school grounds. When Garofalo, Siegel and Laub (1987) examined the percent of robberies, aggravated assaults and simple assaults the occurred during the commute to and from vs. those on school property, a higher proportion occurred while students were in transit than while they were on school

grounds or in a school building. One study found this commute to be more dangerous in disorderly settings and through blocks that are resource deprived (Roman, 2002). The commute to and from school is a distinct activity from attending school that takes place in numerous locations. This differs from school where all schoolchildren are concentrated in a well defined area. Going to and from school on the other hand may involve walking on the street, riding a school bus, taking public transportation or getting a ride from a parent or friend. Because the route to and from school will vary between children, so will the levels of guardianship they are exposed to. For example, walking to school alone provides much less guardianship than getting a ride in a personal automobile from a parent. In short, there is a need to explore the commute to and from school in greater detail as this is a required activity of all students that may be exposing them to higher levels of risk. This dissertation adds to the criminological literature by determining the relative risk of going to and from school to other everyday activities Americans engage in.

The victimization of university professors

Using Lynch's (1987) domain-specific approach, Wooldredge et al. (1992) examined how exposure to risk is linked to the victimization of college faculty members. Exposure to risk was a measure of how often faculty members were on campus at night, walked alone and interacted with students. Log linear analysis indicated the exposure variables were better predictors of personal and property victimizations than demographics. In other words, the risk of victimization depended on what faculty members did, not their age, race or sex. This study lends strength to the routine activity approach and

demonstrates how limiting internal heterogeneity sheds light on the link between activities and victimization.

Leisure Away From Home: Different Activities and Places, Different Risks

What individuals do in their free time is usually referred to as leisure activity. This broad category encompasses such things as reading books, watching TV, drinking and eating. Compared to other activities, leisure activity is less structured and represents a broad category of behaviors that occur in a number of places. Because criminologists are concerned with how activities expose individuals to risk, the danger of leisure activity away from home has been examined numerous times. The routine activity approach argues this activity can produce crime by concentrating victims and offenders in time and space. The theory also holds that leisure activity away from home at night should be one of the most dangerous activities. This section is an overview of the link between leisure activity and victimization. Much like the literature on working, the studies below do not compare the relative safety of one activity to another. Instead, they test the hypothesis that people who engage in more leisure activity away from home will experience more victimization.

Watching TV vs. Entertainment Away from Home

Leisure activity is something that can be performed at home or away from home. Theory suggests that places hosting leisure activity away from home should have higher crime rates. In 1987, Messner and Blau used OLS regression to predict crime rates in the 124 largest Standard Metropolitan Statistical Areas (SMSAs) of America. The offenses in

question were: criminal homicide, forcible rape, robbery aggravated assault, burglary,
larceny and auto theft. The authors examined the effects of two types of leisure activity,
watching TV at home and entertainment away from home.

Hypothetically, cities with a large population of people watching TV should have lower
crime rates because citizens are exposed to less risk while at home. Conversely, cities
with lots of eating and drinking establishments invite people to engage in leisure away
from home and thereby increase the number of criminal opportunities available. To test
these hypotheses, the authors quantified exposure to risk as: (1) the proportion of
households watching television at any given time and (2) the number of entertainment
establishments per 100,000 residents (i.e. theaters, sports establishments, etc) (Messner
and Blau, 1987).

The results of their study showed adding exposure variables to the OLS regression model
with demographics alone increased the amount of variance explained by approximately
10% for rape, robbery, burglary and larceny (Messner and Blau, 1987). The other crimes
examined saw increases in the R^2 value that were not as large. For all of the crimes,
except homicide, more people watching TV meant significantly less crime. For every
crime except auto theft, more opportunities to engage in leisure activity away from home
meant a significantly greater amount of crime. These findings are highly supportive of
the routine activity approach. In essence, the crime rate of a city is easier to explain
when you have information about the routine activities of individuals who live there.

A similar approach was used by Miethe, et. al (1991) to explain crime rates in 584 cities in the United States. The amount of leisure activity away from home occurring in each city was measured by the average sales of eating and drinking establishments per resident. It was assumed that higher sales meant residents were being exposed to risk more often. According to their results, retail sales were only significantly related to increases in the burglary rate. This agrees with the routine activity approach as higher sales should indicate more time spent away from home. However, this variable should also increase the residents' exposure to risk and thereby increase rates of robbery and homicide. In summary, the conflicting results of these studies may be due to unreliable estimates of leisure activity. The proxy measures used were macro-level indicators that do not explain the behavior of individuals. The next section gives examples of how the behavior of individuals is related to their risk of victimization in the United States, Britain and Canada.

Being away from home: how dangerous is it?

One of the first examinations of the link between leisure activity and victimization that did not use proxy measures of exposure was performed by Michael Gottfredson (1984) using data from the British Crime Survey (BCS). Unlike other crime surveys at the time, the BCS collected information about the routine activities of victims. When examining the link between exposure and personal victimization, Gottfredson focused on the questions concerning "respondents' out-of-the-home activities during the daytime and evening" (pg. 9). Exposure was determined by frequencies, not time-use. For example, weekend nights out was categorized as: none, one or two. The measure of exposure to

risk in this study is more precise than the proxies presented above. However, like proxies, the problem with frequencies is their inability to quantify the time spent in a specific activity.

Using descriptive statistics and the unweighted incidence of crime reported by respondents, Gottfredson (1984) found that going out at night, especially on the weekend, increased the likelihood of a personal victimization; those who went out 3 or more nights a week were twice as likely to be victimized as those who never went out. A similar pattern was found for those going out on the weekend. In general, those who went out on both Friday and Saturday night had a higher likelihood of victimization than those who stayed in or those who only went out one night. Leaving one's home during the day also exposed those surveyed to more risk. The most interesting finding here was that different modes of transportation to and from work exposed people to different levels of risk. The data "suggests that cars and walking are the least risky modes of going to work, and that public transport may be more risky" (pg. 13). Gottfredson concluded that exposure to risk plays an important role in predicting who will be victimized.

In the 1980s, BCS data was one of the few sources of information about victimization and the routine activities of victims. It was used numerous times in the late 1980s to address similar research questions to those posed by Gottfredson (1984). Clarke et al. (1985) focused on the elderly and addressed the notion that this group experiences much less victimization because they spend more time at home. Using the same frequency measure as Gottfredson, nights out per week, they found the elderly experienced lower

levels of victimization than young persons even if they spent numerous nights away from home. This would indicate the elderly are less exposed to risk while away from home than their younger counterparts.

Clarke and colleagues proposed two explanations for this finding. First, they pointed out that a major construct of the routine activity/lifestyle approach is exposure to those with offender characteristics meaning "the elderly may be protected from victimisation simply because they are less likely to come into regular contact with offenders than others" (Clarke et al., 1985: pg. 6). For example, even if the elderly are going out at night, they may be associating with people their own age rather than younger persons who are more likely to fall into the potential offender category. The second concept they used to explain this phenomenon was target attractiveness. They postulated that the elderly make less attractive targets because they are thought to be carrying less money and offenders may feel guilty about targeting defenseless old people. Both of these explanations could not be tested with the victimization data; this would require offender interviews and more detailed information about who the elderly spend their time with.

The majority of studies linking routine activities to victimization are focused on violent or personal crime. While the lifestyle perspective was formulated using victimization data about personal crimes, the routine activity approach attempted to explain how criminal opportunities are generated for all types of crime. In 1987, Hough used BCS data to examine the relationship between the routine activity approach and burglary. In this study, being away from home exposed the individual's property to risk.

Using data from 1982 and 1984, how often the home was left unoccupied was determined

using a BCS variable that asked respondents to estimate how many hours per week their

home was left empty during the day and at night (Hough, 1987). Hough categorized

these into a trichotomous variable: rarely empty, sometimes empty and often empty.

Demographic characteristics of the household such as income and urban status were also

included in his model. Hough's findings and conclusions all supported the routine

activity approach. In general, above-average income households were targeted more

frequently, inner city homes had higher rates of burglary and homes that were frequently

unoccupied were targeted more often.

In 1987, Sampson and Wooldredge also used BCS data from 1982 to examine the effect

of routine activity/lifestyle concepts on the risk of victimization. Exposure was measured

by the number of nights per week respondents went out and how many hours per week

their home was left empty. A log linear model was used to determine the likelihood that

respondents would be the victim of a personal larceny or household crime.

Their findings suggest that while lifestyle variables are associated with the risk of

victimization, demographics had a larger effect (Sampson and Wooldredge, 1987). The

authors did concede, "it may be the case simply that our measures and analyses were

either flawed or incomplete." (pg. 391) Their study also concluded that structural factors

of the neighborhood are important in understanding victimization risks. When

community variables such as the percent of single family households or percent of single

parent homes were added to the analyses these variables also had a significant effect on
victimization risks.

Sampson and Lauritsen (1990) were another team of researchers that used BCS data from
1982 and 1984 data to test the routine activity approach. Their analysis used
dichotomous demographic factors similar to Sampson and Wooldredge (1987)
controlling for age, gender, marital status and a college education. Exposure was
measured by the number of nights out per week (0-7) and the amount of alcohol
consumed in one week. Using maximum-likelihood logistic regression, they estimated
the probability that respondents would suffer a personal victimization (yes/no). Their
model also included information about self-reported offending in an attempt to determine
if deviant lifestyles are associated with victimization.

The findings indicate deviant lifestyles, whether violent offending or drinking, appear to
increase an individual's chance of victimization (Sampson and Lauritsen, 1990). The
number of nights one spends away from home was found to be significant in some of the
models; the effect size was much lower than the offending, demographic and proximity to
crime variables. The authors concluded offending, drinking, and proximity to crime were
all related to victimization risks and deserved more attention in future analyses of the
lifestyle approach.

In the United States, Miethe, Stafford and Long (1987) attempted to perform a similar
study to those using BCS data. In 1975, the National Crime Survey (NCS) administered

an attitude survey to approximately 50% of the households interviewed. The survey included two items that enabled researchers to create dichotomous exposure variables; the current study chose to use a combination of frequency measures and demographic proxies. The two variables of interest were the frequency of nighttime activity (more than or less than once a week) and the major activity respondents engaged in (employed/school or other). Using log linear regression, the authors examined the effects these variables had on the likelihood of a violent victimization (yes/no) or property victimization (yes/no).

For violence, only nighttime activity increased the risk of victimization; the major activity of an individual had no significant effect (Miethe et al., 1987). However, the effect of nighttime activity was still less than any of the demographic variables examined except income and race. Age and sex were the strongest predictors of victimization. Property crime showed a slightly different result with both nighttime and major activity associated with an increased risk of victimization.

Age and marital status were the only demographic variables that were stronger predictors than the exposure measures (Miethe et al., 1987). These findings lead Miethe and his colleagues to conclude that the routine activity approach is best suited for non-violent crime and cannot explain variations in violent victimization. They noted that "a definitive test of routine activities/lifestyle theories may require detailed data on the precise nature of time utilization (data that are not presently available), our measures of routine activities/lifestyles nonetheless reflect the quantity of activity outside the home,

the nature of that activity, and its relative risk" (pg. 187). In their discussion, they argued

even if these measures were available, the spontaneous and personal nature of violent

crime could not be explained by lifestyle variables.

Leisure activity in specific places

The British Crime Survey (BCS) data used above does not enable researchers to compare

the relative risk of leisure activity in different settings. Generally speaking, the frequency

measure of how many nights per week an individual goes out says nothing about where

they go. This section presents two studies that quantified where respondents went during

their leisure activity and used the information to determine the risk of leisure in different

places.

In 1993, Miethe and McDowall used data from Seattle, Washington to determine the risk

of violent victimization based on the routine activities of individuals. Exposure was

operationalized as a scale from 0-3 of how many "dangerous activities" the respondent

engaged in regularly. The three activities were: going to bars/nightclubs, visiting places

where teens hang out, and using public transit. These places represent settings that may

have more strangers, intoxicated persons and/or youth; in other words, where likely

offenders might spend their time. The results of their logistic regression model showed

that participating in these dangerous activities increased the probability of a violent

victimization. The effect of these variables was greater than either of the demographic

controls. The fact that lifestyle variables had an equal or greater effect than age or gender

emphasizes the link between routine activities and the risk of victimization. A

shortcoming of this work was an inability to compare the relative danger of the three

dangerous activities. By lumping all three activities into one category, the authors were

unable to determine which is the most dangerous.

Kennedy and Forde (1990) overcame this problem using Canadian victimization data

from 1984; the data included information about the daytime and nighttime activities of

respondents. In their analysis, eight nighttime activities were examined to see if one is

more dangerous than the other. The activities included were: sports; bar or pub; shopping;

movie, theater, or restaurant; meetings or bingo; work or class; visit friends; and walk or

drive. Note that some of these categories could be considered a type of place; bar is a

type of place not an activity. In any case, the crime types in question were breaking and

entering, vehicle theft, robbery and assault. Exposure was measured by having

respondents indicate how many times per month they engaged in each nighttime activity.

Exposure to risk as a result of daytime activities was coded using a common demographic

proxy; students and workers were placed in one group and everyone else in the other

category. Victimization was dichotomized as yes/no and logistic regression was used to

determine how each variable affected the probability of becoming a victim (Kennedy and

Forde, 1990).

The effects of routine activities on victimization risk were slightly different for the two

non-violent crimes examined. For breaking and entering, all of the nighttime activities

except visiting friends, shopping and playing bingo increased the odds of victimization

(Kennedy and Forde, 1990). Daytime activity also increased the likelihood of being the

victim of a breaking and entering offense. The exposure variables were better predictors of victimization than the demographic variables; only age and marital status reached significance and had smaller effects than the nighttime and daytime exposure variables. Conversely, only one activity, working or attending class at night, was shown to increase the risk of auto theft. For both non-violent crimes, adding lifestyle variables to the model increased the variance explained by 12-19%. These results give support to the routine activity/lifestyle approach.

The two violent crime models also showed improvement when exposure variables were added (Kennedy and Forde, 1990). The assault model was improved by 26% when nighttime and daytime exposure was considered. Going to bars at night was the strongest predictor of becoming an assault victim. Working and walking at night were also positively related to the risk of victimization. Daytime exposure did not have a significant effect. Marital status and sex were stronger predictors than this exposure variable. Age and family income were also significant, but their effect was less than that of going to bars or work. A similar result was obtained from the robbery model; going to bars or for a walk had a strong effect on the risk of victimization. These effects outweighed the effects of age and family income but were not stronger than the role of sex and marital status. Daytime exposure did not have an effect on the likelihood of becoming a robbery victim. The model was improved by 9% when the exposure variables were added. These results indicate certain nighttime activities expose individuals to much higher levels of risk than others. They also indicate nighttime exposure is more risky than daytime exposure. Kennedy and Forde's (1990) work is an

excellent example of an activity- and place-specific analysis. Their results show the

utility of disaggregating risk using routine activity concepts to better explain and predict

victimization patterns.

Bar Violence

The results presented above suggest bars are one of the most dangerous types of place to

visit. Bars are distinctly different because the sale and consumption of alcohol is the

purpose of these locations. This means individuals are being concentrated in a location

that: (a) can decrease the inhibitions of those who are there, (b) may attract individuals

who seek immediate gratification or harbor other offender characteristics, and (c) may

make victims easier targets because they are inebriated. Studies indicate bars produce

violent incidents on-site and can also have a spillover effect on the surrounding streets

and neighborhoods (Roncek and Bell, 1981; Roncek and Maier, 1991; Levi, 1997;

Murray and Roncek, 2008). Nelson et al. (2001) were able to show the temporal aspects

of bar operating hours and violence on nearby streets (Nelson et al., 2001).

In Milwaukee, Sherman et al. (1992) found that violence was not only concentrated near

taverns but that it was concentrated in a small proportion of taverns. A longitudinal

analysis of homicides from 1980-1989 found that 12% were tavern related. This is an

overrepresentation considering only 0.65% of addresses in the city were assigned to this

type of place.   Other forms of violence also showed an affinity for the tavern setting.

When the taverns of Milwaukee were considered individually, most saw little or no

violence at all. In fact, approximately 15% of the taverns routinely accounted for more

than 50% of the tavern crime. This suggests just because some bars are dangerous does not mean all bars are dangerous.

Contrary to the Milwaukee study, other pieces of research have failed to find a link between the location or presence of bars and the concentration of crime in a city (Block and Block, 1995; Gorman et al., 2005). In Chicago, Block and Block "found that concentrations of liquor establishments should not be used as a surrogate measure for crimes occurring in liquor establishments or for a high level of criminal incidents in the surrounding area" (1995: pg 172). Gorman's research group found that when compared to the density of drug crimes in Houston, the density of liquor establishments is a weaker predictor of violence.

In any case, the relationship between bars and violence is of interest to criminologists, urban planners and policy makers. These studies shed some light on the issue but are limited because they do not compare bars to other types of place. If bars are going to be labeled dangerous, they should be compared to other types of place to gauge how risky they really are. Going a step further, attempts to quantify the relative danger of bars should account for the amount of time patrons spend at each type of place. Hour-for-hour, bars could be one hundred times more dangerous than a school; they also could be 100 times less dangerous. The fact is, this information is not currently available and represents an interesting avenue of research.

Summary

A variety of studies from different nations have shown a link between leisure activity away from home and an increased risk of victimization (Gottfredson, 1984; Hough, 1987; Kennedy and Forde, 1990; Miethe and McDowall, 1993). This section has shown that criminologists quantify leisure activity in a number of ways including proxies such as the number of or sales from entertainment establishments (Messner and Blau, 1987; Miethe et al., 1991) or frequency measures such as the number of nights per week a respondent is away from home (Gottfredson, 1984; Clarke, et al., 1985). Using frequency measures, some researchers have failed to find a link between leisure activity away from home and victimization (Sampson and Wooldredge, 1987; Miethe et al., 1987). These studies showed demographic variables were more important than lifestyle variables associated with exposure to risk.

This apparent contradiction may be the result of imprecise measurements of the exposure to risk concept. For example, knowing how many nights a person is away from home says little about where they went or how long they were gone. Without this information, the models above assume everybody visits the same places for equal amounts of time. The only exception is Kennedy and Forde's (1990) model that compared the relative safety of leisure activity performed in different locations. Thus there are two major problems with the criminological literature on leisure activity: (1) information about how risk varies for leisure activity in different places is extremely limited and (2) researchers have yet to devise a precise measure of the exposure to risk concept. This dissertation solves both problems by producing risk estimates for leisure activity in different settings and quantifying exposure with a measure of time instead of a frequency or proxy.

Victimization While In-Transit

In this dissertation, a major aspect to be examined is the risk of violence Americans face while they are in-transit. In other words, rather than only look at the risk of violence in specific types of place and activities this study also examines the risk of violence between destinations. Research on crime risk related to local travel is most likely to cover particular topics. For example, in Los Angeles it was found that most crime occurred at bus stops rather than on the bus itself and that these offenses were concentrated in time and space (Loukaitou-Sideris, 1999). The author attributed this to poorly designed bus stops that provided a number of criminal opportunities. Another factor that may result in lower levels of crime on a bus is the presence of guardians such as a driver and other passengers. When crime on Los Angeles's Green Line, a light rail system, was examined similar findings were had. In general, the stations and platforms were more dangerous than the vehicles themselves (Loukaitou-Sideris, Liggett and Iseki, 2002). This research also found that the routes to and from stations, including parking lots were more dangerous than the light rail cars. Again, a lack of guardianship outside of the cars and poorly designed stations were cited as the reason for this finding. For a more complete overview of the link between crime and public transportation see Smith and Clarke (2000). This literature review is one of the most complete sources of information about public transit crime around the world. While this dissertation will not be able to assess the relative risk of public transportation at the local level, the national-level analysis will enable a comparison of risk between public transportation and other types of place Americans visit.

Chapter 2—Quantifying Risk

OVERVIEW

The purpose of this dissertation is to quantify the risk of violence Americans face when they go to different types of places and engage in specific activities. To date, the criminological literature has paid scant attention to how dangerous one type of place or activity is compared to another. This study is the first to compare the relative danger of a wide range of places and activities. It provides estimates about not only which are the most dangerous, but how much more dangerous they are. This effort is informed by past studies of risk in specific places or activities, but goes beyond those studies by comparing and contrasting risks among several types of place and activity.

Quantifying risk can be done in a variety of ways. This chapter explores how activity- and place-specific risks can be quantified using: (1) the incidence of violent events, (2) participant-and visitor-based rates of violence, and (3) time-based rates of violence. As the chapter unfolds, it will become evident how these three methods differ from one another and why it is important to take all three into account when possible. Literature from outside the criminal justice realm, including statistics on injury and disease, helps make this point. In dealing with these topics, scientists have extended our understanding of risk by calculating measures of all three types noted above. This literature is meant to outline a methodological approach that could easily be used to study the risk of violence. Moreover, this literature illustrates why such calculations are useful for understanding risk. These are not just measurement issues, but rather reflect how we *conceptualize* exposure to risk, and how our theory relates to our measurement.

The theoretical framework of this dissertation argues that certain places and activities expose individuals to a greater risk of violence than others. For example, going to a bar at night exposes a person to more risk than sleeping in their own bed. Keeping with this logic, the framework suggests differences in victimization rates across populations are the result of people spending unequal amounts of time in risky activities. A typical example would point out the different lifestyles of young males and elderly women. In the past, many applications of the theoretical framework employed here have been limited by an inability to operationalize the "exposure to risk" concept properly. This chapter discusses how criminologists typically measure exposure to risk and highlights the limitations of these measures.

The chapter has three goals: (1) define risk and discuss how this concept is operationalized using the incidence and rate of adverse events, (2) discuss the limitations of previous attempts to operationalize the exposure to risk concept in the criminological literature, and (3) introduce the person-hour as a more precise measure of exposure that has been underutilized by the criminal justice community. By the end of the chapter, it should be clear why the data sources and methodology outlined in Chapter 3 have been selected to make activity- and place-specific risk assessments of violence in America.

DEFINING AND QUANTIFYING RISK

Defining Risk

Risk is the likelihood, probability or chance of an adverse outcome. The adjective "adverse" is used here because most people would not want to know their risk of winning

the lottery or becoming a professional athlete. Instead we worry about our risk of being diagnosed with cancer, dying of a heart attack, or being robbed on the subway. This section describes how risk can be determined using the incidence of an outcome, participant-based rates, visitor-based rates and/or time-based rates. This is accomplished by going back to fundamentals about why one calculates rates and the sorts of rates to calculate.

The Incidence of Adverse Outcomes: Informative but Incomplete

Incidence refers to the number of adverse outcomes reported at a type of place or during an activity. The sheer number of adverse events is simple to tally and gives basic information about risk. But these numbers, while informative, neglect the varying number of people engaging in different activities, or the different numbers visiting one place or another. Such tallies also neglect the amount of time people spend in different activities and places. In short, tallies of adverse events can be misleading. The following example shows how using the incidence of injuries at two mines would produce misleading evidence as to which is the most dangerous.

Suppose two mines each reported 50 worker deaths in 2009; incidence data suggest both locations have the same risk of death. However, if Mine #1 had 1,000 workers in 2009 and Mine #2 had 100,000 workers, the risk of dying at each site is dramatically different. Using a simple rate such as deaths per worker, the risk of death at Mine #1 is actually 100 times greater than at Mine #2. Thus incidence data is informative when assessing the volume of adverse outcomes but it does not explain the likelihood of an event. In

general, incidence data neglect the basic premise that the number of adverse outcomes is related to the number of opportunities for that event to occur. The next section discusses how calculating rates puts incidence data into context and provides researchers with better, more accurate comparisons between the relative danger of places and activities.

Rates: How Denominators Can Improve Risk Estimation

Rates are simple calculations that require numerator and denominator data. Broadly speaking, a rate divides the incidence of an adverse outcome (inserted into the numerator) by the number of opportunities for that outcome (placed into the denominator). Often those opportunities refer to the population or subpopulation exposed to risk. Numerator and denominator data can come from the same data source, but it is also acceptable to draw each from a different dataset–providing that both sources define the same population or subpopulation.[1] Rates can be used to describe the risk of cancer, injury, property crime, violent crime and death within a group.

Rates are more than a mathematical calculation or definition. A rate is based on how we *conceptualize* our problem and *what we know* about risk. As Clarke notes (1984), selecting a proper rate is a serious decision, and rates can be studied from multiple perspectives. Thus auto theft risk can be considered in terms of drivers exposed to risk, households exposed to risk, and/or cars exposed to risk, or in terms of the general population. A similar argument was made by Sidebottom and Bowers (2009) in their

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[1] It is important to note the difference between a true rate and a ratio that merely approximates a true rate. A true rate defines the same population in numerator and denominator. A ratio is more approximate. In many cases, we relax the definition of rate to include cases where the numerator and denominator differ slightly in their definitions.

analysis of bag theft in bars. In their paper, the authors argue using the incidence of bag

theft along neglects the reality that opportunities for theft will vary between bars. For

example, bars that attract a lot of customers who bring bags with them have more

opportunities for theft than those with no bags. Thus it may be misleading to base the

relative danger of a bar on the total number of bag thefts. This dissertation uses two

types of rates, participant- or visitor-based and time-based, to determine the risk of

violence linked to various activities and places.

Participant and Visitor-Based Rates: Controlling for the Number of People Exposed

Participant and Visitor-based rates use the size of the relevant population in their

denominator. Participant-based rates are used to describe the relative risk of activities

based on the number of persons who participate or engage in the activity. Visitor-based

rates are used to describe the relative risk of types of place based on the number of

visitors present. Note that different terminology is used distinguish participants from

visitors because it is more intuitive and easier to discuss. The general equation for a

participant- or visitor-based rate is:

$$\text{Participant- or Visitor-Based Rate} = \frac{\textit{Number of adverse outcomes within the relevant population}}{\textit{Size of the relevant population}}$$

Note that the numerator and denominator are coordinated, to the extent that they involve

the same population. Rates based on the number of people present or available are

appropriate for determining the risk of an adverse outcome that affects groups or

populations of individuals. For example, rates of cancer that account for the size of a

population are appropriate because the number of cancer cases in an area will depend on

the number of people present; each person represents one opportunity for a cancer

diagnosis. Similar rates are commonly used in criminal justice to compare the relative

danger of cities. They help legislators make budget decisions and enable police

departments to monitor crime trends and tactic effectiveness. The general equation for

calculating the crime rate of a city is:

Crime Rate $=$ $\dfrac{\text{(\# of crimes reported)}}{\text{(\# of residents)}}$

Rates based on the size of a population are often used because they are easy to calculate

and are understood by many people lacking statistical training. For example, if the crime

rate of City A is 157 violent crimes per 1,000 residents and the crime rate of City B is 33

violent crimes per 1,000 residents, it is easy to understand and explain that City A is

much more dangerous than City B.

To assess the relative risk of violence across activities and places, one needs to consider

the number of people participating in each activity or visiting each place; the number of

people present determines the number of opportunities for crime. However, knowing the

number of participants or visitors still provides an incomplete picture of the risk these

people face. Just as the number of people who engage in an activity varies, *so does the*

time they spend in those same activities. Any rate that fails to control for the amount of

time a person spends in an activity or type of place could lead a researcher to draw

inaccurate conclusions. Time-based rates help solve this problem.

Time-Based Rates: Controlling for the Amount of Time People Are Exposed

Time-based rates use some measure of time in their denominator. The general equation for a time-based rate is:

$$\text{Time-Based Rate} = \frac{\text{(\# of adverse outcomes reported in a place or activity)}}{\text{(Time spent in that place or activity)}}$$

In the current dissertation, time based rates apply to *types* of place or activity aggregated over national samples and subsamples. When determining place- and activity-specific risks, the most appropriate unit of time is the person-hour.[2] The reason for this is that exposure to risk increases *both* when there are more people exposed *and* when these people spend a good deal of time in an exposed situation. Conversely, exposure to risk declines when fewer people are exposed and when these people spend little time in an exposed situation. These two sources of exposure are multiplicative; the total number of person-hours exposed is equal to the number of people present multiplied by the time they spend in an activity or place. Thus the denominator of time-based rate calculations in this dissertation will be based on two multiplied numbers. The "Exposure to Risk" section of this chapter describes how the person-hour has been defined and operationalized to study a wide variety of phenomenon. The later portion of this chapter presents a number of studies that use the incidence of an outcome, participant-based rates, and time-based rates to determine the risk of an activity or place. These examples show how using rates, especially time-based rates, enhance the ability of researchers to determine which activities and places are the most dangerous.

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[2] For convenience, our time-based rates will use "one billion person-hours" in the denominator.

Calculating Participant-, Visitor- and Time- Based Rates of Victimization

Participant- and time-based rates have not been used to determine the relative risk of criminal victimization in different activities. Only two examples of time-based rates can be found in the criminal justice literature both of which are place-specific risk assessments (Cohen and Felson, 1979; Clarke and Mayhew, 1998); these exceptions are presented in the "Exposure to Risk" section of this chapter. However, it is important to begin by describing how risk is typically quantified by criminologists. In general, criminologists use rates based on the size of a local population to determine which demographic groups have the greatest risk of victimization.

> The formula for the conventional victimization rate is V/P_t, where V is the number of victimizations against members of a population, P is the number of persons in the population and t designates a particular time period. Division of V by P controls for variation in the number of potential victims across population. However, use of P assumes that all persons are equally exposed to the risk of victimization, and that assumption is untenable (Stafford and Galle, 1984: pg. 174).

The theoretical framework of this dissertation emphasizes the importance of exposure to risk when attempting to understand victimization rates (Hindelang et al., 1978; Cohen and Felson, 1979). Calculating time-based rates to determine activity- and place-specific risks of violence is a direct application of the routine activity approach. Without calling them time-based rates, Stafford and Galle suggested this 25 years ago:

> These arguments suggest that there is considerable variation among persons in exposure to the risk of personal victimization and that exposure varies as a function of lifestyles/routine activities. Accordingly the conventional rate (i.e. V/P_t) is an inadequate measure of the objective risks of victimization as the denominator controls only for the population size. A more defensible adjusted

rate is $V/(P \times E)_t$, where E stands for exposure to risk (Stafford and Galle, 1984: pg. 174).

Table 2-1 lists more examples of criminologists noting the imperfections of victimization rates that do not account for exposure to risk. In general, the major problem has been a lack of time use data that would enable criminal justice researchers to calculate activity- and place-specific risks using participant-, visitor- and time-based rates. In general, criminologists have been forced to rely on demographic proxies, frequencies and categories to quantify an individual's exposure to risk; measures that cannot be used as denominator data for rate calculations.

Table 2-1		
Problems with Victimization Rate Calculations in Criminal Justice		
	Author(s)	**Problem Statement**
(1)	Balkin 1979	"…both victimization rates and reported crime rates potentially fail to calibrate safety because neither accounts for differing exposure to crime." (pg. 344)
(2)	Gottfredson 1981	"…it would be preferable to have direct measures of the kinds typically used in time-budgeting studies of how, where, and with whom people spend their time. Such data need to be collected in conjunction with measures of victimization experiences so that variability in the routine activities of individuals may be related to variability in their victimization experiences." (pg. 721-722)
(3)	Stafford and Galle 1984	"Criminologists typically fail to consider differential exposure to risk in computing victimization rates." (pg. 173)
(4)	Clarke 1984	"There is in fact some current interest in examining how particular occupations or life-styles are associated with opportunities for specific kinds of offence… Counting routinely-presented opportunities for crime might seem to demand the development of an index of everyday activity as a basis for the calculations. Such an index could be seen as analogous to 'vehicles miles travelled' which is a measure used in the road research field to standardise accident rates…" (pg. 77)
(5)	Skogan 1986	"The National Crime Victimization survey employs good measures of victimization and the sample for that survey is large enough to uncover substantial numbers of victims of personal crime for analysis. However, this survey gathers no direct information about the behavior or lifestyles of those who are interviewed….A survey measuring both victimization and behavior adequately…would allow for untangling the relation between the two." (pg. 739-740)
(6)	Goldstein 1995	"Quantification of the risk requires some understanding of the extent of exposure and the relationship between exposure and effect." (pg.70)

The criticisms presented in Table 2-1 highlight the need to quantify exposure to crime

and use it when calculating victimization rates. In other words, these arguments justify

the purpose, goals and objectives of this dissertation. The central thesis of these

criticisms is that victimization rates are more precise when the denominator includes

information about how long an individual comes in contact with opportunities for

violence. It is interesting to note that the majority of these quotations are taken from

works published before 1985; Goldstein (1995) is the only exception. This is likely due

to the emergence of routine activity based approaches in the late 1970s. As

criminological theory began to emphasize the transient nature of individuals in time and

space, it became more apparent that victimization rates should also account for this. The

problem is that no victimization survey was or currently is collecting data that truly

enumerates exposure to risk. Thus these criticisms have fallen on deaf ears for many

years because of data limitations. This dissertation directly addresses the criticisms of the

six authors quoted in Table 2-1. By calculating participant-, visitor- and time-based rates

of violence for activities and places, the current study presents victimization rates that

control for variations in time use amongst the American population. The next section

explores limitations of previous attempts to operationalize the exposure to risk concept

and introduces the person-hour as an appropriate way to measure exposure.

EXPOSURE TO RISK

Limitations of Criminologists' Attempts to Quantify Exposure to Risk

Exposure to risk, also referred to as exposure to crime, is a key concept of the routine

activity approach (Cohen and Felson, 1979; Felson and Cohen, 1980; Cohen, Kluegel and

Land, 1981; Miethe, Stafford and Long, 1987; Miethe and Meier, 1994). It is defined as, "the physical visibility and accessibility of persons or objects to potential offenders at any given time or place" (Cohen, Kluegel and Land, 1981, pg. 507). This dissertation uses the term *exposure to risk* when describing how much time people spend in different places and activities.

To date, the vast majority of research attempting to operationalize the exposure to risk concept has failed to truly enumerate the amount of time individuals spend at places or engaging in activities. Table 2-2 gives numerous examples of how exposure to risk has been operationalized to study crime. In general, the most common problem is that "researchers are reduced to using demographic variables as proxies for lifestyle—with the effect of insulating hypotheses about lifestyle and risk from rigorous empirical test" (Hough, 1987, pg. 360). This limitation was noted by the authors of the lifestyle perspective in their original formulation of the approach:

> We defined lifestyle in terms of routine vocational and leisure activities…Obviously, direct measures of these factors would be invaluable…If such direct measures of exposure were found to be unrelated to personal victimization, or if demographic characteristics were still found to be substantially related to personal victimization after such refined measures of exposure were controlled, then the model would be untenable as currently postulated. (Hindelang et al., 1978: pg. 270)

Table 2-2		
Measuring the Routine Activity/Lifestyle Concept of Exposure to Risk		
	Study	***Variable(s) Used to Measure Exposure to Risk***
(1)	Cohen and Felson 1979	Household activity ratio: calculated by adding the number of married, husband present female labor force participants to the number of non-husband-wife households and dividing by the total number of households. Person-hours per day spent at home, on the street, or elsewhere **First time exposure to risk accounted for hours spent in a place.*

(2)	Cohen and Cantor 1981	The major activity of respondents was coded into one of three categories.
		   (a) Employed (including students)
		   (b) Unemployed
		   (c) Keeping house (including retired persons and those unable
		       to work)

(3)	Cohen, Kluegel and Land 1981	Respondents were grouped into 7 categories based on their marital and labor force status.
		   (1) not married and employed (including students)
		   (2) not married and unemployed
		   (3) not married and not in the labor force (i.e. retired)
		   (4) married, both working, no kids
		   (5) married, both working, with kids
		   (6) married, one working, one not in labor force
		   (7) married, household head unemployed

(4)	Gottfredson 1984	Respondents were asked how many nights per week they go out for leisure activities.
(5)	Clarke, et. al 1985	Respondents were asked how many nights per week they go outside of their home.
(6)	Hough 1987	Household exposure was quantified by asking respondents how many hours per week their house is left unoccupied during the day and night.
(7)	Messner and Blau 1987	*At home activity* was measured by the proportion of households watching television in each Standard Metropolitan Statistical Area (SMSA) studied. *Leisure activity* was determined by the number of sports and entertainment establishments available in each SMSA.

(8)	Miethe, Stafford and Long 1987	Respondents were put into two groups based on the frequency of their nighttime activity.
		   (a) out more than one night per week
		   (b) out less than one night per week

	Miethe, Stafford and Long 1987 (cont.)	Respondent were put into two groups based on their major daily activity.
		    (a) employed/attending school
		    (b) unemployed

(9)	Sampson and Woolredge 1987	Nighttime activity was quantified by asking respondents how many nights per week they spend outside the home for leisure activity. Household exposure was quantified by asking respondents how many hours per week their house is left unoccupied during the day, night and because of international travel.
(10)	Massey, Krohn and Bonati 1989	Household exposure was quantified by asking respondents how many weekday nights they left their homes unoccupied and how many weekdays they were home during the day.

(11)	Kennedy and Forde 1990	Respondents were put into two groups to measure their daytime activities.
		    (a) full-time worker or student
		    (b) others
		
		Nighttime activities were quantified by asking respondents how many times per month they engage in 6 activities.
		    (1) sports
		    (2) bar or pub
		    (3) shopping
		    (4) movie, theater, or restaurant
		    (5) meetings or bingo
		    (6) work or class
		    (7) visit friends
		    (8) walk or drive

(12)	Sampson and Lauritsen 1990	Respondents were asked how many times per week they leave their home to engage in leisure activities.

(13)	Miethe, Hughes and McDowall 1991	On a city level, 3 variables were quantified to determine activities occurring away from home.
		    (a) % of females in the labor force
		    (b) % of people using public transportation
		    (c) Average sales from eating/drinking establishments per resident

(14)	Miethe and McDowall 1993	Respondents were asked if they engage in the following activities. A score of 0-3 was recorded for each individual.
		    (a) go to bars/nightclubs
		    (b) visit public places where teenagers hang out
		    (c) use public transportation

(15)	Clarke and Mayhew 1998	Number of hours cars were parked in a given location per day. *Second time exposure to risk accounted for hours spent in a place.*

The literature summarized in Table 2-2 indicates criminologists have quantified exposure

to risk using at least four types of measures: (1) the person-hour, (2) frequencies, (3)

categories and (4) demographic proxies. Demographic proxies are perhaps the least exact

way to quantify exposure to risk because they say nothing about how individuals use their

time. For example, Miethe et al. (1991) used the percent of females in the labor force to

measure a population's exposure to risk (Row 13). While this variable does say

something about how a population is using its time in general, it says nothing about the

actual amount of time females spend away from home. Think about the difference

between females working a part-time job and those who are full-time employees. Both

are in the labor force but part-time employees may only spend 10-20 hours a week away

from home; full-time workers are likely to be gone more than 40 hours a week. Thus the

exposure to risk for full-time employees is twice as high however the measure assumes

equal exposure for both groups. A similar argument could be made for other

demographic proxy variables listed in Table 2-2. The most significant limitation of

demographic proxies is an inability to use these measures to calculate time-based rates of

victimization. Category measures suffer from similar problems in that they do not

quantify the amount of time spent away from home and cannot be used in rate

calculations. For example, Miethe et al. (1987) categorized individuals' time use as

going out more than one night a week or less than one night a week (Row 8). The

problem here is that someone who goes out seven days a week is considered to have the

same exposure to risk as someone who goes out once a week. While categories and

demographic proxies have been used in the past to quantify exposure, these measures are

rough approximations at best and have limited criminologists' ability to fully test the utility of the routine activity approach.

Frequency measures are an improvement from categories and demographic proxies however these too are limited for at least two reasons. First, frequencies cannot be used to calculate time-based rates of victimization. For example, while Gottfredson (1984) had information about how many nights per week individuals were engaging in leisure activity he had no information about how long they were away from home (Row 4). Thus a person who goes out for one hour three nights a week is considered to have the same exposure to crime as someone who goes out three nights a week for six hours. The second limitation of frequency measures is the lack of detail collected by most surveys. In other words, knowing how many times people engage in leisure activities away from home says nothing about what they do for leisure. Leisure is a broad category that includes watching sporting events, drinking at a bar, seeing a movie or going to a restaurant. By neglecting the type of leisure activity, the frequency measures commonly used by criminologists prohibit an examination of how risk varies across types of activities. Kennedy and Forde's (1990) analysis overcame this problem by disaggregating leisure activity however their analysis still failed to quantify the actual amount of time people spent in different activities. To rise above the limitations of previous attempts to quantify exposure to risk, this dissertation uses the person-hour to measure the amount of time individuals spend in a place or activity. The person-hour is the fourth type of exposure measure used by criminologists. The next section describes the person-hour and discusses how it can be used as a denominator for time-based rate

calculations. This metric of exposure use has only been used once in the criminological literature (Cohen and Felson, 1979)[3] and represents an interesting avenue of inquiry for applications of the routine activity approach.

The Person-Hour

The amount of time a person spends in an activity or place can be thought of as the amount of time they are exposed to a certain level of risk. Measuring exposure to risk has been done using demographic proxies, frequencies, categories, and the person-hour (see Table 2-2). Frequencies are operationalized by recording the number of times a person engages in an activity for the time period in question. Categories are abstract measures of exposure; for example, a trichotomy such as always, sometimes, or never could be used to describe an individuals participation in an activity. Frequencies and categories are acceptable ways to measure exposure to risk for certain protocols. The problem with these measures is their inability to accurately measure the actual amount of time a person spends in an activity. To overcome this, the person-hour can be used to quantify risk exposure.

A person-hour is equal to one person spending one hour in an activity or place. The person-hour is a more exact measure of exposure than frequencies or categories. Take for example, a study that examines the sleeping patterns of two individuals who sleep every day. Using a frequency measure, both participants would be assigned a value of seven for the number of days per week they sleep. If categories were used, both would

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[3] Clarke and Mayhew (1998) used a measure similar to the person-hour to describe the amount of time automobiles spend in different locations however it is not considered an application of the person-hour because it does not quantify human time use.

fall into the every night category. Comparing the two individuals, a researcher would see no difference between these subjects. However, these measures say little about the length of time each participant sleeps. If sleep was measured using the person-hour, a researcher might find that Subject #1 sleeps 10 hours a night and Subject #2 sleeps 4 hours a night. This data provides a significantly different picture of the individuals' sleep patterns.

Using Person-Hours to Make Risk Estimates

The person-hour is a unit of time that can be used to asses the risk of an activity or place. Time-use data measured with the person-hour can be used as the denominator of time-based rate calculations; this can be done for individuals and groups. For example, when an individual commutes for 1 hour, this constitutes 1 person-hour of commuting. If 100 people each commute for 1 hour that is equal to 100 person-hours of commuting. In 1969, Chauncey Starr used the person-hour to calculate the risk of death various activities expose people to. He used fatalities per person-hour of exposure to describe the risk of motor vehicle travel, travel by air route carrier, general aviation, railroad travel, skiing, hunting, smoking, the Vietnam War, electrical power and natural disasters. He compared these activities to the average number of fatalities per person-hour of disease exposure in the United States.

Starr's (1969) results indicated travel on railroads, natural disasters and electric power all posed a lesser threat to American life than exposure to disease. General aviation was the only activity with a higher fatality rate than disease; every other activity had a similar rate

to disease. The rates reported were for the entire population of the United States and should be interpreted appropriately. For example, the fatality rate in Vietnam for those in their 20s and 30s was ten times the rate for death by disease. Thus using a national average can be misleading when examining the risk smaller groups or individuals face. In short, Starr's work is an excellent starting point for understanding how to use the person-hour in time-based rate calculations.

A similar analysis was performed in 1993 by Failure Analysis Associates, Inc (now Exponent Inc). The study used the person-hour to describe the death rate of numerous activities and compared them to bicycling. Table 2-3 shows the number of fatalities per 1 million person-hours for 18 activities. Nine of the activities examined had a higher fatality rate than bicycling; the rate for sky diving was almost 500 times higher than bicycling making it most dangerous activity examined. The risk of death for on-road motorcycling was 34 times higher than bicycling. According to their data, living, including all causes of death, was also more dangerous than bicycling. Eight activities were deemed to be safer than bicycling, including domestic air travel. The fatality rate for domestic air travel was 100 times lower than that of general aviation indicating private aircraft are much more dangerous than their commercial counterpart. Of all the activities examined, residential house fires had the lowest fatality rate. This is likely due to the fact that people spend lots of time at home everyday making the denominator much larger than some of the other activities examined. This study is another example of how the person-hour makes rate calculations more precise and understandable.

Table 2-3
Fatality Rates for Different Activities

Safety Compared to Bicycling	Activity or Event	Fatalities per 1 million person-hours
Less Safe	Sky diving	128.71
	General aviation	15.58
	On-road motorcycling	8.80
	Scuba diving	1.98
	Living (all causes of death)	1.53
	Swimming	1.07
	Snowmobiling	0.88
	Passenger cars	0.47
	Water skiing	0.28
	Bicycling	0.26
More safe	Flying (scheduled domestic airline)	0.15
	Hunting	0.08
	Cosmic radiation from transcontinental flights	0.04
	Home living (active)	0.03
	Traveling in a school bus	0.02
	Passenger car post-collision fire	0.02
	Home living, active and passive (sleeping)	0.01
	Residential fire	<0.01

Source: Failure Analysis Associates, Inc (1993)

In the criminal justice literature, only two research endeavors have used the person-hour

to calculate time-based rates of victimization. Using a place-specific model, Cohen and

Felson (1979) combined time-use and victimization data to determine the risk of a violent

victimization in three locations: at home, on the street and elsewhere (see Figure 2-1).

Risk was quantified using a time-based rate and was reported as the number of

victimizations per 1 billion person-hours spent in each location.

Figure 2-1
Time-Based Rates of Violence in Different Places
United States, 1974
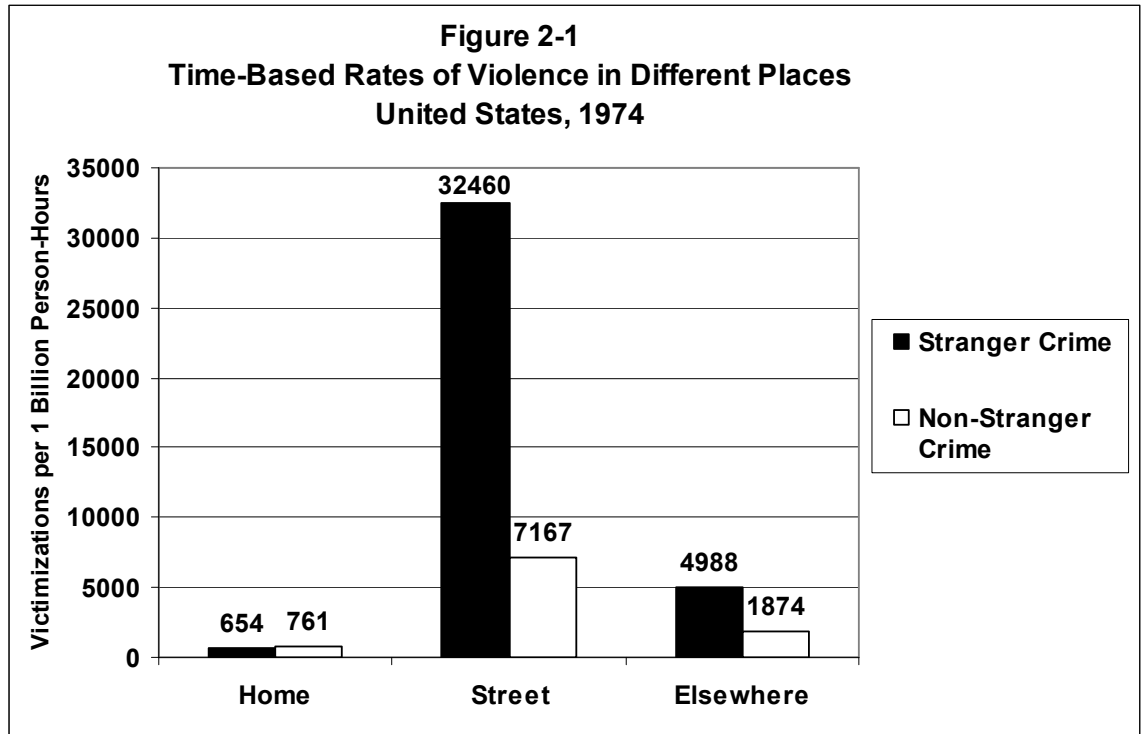
Source: Figure drawn from calculations by Cohen and Felson (1979), Table 1

The data in Figure 2-1 indicate the risk of violence is much higher when people are away from home. For non-stranger violence, the rate was nearly 10 times higher on the street than it was at home; elsewhere it more than twice as high. For violence involving strangers, the risk was 50 times higher on the street than at home and 8 times higher elsewhere. In general, their data showed being on the street or other places away from home was much more risky than being at home; this was especially true of victimizations involving strangers. These findings helped mold the routine activity approach and emphasize the importance of using time-based rates to quantify risk. To date, this is the only example of person-hour based rates that explore violent victimization in different locations. Although Cohen and Felson emphasized the role of routine activities, their time-based rates were place-specific; they did not calculate activity-specific rates of victimization.

Clarke and Mayhew's (1998) analysis of car crime in different locations is the only other example of criminologists using time-based rates to quantify risk. In their study, exposure was measured using a time-unit similar to the person-hour termed here as the "car-hour". The term car-hour was not used by the authors but for the purposes of this dissertation can be thought of as one car spending one hour in a specific location. Time-based rates were reported as the number of crimes per 2.4 million car-hours. The authors used 2.4 million car hours in the denominator of their rate calculation because it is equal to the amount of time 100,000 cars spend in 1 day; 24 hours multiplied by 100,000 cars. This study is interesting because it shows how exposure can be quantified to study crimes

against property. In essence, cars are exposed to various levels of risk depending on
where they are in space and time.

Figure 2-2 summarizes the results of Clarke and Mayhew's (1998) time-based risk
assessment of car crimes. Their analysis showed cars parked in a garage at home are
exposed to the least amount of risk (2 crimes per 2.4 million car-hours); cars parked in a
driveway or carport experienced 40 crimes per 2.4 million car-hours. In other words,
cars in a closed garage were 20 times less likely to be victimized than those parked on
private property. Cars parked on a public street were victimized at a rate of 327 crimes
per 2.4 million car-hours. In essence, moving a car off of private property and onto the
street increased the risk of victimization eightfold. Public parking lots were deemed the
most risky place to park a car; the time-based victimization rate was 454 crimes per 2.4
million car-hours. These results indicate cars, much like people, are safer at home where
they are not exposed to strangers and other forms of risk. A personal garage is akin to a
person's home and the results illustrate the importance of limiting contact with offenders
(potential or known). Clarke and Mayhew's work is an excellent example of how time-
based rates of victimization can be used in criminological research.

Figure 2-2
Time-Based Rates of Car Crime in England and Wales by Place
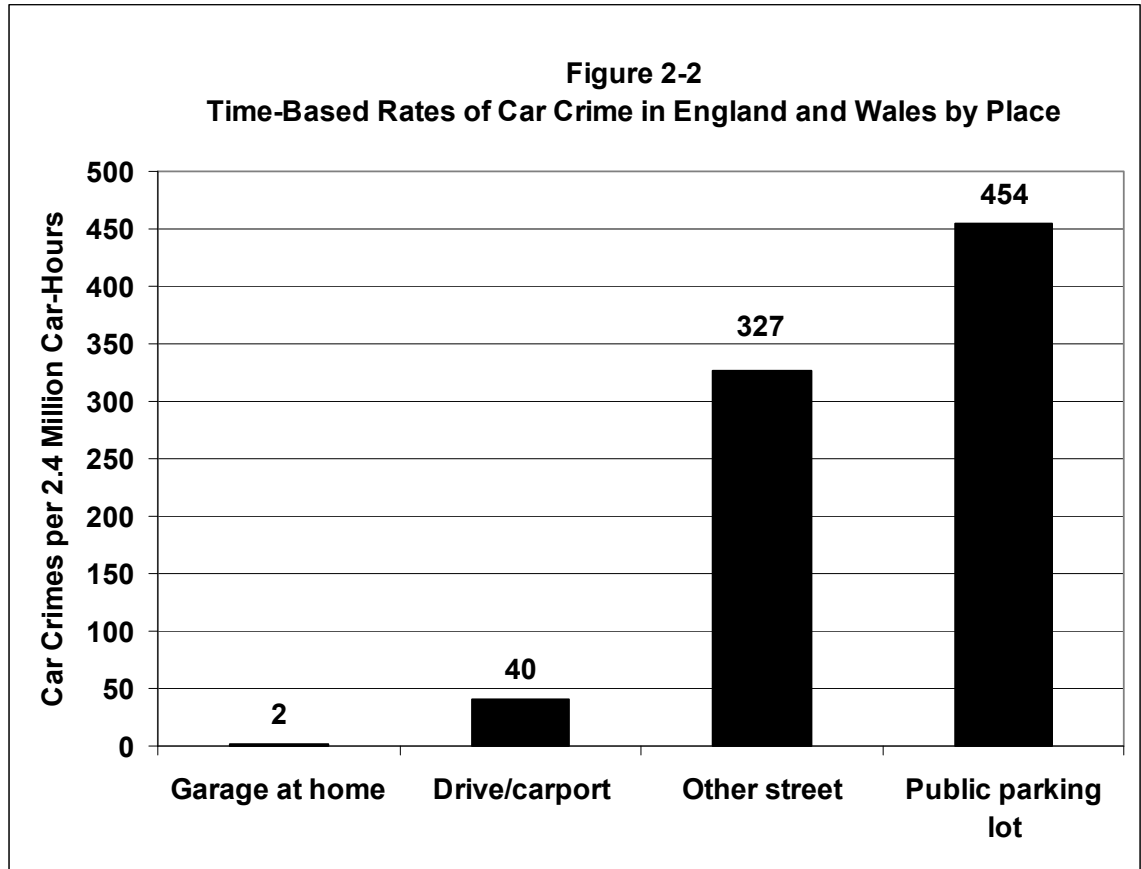
Source: Clarke and Mayhew (1998)

The person-hour has also been used to determine the risk of: death due to vigorous exercise (Albert et al., 2000), death at home (Allsop, 2005), mosquito bites (Carrasquilla, 2000) and mosquito landings (Moore et al., 2007). The next section of this chapter summarizes studies that use the person-hour to determine activity-specific risks. Because criminology has not used the person-hour extensively, the examples below are taken from the epidemiological community. These studies show how risk assessments are refined by using participant-, visitor- and time-based rates to gauge the relative danger of different activities.

ACTIVITY-SPECIFIC RISK ASSESMENTS

The Ten Most Dangerous Consumer Products

Using different consumer products can be viewed as performing different activities; remember activities are specific behaviors or actions. For example, using an electric hedge trimmer is a different action than riding a bicycle. Thus determining the risk of a consumer product can be done using an activity-specific approach. In 1996, Gordon Hayward used participant-based and time-based rates to asses the risk of an injury while using 76 different consumer products. His numerator data was obtained from hospital records of injury in Great Britain; time-use data was taken from a separate survey of product use. In the study risk was "quantified as a measure of injury divided a measure of exposure to the possibility of injury" (pg. 115).

Table 2-4, gives injury rates and time-use information for the ten most dangerous products identified in Hayward's study. Column A shows the annual participant-based

rate of injury for each consumer product. Column B tallies the number of person-hours per year individuals use each of the products. Column C reports the time-based rate of injury for each product. The table has been arranged in descending order relative to the time-based rate of injury. Hayward's analysis is a good example of how risk is a relative term that depends on the denominator data used.

Table 2-4
The Ten Most Dangerous Consumer Products

Product Name	(A) Total Accidents (per million persons per year)	(B) Total Exposure (person-hours of use per year)	(C) Risk (accidents per million person-hours of use)
Electric Hedge-Trimmer	83	1	104
Scaffolding	49	1	65
Electric Welding Equipment	47	1	37
Food Slicer	29	1	23
Chopper or Axe	82	4	21
Craft or DIY Knife	458	22	21
Bicycle	699	35	20
Creosote (Wood Preservative)	14	1	19
Sunlamp or Heatlamp	54	4	15
Electric Circular Saw	46	3	15

Source: Hayward (1996), Table 1

To better understand the relativity of risk assessments, compare the rate of injury for bicycles and electric hedge trimmers. Beginning with Column A, Hayward's (1996) assessment indicates bicycles are the most risky product when a participant-based rate of injury is used. Compared to someone using an electric hedge-trimmer, a person riding a bike is eight times more likely to suffer an injury. However, Column B shows a vast difference in the time spent using each of these products. According to the data, individuals spend thirty-five person-hours a year riding bicycles and just one person-hour a year using an electric hedge-trimmer. When this information is used to calculate a time-based rate, a completely different picture of risk is obtained. Column C indicates the risk of injury while using an electric hedge trimmer is five times greater than while riding a bicycle.

A similar scenario was observed for the other products presented. Knowing that Column C is arranged in descending order, it is interesting to note that Column A does not follow the same pattern. Hayward's work emphasizes the need to use multiple indicators when determining the risk of an activity. Most importantly, it shows that person-hours tell the story of exposure to risk much more fully than participant-based rates alone. That is not to say that one type of indicator is "correct" to the exclusion of another. From a public health point of view, we need to be concerned both about risks that are high per hour, and risks that are not as high per hour but still involve many hours of exposure or many people. Thus bicycle accidents remain a serious concern for riders who spend a lot of time exposed to risk. However, risk assessment cannot stop with persons exposed or

hours exposed without bringing the two together. The next section applies this point to various sports.

The Risk of Sports Injuries

This section reviews two studies that use an activity-specific approach to enumerate the risk of injury in different sports. Sports are an excellent example of an activity that can be defined broadly or specifically. A broad definition does not differentiate between types of sports; a specific one would record soccer, football and basketball as three separate activities. The choice to use a broad or specific definition of sports would depend on the research question at hand. If you were comparing the risk of injury in sports to other activities such as driving or shopping it may not be necessary to differentiate between various sporting events. An analysis of which sport is the most risky however would need to use specific definitions to make comparisons. Both studies presented here use the incidence of injury, participant-based rates and time-based rates to determine the relative danger of different sporting events. Their findings highlight the need to examine risk using each of these methods and emphasize the importance of measuring exposure to risk with the person-hour.

Sports Injuries in Switzerland

In 1995, de Löes published a study of sports injuries in Switzerland. Using data from the Swiss organization "Youth and Sports", de Löes was able to quantify the number of injuries reported during the study period, the number of participants in each sport and the amount of time participants engaged in each sport. "Youth and Sports" provides

approximately 350,000 youths aged 14 to 20 the opportunity to play more than 30 sports. The organization's records showed there were approximately 5,000 acute injuries reported each year. Using the incidence, number of participants and time exposed, de Löes was calculated participant- and time-based rates of injury for male and female participants. His study included data from the years 1987, 1988, and 1989.

Figure 2-3 presents the total number of injuries reported in five sports during the study period (de Löes, 1995). These five have been chosen because they have the highest time-based rates of injury for sports with male and female participants. Although wrestling and ice hockey produced higher time-based rates of injury for males, they have been excluded from this data because they do not have female participants. Using the incidence of injury alone, three conclusions can be made: (1) soccer, handball and hiking are more risky for males than for females, (2) volleyball is more risky for females than for males, and (3) the risk of injury while playing basketball is equal for males and females. The conclusions are problematic and unreliable because they neglect the number of participants in each sport and the participants' exposure to risk. To address this problem, participant-based and time-based rates of injury were calculated.
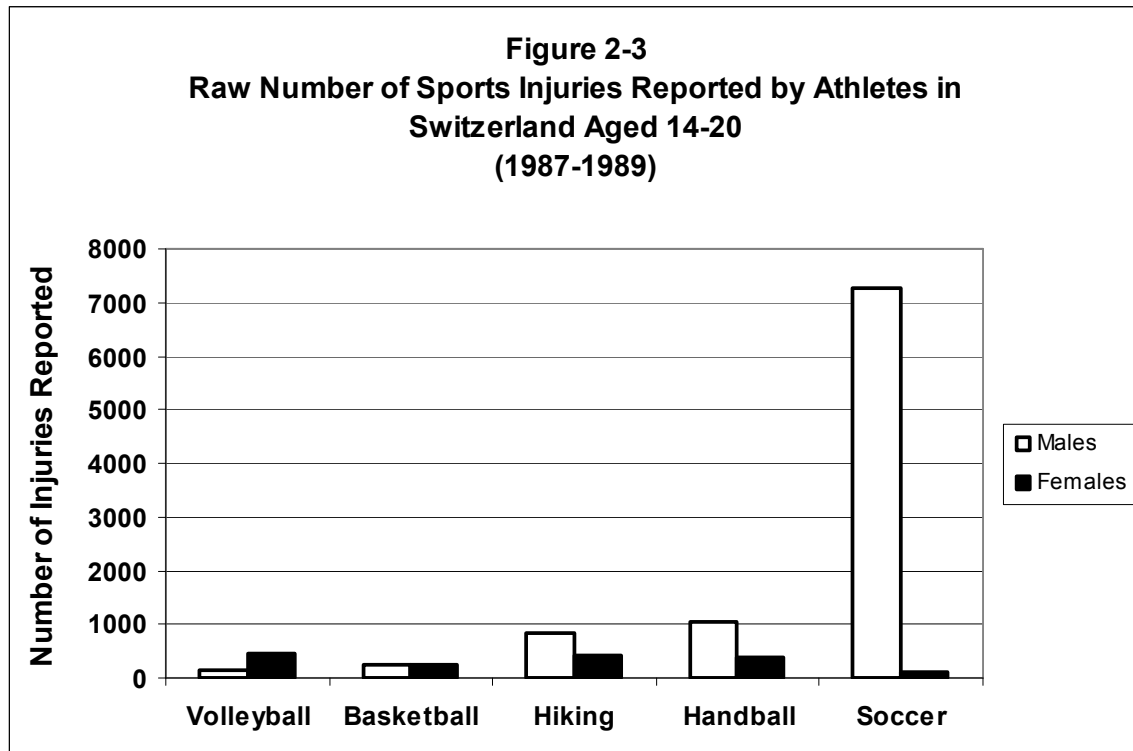
Figure 2-3
Raw Number of Sports Injuries Reported by Athletes in Switzerland Aged 14-20
(1987-1989)

Source: de Löes (1995), Tables 1 and 2
Injury data obtained from the Swiss organization "Youth and Sports" which has approximately 350,000 participants.

Figure 2-4 displays participant-based injury rates for males and females in the same five sports reviewed above (de Löes, 1995). The rate is reported as the number of injuries per 1,000 participants. Although these rates do not account for the amount of time the participants engage in each sport, they do provide a more accurate indicator of risk than incidence alone. At least three new conclusions can be made from these rates: (1) females have a higher risk of injury in every sport except hiking, (2) handball is the most risky sport for males, and (3) soccer is the most risky sport for females. Note how the participant-based rates have reversed or nullified many of the conclusions made from the incidence analysis. Most importantly, the risk of injury for females is now higher than for males in almost every sport. Basketball, the sport with a nearly equal number of injuries for males and females, is now noticeably more risky for females based on the number of participants. The participant-based rates of injury reported by de Löes significantly improved the risk assessment of injury in these five sports. The final variable examined was the amount of time participants engaged in each sport. This provides insight to how exposure to risk is related to the incidence of injury.
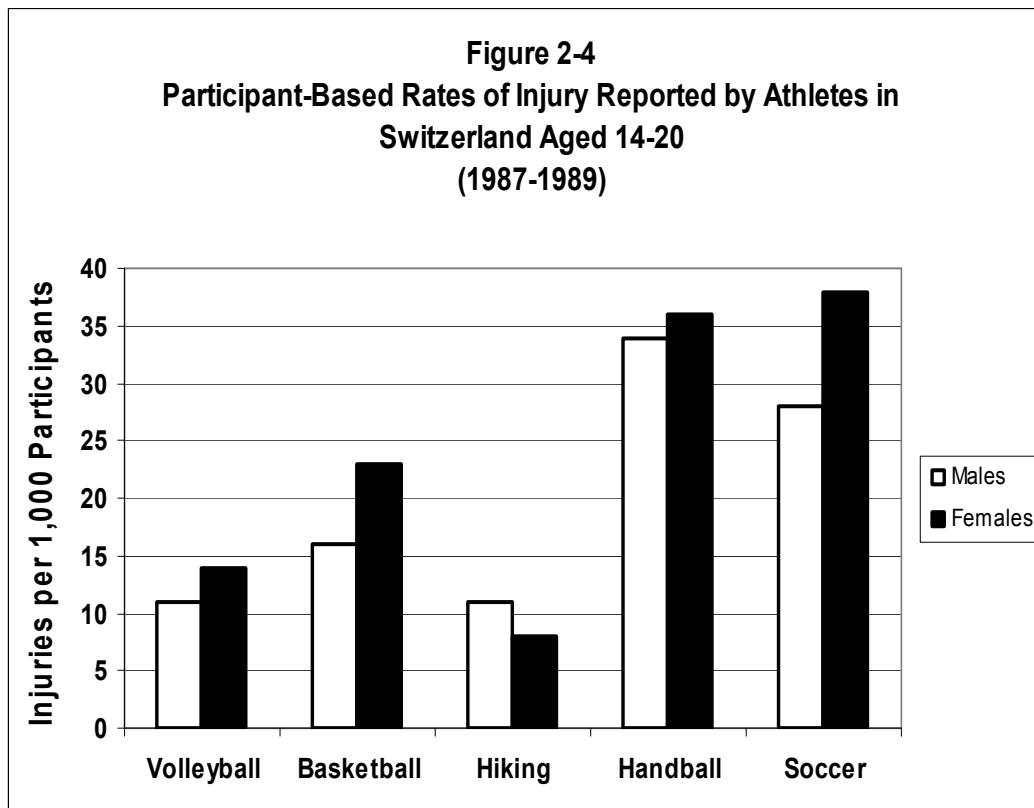
Figure 2-4
Participant-Based Rates of Injury Reported by Athletes in Switzerland Aged 14-20
(1987-1989)

Source: de Löes (1995), Tables 1 and 2
Injury data obtained from the Swiss organization "Youth and Sports" which has approximately 350,000 participants.

Figure 2-5 presents time-based rates of injury for the sports in question (de Löes, 1995). The rates are reported as the number of injuries per 10,000 person-hours of participation. Three new conclusions can be made from this analysis: (1) the risk of injury in soccer, volleyball and handball is nearly equal for males and females, (2) males have a greater risk of injury while hiking than females, and (3) females have a greater risk of injury than males while playing basketball. Once again, adding new data to the denominator of the rate calculation has altered, nullified or reversed some of the conclusions from the first two analyses. A major finding was that handball, soccer and volleyball posed a similar level of risk to both genders; the difference between the time-based rates was less than 1. The findings from de Löes's research are an excellent example of how risk is a relative term that depends on the methodology used. The results are highly conversant with the concerns raised by criminologists in Table 2-1, further justifying inclusion of time-use data in the denominator to properly determine the crime risk linked to an activity. A similar study was performed in Texas to determine the risk of injury high school basketball players face; the paragraphs that follow describe that work.
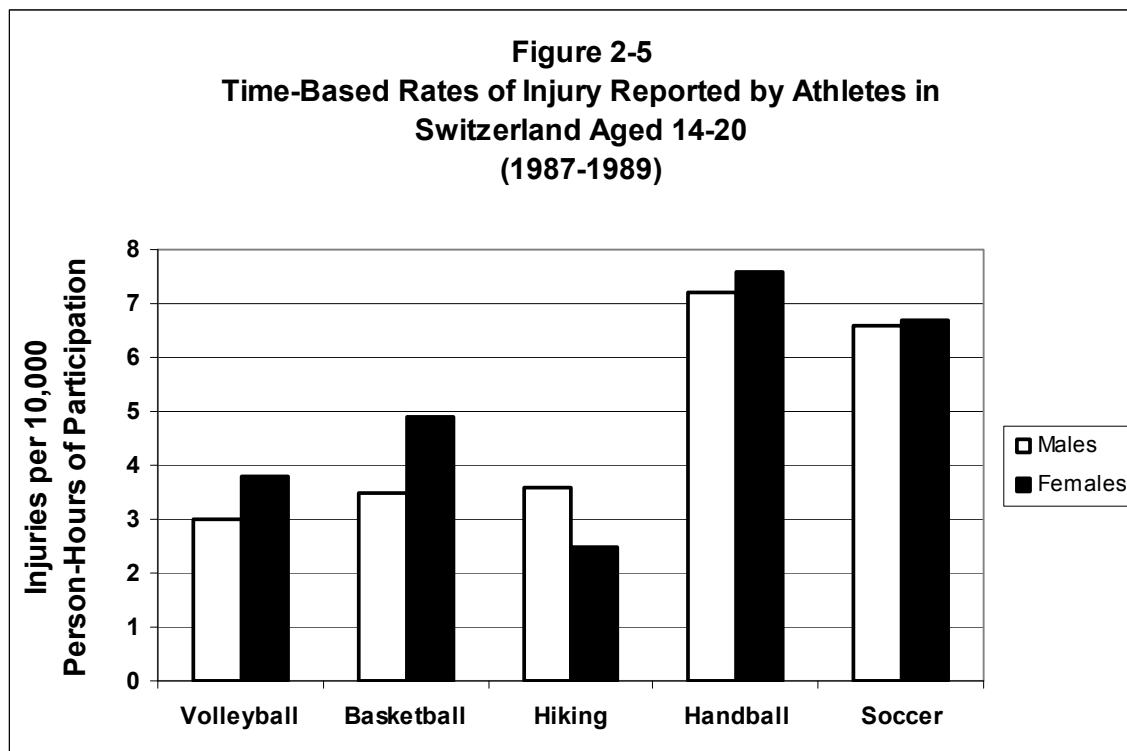
Figure 2-5
Time-Based Rates of Injury Reported by Athletes in Switzerland Aged 14-20
(1987-1989)

Source: de Löes (1995), Tables 1 and 2
Injury data obtained from the Swiss organization "Youth and Sports" which has approximately 350,000 participants.

The Risk of Injury for High-School Basketball Players

In 1999, Messina and colleagues published an article that detailed the risk of injury while playing high school basketball in Texas. The study examined the 1996-1997 basketball season and included information from 100 of the 456 public high schools across the state. The study population included 1,863 athletes between the ages of 14 and 18; 973 males and 890 females. "A reportable injury was defined as one that occurred in an organized practice or game, resulted in the loss of time from practice or competition, necessitated the consultation of a physician, or involved the head or face" (pg.295).

This analysis is an example of an activity-specific risk assessment that looks for differences between groups performing the same activity. In other words, the risk of injury while playing basketball is not being compared to another sport. Instead, the risk of injury males and females are exposed to while engaging in the same activity is the focus of this inquiry. Because Messina et al. (1999) collected information about when the injury occurred, during a game or practice, the latter part of his work was able to compare the risk of practicing basketball vs. playing it during a competition. This activity-specific analysis can be seen as comparing one activity to another. The incidence of injury, participant-based rates and time-based rates were all used to asses the risk of playing high school basketball in Texas.

Table 2-5 gives information about the incidence of injuries reported during the season and reports a participant-based injury rate for males and females (Messina et al., 1999). Column A lists the number of injuries reported by each gender. According to the data,

543 males were injured during the season compared to 436 females. The incidence data suggests males are more likely than females to be injured while playing basketball. However, this analysis neglects the number of players reported in Column B. By dividing Column A by Column B a participant-based injury rate was obtained for each gender; Column C reports this rate as the number of injuries per player. During the season in question, males experienced an injury rate of 0.56 injuries per player compared to 0.49 for females. This difference was found to be statistically significant ($p = 0.0015$) indicating males were 1.14X more likely to be injured. The incidence and participant-based rate analyses employed here both produced the same conclusion, namely that males were more likely than females to be injured. In an attempt to be more thorough, Messina and colleagues calculated time-based rates of injury. Adding this rate to the analysis, Messina's group could validate their conclusion that males were more likely than females to suffer an injury while playing basketball by accounting for the time spent playing.

Table 2-5			
The Risk of Injury in Texas High School Basketball for Players Aged 14-18 1996-1997 Season			
Player Gender	*(A)* *# of Injuries*	*(B)* *# of Players*	*(C)* *Injury Rate (Injuries per Player)*
Male	543	973	0.56*
Female	436	890	0.49
*The injury rate for males was significantly higher (p = 0.0015). Source: Messina, et al. (1999)			

Figure 2-6 displays time-based rates of injury for three activities: practicing basketball, competing in a basketball game, and playing basketball (overall). The last activity, playing basketball (overall), is an example of a broadly defined activity; it is an umbrella category that includes practicing and competing. Practicing and competing are examples of specific activity categories. The time-based rates are reported as the number of injuries per 1,000 person-hours of participation. Two conclusions can be made from these rates: (1) males and females do not have a significantly different risk of injury for any of the three activities examined ($p > 0.05$) and (2) competing is much more risky than practicing. An elevated risk of injury during competition was also found in an international meta-analysis of sports injuries (Fong et al., 2007). These time-based rates have overturned the main finding of the incidence and participant-based analyses; both concluded that males have a higher risk of injury than females. This finding is another example of why activity-specific risk assessments need to account for the time a population spends in an activity. The next section describes a study that utilized time-based rates to make a place- and activity-specific risk assessment of laceration injuries at two meat packing plants in America.

Figure 2-6
Time-Based Rates of Injury for High School Basketball Players
in Texas Aged 14-18
1996-1997 Season
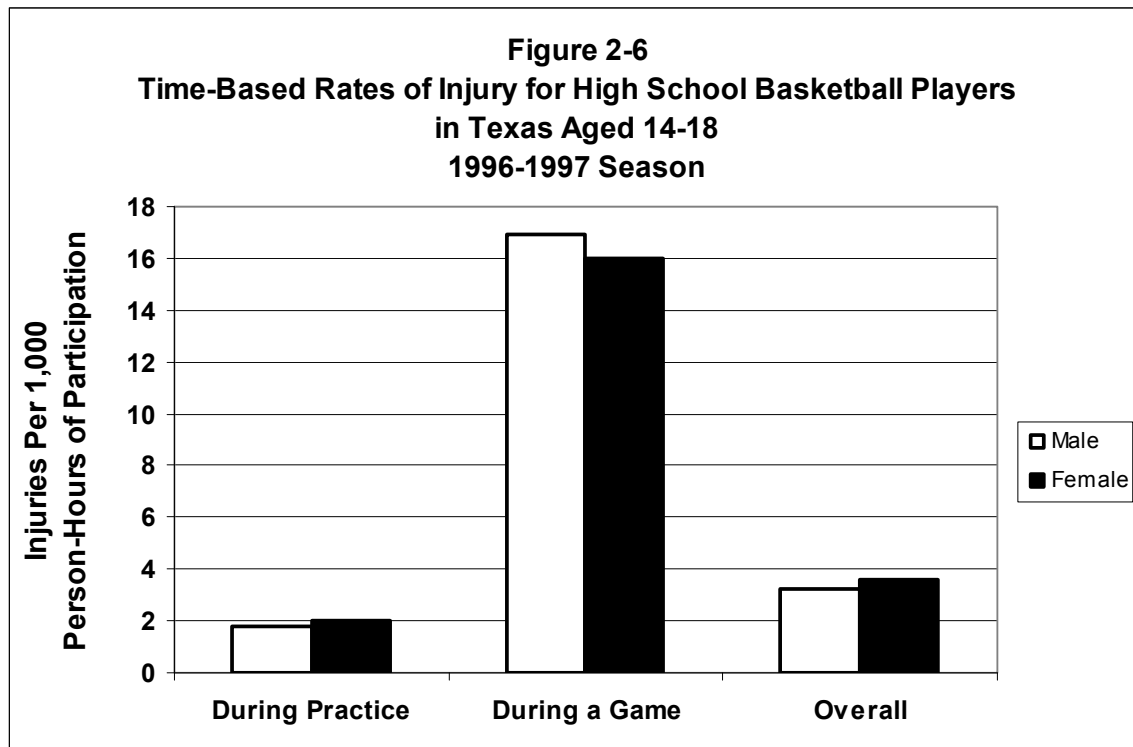
Source: Messina, et al. (1999), Table 1

The Risk of Injury at Two Meat Packing Plants in the Midwest

Risk assessments of the workplace are useful for identifying which occupations are the most dangerous. This can be done by focusing on the activity workers engage in, the places they work or a combination of the two. In 2005, Cai and colleagues used an activity- and place-specific approach to determine the risk of a laceration injury at two meat packing plants in the Midwest. In their report, the laceration rate was reported as injuries per 200,000 person hours. Their time-use measure represents the number of hours worked by 100 meat plant workers in a single year; 40 hours a week, 50 weeks a year equals 200,000 person-hours. Risks were reported for the years 1998, 1999, and 2000. The place- and activity-specific assessments showed variation between and within the plants.

Place-Specific Risks of Injury

The expected number of Occupational Safety and Health Administration (OSHA) reportable lacerations per 200,000 person hours is 3.0. Cai, et al. (2005) used a place-specific model of risk to determine if each of the plants in question was above or below this mark. During the study period, Plant 2 had a laceration rate close to the expected value every year. Plant 1's rates were much higher; 14.0 in 1998, 11.5 in 1999 and 8.3 in 2000. Figure 2-6 compares the laceration rate of males and females at each plant. The data show the risk of injury at Plant 2 was similar for males and females. At Plant 1, males had a higher risk of cutting themselves than females. The only exception was in 1998 when females had a slightly higher risk than males. In 1999 the risk was 1.5 times higher for males at Plant 1 and 2.5 times higher in the year 2000. The authors argued

higher laceration rates at Plant 1 was partially due to Plant 1's kill/support department which used numerous power tools to remove the animal's hide. Plant 2 did not have a kill/support department and thus did not have any workers involved in this activity. This lead Cai and colleagues to employ an activity-specific risk assessment of each plant.

Figure 2-7
Time-Based Rates of Injury at Two Meatpacking Plants
1998-2000
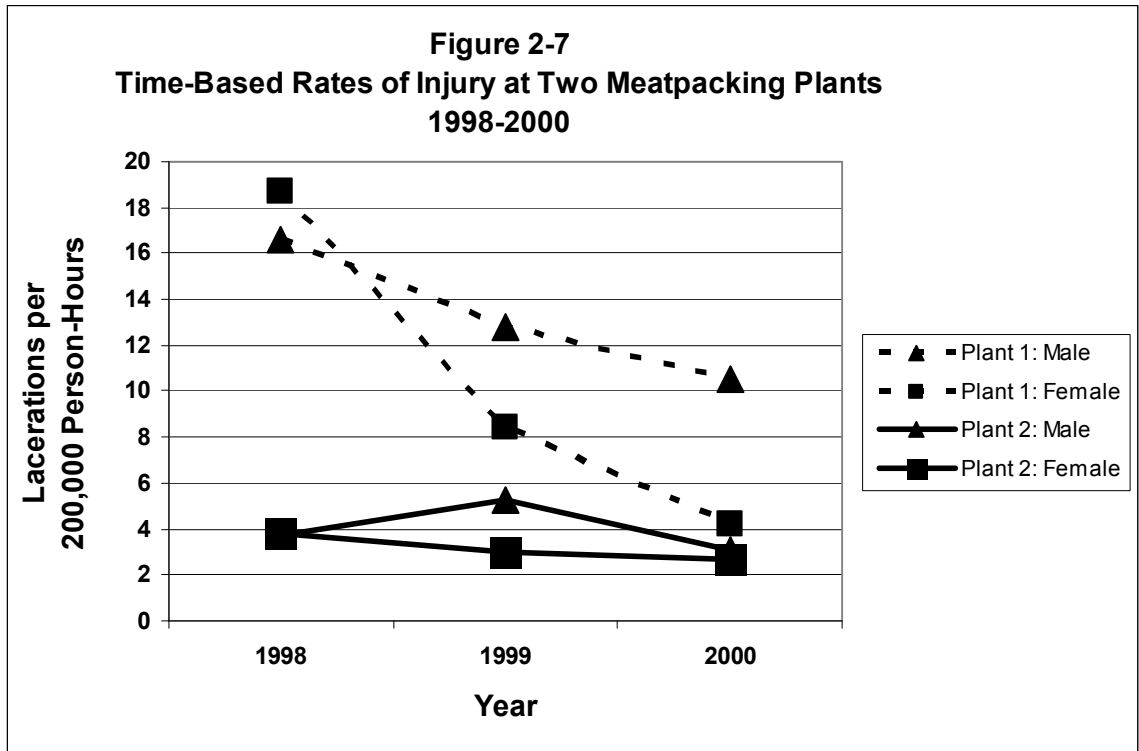
Do Different Meat-Packing Plant Duties Expose Workers to Different Levels of Risk?

Cai and colleagues (1995) examined the laceration rate of three separate jobs at meat packing plants: working in the slaughter department, working in the kill/support department and working in the cut department. Table 2-6 presents activity-specific rates of laceration for each plant. Because a standard measure of 200,000 person-hours is used in the denominator, these rates can be used to determine which department posed the greatest threat to workers and how the two plants compare with one another.

For both plants, it appears the cut department is the safest; however the risk of injury tended to be higher at Plant 1. The slaughter department was more dangerous for workers at Plant 1 and showed higher rates of injury than the cut department for both plants. The authors attributed the relative safety of Plant 2 to a well-established safety program at Plant 2 and staff shortages at Plant 1. Without an activity-specific risk assessment, determining why Plant 1 had a higher injury rate overall would have been more difficult. These activity-specific rates also provide information that help supervisors and safety officials target the most dangerous activities.

Table 2-6
The Rate of Laceration Injuries
per 200,000 Person-Hours at Two Meat Packing Plants

Year	1998		1999		2000	
Plant #	1	2	1	2	1	2
Department						
Slaughter	40.0	7.1	36.4	7.7	18.4	6.6
Kill/Support*	38.4	----	50.1	----	18.2	----
Cut	12.8	4.0	3.3	6.5	10.5	3.1

*Note: Plant 2 did not have a kill/support department.
Source: Cai et. al, 2005

This example shows the utility of the person-hour in rate calculations. By counting the number of hours spent working at each plant and combining this with the total number of injuries, a more exact picture of safety was had. If the number of lacerations was the only variable studied, plants with more workers would inevitably have appeared to be more dangerous. Even if a rate such as injuries per worker was calculated, this may still be misleading for plants that employ a great deal of part time workers. Using person-hours in the denominator of this calculation is a more precise measure and allowed the researchers to determine how many injuries occurred per hour of production.

Summary

The following examples have shown how the person-hour can be used to calculate time-based rates that quantify the risk of an adverse outcome such as an injury. The purpose of this section was to not only highlight the utility of the person-hour as a measure of exposure, but to emphasize the need to quantify risk using participant- and time-based rates. Activity- and place-specific risk assessments that do not account for the number of people present and the length of time they are exposed to opportunities for injury provide incomplete and often inaccurate descriptions of risk. The methodology employed by each of these studies could easily be adapted to study the relative risk of violence in different activities and places.

CONCLUSION

Activity- and place-specific risks of any adverse outcome can be quantified using the incidence of an event, a participant- or visitor-based rate, a time-based rate or all three.

This chapter suggests when possible, using all three risk assessment tools is the most appropriate way to study a phenomenon such as death, injury or victimization. Quantifying risk using incidence alone neglects the idea that places and activities vary in population size and the length of time these people stay for. Participant and visitor-based rates control for the size of a population while time-based rates control for the amount of time dedicated to an activity or place. As the examples above have shown, each of these three risk quantification protocols can produce dramatically different pictures of risk. Using and discussing all three gives a complete picture of the risk incurred; presenting only one approach risks being incomplete at best and misleading at worst.

Time-based rates offer perhaps the most complete picture of risk because they take into account the size of a population as well as the time that population spends in an activity. The amount of time a person spends in an activity or place can easily be measured using the person-hour. The person-hour has been used extensively in epidemiological research to measure a population's exposure to risk. In criminal justice, place- and activity-specific risk assessments have been limited by an inability to properly quantify the routine activities of individuals. In general, a lack of time use data has forced criminologists to infer lifestyle using demographic proxies, categorization and frequency measures. These do not enable the calculation of time-based rates and thus only two examples of place-specific risk assessments using this methodology exist in the literature (Cohen and Felson, 1979; Clarke and Mayhew, 1998). To date, no one has calculated activity-specific time-based rates of victimization.

In order to calculate activity- and place-specific rates of violence, three pieces of

information are needed: (1) the incidence of violence in different places and activities, (2)

the population size of different places and activities, and (3) the number of person-hours

spent in different activities and places. Chapter 3 is an overview of the data sources and

methodology employed by this dissertation. It discusses how these three pieces of

information can be obtained from large, national-level data sources currently being

collected in America. Using participant-, visitor- and time-based rates, the methodology

used enables this study to paint the most complete picture of activity- and place-specific

risks of violence available in the criminal justice literature.

Chapter 3—Data Sources and Methodology

OVERVIEW

The purpose of this dissertation is to determine the risk of violence Americans face in different activities and types of place. The United States was chosen as a study area because: (a) the dissertation was written at an American university, (b) funding was obtained from the United States Department of Justice, and (c) the data necessary to complete this analysis is publicly available in the United States. To date, there are few pieces of criminological literature that compare the relative risk of activities and places. In this study, risk is quantified using the incidence and rate of violence for a number of activities and types of place. The results describe how violence and the risk of violence are distributed across the American population.

In general, rates are used in risk enumeration to compare the number of adverse outcomes observed to the number of opportunities for that outcome. The previous chapter discussed two types of rate calculations that can be used in activity- and place-specific risk assessments; these are referred to as participant-, visitor- and time-based rates. These rates control for the fact that activities and places vary in both the number of people associated with them and the amount of time spent in them. This chapter describes the data sources and methodology used to quantify activity- and place-specific rates of violence.

Three pieces of data are needed to determine activity- and place-specific risks of violence: (1) the incidence of violent victimizations in different activities and places, (2)

the number of people who engage in an activity or visit a place, and (3) the amount of time people spend in activities and places. The historical problem with calculating participant-, visitor- and time-based rates of victimization has been a lack of time use data. This data typically gives information about the number of people visiting a place or engaging in an activity and the amount of time they spend in both. Previous criminal justice research has relied upon demographic proxies and frequency measures to estimate an individual's time-use. The problem is that neither measure gives a complete picture of the actual amount of time a person spends in a specific activity or place. Currently, no single data source in America contains all three pieces of information needed to quantify activity- and place-specific risks of violence using participant-, visitor- and time-based rates.

Calculating participant-, visitor- and time-based rates of violence requires numerator and denominator data. The numerator is a measure of how much violence occurs in activities and places; the denominator measures the population size and time spent in both. In this dissertation, two large, nationally representative datasets are used to produce victimization and time use estimates that can be utilized as numerator and denominator data. The National Crime Victimization Survey (NCVS) is used to estimate the incidence of violence in America across activities and places. The American Time Use Survey (ATUS) is employed to quantify the population size of activities and places as well as the amount of time spent in them. This dissertation is the first piece of criminological work to combine these datasets and represents a novel approach to measuring the relative risk of places and activities using numerator and denominator data from different sources.

The risk of violence in different activities and places is calculated for the years 2003, 2004 and 2005. Prior to 2003, no federal entity in the United States was monitoring how Americans spent their time. Currently time use data is available for the years 2003-2008 but because of a methodological change in the 2006 ATUS, this analysis stops in 2005 to ensure the accuracy of all time use estimates reported. It is likely that information from 2006-2008 could be added to this analysis in the future with a better understanding of the datasets.

This chapter outlines the data sources, variables and methodology used to quantify the risk of violence in different activities and places. It begins with a discussion of how demographic variables are used to group the respondents of both surveys. The sections that follow describe the sampling and data collection procedures of both datasets used in this analysis. The last section gives an overview of how violence rates are calculated using participant-, visitor- and time-based rates. The chapters that follow present the results of this work and discuss the theoretical and policy implications of the findings.

DEMOGRAPHIC VARIABLES AND GROUPS

In their original formulations, both the routine activity approach and lifestyle perspective hypothesized a link between demographics and the routine activities of individuals (Hindelang et al., 1978; Cohen and Felson, 1979). In general, age, sex and marital status were thought to have the greatest impact on a person's exposure to risk. According to this theoretical framework, young people spend more time away from home amongst

other youth, while females and married persons spend more time at home. This means the young, the unmarried and males all experience higher levels of victimization because they spend more time away from home which exposes them to higher levels of risk. Because of data limitations, criminologists have not been able to test these time use hypotheses. Instead, the link between demographic variables and time use are assumptions that have never been verified using quantitative data. This dissertation is the first piece of criminological work to enumerate the amount of time different demographic groups spend in various activities and places. Using previous research as a framework, this section describes how different demographic groups are defined in this study.

Age: Cutoffs, Intervals or Continuous?

There is no standard in criminal justice research for grouping individuals based on their age. In previous applications of the routine activity approach, cutoffs, intervals and continuous variables have been used to describe age. Cutoffs refer to dichotomous age groups such as under 30 or 30+ (Miethe et al., 1987; Mustaine, 1997). Intervals refer to stable increments such as 10-19, 20-29, etc that are used to group individuals (Gottfredson, 1984; Miethe and McDowall, 1993). Measuring age as a continuous variable can also be done (Sampson and Lauritsen, 1990) however this is difficult with a small number of cases. In this dissertation, all three of these measures are utilized to describe victimization and time use patterns in America.

Table 3-1 shows how the NCVS and ATUS age variables are currently coded and how they will be recoded in this dissertation. By examining the age variable using three

different approaches, this dissertation provides a more complete picture of how the risk of violence varies with age. For example, the cutoff measure may show a vast risk difference for those older than 30 but says nothing about how the risk of violence changes by single year of age or even across 10 year intervals. Using a multifaceted approach overcomes a limitation such as this and provides researchers with a better understanding of how the risk of violence and time use varies with age. When describing the distribution of the ATUS and NCVS samples in this chapter, 10 year intervals are used in an attempt save space. The chapters that follow will provide violence and time use estimates for all three age groupings.

Sex: Males vs. Females

Creating groups based on the sex of respondents has traditionally been done using the dichotomous categories of male and female (Gottfredson, 1984; Miethe, et al., 1987; Sampson and Lauitsen, 1990; Kennedy and Forde, 1990; Miethe and McDowall, 1993; Mustaine, 1997). The same methodology is employed in this dissertation. While the existence of transgender or multiple gender persons is acknowledged, both datasets used do not have a coding procedure for this and each respondent has been coded as a male or female. Table 3-2 shows the variables and coding procedures used by the NCVS and ATUS; these sex variables will not have to be recoded.

Table 3-1
Creating Age Groups Using National Crime Victimization Survey and American Time Use Survey Age Variables

ORIGINAL		RECODE		
Variable	*Code*	*Cutoff*	*Interval*	*Continuous*
NCVS* V3014 Age (Allocated)	Range: 12-96 98—Residue 99—Out of universe	Under 30 or 30 or older	15-19 20-29 30-39 40-49 50-59 60-69 70-79 80+	15-30
ATUS** TEAGE[1] Age	Range—15 thru 80*	Under 30 or 30 or older	15-19 20-29 30-39 40-49 50-59 60-69 70-79 80+	15-30
*Source: U.S. Dept. of Justice, NCVS Codebook, 2003 ***Source: ATUS Interview Data Dictionary: 2003 Interview Data* [1]Note: Persons older than 80 years old are coded as being 80				

Table 3-2 Categorizing Sex Using Data from the National Crime Victimization Survey and the American Time Use Survey	
Variable	**Coding Rules**
NCVS* V3018 Sex (Allocated)	1—Male 2—Female 8—Residue[1] 9—Out of universe[1]
ATUS** TESEX Sex	1—Male 2—Female
*Source: U.S. Dept. of Justice, NCVS Codebook, 2003 ***Source: ATUS Interview Data Dictionary: 2003 Interview Data* [1]No respondents fell into these categories; all were coded as being male or female.	

Race: Whites vs. Non-Whites

The final demographic variable examined in this dissertation is race. While many applications of the routine activity approach have included race in their models, the link between race and lifestyles has never been established. For example, it has never been established if white people spend more time away from home than non-whites or vice versa. More pertinent to this work is the question: Do non-whites suffer higher levels of victimization than whites when they engage in the same activities or visit the same places? In previous research performed using the same theoretical framework as this study, race is typically categorized using a dichotomous variable. One way to look at race is to compare blacks to whites (Cohen et al., 1981; Meithe et al., 1987). The other way is to compare whites to non-whites (Mustaine, 1997). This dissertation will use the later dichotomization as it includes a wider breadth of persons; namely Asians and persons of mixed races. Focusing on whites and blacks only neglects the idea that the United States harbors more than two races. Table 3-3 shows how race is coded in the NCVS and ATUS and how it will be recoded for the purposes of this dissertation.

Table 3-3 Categorizing Race Using Data from the National Crime Victimization Survey and the American Time Use Survey		
Variable	**Original Code**	**Recode**
*NCVS** V3023A Race Recode	1- White only 2- Black only 3- American Indian, Alaska Native only 4- Asian only 5- Hawaiian/Pacific Islander only 6- White-Black 7- White-American Indian 8- White-Asian 9- White-Hawaiian 10- Black-American Indian 11- Black-Asian 12- Black-Hawaiian/Pacific Islander 13- American Indian-Asian 14- Asian-Hawaiian/Pacific Islander 15- White-Black-American Indian 16- White-Black-Asian 17- White-American Indian-Asian 18- White-Asian-Hawaiian 19- 2 or 3 races 20- 4 or 5 races 98- Residue 99- Out of universe	1 – White 2-99 – Non-White
*ATUS*** PTDTRACE[2] Race	1—White only 2—Black only 3—American Indian, Alaska Native only 4—Asian only 5—Hawaiian/Pacific Islander only 6—White-Black 7—White American Indian 8—White-Asian 9—White-Hawaiian 10—Black-American Indian 11—Black-Asian 12—Black-Hawaiian	1 – White 2-21 – Non-White

13—American Indian-Asian 14—Asian-Hawaiian 15—White-Black-American Indian 16—White-Black-Asian 17—White-American Indian-Asian 18—White-Asian-Hawaiian 19—White-Black-American Indian-Asian 20—2 or 3 races 21—4 or 5 races	

Source: U.S. Dept. of Justice, NCVS Codebook, 2003
**Source: ATUS Interview Data Dictionary: 2003 ATUS-CPS File*

Other Demographic Variables: What About Marriage and Income?

Two other demographic variables commonly used in applications of the routine activity approach are the household income and marital status of individuals (Cohen et al., 1981; Miethe et al., 1987; Miethe and McDowall, 1993; Mustaine, 1997). While it would be interesting to add these variables to the current analysis, limitations in the ATUS data do not allow time use estimates to be generated for demographic groups based on their marital status and household income. Household income and marital status are collected in the ATUS however this data is located in a separate file from those used to create time use estimates. Beginning in 2006, ATUS files include a variable that would allow martial status and household income to be merged into files containing time use estimates. For the current study period, this variable does not exist. Future research on the period from 2006-2008 could assess the effect of marriage and income on time use and the risk of violence.

Summary of Demographic Groups Used in this Analysis

This dissertation examines how time use and violence is distributed across the American population for three demographic variables: age, sex and race. To date, criminologists have not been able to quantify how time use or exposure to risk varies across these variables. This work is the first application of the routine activity framework to actually measure how time use varies by demographics thought to influence an individual's lifestyle. Sex and race will be categorized using dichotomous variables while age will use a multifaceted approach. With regard to sex and race, respondents will be referred to as male or female, white or non-white. Age groups will be formed using 10 year

intervals, a cutoff at 30 years of age and by single year of age. Adding demographics to this analysis produces information about how the risk of violence varies by place, activity and the demographic makeup of those involved. The next two sections describe the numerator and denominator data used to calculate activity- and place-specific rates of violence.

NUMERATOR DATA:
NATIONAL CRIME VICTIMIZATION SURVEY

In this dissertation, data from the National Crime Victimization Survey (NCVS) are used to measure the incidence of violence in activities and places. This survey is collected by the United States Department of Commerce, Bureau of the Census. The NCVS "was designed to achieve three primary objectives: to develop detailed information about the victims and consequences of crime, to estimate the number and types of crime not reported to police, and to provide uniform measures of selected types of crime" (U.S. Dept. of Justice, NCVS Codebook, 2003, pg. 5). A major benefit of using NCVS data relates to its ability to quantify crimes not reported to the police; official statistics often underestimate the actual incidence of violence in America (Lauritsen, 2005).

NCVS violent victimization estimates are used as numerator data for each violence rate calculation reported in the results section of the study. This section describes the NCVS sample, interview procedure, and types of victimizations captured by the survey. A glossary is provided in Appendix A of this chapter for the following terms used in this discussion of the NCVS:

Aggravated Assault	Assault	Attack
Cluster	Incident	Minor Assault
Multi-Stage Sampling	Personal Victimization	Rape
Robbery	Serious Assault	Sexual Assault
Simple Assault	Strata	Threat
Victimization		

Sampling Procedure

The NCVS sample is comprised of approximately 50,000 households or housing units in the United States. These households are selected using a stratified, multi-stage cluster design. Stratified sampling is used to obtain a selection of subjects that best represent the population at large. A stratified sample is comprised of multiple homogenous subsets of a population from which respondents are randomly selected. These are referred to as "Primary Sampling Units" or PSUs (U.S. Dept. of Justice, NCVS Codebook, 2003).

At the initial sampling stage counties, groups of counties and large metropolitan areas are used to form PSUs; these are later grouped into strata known as self-representing or non-self-representing. All large PSUs are included in the sample making them self-representing. The smaller PSUs are matched on geographic and demographic variables taken from the Census and combined to create the non-self-representing sampling units. The NCVS uses housing unit information from the decennial Census to locate potential respondents (U.S. Dept. of Justice, NCVS Codebook, 2003).

Housing units within each PSU are selected to participate in the NCVS in two stages. In the first stage, Enumeration Districts are systematically selected from each PSU. Enumeration Districts are used during the decennial Census; they each contain 750-1,500

people and vary in geographic size depending on the population density of the area in question. In the second stage, clusters of approximately four housing units are created within each of the selected Enumeration Districts. These clusters are formed using addresses from the decennial Census but also include new homes that have been constructed in recent years. Occasionally a cluster contains group housing units if there is a dormitory or boarding house in an area. These represent a small fraction of the total NCVS sample. A sample of these clusters is chosen to obtain a final count of approximately 50,000 housing units (U.S. Dept. of Justice, NCVS Codebook, 2003).

To ensure the same housing units are not continually interviewed by NCVS staff, a rotating panel design is used. Households selected to participate in the survey are placed into a rotation group and interviewed a total of seven times over a three-year period. After the seventh interview, the housing unit and its rotation group is removed from the panel and another is rotated in. If a housing unit changes ownership, members of the new household will be interviewed as if they were the original respondents. Combining the stratified, multi-stage sampling technique with the rotating panel design ensures the NCVS sample is both nationally representative and targets new housing units over the years. (U.S. Dept. of Justice, NCVS Codebook, 2003)

NCVS Sample Size (2003-2005)

This analysis uses NCVS datasets from 2003, 2004 and 2005. For each year, there are two types of data available that describe the sample and victims. These are defined as the collection and data year periods. The collection year refers to an 18 month period during

which interviews are conducted. A data year refers to one calendar year. Interviews are conducted over 18 months to ensure victimizations that occurred late in the year are not missed. Collection year data is used here to describe the NCVS sample size from 2003-2005.

The NCVS sample size can be enumerated in two ways; as households or individuals. Table 3-4 presents statistics about the number of households and individuals in the NCVS sample for the years 2003-2005. During this time period approximately 70,000 households and 150,000 individuals were selected to participate in the survey each collection year. For this dissertation on violence, individuals are the unit of analysis. Households are not considered at this time but could be at a later date. They are presented here to show the magnitude of the survey's sample.

Table 3-4
Sample Size
National Crime Victimization Surveys, 2003-2005

Year	2003	2004	2005	Average	Std Dev	CV
Number of Households	65,978	65,901	85,383	72,421	9,168	0.1
Number of Individuals	139,197	138,702	177,672	151,857	18,255	0.1

Source: NCVS Person Record-Type Files, Collection Year Data, 2003-2005

During a collection year, the rotating panel design of this survey can result in respondents being interviewed up to three times. For example, an individual who enters the survey in January of 2003 will be interviewed two more times during the collection year, June 2003 and January 2004. Table 3-5 shows the distribution of the NCVS sample by race, sex and age. Each collection year is broken down by the number of times participants were contacted. For example in 2003 nearly 140,000 people were contacted by the survey; 80,000 were contacted twice and 40,000 three times. Those who fell out of the sample because of attrition were excluded for the percentage calculations listed below.

On average, 47.5% of the sample was male with a slight majority being female (CV<0.5). Looking at race, an overwhelming majority of the participants were white (83%, CV<0.5). In an attempt to conserve space, age has been put into 10 year categories. The age distribution of the NCVS sample is uneven with 80% of the sample aged less than 60. The three age brackets above 60 each average 7% of the yearly sample while those below 60 average 16%. The large sample size employed by the NCVS allows age to be studied as a continuous variable; there approximately 2,000 participants every year for each single year of age under 60.

Table 3-5 Distribution of Sample by Race, Age and Sex National Crime Victimization Survey, 2003-2005								
Year	**2003**			**2004**			**2005**	
Interview #*	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**
Sample Size	139,197	79,497	40,896	138,702	78,832	38,427	177,672	60,118
Sex (%)								
Male	47.9	47.4	47.2	47.8	47.5	47.1	47.8	47.5
Female	52.1	52.6	52.8	52.2	52.5	52.9	52.2	52.5
Race (%)								
White	81.5	82.6	84.1	81.6	82.5	83.2	82.3	82.7
Non-White	18.5	17.4	15.9	18.4	17.5	16.8	17.7	17.3
Age (%)**								
12-20	16.3	14.2	12.5	16.3	14.2	12.5	15.6	13.3
21-30	17.0	13.3	10.1	16.9	13.1	10.1	15.5	11.9
31-40	18.1	17.7	16.6	17.6	17.1	15.8	16.8	16.4
41-50	18.0	19.6	20.5	18.2	19.6	20.7	18.5	20.2
51-60	13.3	15.2	17.0	13.6	15.5	17.4	14.8	16.6
61-70	8.3	9.6	11.0	8.4	9.9	11.3	9.3	10.5
71-80	6.0	7.0	8.3	6.0	7.1	8.2	6.3	7.4
81-90+	2.9	3.5	4.1	3.0	3.5	4.0	3.2	3.7
Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005								
*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.								
**Columns may not total 100% due to rounding error.								

Weighting techniques are used in this dissertation when making estimates of violence for the American population; these control for the uneven distribution of respondents across demographic variables. In general, weighting is used to estimate how many people one respondent represents in the American population. If a respondent is victimized, weights are also used to estimate how many victimizations occurred in America based on the one captured by the NCVS. The next section describes the NCVS interview procedures and the issue of non-response.

Interview Procedure

Each housing unit selected for participation in the NCVS is interviewed a total of seven times over a three-year period. The interviews are conducted every six months during which respondents are asked about victimizations that occurred during the previous six months. The first and fifth interviews are done face-to-face, the remaining are conducted via telephone. Some of the telephone interviews are computer-aided while others are not (U.S. Dept. of Justice, NCVS Codebook, 2003).

The first interview is known as the "bounding interview" and is not included in the publicly available datasets. The purpose of this interview is to record any victimization in the previous six months so that this information can be compared to any victimization reported during the second interview. This is done to prevent the double counting of victimizations; subsequent interviews also compare newly reported victimizations to those reported during the previous interview (U.S. Dept. of Justice, NCVS Codebook, 2003).

All household members aged 12 and older are the target of NCVS interviews. Information gathered about each person is done through self-response; 12 and 13 year olds may have a proxy complete their interview if a household member insists. Questions about crimes against the housing unit are only answered once by the head of the household. Letters are sent to each housing unit before each face-to-face interview to give notice. These interviews last approximately 20-25 minutes and subsequent interviews are preformed by telephone to increase efficiency and lower costs (U.S. Dept. of Justice, NCVS Codebook, 2003; Lauritsen, 2005).

Non-Response

The sample size statistics reported above only indicated the number of people selected to participate in the survey. This means they were contacted by NCVS workers but may or may not have completed the survey. There are numerous reasons why people who are in the sample do not complete the survey. These are categorized in the NCVS based on the circumstances of the non-response. Examples of reasons the surveys are not completed include: refusal by participant, no one at home despite numerous attempts to make contact, a death in the family, or mental illness that prevents a participant from responding appropriately (U.S. Dept. of Justice, NCVS Codebook, 2003). Despite a decline in response rates over the last decade, the NCVS still maintains a high level of response when compared to other national level surveys (National Research Council, 2008). "The NCVS is renowned for its very high rate of survey participation, which is

likely due to the legitimacy granted to the Census Bureau and to the professionalism of their field interviewers" (Lauritsen, 2005, pg. 249).

For the purposes of this analysis, the reasons for NCVS non-response are not examined fully. Instead, participants have been categorized as interviewed or not interviewed to asses the prevalence of non-response to the NCVS. Table 3-6 presents non-response statistics for the entire NCVS sample. On average, 14.6% of individuals selected to participate in the NCVS are not interviewed (CV<0.5). According to the numbers, approximately 100,000 of the 750,000 interview opportunities resulted in non-response. Despite this, more than 600,000 interviews were conducted during the three collection years. Weights will be used to ensure violence estimates are not biased by non-response to the NCVS.

Table 3-7 shows non-response differs between demographic categories. Considering the sex of participants, females were more likely to complete an interview than males. On average 11.9% of females participants were not interviewed compared to 17.6% of the men in the sample (CV<0.5). The levels of non-response for whites and non-whites also differed. On average, 17.3% of non-whites did not complete an interview; the non-response level for whites averaged 14.1%. Note that non-response rates for men and non-whites are higher than for participants in general. Despite non-response in these categories, the number of completed interviews in each is large enough for the study.

Year	2003			2004			2005	
Interview #*	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**
Sample Size	139,197	79,497	40,896	138,702	78,832	38,427	177,672	60,118
% Not Interviewed	13.6	14.6	13.8	14.8	15.1	14.6	14.8	15.6
Interviews Completed	120,262	67,852	35,253	118,180	66,963	32,801	151,308	50,712

Table 3-6
Non-Response Statistics
National Crime Victimization Survey, 2003-2005

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005
*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.

Table 3-7
Distribution of Non-Response by Race, Age and Sex
National Crime Victimization Survey, 2003-2005

Year	2003			2004			2005	
Interview #*	1	2	3	1	2	3	1	2
Sample Size	139,197	79,497	40,896	138,702	78,832	38,427	177,672	60,118
Sex (%)								
Male	16.4	17.9	17.1	17.5	18.1	17.7	17.4	18.9
Female	11.1	11.7	10.8	12.3	12.3	11.9	12.5	12.7
Race (%)								
White	13.0	14.1	13.4	14.2	14.4	14.1	14.2	15.0
Non-White	16.2	17.3	16.0	17.3	18.1	17.5	17.7	18.5
*Age (%)**								
12-20	29.4	26.1	24.8	28.7	27.6	26.6	29.4	26.9
21-30	18.3	16.4	13.2	18.4	15.8	13.1	17.5	14.6
31-40	16.2	16.0	15.8	16.1	15.5	14.1	14.9	15.0
41-50	16.4	17.9	19.0	16.2	17.3	18.8	16.6	18.1
51-60	10.6	12.2	13.9	10.6	12.2	13.2	11.2	12.7
61-70	4.9	6.3	7.2	5.5	6.1	7.3	5.6	6.8
71-80	2.9	3.4	3.9	3.0	3.5	4.6	3.2	3.9
81-90+	1.3	1.8	2.2	1.6	2.0	2.4	1.7	2.0

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005

*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.

**Columns may not total 100% due to rounding error.

When levels of non-response are compared by participant age, it appears getting older makes participants more likely to complete an interview (see Table 3-7). The age group that consistently produces the highest levels of non-response is 12-20. On average, 27.4% of these participants do not complete an interview. That is nearly two times higher than the survey's general non-response level of 14.6%. This means more persons aged 12 to 20 years of age must be sampled to obtain the desired number of interviews for each year of age. On the other side of the age scale, persons 60 and older were much more likely complete an interview. This is one reason why the total number of people in the sample older than 60 is lower. In short, the elderly are more efficient survey participants than the young.

Non-response is an aspect of any survey that must be addressed. This section has shown how prevalent non-response is for the NCVS. In general, about 85% of those selected to participate in the survey completed an interview. Additionally, the large sample size ensures the target number of interviews was not threatened by non-response. The relationship between demographics and non-response were clear; males and non-whites were less likely to complete the survey than their counterparts. Young people in the sample, especially those under 20, were less likely than the elderly to be interviewed. Table 3-8 shows how completed interviews were distributed by race, sex and age. For the most part, the distribution of completed interviews matched the demographic distribution of the sample. The next section details how victimization was distributed amongst those who were interviewed during the collection years 2003-2005.

Table 3-8
Distribution of Completed Interviews by Race, Sex and Age
National Crime Victimization Survey, 2003-2005

Year	2003			2004			2005	
Interview #*	1	2	3	1	2	3	1	2
Completed Interviews	120,262	67,852	35,253	118,180	66,963	32,801	151,308	50,712
Gender (%)								
Male	46.4	45.7	45.4	46.2	45.8	45.3	46.4	45.7
Female	53.6	54.3	54.6	53.8	54.2	54.7	53.6	54.3
Race (%)								
Non-White	17.9	16.8	15.5	17.9	16.9	16.2	17.1	16.7
White	82.1	83.2	84.5	82.1	83.1	83.8	82.9	83.3
Age (%)								
12-20	14.3	12.1	10.5	14.2	11.8	10.1	13.2	10.8
21-30	16.8	12.8	9.6	16.6	12.7	9.6	15.1	11.4
31-40	18.4	18.0	16.8	17.8	17.4	16.1	17.1	16.7
41-50	18.2	19.8	20.7	18.5	20.0	21.0	18.9	20.6
51-60	13.8	15.7	17.5	14.1	16.0	18.1	15.5	17.3
61-70	8.8	10.2	11.6	8.9	10.6	12.0	9.9	11.2
71-80	6.5	7.7	9.0	6.5	7.7	8.8	6.8	8.0
81-90+	3.1	3.7	4.4	3.2	3.7	4.3	3.5	4.1

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005
*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.

Victimization: A Rare Event Captured by the NCVS

Collection year data contains limited information about victimization; namely whether or not someone was a victim and how many victimization incidents they experienced. One limitation relative to this analysis is that collection year data does not contain sufficient information to distinguish violent victimizations from all other types. Data that details the specifics of victimizations is only available in a calendar year format. This section dichotomizes individuals as victims or non-victims. It does not elaborate upon the type of victimization or its relationship to a specific activity. That information can be found in the next section of the chapter which describes the calendar year victimization data.

Table 3-9
Victimization Statistics, All Crime Types
National Crime Victimization Survey, 2003-2005

Year	2003			2004			2005	
Interview #*	1	2	3	1	2	3	1	2
Completed Interviews	120,262	67,852	35,253	118,180	66,963	32,801	151,308	50,712
% Victimized	5.5	4.8	4.0	5.3	4.3	3.9	5.2	4.1
Total Number of Victims	6,556	3,229	1,426	6,309	2,900	1,279	7,852	2,071

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005
*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.

Victimization of any kind, violent or not, was rare for those interviewed by the NCVS from 2003-2005 (see Table 3-9). On average, 95.4% of those interviewed had not been the victim of a crime in the 6 months prior to the survey (CV<0.5). Of the 643,000 interviews completed during these three collection years, just 31,000 of them identified a criminal victimization. Thus in order to obtain a good sample of victimization in the United States, the NCVS must interview a large number of people to produce valid estimates of a relatively rare phenomenon. Remember that the figures in Table 3-9 represent all forms of victimization including violent and non-violent crimes. The proportion of victims experiencing a violent victimization is addressed later in this chapter.

Repeat Victimization

The initial victimization findings indicate the vast majority (~95%) of those interviewed by the NCVS are not victims. Table 3-10 provides more information about the individuals who were victimized in relation to how many times they were the victim of a crime. In short, 87% of victims were victimized once while just 13% experienced multiple victimizations during the 6 month period preceding the interview (CV<0.5). This means less than 1% of NCVS interviewees experienced multiple victimizations of any type. Thus two conclusions can be made from the collection year data: (1) victimization is rare amongst NCVS participants (<5% of those interviewed) and (2) multiple victimizations are extremely rare (<1% of those interviewed).

Table 3-10
Multiple Victimization Statistics, All Crime Types
National Crime Victimization Survey, 2003-2005

Year	2003			2004			2005	
Interview #*	1	2	3	1	2	3	1	2
Victims	6,556	3,229	1,426	6,309	2,900	1,279	7,852	2,071
% Victimized One Time	86.1	87.9	88.1	85.9	87.2	88.9	86.3	88.5
% Victimized More Than Once	13.9	12.1	11.9	14.1	12.8	11.1	13.7	11.5

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005
*Persons in the sample could be interviewed 1-3 times during each data collection year
depending on attrition.

Victim Demographics

Table 3-11 details the demographics of those who reported one or more victimizations during their interview. Beginning with the sex of those interviewed, females accounted for a slight majority of the victims; on average 53.7% were women (CV<0.5). When looking at the number of completed interviews, 46% were male and 54% were female. In other words, the distribution of male and female victims is nearly identical to the distribution of those who were interviewed. This indicates males and females reported victimizations at a similar rate. The same was true of the dichotomous race variable. Whites accounted for 83% of the completed interviews and 82% of the victimizations. Non-whites totaled 17% of those interviewed and 18% of those victimized. Much like the sex, it appears victimization was reported at similar rates for whites and non-whites. Without using weights to estimate victimization, the raw data indicates sex and race have little effect on the likelihood of victimization.

Table 3-11

Victimizations Recorded by Race, Sex and Age, All Crime Types

National Crime Victimization Survey, 2003-2005

Year	2003			2004			2005	
Interview #*	1	2	3	1	2	3	1	2
Victims	6,556	3,229	1,426	6,309	2,900	1,279	7,852	2,071
Gender (%)								
Male	47.3	46.3	45.3	46.7	45.6	45.3	46.6	46.8
Female	52.7	53.4	54.7	53.3	54.4	54.7	53.4	53.2
Race (%)								
Non-White	20.0	18.4	16.2	19.7	17.6	14.5	17.6	16.3
White	80.0	81.6	83.8	80.3	82.4	85.5	82.4	83.7
Age (%)								
12-20	20.7	16.6	16.6	19.7	15.4	14.1	17.4	13.5
21-30	24.1	17.8	12.8	23.7	17.3	13.6	21.5	15.1
31-40	19.8	20.0	19.8	19.5	19.2	19.0	19.5	18.7
41-50	17.6	21.8	22.9	17.9	21.8	23.8	19.4	22.7
51-60	10.4	13.5	16.0	11.4	14.8	16.4	12.8	16.9
61-70	4.5	5.7	5.6	4.2	7.0	7.3	5.4	7.3
71-80	2.0	3.3	4.6	2.6	3.3	3.8	2.9	4.2
81-90+	0.9	1.2	1.8	1.1	1.2	2.0	1.2	1.7

Source: NCVS Person Record Type Files, Collection Year Data, 2003-2005

*Persons in the sample could be interviewed 1-3 times during each data collection year depending on attrition.

Unlike sex and race, the age of a participant seemed to shed more light on the likelihood that they would be victimized. According to the data, those aged 12-20 and 21-30 were overrepresented in the victimization data. Participants aged 12-20 accounted for 12% of the interviews and 17% of the victimizations; those aged 21-30 accounted for 13% of the interviews and 18% of the victimizations. None of the other age categories showed a dramatic difference such as this. Participants aged 31-40, 41-50 and 51-60 all accounted for approximately the same percentage of interviews as victimizations. Participants aged 60 and older showed a victimization pattern opposite of the two youngest categories. The age groups 61-70, 71-80 and 81-90+ all accounted for a smaller percent of the victimizations than they did for the interviews. For example, the 61-70 age group comprised 10% of the completed interviews and just 5% of the victimizations.

In general, these data indicate being younger than 30 put NCVS participants at a greater risk of being victimized. Conversely, being over 60 put participants at a much lower risk of victimization. On average, nearly 90% of all victimizations reported were against those aged 60 or younger. These findings support the idea that age is a demographic strongly related to victimization.

Summary of Collection Year Data

The NCVS collection year data for 2003-2005 was used to describe the demographics of the sample, levels of non-response to the survey and introduced the prevalence of victimization reported by those who were interviewed. In general, the validity of using dichotomous sex and race variables was supported by the sample's distribution. The sex of those interviewed was split nearly evenly between men and woman with a slight

majority being female. Because a large proportion of the sample was white (~80%),

combining all other race categories makes sense to ensure there are enough individuals in

the non-white category. The sample's age distribution is large enough to analyze the

variable by single year; however the tables presented used 10 year increments to save

space.

The collection year data indicated victimization is reported by approximately 5% of those

interviewed and multiple victimizations by less than 1%. Demographic breakdowns of

the victims' age, sex and race indicated age may be the only variable directly tied to the

risk of victimization. However, this preliminary analysis was performed using

unweighted data and may not account for sampling prejudice. Weighted data will be

used when violence estimates are calculated for activity- and place-specific victimization

rates. Because the collection year data does not allow victimizations to be deemed violent

or non-violent, the next section of uses calendar year data to describe the incidence of

violence recorded by the NCVS.

Violent Victimizations Captured by the NCVS

Calendar Year Data, 2003-2005

A calendar year refers to the 12 month period between January 1st and December 31st; a

collection year is an 18 month period. The sample and victimization information

summarized above was taken from collection year data. Because each dataset was

obtained over one and a half years, some of the victimizations recorded in a collection

year may not have occurred during the same calendar year. For example, a participant

could be interviewed in February of 2004 as part of the 2003 NCVS data collection

period. If this person reports being victimized in January of 2004, the victimization

appears in the 2003 collection year data despite the fact that it occurred in 2004. This

means a separate data source must be used to enumerate the number of victimizations that

are recorded for each calendar year.

For this analysis, the NCVS Incident-Level Extract Files have been used to determine

how much victimization occurred during each calendar year. To be clear, victimization

incidents are different than victimizations. A single victimization refers to one person

being harmed; an incident refers to one act that may harm one or more people. For

example, if two people are walking down the street together and are robbed at knifepoint

the NCVS would consider this to be one incident with two victims. For this discussion,

incidents will be used to describe the types of crimes captured by the NCVS. Each

incident has a victimization weight assigned to it that can be used to calculate nationally

representative estimates of victimization. These weights will be used in later chapters to

estimate the incidence of violence and when calculating rates of violence. The purpose

of this section is to outline the incidence of violence captured by these three years of

NCVS data.

Violent Incidents: How Many Were Captured by the NCVS between 2003 and 2005?

This dissertation's focus is on violent victimizations. The collection year data provided

broad indicators about victimization in general, but said nothing about the types of crimes

victims experienced. In other words, the first step that needs to be done with the calendar

year data is to separate violent victimizations from all other types. Table 3-12 lists the

number of incidents recorded in the survey by their relationship to violence.

Table 3-12 Victimization Incidents Captured in the National Crime Victimization Surveys by Relationship to Violence 2003-2005				
%	**2003**	**2004**	**2005**	**2003-2005**
Non-Violent	80.0	81.1	80.4	80.5
Pocket-Picking and Purse Snatching	0.8	0.7	0.8	0.8
Violent	19.2	18.2	18.8	18.7
Total	100.0	100.0	100.0	100.0
Total Number of Incidents	8,915	8,193	7,892	25,000
Total Number of Violent Incidents	1,709	1,491	1,482	4,682
Source: NCVS Incident-Level Extract Files, Calendar Year Data, 2003-2005				

The NCVS data indicate approximately 8,000 incidents are identified by the survey each

calendar year; a total of 25,000 incidents were enumerated during the study period. On

average, 80.5% of the incidents are considered to be non-violent victimizations

(CV<0.5). Pocket-picking and purse snatching account for less than 1% of the incidents

while violence rounds out the last 18-19%. For the three calendar years used in this

dissertation, a total of 4,682 violent incidents were identified by the survey. Non-violent,

pocket-picking and purse snatching incidents are excluded from this analysis. The

remainder of this chapter will focus on the violent incidents recorded.

There are twenty different types of violent incidents captured by the NCVS. Table 3-13

gives a complete list of these offenses and shows how they are coded according to the

NCVS seriousness hierarchy. This hierarchy will be used to analyze the relationship

between activities, places and the severity of crimes committed with in them. Any time

violence is referred to in this dissertation it indicates the combined total of all

victimizations recorded or estimated. Specific victimizations will be referred to by their

name such as "completed rape" or "verbal threat of assault."

Table 3-13	
The NCVS Seriousness Hierarchy,	
Violent Victimizations	

Rank	*Victimization Type*
Most Serious - 1	Completed rape
2	Attempted rape
3	Sexual assault with serious assault
4	Sexual assault with minor assault
5	Completed robbery with injury from serious assault
6	Completed robbery with injury from minor assault
7	Completed robbery without injury from minor assault
8	Attempted robbery with injury from serious assault
9	Attempted robbery with injury from minor assault
10	Attempted robbery without injury
11	Completed aggravated assault with injury
12	Attempted aggravated assault with weapon
13	Threatened assault with weapon
14	Simple assault completed with injury
15	Sexual assault without injury
16	Unwanted sexual contact without force
17	Assault without weapon without injury
18	Verbal threat of rape
19	Verbal threat of sexual assault
Least Serious - 20	Verbal threat of assault

Source: U.S. Dept. of Justice, NCVS Codebook, 2003

The relatively large number of data points, more than 4,500 incidents, adds to the strength of this dissertation's analysis. With this many cases, a detailed study of victimization by crime type and victim demographics will not be limited by a lack of data. Table 3-14 gives a break down of the number of incidents reported each calendar year by the type of violent crime. Column A lists the types of crime captured by the NCVS. Column B adds an extra layer of detail to each crime by indicating if it was completed, attempted, resulted in some type of injury, etc. Column F provides the total number of incidents reported for each crime. Each crime type is numbered from 1-20 for an easier discussion and reading of the table.

	(A)	(B)	(C)	(D)	(E)	(F)
	Crime Type	Description	2003	2004	2005	Total
	Rape					
(1)		Completed	31	17	24	**72**
(2)		Attempted	16	11	14	**41**
	Sexual Attack					
(3)		With serious assault	6	3	3	**12**
(4)		With minor assault	5	5	3	**13**
	Completed Robbery					
(5)		With injury from serious assault	21	18	26	**65**
(6)		With injury from minor assault	23	12	22	**57**
(7)		Without injury from minor assault	67	70	70	**207**
	Attempted Robbery					
(8)		With injury from serious assault	7	12	3	**22**
(9)		With injury from minor assault	8	6	18	**32**
(10)		Without injury	47	41	44	**132**
	Aggravated Assault					
(11)		Completed with injury	124	95	99	**318**
(12)		Attempted with weapon	89	85	75	**249**
	Assault					
(13)		Threatened with weapon	113	111	117	**341**
(14)		Without weapon or injury	428	354	328	**1,110**
(15)		Simple completed with injury	268	231	215	**714**
(16)		Sexual without injury	11	15	11	**37**
	Unwanted Sexual Contact					
(17)		Without force	5	3	3	**11**
	Verbal Threat					
(18)		Of rape	2	4	4	**10**
(19)		Of sexual assault	2	4	3	**9**
(20)		Of assault	436	394	400	**1,230**
	TOTAL		**1,709**	**1,491**	**1,482**	**4,682**

Table 3-14
Type of Violent Incidents Captured in the
National Crime Victimization Surveys, 2003-2005

Source: NCVS Incident-Level Extract Files, Calendar Year Data, 2003-2005

Of the twenty crime types captured by the NCVS, two stand out as the most common. Completed assaults without weapons or injury and verbal threats of assault account for 50% of the violence reported during these three years. Indeed these are the only two crime types that total more than 1,000 incidents each for the three year period. This is an interesting finding as it implies that at least half of the violence captured by the NCVS results in no injury. The third most common violent crime committed against NCVS victims was simple assault with injury; 714 of these incidents were recorded from 2003-2005. In other words, 65% of the violence captured by the NCVS falls under one of three crime types. These data indicate the three crime types that account for the majority of NCVS violent incidents will be the easiest to study when broken down into groups such as single year of age.

The other 17 crime types listed in Table 3-14 may not produce enough cases for a rigorous analysis of age as a continuous variable. For example, in 2003 only 31 completed rapes were captured by the NCVS (Row 1, Column C). Creating estimates for single years of age will not be possible for this crime as many ages will have no rapes reported. Another problem to consider is the number of incidents that will be lost when this NCVS data is trimmed to match the respondent characteristics of the American Time Use Survey (ATUS) data. The ATUS collects information from Americans aged 15 and older who are not active duty military personnel meaning violent incidents involving those aged 12, 13 and 14 will be removed from the NCVS data presented above. The data trimming and merging will be described in further detail below. The point of this discussion was to enumerate the total number of violent incidents captured by the NCVS and show their distribution by crime type.

The Demographics of Violence in America

Thus far calendar year data has enabled us to separate violent incidents from all other types of victimization and provided information about types of violence captured by the NCVS. This section presents demographic information about those reporting involvement in a violent incident from 2003-2005. Table 3-15 gives this information for each year and presents the average percent of violent incidents that each demographic group accounts for (Column D).

The first two demographic variables to be examined are sex and race. Rows 1 and 2 show the percent of violent incidents reported by males and females each year. On average, 54% of the violent incidents were reported by males despite the fact that males only comprised 46% of the survey's completed interviews. This a different pattern than what was found with the collection year data that included all types of victimization. That data showed men and women were reporting victimization at a level consistent with their completion of interviews. When examining violence alone, it appears that men are reporting higher levels of violence than females. Thus sex appears to have no effect on victimization in general but is important for understanding patterns in violence.

When race is considered (Rows 3 and 4), whites were involved in 80% of the violent incidents reported; non-whites accounted for the remaining 20%. On average, 83% of the completed interviews were with whites and 17% with non-whites. This means violence, unlike all types of victimization, shows a slightly higher tendency among non-whites.

These data indicates sex and race may be more important to explaining violent victimization than victimization in general.

		(A) 2003	(B) 2004	(C) 2005	(D) Average*
Table 3-15 **Demographics of Individuals Reporting** **Involvement in a Violent Incident** **National Crime Victimization Survey, 2003-2005**					
Sex (%)	**(1) Male**	54.3	53.3	53.6	53.7
	(2) Female	45.7	46.7	46.6	46.3
Race (%)	**(3) Non-White**	19.0	19.9	20.8	19.9
	(4) White	81.0	80.1	79.2	80.1
Age (%)	**(5) 12-20**	32.4	27.8	29.4	29.9
	(6) 21-30	24.2	22.9	22.5	23.2
	(7) 31-40	16.3	17.9	17.3	17.2
	(8) 41-50	16.7	18.2	15.7	16.9
	(9) 51-60	7.8	9.7	10.5	9.3
	(10) 61-70	1.9	3.0	3.8	2.9
	(11) 71-80	0.6	0.5	0.5	0.5
	(12) 81-90+	0.1	0.1	0.2	0.1
	Total Number of Violent Incidents	1,709	1,491	1,482	4,682

Source: NCVS Incident-Level Extract Files, 2003-2005
*CV is less than 0.5 for all averages.

The last demographic variable examined was age. Looking at Table 3-15, the average percent of violent incidents (Column D) declines with age (Rows 5-12). The group with the highest percent of involvement was NCVS participants aged 12-20; they accounted for nearly 30% of all violence. At the other end of the spectrum, those aged 60 or older were rarely involved in a violent incident. On average, the three age groups above 60 had a combined total of 3.5% of all violent incidents. When compared to the age demographics of completed interviews, it is clear that the young, especially those under 30 are overrepresented in the violent victimization statistics. Respondents aged 12-20 accounted for 12% of the interviews and 30% of the violent incidents reported; 21-30 year olds accounted for 13% of interviews and 23% of violent incidents. Put another way, 25% of the sample was responsible for 53% of the violent incidents. Thus age is again a demographic associated with the likelihood of experiencing victimization. This has held true for victimization in general but appears to be more pronounced for violent victimizations. The next description of NCVS calendar year data will focus on the activities victims were engaged in when the violent incident occurred. This information quantifies the incidence of violence across different activities Americans engage in.

Activities and Violence

One purpose of this dissertation is to calculate activity-specific risks of violence. All of the information presented in this chapter has been informative but gave no indication of a link between activities and violence. Table 3-16 shows the distribution of violent incidents across 12 activity categories coded by the NCVS. Rows 1-12 represent each activity while Columns A-D give the number of incidents reported in each activity by

year. Column E gives the percent of violence reported in each activity over the three year period. Rows 10-12 are categories used when the victim could not remember what they were doing when the incident occurred or were engaged in an activity no covered by categories 1-9. These incidents, a total of 370, will be removed from the NCVS data when it is combined with ATUS data to calculate participant-, visitor-, and time-based rates of violence. The reasoning for this is simple; if the victim could not identify what they were doing when the incident occurred, it is impossible to assign a time-use value for this unknown activity. According to the data, this means less than 10% of the violent incidents captured in the NCVS from 2003-2005 will be excluded from the analysis.

Table 3-16 Number of Violent Incidents Captured by Victim Activity National Crime Victimization Survey, 2003-2005					
Activity[1]	**(A)** **2003**	**(B)** **2004**	**(C)** **2005**	**(D)** **Total**	**(E)** **% of** **Total**
(1) Working or on duty	292	273	226	791	16.9
(2) On way to/from work	61	66	54	181	3.9
(3) On way to/from school	58	43	55	156	3.3
(4) On way to/from other	126	125	142	393	8.4
(5) Shopping, errands	80	62	57	199	4.3
(6) Attending school	141	114	114	369	7.9
(7) Leisure activity away from home	363	317	323	1,003	21.4
(8) Sleeping	34	32	38	104	2.2
(9) Other activities at home	405	337	374	1,116	23.8
(10) Other	142	110	96	348	7.4
(11) Don't know if (3) or (4)	6	9	1	16	0.3
(12) Don't know (5)-(11)	1	3	2	6	0.1
TOTAL	**1,709**	**1,491**	**1,482**	**4,682**	**99.9**

Source: NCVS Incident-Level Extract Files, Calendar Year Data, 2003-2005
[1]NCVS Variable V4478: Activity at Time of Incident

Looking to the number of violent incidents reported in Rows 1-9, three activities stand out from the rest; each accounts for more than 15% of the violence recorded. As Column E shows, no other activity accounted for more than 9% of the total violence recorded. During the three year period, 24% of the violence captured occurred during other activities at home, 21% during leisure activity away from home, and 17% while respondents were working. In short, 62% of all violence occurred in one of these three activities. Using incidence alone, one would consider these to be the most dangerous activities. However, this dissertation moves one step further by comparing the incidence of violence in these activities to the number of people who engage in the them and how much time they spend performing each activity.

Column D shows the total number of violent incidents reported in each activity. It is important to note that there are at least 100 incidents reported during each activity. This means at least 100 cases will be used to produce victimization estimates for each activity. The relatively large nature of the NCVS dataset makes it an excellent candidate for elucidating the link between everyday activities and the risk of victimization. The next will explain how weights are used to estimate the number of violent victimizations occurring in each activity based on the incidents presented above. These estimates represent the numerator data that will be used to calculate activity-specific rates of violence. The next section describes how the distribution of violence across various types of places in the United States.

Violent Places

In order to calculate place-specific rates of violence, numerator data is needed that

describes the incidence of violence across various types of places. Table 3-17 details the

coding procedure used by the NCVS to identify the places where violence occurs. There

are 26 different categories available that are further categorized into 8 broad groups that

describe a type of location. This variable and the victimization weight of each incident

are used in this dissertation to estimate the incidence of violence in different places. The

unweighted incidence of violence in these places is reported below; the specific places

have been aggregated to the 8 broad categories to conserve space.

Table 3-17 National Crime Victimization Survey Place Variable	
Variable	*Coding Rules*
V4024 Where Did Incident Happen	In respondent's home or dwelling 1—In own dwelling, own attached garage, or enclosed porch 2—In detached building on own property, such as a detached garage, storage shed, etc 3—In vacation home/second home 4—In hotel or motel room respondent was staying in Near own home 5—Own yard, sidewalk, driveway, carport, unenclosed porch 6—Apartment hall, storage area, laundry room 7—On street immediately adjacent to own home At, in, or near a friend's/relative's/neighbor's home 8—At or in home or other building on the property 9—Yard, sidewalk, driveway, carport 10—Apartment hall, storage area, laundry room 11—On street immediately adjacent to their home Commercial Places 12—Inside restaurant, bar, nightclub 24—Inside bank 25—Inside gas station 26—Inside other commercial building such as a store 13—Inside other commercial building such as store, bank, gas station 14—Inside office, factory or warehouse Parking lots/garages 15—Commercial parking lot/garage 16—Noncommercial parking lot/garage 17—Apartment/townhouse parking lot/garage School 18—Inside school building 19—On school property Open areas, on street or public transportation 20—In apartment yard, park, field, playground 21—On street 22—On public transportation or in station Other 23—Other 98—Residue 99 (M)—Out of universe
Source: U.S. Dept. of Justice, NCVS Codebook, 2003	

Place[1]	(A) 2003	(B) 2004	(C) 2005	(D) Total	(E) % of Total
Table 3-18 **Number of Violent Incidents Captured by Place** **National Crime Victimization Survey, 2003-2005**					
(1) Home	295	237	264	796	17.0
(2) Near Home	232	211	244	687	14.7
(3) Friends Home	142	141	132	415	8.9
(4) Commercial	221	194	170	585	12.5
(5) Parking Lot	130	108	108	346	7.4
(6) School	232	186	168	586	12.5
(7) Open Area or Public Transit	312	278	283	873	18.6
(8) Other	145	136	113	394	8.4
TOTAL	**1,709**	**1,491**	**1,482**	**4,682**	**100.0**

Source: NCVS Incident-Level Extract Files, Calendar Year Data, 2003-2005
[1]NCVS Variable V4024: Where Did the Incident Occur

Looking at Table 3-18, the data show violence is not evenly distributed across different types of places. Looking down Column E, it appears that home and open areas or public transit account for the largest proportions of crime. If the home and near home categories are combined, more than 30% of the violence reported during the study period occurred in these places. Much like the activity-specific incidence data presented above, these numbers do not provide the most accurate picture of place-specific risks. Because they neglect the population size that frequents these places and the amount of time visitors spend there, it is hard to say which place is the most dangerous. For example, the amount of time spent at home each day by the American population may explain why so much violence occurs there. In other words, because we spend lots of time at home everyday, possibly more than anywhere else, more violence should be expected at this location. By adding population and time use information to the denominator of a rate calculation, this dissertation will produce place-specific risk estimates that move far beyond the incidence data collected by the NCVS.

Summary of Violence Statistics

This section has used NCVS statistics relative to the calendar years 2003-2005 to describe the distribution of violence across demographic categories, activities and places. The first data presented showed that of all victimizations occurring during a calendar year, approximately 18% are violent; the remaining are categorized as non-violent, pocket-picking or purse snatching. When the demographics of NCVS participants involved in a violent incident were examined, two conclusions were made: (1) males and non-whites are overrepresented in the violence statistics and (2) the young are vastly

overrepresented in violent incidents while the elderly are vastly underrepresented. The

conclusion referring to race and sex is slightly different than those reached using

collection year data which suggested race and sex had little effect on the likelihood of

victimization. The major difference between the two datasets is rooted in the calendar

year's specificity of crime type. Collection year data gave information about all types of

victimization while the calendar year analysis focused on violence only. Thus sex and

race may be important to understanding violence but not victimization in general.

The calendar year data was also used to examine how violence is distributed across

twenty different crime types. It was found that three types of violent crime comprised

65% of all violence captured by the NCVS; these were assault with no weapon or injury,

verbal threats of assault and simple assault with injury. Looking at the number of violent

incidents recorded for each crime type, it appears these three will allow an analysis of age

as a continuous variable due to the large number of cases. The other seventeen crime

types may not prove as fruitful due to a low number of incidents. This and other data

limitations concerns will be addressed in later chapters.

The final variables examined were the activity victims were engaged in when the violent

incident occurred and the location of the incident. It was found that 62% of all the

violent incidents reported occurred in just one of three activities: other at home activities,

leisure away from home and working. The data also indicated that approximately 10% of

the violent incidents recorded in the NCVS must be excluded from the analysis. These

incidents are not associated with a specific activity because the respondent could not

remember what he or she was doing or was engaged in an activity that did not fall into one of the nine activity categories. The next chapter will discuss how this affects the total number of violent incidents used in the analysis and the changes it has on victim demographics. With respect to the location of violence, incidence data indicate more than 30% of the violence recorded occurred at or near the respondent's home. Open areas or public transit also had a large proportion of the violent incidents, approximately 20%. Performing activity- and place-specific risk assessments using NCVS data alone is limited by the lack of time use data. The victimization survey says nothing about the population size of an activity or the amount of time people engage in it for; the same is true of the place data. The next section describes how the American Time Use Survey is capable of producing this information thereby enabling criminologists to calculate participant-, visitor- and time-based rates of violence for different places and activities.

<div align="center">

DENOMINATOR DATA:
AMERICAN TIME USE SURVEY

</div>

The American Time Use Survey "provides nationally representative estimates of how, where, and with whom Americans spend their time…" (ATUS Overview, 2008) In this dissertation, ATUS data will be used to quantify the amount of time Americans spend in various places and activities. Knowing the amount of time spent in certain activities and places will enable the calculation of time-based rates of violent victimization. The ATUS data will also be used to estimate the number of Americans who engage in specific activities everyday and the number who visit particular places. This will allow participant- and visitor-based rates of victimization to be calculated for different places

and activities. The sections that follow describe the ATUS sample and interview

procedures.

Sampling Procedure

The ATUS collects time use information from non-institutionalized, American civilians

aged 15 and older. The Bureau of Labor Statistics is responsible for collecting and

managing the ATUS. Using the Current Population Survey (CPS) as a sampling frame,

the survey is a stratified, three stage sample capable of producing nationally

representative time use estimates.

In the first stage, a sub-sample of CPS households is chosen so that each state has a

number of respondents proportional to the national population it represents. The next

stage involves stratifying the households based on: the race of the householder, presence

and age of children, and the number of adults in adult-only households. In 2003,

approximately 3,375 households were included in the sample each month. Beginning in

2004, this number was scaled back to 2,194 households a month to keep the survey

within its allotted budget. This results in a total of approximately 26,000 households

being selected every year. The final stage involves selecting one respondent from each

household aged 15 or older. At this point, every person in the household has an equal

chance of being selected (ATUS User's Guide, 2009).

Individuals selected by the ATUS to participate in the survey receive a letter in the mail

notifying them of their interview date. The letter includes frequently asked questions

about the ATUS and explains the importance of the survey. Because houses without telephones are not excluded from this survey, they are sent a letter with a call-in number to complete the survey. Respondents without telephones are promised a $40 debit card if they complete the survey, households with phones receive no compensation. If the respondent is younger than 18 years of age, a letter is sent to their guardian. The flyer explains that no proxy interviews are accepted and emphasizes the need to gather information about the time use of minors (ATUS User's Guide, 2009).

Much like the NCVS, the ATUS suffers from problems of non-response. According to the data presented above, the NCVS averaged a non-response rate of approximately 15% between 2003 and 2005. When compared to NCVS rates, the ATUS non-response rate is significantly higher. Data indicate the response rate, or proportion of households completing the survey, was 57.8% in 2003, 57.3% in 2004 and 56.6% in 2005 (ATUS User's Guide, 2009). The response rates for households without a phone were much lower; in 2008 approximately 32% of these households completed the survey. The most common reasons households did not complete the survey was survey fatigue (ATUS User's Guide, 2009). In other words, the households were tired of completing surveys. Research has shown the current weighting techniques utilized by the ATUS minimize the effect of non-response on the reliability of time use estimates (Abraham, et al., 2006). The prevalence of respondent fatigue for the ATUS is markedly different than what is seen with the NCVS where this problem is not a major issue (Hart et al., 2005). The next section describes the interview procedure for those who agreed to participate in the survey.

Interview Procedure

Those responsible for implementing the ATUS determined computer-assisted telephone interviews were the most efficient and cost-effective way of collecting time use data (Horrigan and Herz, 2004). On the day of their interview, respondents are called and asked to describe the activities they engaged in the day before. For example, an interview about a respondent's Sunday activities would be performed on Monday. Interviewers ask respondents to describe their day beginning at 4:00 a.m. and collect data for the 24 hour period that follows. The major strength of this technique is the short time lag between the reference period and the interview (Hamermesh et al., 2005). Additionally, the 4:00 a.m. start time allows respondents to think through their day from the beginning (i.e. waking up). A retrospective survey of time use avoids the problem of written time use diaries which may bias a respondent's actions (ATUS User's Guide, 2009).

During their interview respondents indicate the start and stop time for each activity they engaged in. The location each activity occurred in also recorded. Every activity is coded using a three-tier system described in the American Time Use Survey Activity Lexicon for the corresponding year. The first tier describes a general category that the activity falls under. The second tier is a more detailed category and the third tier is the actual activity itself. For example, in 2003 the code for sleeping was 01-01-01. The first two numbers indicate this is a personal care activity (01), the next two describe it as sleeping (01), and the final two indicate the respondent was actually asleep (01). Note that this is

different from sleeplessness which is coded as 01-01-*02* (ATUS Activity Lexicon, 2003).

This example clearly shows the level of detail collected in the time use survey. In order

to create time use estimates for the NCVS activity categories presented above, the ATUS

data will have to be recoded to match the NCVS activities. This is no small task as there

are more than 400 ATUS activities that must be aggregated to the 10 NCVS categories.

The details of this procedure are discussed later in the chapter. The section describes the

demographic distribution of the ATUS sample during the study period.

Demographics of Respondents

This section provides information about the demographics of ATUS respondents. The

data are presented in the same fashion as the NCVS demographic statistics above and

show similar distributions along the categories of age, race and sex (see Table 3-19

below). To begin, it is important to highlight the total number of respondents who

completed an interview each year. Notice that there are significantly fewer ATUS

respondents than there NCVS respondents. This is not an unexpected reality as

measuring time use is much more straightforward than measuring victimization. In other

words, every person who is interviewed by the ATUS provides time use information

while only 5% of those interviewed by the NCVS provide victimization information. The

decrease in respondents after 2003 reflects the sample size change that was made to the

ATUS in 2004; as noted above budget constraints resulted in few people being included

in the sample.

	2003	2004	2005	Average 2003-2005
Table 3-19 Distribution of Interviews by Age, Sex and Race American Time Use Survey, 2003-2005				
Sex (%)				
Male	43.7	43.8	42.9	43.5
Female	56.3	56.2	57.1	56.5
Race (%)				
White	83.5	84.1	82.9	83.3
Non-white	16.5	15.9	17.1	16.5
Age (%)				
15-20	7.7	7.5	7.8	7.7
21-30	12.7	12.6	13.0	12.8
31-40	21.4	20.2	21.3	21.0
41-50	21.2	20.4	21.2	20.9
51-60	15.8	16.7	15.4	16.0
61-70	10.4	11.4	10.3	10.7
71-85+	10.8	11.3	11.0	11.0
Individuals Interviewed	20,720	13,973	13,038	15,910
Source: ATUS Activity Summary Files, 2003-2005				

Much like the NCVS, the ATUS datasets have weighting variables that will be used to provide nationally representative estimates that account for the uneven distribution of interviews across demographic variables. These weights will also adjust for non-response. After the ATUS activities have been recoded to match the NCVS data, it will be possible to create time use estimates for each activity and demographic group using the weights provided. The weights will also be used to determine the number of Americans who engage in specific activities every day and visit different places. The next section how the ATUS interviews are distributed across the week to ensure time use diaries collected on weekdays and weekends are weighted appropriately.

Distribution of Interviews by Weekday

To prevent sampling errors related to the day of interviews, respondents are split evenly across weekdays and weekends to obtain a more accurate picture of how time use varies. The following describes the distribution of respondents: each weekday gets 10% of the sample and each weekend day gets 25% (ATUS User's Guide, 2009). This strategy ensures enough information is collected to determine differences in time use on weekdays compared to weekends. Table 3-20 summarizes how interviews from 2003-2005 were distributed across the week. The data show each weekday represented approximately 10% of the total interviews while each weekend day accounted for 25%. The weights used to make time use estimates consider which day of the week the diary represents to ensure weekend activities are not used to represent time use during the week.

Day of the Week	2003 (%)	2004 (%)	2005 (%)	Average* (%)
Table 3-20 **Distribution of American Time Use Survey Interviews by Day of the Week 2003-2005**				
Sunday	25.3	25.3	25.0	25.2
Monday	10.4	10.0	10.2	10.2
Tuesday	10.1	10.0	10.1	10.1
Wednesday	9.7	10.3	9.9	10.0
Thursday	9.5	9.9	10.0	9.8
Friday	9.6	9.6	10.0	9.7
Saturday	25.3	24.8	24.8	25.0
Individuals Interviewed	**20,720**	**13,973**	**13,038**	**15,910**
Source: ATUS Activity Summary Files, 2003-2005				
*Coefficient of variation is less than 0.01 for all averages.				

The Location of Activities

Although the ATUS is designed to measure the amount of time Americans spend in specific activities, it can also be used to estimate how much time they spend in different types of places. Table 3-21 outlines the ATUS coding rules used to identify the location where respondent activities took place. When compared to the NCVS place identifiers, there are similarities and differences between these two coding schemes. In general, the NCVS is much more specific about the location of victimizations while the ATUS uses broader categories. For example, the NCVS has multiple categories that describe the location home or near home while the ATUS has just one, respondent's home or yard. Conversely, the ATUS is much more specific about transportation variables than the NCVS. While the NCVS lumps all public transportation into one category, the ATUS makes distinctions between travel on buses, trains, airplanes and taxis. Despite these differences, it will be possible to match the NCVS and ATUS place identifiers using broad categories where necessary. In short, the ATUS place variable enables population and time use estimates to be calculated for a variety of different places. These estimates can then be used as denominator data to calculate participant-, visitor- and time-based rates of violence for a place-specific model of risk. The next section describes how the ATUS and NCVS datasets will be combined to produce the most accurate and complete rates of violence for different activities and places available in the criminological literature.

Table 3-21 ATUS Place Variable	
Variable	*Coding Rules*
TEWHERE Where were you during the activity?	1—Respondent's home or yard 2—Respondent's workplace 3—Someone else's home 4—Restaurant or bar 5—Place of worship 6—Grocery store 7—Other store/mall 8—School 9—Outdoors away from home 10—Library 11—Other place 12—Car, truck or motorcycle (driver) 13—Car, truck or motorcycle (passenger) 14—Walking 15—Bus 16—Subway/Train 17—Bicycle 18—Boat/Ferry 19—Taxi/limousine service 20—Airplane 21—Other mode of transportation 89—Unspecified place 99—Unspecified mode of transportation
Source: ATUS Interview Data Dictionary, 2003	

CALCULATING VIOLENCE RATES

In a perfect world, one survey would collect everything we wanted to know about time use and violent victimization. In reality, the two surveys that provide this information for America have been collected and coded for specific research purposes. This means comparing the incidence of victimization in activities and places to the time spent in those same activities and places will require some manipulation. This project will recode American Time Use Survey data into activity and places categories that will enable time use estimates produced by the survey to be matched with victimization estimates produced by the National Crime Victimization Survey. The next sections describes how the datasets will be matched on demographic, activity and place variables.

Demographic Matching

A source of disjuncture between these datasets is the age and civilian status of respondents. The NCVS estimates the number of victimizations experienced by Americans twelve and older; the ATUS provides time use estimates for those aged fifteen and up. The current project will remove respondents younger than 15 from the NCVS (numerator) data to match them with the ATUS (denominator). This will result in a loss of victimizations reported by those younger than 15. While this data loss is a limitation of the study, removing these cases is necessary to match the datasets. It would be imprecise to estimate time use for those aged 12-14 using 15 year old respondents.

As noted above, the ATUS is specific to the civilian population of America while the NCVS includes military personnel. This means it is necessary to remove active duty military personnel from the NCVS data. This is easily done using variable "V3019" in the NCVS data which identifies if the respondent is currently a member of the armed forces (U.S. Dept. of Justice, NCVS Codebook, 2003). This too may result in losing victimization data however it increases the precision of the numerator and denominator matching. Once the datasets have been matched on these demographic variables, the next step is to match the activity and place information collected by both surveys. The follow section describes how this will be done.

Activity and Place Matching

In order to calculate participant-, visitor- and time-based rates of violence, these two datasets must be matched so that common categories are used to describe the activity and place information collected by each source. For activities, the NCVS data will not be recoded; activity categories used by this survey are broad and encompassing. In other words, recoding the specific ATUS activity categories to match the broad NCVS categories is possible; the opposite cannot be done. Matching the ATUS activities requires looking at both the activity and place variables collected by this survey. For example, the NCVS has a category for leisure activity away from home meaning leisure activity recorded by the ATUS must occur away from home to fit this description. This recode procedure can be found in Appendix B of the chapter.

Matching the ATUS and NCVS place variables requires the manipulation of both datasets. Looking back to Tables 3-17 and 3-21, it is evident that both surveys have coded the place variable differently. In general, the NCVS coding is very specific while the ATUS coding is broad. The only exception to this is the way public transportation is coded in the ATUS; buses, trains, taxis, airplanes and boats all have specific vales. This differs from the NCVS which lumps all forms of public transportation under one umbrella. The simplest way to begin matching these place variables is to think about locations as falling into one of three broad categories: (1) at home, (2) away from home, (3) in-transit.

Using these three categories, the ATUS and NCVS place variables can easily be matched. In-transit has been given its own category because there is a distinct difference between being away from home and going to or from a destination away from home. Most importantly, being in-transit means the environment a person is a part of is in continual flux. For example, a student's walk to school may include walking down busy streets, deserted allies and through a neighbor's yard. Each of these settings poses different opportunities for victimization and thus being in-transit should be considered separately from remaining at a fixed point away from home.

Creating time use and violence estimates for these three categories will enable the calculation of participant-, visitor- and time-based rates of violence. The only limitation to this trichotomy is its inability to compare the relative danger of different places away from home. To overcome this obstacle, more specific categories such as school, work, a

restaurant or bar, a friend's house, etc will be created to match the NCVS and ATUS

variables (see Appendix C). By creating these specific categories it will be possible to

identify how violence and time use varies across different places. For example, it is

important to know how much time students spend at school compared to the time they

spend at friend's house everyday. This information enables time-based rates of violence

to be calculated for these different places and thus enables the relative risk of each to be

quantified. Chapters 5 and 6 describe how violence and time use in America is

distributed across broad and specific place categories. The last section of this chapter

outlines the basic arithmetic used in this dissertation to calculate participant-, visitor- and

time-based rates of violence.

Calculating Activity- and Place-Specific Risks of Violence

The surveys described above provide the three pieces of information necessary for

calculating participant-, visitor- and time-based risks of violent victimization. The first is

the total number of victimizations reported in activities and places by the NCVS. Using

the adjusted victimization weight for the recorded victimizations, it is possible to estimate

the total number of victimizations experienced in each activity or place. The total

number of victimizations estimated for a given year will act as the numerator of the rate

calculation. These estimates will be produced for the entire American public represented

by the NCVS, as well as for the demographic subgroups defined earlier in this chapter.

The denominator of the participant-, visitor- and time-based rates of violent victimization

will be determined using ATUS data. For the population based rates, the weight of each

activity will be used to estimate the total number of Americans aged 15 and older who

participate in a specific activity or visit a type of place on any given day. The time-based

rates will go one step further and estimate the number of person-hours these people spend

in these activities and places everyday. Thus the ATUS data will be able to provide two

forms of denominator data (1) the daily population of activities and places and (2) the

amount of time spent in each. These are the two pieces of information necessary to make

the proposed calculations.

When the total number of violent victimizations and time use estimates are available,

participant- and visitor-based rates will be calculated for each activity and place. These

rates will be reported in violent victimizations per 1,000,000 persons. Time-based

violent victimization risks will be calculated in victimizations per 1 billion person-hours.

Victimizations per 1 billion person-hours is the same metric used by Cohen and Felson

(1979). Because no other criminological work has used the person-hour to measure

exposure to risk, this dissertation uses the work of Cohen and Felson as a guide to time-

based rates of violence. The following equations show how these two calculations are

performed:

Violent victimizations per $\quad$ = $\quad$ $\dfrac{\text{\# of violent victimizations in activity/place}}{\text{\# of persons in the activity/place each day}}$
1,000 persons

Violent victimizations per billion $\quad$ = $\quad$ $\dfrac{\text{Violent victimizations in activity/place } \times 10^{9}}{\text{(Person hours per day in the activity/place) x} \atop \text{(365 days) x (\# of persons engaged)}}$
person-hours in each activity

The next chapter provides activity- and place-specific estimates of violence in America.

The data presented have been matched to the ATUS and represent the number of violent

victimizations estimated for the entire United States. Chapter 5 describes how time use

in America varies across the activity and place categories outlined above. Chapter 6

combines these two pieces of information to calculate participant- and visitor-based rates of violence; Chapter 7 presents time-based rates of violence. These estimates provide criminologists with a measure of which activities and places are the most dangerous in America. Because rates are calculated for many different places and activities, the data are able describe danger in relative and absolute terms. To date, no criminological work has assessed the relative danger of activities and only one study has enumerated the relative danger of places (Cohen and Felson, 1979). This dissertation represents a major step forward for quantifying the risk of different activities and places.

Chapter 4—Baseline Risks of Violent Victimization in America

OVERVIEW

This chapter describes the baseline risks of violent victimization in the United States disaggregated by major daily activities. The data analyzed are taken directly from National Crime Victimization Survey (NCVS) datasets for the years 2003-2005 (see Chapter 3). This chapter does not produce new substantive findings. However, it does provide calculations of risk that assist comparisons for subsequent chapters. This chapter has two descriptive purposes and two methodological tasks. The descriptive purposes include (1) reporting baseline rates of violence for different demographic groups and (2) enumerating the incidence of violence in different places and activities. The methodological purposes are to (1) set up the NCVS data sets to match, as closely as possible the American Time Use Survey (ATUS) to allow comparisons in future chapters), and (2) to show how weighting techniques are used to produce victimization and population estimates for the United States. Violence will be described as an aggregate of all twenty violent victimizations captured by the NCVS and by individual crime types such as sexual assault and simple assault. The violence estimates presented here are combined with time-use data in Chapter 6 to produce activity- and place-specific rates of violence. We attend to the methodological part of the chapter first.

MATCHING THE DATA

To calculate participant-, visitor- and time-based rates of violence, this dissertation uses the NCVS to quantify victimization in America and the ATUS to measure exposure to risk. Because these datasets are collected for different segments of the United States

population, the NCVS data must be manipulated to match the ATUS population. This can be done in two simple steps: (1) remove those aged 12-14 from the NCVS data and (2) remove active duty military personnel from the NCVS data. Using the variables V3014 and V3019, respectively age and military status, persons younger than 15 and those who are activity duty military personnel were removed from the NCVS Person Record-Type files and Incident-Level Extract files for the years 2003-2005. Again, this exercise is designed to make this subset of the NCVS match closely with the ATUS. Later this will prove useful for calculating crime risks for more specifically defined populations.

The Person Record-Type files are used in this study to produce population estimates. The estimates are used as denominator data when calculating violence rates for specific demographic groups. It is important to note here that these estimates *cannot and will not* be used in the current chapter to calculate participant- and visitor-based rates of violence for an activity or place. The estimates are only useful for calculating participant- and visitor-based rates for demographic groups; they do not provide any information about how people are distributed across time and space (see Chapters 6 and 7). This is why the ATUS must be used to quantify exposure to risk. It also explains why it was not possible before this dissertation to produce activity- and place-specific rates of violence prior to 2003.

In this chapter, rates of violence are reported for the American population based on their age, race and sex. These rates exemplify a typical approach to determining the risk of

violence in America. They are a useful place to start when describing violence and

provide a source of comparison for the participant-, visitor- and time-based rates

presented in Chapters 6 and 7 that account for a population's exposure to risk.

In addition to matching NCVS and ATUS data by the demographic characteristics of

respondents, three other types of violent incidents must be removed from the Incident-

Level Extract files to ensure that violence estimates reported here apply consistently to

the population sampled by the ATUS   For that purpose, we eliminate incidents described

as: (1) occurring outside of the United States (V4019), (2) a "series" crime (V4022),

and/or (3) occurring during an "unknown" activity (V4478). Removing series crimes and

crimes that occurred outside of the US is the method used by the Bureau of Justice

Statistics in their publications (U.S. Dept of Justice, NCVS Codebook, 2003). Keeping

with their established method, this dissertation will exclude these crimes. Series crimes

refer to "six or more incidents similar in nature for which the respondent is unable to

recall dates and other details of the individual incidents well enough to report them

separately" (U.S. Dept. of Justice, NCVS Codebook, 2003, pg. 443). Finally, violent

incidents that do not have any activity information are excluded from the analysis.

Because this dissertation's focus is on the risk American's face in specific activities, it

would be impractical to calculate participant-, visitor- or time-based rates of violent

victimization for unknown activities.

This data truncation procedure is described in Table 4-1 below. Row 1 presents the

number of violent incidents captured by the NCVS each year; these numbers are identical

information presented in Chapter 3. Rows 2-6 enumerate the number of incidents that

must be removed to ensure the ATUS and NCVS data are matched properly and that

violence estimates are produced using the Bureau of Justice Statistics procedure. Row 7

totals the number of incidents that must be removed and Row 8 tells how many incidents

are left once the data has been matched. Each year, approximately 20-25% of the violent

incidents captured by the NCVS must be removed from the data to make this analysis

possible. The largest losses are due to victims being under 15 years of age or not

knowing what they were doing at the time of an attack. These losses are unavoidable as

no exposure to risk data are available for those aged 12-14 and it is impossible to quantify

time use in unknown activities. Despite the loss of some data, each year of this analysis

still has more than 1,000 violent incidents per year totaling approximately 3,500 incidents

over the three year period of study. This sample provides sufficient data for

understanding the distribution of violence across major places and activities in which

respondents spend their daily lives. From this point forward, all data and interpretations

concerning violence will refer to incidents that fit the criteria outlined in this section. The

next section describes how weighting techniques can be used to estimate the size of

America's population as well as demographic subgroups within it.

	Table 4-1 National Crime Victimization Survey Data Matching, United States, 2003-2005				
	(A)	**(B)**	**(C)**	**(D)**	**(E)**
	Description	**2003**	**2004**	**2005**	**Total**
(1)	Total Number of Incidents	1,709	1,491	1,482	4,682
	Incidents Removed to Match NCVS with ATUS				
(2)	Victim is Under 15 Years of Age	202	157	142	501
(3)	Victim is Activity Duty Military Personnel	14	21	15	50
	Incidents Removed to Ensure Accuracy of Violence Estimates				
(4)	Incident is Classified as a Series Crime	67	58	63	188
(5)	Incident Occurred Outside the US	13	10	6	29
(6)	Incident Occurred During "Other"/"Unknown" Activity	129	109	90	328
(7)	***Total Number of Incidents Removed***	*425*	*355*	*316*	*1,096*
(8)	**Total Number of Matched Incidents**	**1,284**	**1,136**	**1,166**	**3,586**
Source: NCVS Incident-Level Extract Files, 2003-2005.					

POPULATION ESTIMATES

Before describing the distribution and prevalence of violence in the United States, it is important to discuss how weighting techniques are used by the NCVS to determine the size of the American population as well as subgroups within it. Weighting is a statistical tool used to create estimates for a large population based on smaller subsamples. Even if these subsamples were randomly selected, they might not have been selected with equal probabilities. Because different respondents have an unequal probability of being selected, and each grouping or subsample has a different tendency to be represented, weighting helps make up for this.

Each respondent interviewed by the NCVS is assigned a weight that enumerates the number of Americans the respondent represents. In the NCVS Person Record-Type file, this variable is known as the "adjusted person weight." Two adjusted person weights are available in the file, one for the collection year (an 18 month period) and one for the data year (a 12 month period). As Chapter 3 explained, this dissertation examines violence on a calendar year basis so the adjusted person weight for the data year is used in this analysis. The weight of each individual "adjusts for unequal probabilities of selection and observation, and for known age, sex and race ratios based on the Adjusted Decennial Census Population Totals" (U.S. Dept. of Justice, NCVS Codebook, 2003, pg. 464). In 2003, the adjusted person weight for individuals ranged from 121 to 14,936. In other words, one of the respondents was equivalent to interviewing 121 persons while another was equal to interviewing 14,936. For the current purposes, it is important to know how

to use these weights to produce population estimates and consequently violence rates for specific demographic groups.

Using the adjusted person weight to quantify the size of a population is simple. The sum of person weights for respondents in a subgroup is equal to the national population size of that group. Table 4-2 provides population estimates for the American civilian population aged 15 and older. Row 1 enumerates the population of all Americans while Rows 2-7 describe a specific subgroup of the population based on sex, race and age. The total population was determined by summing the person weights of all respondents. The population size of demographic subgroups such as males was quantified by summing the person weights of all males in the sample. Columns B through D present the annual population size for each group while Column E presents the average size during the study period. While it is evident that the American population was expanding during these three years, the changes were not so dramatic that using the average to describe a population's size is incorrect; the coefficient of variation for the average estimate for every group was less than 0.1. When calculating rates of violence, the annual population estimate will be used to ensure the accuracy of all findings. While discussing Table 4-2, the average population size will be used for convenience's sake.

	(A)	(B)	(C)	(D)	(E)
	Population Description	**2003**	**2004**	**2005**	**Average***
(1)	*Total*	225,803,091	228,315,373	231,176,122	228,431,529
	Sex				
(2)	Male	108,901,983	110,326,309	111,659,994	110,296,095
(3)	Female	116,901,108	117,989,064	119,516,128	118,135,433
	Race				
(4)	White	186,989,520	188,327,483	189,778,588	188,365,197
(5)	Non-White	38,813,570	39,987,890	41,397,533	40,066,331
	Age				
(6)	Under 30	58,765,826	59,785,155	60,697,631	59,749,537
(7)	30 or Older	167,037,264	168,530,219	170,478,491	168,681,991

Table 4-2

National Crime Victimization Survey Population Estimates, Civilians Aged 15 and Older, United States, 2003-2005

*Note: Coefficient of Variation is less than 0.1.

Source: NCVS Person Record-Type Files, 2003-2005

During the study period, the civilian American population aged 15 or older was estimated to be approximately 228 million people (Row 1). When broken down into dichotomous subgroups, the only populations with a similar size were males and females (Rows 2 and 3). An average female population of 118 million was slightly higher than the estimate of 110 million males however this difference was not nearly as drastic as the dichotomized categories of race and age. According to the NCVS data, there are approximately 188 million whites in America and just 40 million non-whites; the white population is 4.7 times larger than the non-white. A similar pattern is seen with age, there are approximately 60 million Americans under the age of 30 and 169 million aged 30 or older; those over thirty outnumber those under thirty at a rate of nearly 3 to 1. Table 4-3 describes the population size of America across 10 year intervals of age. The data indicate the smallest populations are found amongst the elderly age groups, aged 60 and above. These differences in the population size of demographic groups beckon the need to use rates when quantifying risk. Using incidence alone would assume the dichotomous or interval groups are equal in size; clearly this is not true for the data source used. These population estimates will be used throughout the chapter to calculate participant- and visitor-based risks of violence for demographic subgroups of the American public.

Table 4-3				
National Crime Victimization Survey Population Estimates,				
Civilians Aged 15 and Older, 10 Year Age Intervals				
United States, 2003-2005				
	Estimated Population Size			
Age Group	**2003**	**2004**	**2005**	**Average***
15-19	20,221,282	20,523,508	20,840,178	20,528,323
20-29	38,544,544	39,261,647	39,857,453	39,221,215
30-39	41,180,110	40,378,970	39,993,389	40,517,490
40-49	44,379,192	44,627,979	44,765,348	44,590,840
50-59	34,947,036	36,168,556	37,498,059	36,204,550
60-69	21,894,816	22,514,530	23,107,020	22,505,455
70-79	15,855,430	15,752,167	15,744,260	15,783,952
80+	8,780,681	9,088,018	9,370,415	9,079,705
*Note: Coefficient of Variation is less than 0.1.				
Source: NCVS Person Record-Type Files, 2003-2005				

VIOLENCE ESTIMATES

Producing estimates of violent victimization in America with the NCVS is similar to

producing population estimates. Each violent incident captured by the survey is assigned

a weight that estimates how many violent victimizations are likely to have occurred in the

United States based on a single incident. Just like the population weights discussed

above, the NCVS Incident-Level Extract file includes two weights for each incident; one

for the data year and one for the collection year. This dissertation uses the data year

weight because the analysis examines victimization on a calendar year basis. This

variable is known as the "adjusted victimization weight – data year." Because violent

incidents can involve one or more victims, the adjusted victimization weight estimates

the total number of victims rather than incidents. The total number of victims is obtained

by summing the weights of every violent incident recorded in the survey. Estimates can

be made for all types of violence or for subgroups of violence such as sexual assault or

completed robbery. These estimates can also be made for particular demographic

subgroups.

Table 4-4 shows the unweighted incidence of violence for different segments of the

American population; Table 4-5 presents the weighted estimates of violence. During the

study period, it was estimated that more than 4 million violent victimizations occurred in

the United States every year. There is no evidence to suggest that levels of violence in

America were increasing or decreasing from 2003-2005. Instead, it appears the total

number of victimizations fluctuated slightly over that time period, but remained close to

the average of 4.4 million violent victimizations a year (Row 1). Looking to the

demographic breakdowns presented, males reported an average of nearly 500,000 more

violent victimizations each year than females (Rows 2 and 3). With regard to race, white

victims outnumber non-white victims at a rate of nearly 4 to 1 on average (Rows 4 and

5). The only dichotomous demographic variable that saw similar levels of victimization

was age (Rows 6 and 7); those under 30 were victimized at a slightly higher level than

those older than 30. Of course, looking at the incidence of violence alone neglects the

reality that the population size of these dichotomous groups differs (see Table 4-2). To

quantify the risk of violence for each group, population-based rates were calculated using

data from Table 4-2; these are presented in Table 4-5.

	(A)	Raw Number of Violent Incidents			
		(B)	**(C)**	**(D)**	**(E)**
	American Population	**2003**	**2004**	**2005**	**Total**
(1)	*All Americans*	1,284	1,136	1,166	3,586
	By Sex				
(2)	Males	683	600	626	1,909
(3)	Females	601	536	540	1,677
	By Race				
(4)	Whites	1,047	918	918	2,883
(5)	Non-Whites	237	218	248	703
	By Age				
(6)	Under 30	638	470	540	1,648
(7)	30 or Older	646	666	626	1,938

Table 4-4

Violent Victimizations Captured Against American Civilians Aged 15 and Older, National Crime Victimization Survey, 2003-2005

Source: NCVS Person Record-Type Files, 2003-2005

		Table 4-5 Violent Victimization Estimates Against American Civilians Aged 15 and Older, National Crime Victimization Survey, 2003-2005			
		Estimated Total Number of Violent Victimizations in the United States			
	(A)	**(B)**	**(C)**	**(D)**	**(E)**
	American Population	**2003**	**2004**	**2005**	**Total**
(1)	*All Americans*	4,501,966	4,002,784	4,732,242	13,236,992
	By Sex				
(2)	Males	2,498,103	2,285,969	2,684,938	7,469,010
(3)	Females	2,003,864	1,716,815	2,047,303	5,767,982
	By Race				
(4)	Whites	3,630,253	3,175,107	3,659,333	10,464,693
(5)	Non-Whites	871,713	827,677	1,072,909	2,772,299
	By Age				
(6)	Under 30	2,509,880	1,892,239	2,532,643	6,934,762
(7)	30 or Older	1,992,086	2,110,545	2,199,599	6,302,230
	Source: NCVS Person Record-Type Files, 2003-2005				

The duration of this chapter presents a rather conventional analysis of the risk of violence

for various population subgroups. The results of that analysis are not surprising to those

who know the literature on victimization. The purpose of this chapter is not to present

new findings, but rather to offer conventional findings that can provide a means of

comparison for the more innovative calculations presented in later chapters. These

baseline calculations begin with Table 4-6, which presents population-based rates of

violence for the American population and demographic subgroups within it. The rates

are reported as the number of violent victimizations per 1,000 persons. Note that this

table describes all forms of violence captured by the NCVS; rates for specific violent

offenses are reported in the next section of this chapter. While there was some

fluctuation in the violence rates between 2003 and 2005, these changes were minimal and

it is acceptable to use the average rate (Column E) when comparing groups (CV $\leq$ 0.1).

Looking at Row 1, the data indicate 19 of every 1,000 Americans were a victim of

violence during the study period. The problem is that this rate says nothing about how

risk varies between demographic subgroups. In general, violence rates like those

presented in Row 1 are only useful for (a) making international comparisons or (b)

assessing long term changes in violence rates. Because this dissertation is not concerned

with either of these, it is best to focus on Rows 2-7 which compare violence rates for

demographic subgroups.

When the sex of victims is considered, males are more likely than females to be a victim

of violence (Rows 2 and 3). The average victimization rate for males during this time

period was 1.4 times higher than the rate for females. When compared to the national

average of 19 violent victimizations per 1,000 people, males were above this average while females fell below it. A similar pattern of victimization was seen for the dichotomous race variable with whites falling below the national average and non-whites being above it (Rows 4 and 5). In short, non-whites in America were 1.3 times more likely than whites to suffer a violent victimization. Of any demographic group presented in Table 4-6, those under 30 were by and large the most likely to be victimized; the rate of violence against this group was 39 victimizations per 1,000 persons (Row 6). This rate is three times higher than the rate for those aged 30 or older and is nearly double the national average. Thus it appears age is a stronger predictor of victimization than race or sex. In short, the rates presented in Table 4-6 produce three conclusions about violent victimization in America between 2003 and 2005: (1) males were more likely than females to be victimized, (2) non-whites were more likely than whites to be victimized and (3) those under thirty years of age were more likely to be victimized than any other demographic group examined. Knowing that age is one of the best predictors of violence, Table 4-7 presents violence rates across 10-year age intervals. This refinement enables a better understanding of how the risk of violence changes with age.

		Violent Victimizations per 1,000 Persons in each Subpopulation			
	(A)	**(B)**	**(C)**	**(D)**	**(E)**
	American Population	**2003**	**2004**	**2005**	**Average***
(1)	*All Americans*	20	18	20	19
	By Sex				
(2)	Males	23	21	24	23
(3)	Females	17	15	17	16
	By Race				
(4)	Whites	19	17	19	18
(5)	Non-Whites	22	21	26	23
	By Age				
(6)	Under 30	43	32	42	39
(7)	30 or Older	12	13	13	13

Table 4-6

Violence Rates for American Civilians Aged 15 and Older, National Crime Victimization Survey, 2003-2005

*Note: Coefficient of Variation is less than or equal to 0.1.

Source: NCVS Person Record-Type Files, 2003-2005

Looking at Table 4-7, it is clear that rates of violence decline with age. The 10 year interval analysis gives a more complete picture of the risk than the age dichotomy used in Table 4-6. Most importantly, it shows there is a great deal of variation between age groups for those under 30 as well as those aged 30 or older. On average, the population with the greatest risk of violence is Americans aged 15-19; 47 of every 1,000 people in this group experienced a violent victimization during the study period. This is dramatically different from what was observed for those aged 80 or older where less than one out of every 1,000 people was a victim of violence. In short, getting older lowers an individual's risk of violence and this effect is extremely large once a person reaches 60 years of age. For example, the risk of violence for those in their 50s is double that of those in their 60s and six times as high as those in their 70s. While the rate of violence against those in their 50s is still low compared to those younger than 30, it is important to note the large reduction in risk Americans experience when they turn 60. The decline of violence rates with age fits a predictable, logarithmic pattern (see Figure 4-1). Using the equation presented, the results of this analysis indicate you could explain 99% of the variation in victimization rates using a simple interval age variable. This information highlights the need to assess age using multiple categorizations to ensure a proper understanding of how this dynamic demographic alters a person's risk of violence throughout their lifetime.

Table 4-7

Violence Rates for Civilians Aged 15 and Older,
By 10 Year Age Intervals,
National Crime Victimization Survey,
United States, 2003-2005

	Violent Victimizations per 1,000 Persons			
Age Group	**2003**	**2004**	**2005**	**Average***
15-19	56	38	47	47
20-29	36	29	39	34
30-39	19	20	21	20
40-49	16	17	16	16
50-59	11	11	13	12
60-69	4	5	6	5
70-79	2	2	1	2
80+	<1	<1	1	****<1

*Note: Coefficient of Variation is less than 0.3.
**Note: Coefficient of Variation is greater than 0.5.
Source: NCVS Incident-Level Extract Files, 2003-2005

Figure 4-1
Average Rates of Violence for the American
Civilian Population Aged 15 or Older,
National Crime Victimization Survey, 2003-2005

$y = -22.995Ln(x) + 47.607$
$R^2 = 0.9905$

Violent Victimizations per 1,000 Persons (y-axis)

Age Group (x-axis): 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+
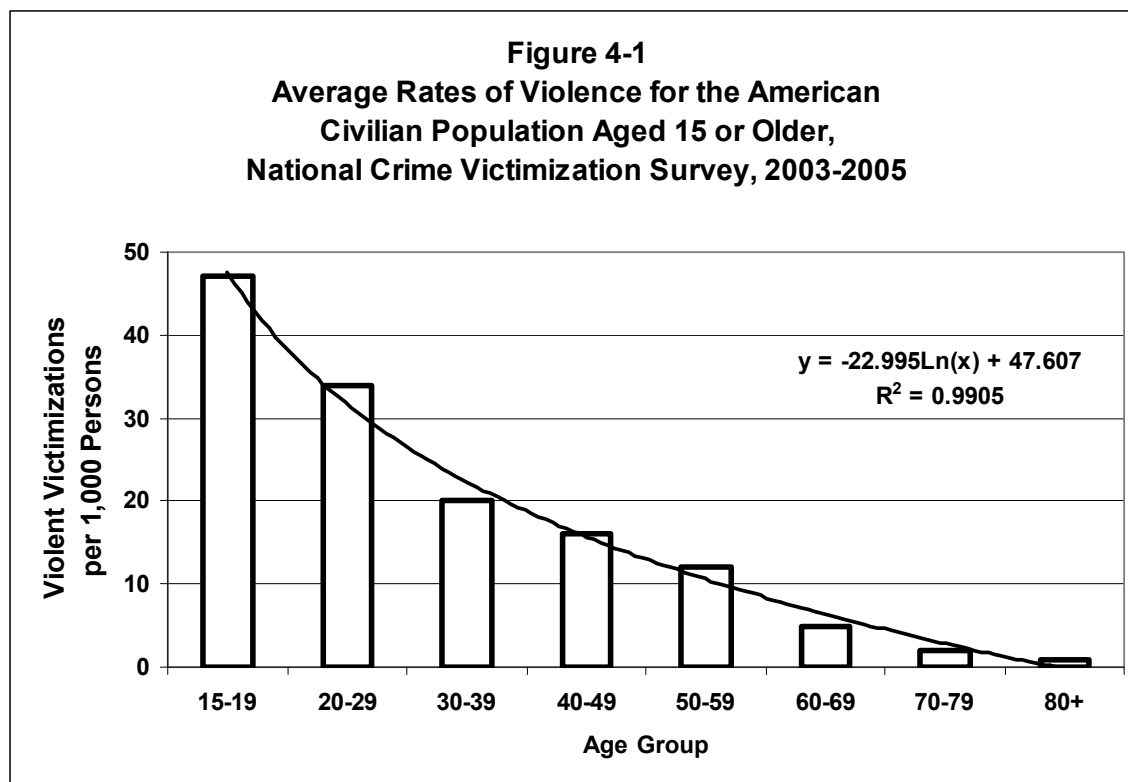
Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005

Note: This R^2 value is only applicable to 10-year intervals of age. Violence rates will vary within these age groups but are likely to be relatively close to the predicted values.

This section has shown how NCVS data are used to create violence estimates for the American population and demographic subgroups within it. Using these estimates, rates of violence were calculated; the number of victimizations was divided by the population size of the group in question. These rates describe the risk of violence different subgroups of the American population face based on their age, sex and race. The four major conclusions that can be drawn from these data are: (1) men have a higher risk of violence than women, (2) non-whites have a higher risk of violence than whites, (3) those under 30 have a higher risk of violence than those over 30 and (4) the risk of violence declines with age according to a predictable, logarithmic function. These are not new conclusions, and are not the central point of this dissertation. However these conclusions are still important for setting a baseline that can be discussed in subsequent chapters. This portion of the analysis has examined the risk of violence in general without disaggregating risk by crime type. The next section describes how the risk of violence in America varies by crime type.

VICTIMIZATION RATES BY CRIME TYPE

The purpose of this section is to discuss how victimization rates vary by crime type. The NCVS captures twenty different types of violent offenses (see Table 3-13). In this discussion, the twenty offenses have been aggregated to seven broad categories of victimization. The seven crime types examined are: (1) rape, (2) sexual assault, (3) completed robbery, (4) attempted robbery, (5) aggravated assault, (6) simple assault and (7) threats of violence. Table 4-8 presents the aggregation strategy used to categorize the twenty NCVS violent victimization types into these seven categories.

For the remainder of this dissertation, these crime type categories will be used in
discussions of victimization. For example, when the term rape is used it will refer to
completed and attempted rapes. The remainder of this section discusses how
victimization rates vary by crime type.

These data are aggregated because the number of violent incidents is not large enough
to sustain a detailed analysis for finely defined categories. Disaggregating that
number further by place and activity at the time of the incident brings the numbers
down very low. To have a feasible estimate of risk in various activities and places, we
have to limit the number of categories for crimes, places, and activities.

Table 4-8	
Aggregating Victimizations by Crime Type	
National Crime Victimization Survey, United States	
Crime Type	**NCVS Victimizations Included**
(1) *Rape*	
	Completed rape
	Attempted rape
(2) *Sexual Assault*	
	Sexual assault with serious assault
	Sexual assault with minor assault
	Sexual assault without injury
	Unwanted sexual contact without force
(3) *Completed Robbery*	
	Completed robbery with injury from serious assault
	Completed robbery with injury from minor assault
	Completed robbery without injury from minor assault
(4) *Attempted Robbery*	
	Attempted robbery with injury from serious assault
	Attempted robbery with injury from minor assault
	Attempted robbery without injury
(5) *Aggravated Assault*	
	Completed aggravated assault with injury
	Attempted aggravated assault with weapon
(6) *Simple Assault*	
	Simple assault completed with injury
	Assault without weapon without injury
(7) *Threats of Violence*	
	Threatened assault with weapon
	Verbal threat of rape
	Verbal threat of sexual assault
	Verbal threat of assault
Source: U.S. Dept. of Justice, NCVS Codebook, 2003	

Studying violent victimizations by crime type paints a better picture of how violence affects Americans. In other words, it provides researchers, practitioners and the public more information about which violent offenses are common and which are rare. For example, the violence rate reported for all Americans in Table 4-5 indicated 19 out of every 1,000 people were the victim of a violent crime during the study period. Without disaggregating violence by crime type, readers might assume this rate describes serious attacks such as rape and aggravated assault. Instead, this rate describes the risk of any type of violence including simple assault and the threat of violence. Figure 4-2 presents a breakdown of how violence rates vary by crime type. The rates presented are for the entire American civilian population aged 15 and older. Because the variation of these rates during the study period was minimal, Figure 4-2 shows the average victimization rate for each crime between 2003 and 2005. Looking at the figure, it is immediately clear that different types of violence occur at different rates. Most importantly, the two least serious types of violence, simple assault and threats of violence, pose the greatest risk to Americans. When compared to the next most common crime, aggravated assault, the risk of being a victim of these crimes is nearly three times higher. In general, the risk of sexually based offenses is lower than any other type of violence in America. Both rape and sexual assault have rates that are lower than 0.5 victimizations per 1,000 persons. When examining robbery rates, it is interesting to note that the risk of an attempted robbery is lower than the risk of a completed robbery. In fact, the rate for completed robberies during the study period was almost twice that of attempted robberies. Of course, the rate for both crimes was very low with less than 2 out of every 1,000 Americans being

victimized. Knowing that rates of violence vary by crime type, the next portion of

this section describes how rates vary by crime type and demographic variables. The

figures that follow present a more exact view of how the risk of violence is

distributed across the American population based on an individual's age, sex or race.

Figure 4-2
Average Rates of Violent Victimization by Crime Type,
American Civilians Aged 15 and Older,
National Crime Victimization Survey, 2003-2005
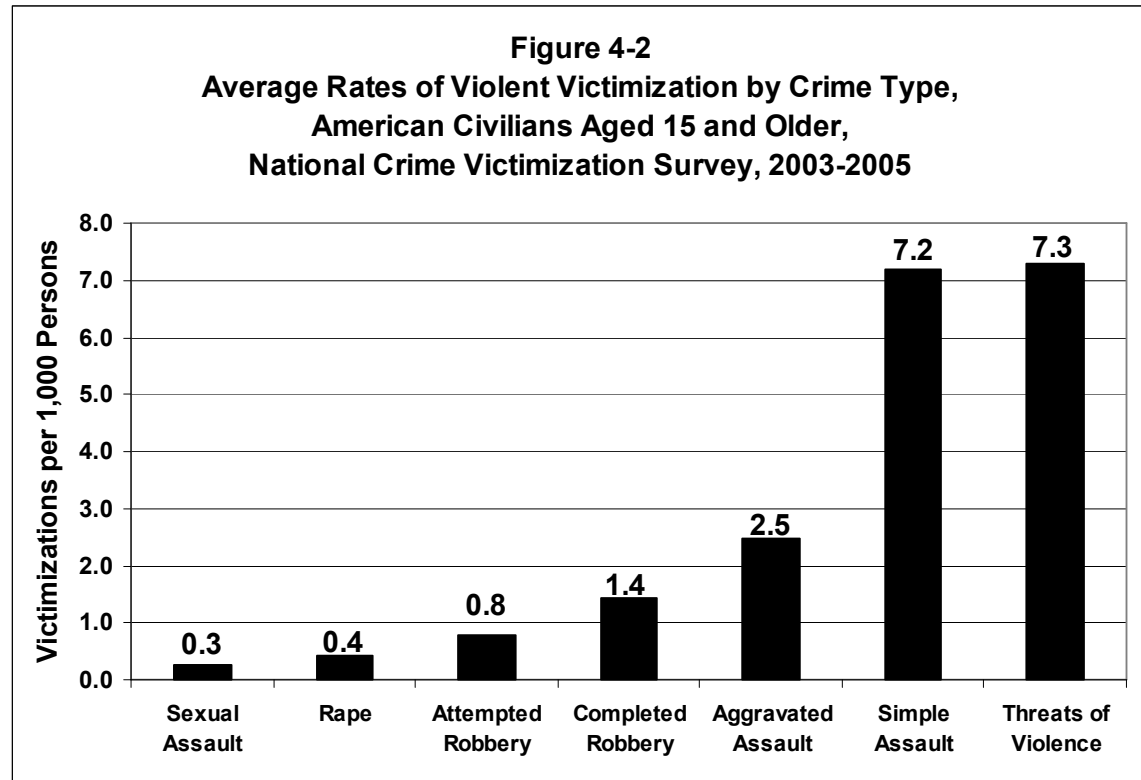
The first dichotomous demographic variable examined is sex. Figure 4-3 presents the average victimization rate for males and females across seven crime types. Much like Figure 4-2, the data indicate threats of violence and simple assault are the most common types of victimization experienced by males and females. For both of these crimes, males had a higher rate of victimization than females. The male victimization rate for simple assault was 1.3 times higher than that of females and their rate for threats of violence was 1.4 times higher. With the exception of sexually based offenses, males had a higher victimization rate than females for every crime type. Male victimization rates were 3.6 times higher for attempted robbery and twice as high for completed robbery and aggravated assault. The average sexual assault rate for males is listed as 0.0 because no victimizations were captured by the NCVS in 2004 or 2005. The rate in 2003 was 0.1 victimizations per 1,000 persons making the average for these three years nearly zero. Females on the other hand had a sexual assault victimization rate of 0.5 victimizations per 1,000 persons. Finally, the rape rate for females was eight times higher than it was for males during the study period. The main conclusion that can be made from the data in Figure 4-3 is that males are more likely to females to suffer from any type of violence other than sexual assault or rape. Again, these findings are well-established in the victimization literature, and are reported here to establish a baseline for later analysis. The next figure describes how rates of violence for specific crimes vary with race.

Figure 4-3
Average Rates of Violent Victimization by Crime Type,
American Civilians Aged 15 and Older by Sex,
National Crime Victimization Survey, 2003-2005
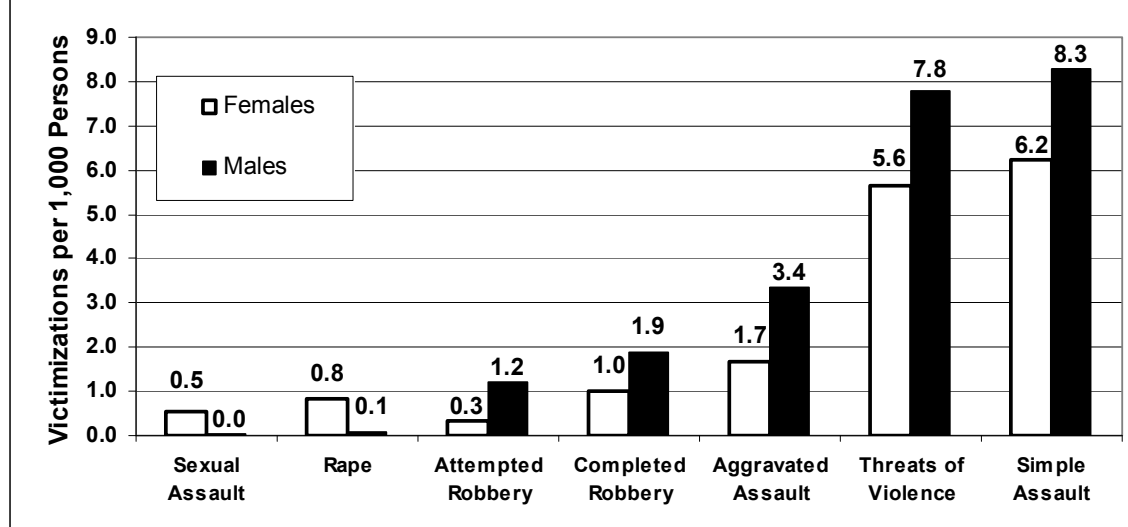
Figure 4-4 presents victimization rates for whites and non-whites across the seven crime types in question. It is interesting to note that some of the crimes have equal victimization rates between groups while others appear to affect non-whites at higher rates. Looking to the most common types of violence, whites and non-whites are victimized at almost the exact same rate for the crimes of simple assault and threats of violence. Attempted robbery is another crime that appears to affect both race groups at the same rate. As for sexually based offenses, during the study period non-whites were victimized twice as often as their white counterparts; the same was true of completed robberies and aggravated assault. These data indicate non-whites are more susceptible to serious forms of violence but experience less serious violence at the same rate as whites. When compared to the Americans in general (Figure 4-2) the victimization rate for completed robbery, rape and aggravated assault is much higher for non-whites. For each of these crimes, the rate for non-whites is nearly double the rate for the American population as a whole. The two conclusions that can be made from the data in Figure 4-4 are: (1) race does not have a large effect on victimization rates for the least serious forms of violence and (2) the most severe forms of violence affect non-whites at rates twice as high as those recorded for whites.

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Figure 4-4
Average Rates of Violent Victimization by Crime Type,
American Civilivans Aged 15 and Older by Race,
National Crime Victimization Survey, 2003-2005

The final dichotomous demographic variable to be considered is the age of victims (Figure 4-5). Looking at the chart below, the victimization rate for those younger than 30 is much higher for all seven crime types. For almost every crime, the rate is approximately three times higher for young Americans. The largest difference presented is for the crime of rape; the rate is 5.7 times higher for those under 30. When compared to the national average for each of these crime types (Figure 4-2) two conclusions can be made: (1) those aged 30 and older are victimized at a lower rate for every crime type and (2) persons younger than 30 are victimized at a higher rate for every type of crime. Victimization rates for the young are nearly double the national average for every crime type. This data reinforces what has already been said about the link between demographics and violence, age is the best predictor of victimization.

Figure 4-5
Average Rates of Violent Victimization by Crime Type,
American Civilians Aged 15 and Older by Age,
National Crime Victimizations Survey, 2003-2005

This section has disaggregated violence into seven crime types for a better understanding of how this phenomenon affects the American public. The data indicate the most common forms of violence affecting Americans are simple assault and threats of violence. In other words, the least serious types of violence are the most common. Of the crime types examined, sexually based offenses were the rare compared to all other types of violence. Nationally, less than one out of every 1,000 Americans was the victim of a sexually based crime during the study period. This is vastly different than the rate for simple assaults or threats of violence where more than seven out of every 1,000 people was a victim. When victimization was examined across dichotomous demographic variables it was found that the age, race and sex of Americans influenced their likelihood of victimization. Age was the best indicator of risk with those under 30 reporting a higher victimization rate for every crime type examined; in most cases the rate for this group was three times higher than for those aged 30 or older. The victimization patterns for race and sex were more complex. With regard to race, the data indicate the least serious forms of violence affect whites and non-whites at equal rates. However, non-whites experience the most serious forms of violence at rates that are nearly twice as high. Finally, the sex of Americans was found to have an effect on victimization rates. With the exception of sexually based offenses, males were victimized at a higher rate for every type of crime. Due to the nature of sexually based offenses where females are perhaps the most suitable target, these crimes had much higher victimization rates for females.

This section has served as a baseline for understanding victimization in America. It outlined how the risk of violence varies across demographic and crime type categories. As the dissertation unfolds, the victimization rates reported here will be referred to as they represent the typical approach to gauging the risk of violence Americans face. Because this study will examine how risk is distributed across activity and place categories, it will be interesting to note how activity- and place-specific violence rates compare to violence rates in general. For example, do some activities have a violence rate that is much lower than the rates reported in this section, while the rate for other activities is much higher? Or does the difference in rates between demographic categories disappear or grow larger using an activity-specific approach? The first step in answering these questions is to enumerate the incidence of violence in activities and places; the next section provides this information.

VIOLENCE IN DIFFERENT ACTIVITIES AND PLACES

In order to calculate participant-, visitor- and time-based rates of violence for activities and types of places, three pieces of information are needed: (1) the incidence of violence in activities and types of places, (2) the number of people visiting these types of places or engaging in these activities and (3) the amount of time spent in activities and types of places. As Chapter 3 noted, the NCVS only provides information on the incidence of violence in different activities and types of places. The purpose of this section is to enumerate the number of violent victimizations recorded in these settings. Because the information in this section only represents the incidence of violence it should be interpreted appropriately. Remember that these estimates do not account for the number of people engaging in an activity or the amount of time they spend there. The

information presented here is combined with time use data in Chapters 6 and 7 to

calculate participant-, visitor- and time-based rates of violence. This section has two

parts: (1) the distribution of violence across activity categories and (2) the distribution of

violence across place categories. In both sections violence is described as an aggregate

of all crime types and by individual crime types. The dichotomous demographic

variables used to describe violence rates in the previous sections will also be used to

discuss the how age, race and sex are related to the estimated number of victimizations

during the study period. The discussion begins by describing the distribution of violence

across nine everyday activity categories.

The Distribution of Violence Across Nine Everyday Activities

This section uses weighted estimates to describe how violence is distributed across the

nine activity categories used by the NCVS. To begin, Figure 4-6 shows the average

number of violent victimizations Americans experienced each year between 2003 and

2005. Looking at the figure, the highest incidence of violence was reported for activities

at home other than sleeping; on average nearly 1.2 million victimizations fall into this

category every year. Leisure activity away from home produces the second highest

incidence of violence with just over 1.1 million victimizations a year. Looking at

incidence alone, working is the third most dangerous activity accounting for

approximately 800,000 victimizations a year. The other six activity categories saw much

less violence than the top three. In fact, commuting to and from a place other than work

or school was the only other category to average more than 200,000 victimizations a year.

In other words, working, leisure and other activities at home are activities that produce 4-

6 times more violence than activities such as commuting to work or school, sleeping, attending school or shopping. Of course, enumerating the incidence of violence in everyday activities is just a starting point for understanding the relative risk of each. Until time use data is combined with this information, participant-, visitor- and time-based rates of violence cannot be calculated to quantify the relative risk of each activity. This issue is addressed in Chapters 6 and 7. The next figures describe how the incidence of violence is distributed across everyday activities with regard to the demographics of victims.

Figure 4-6
Violent Victimizations Reported Annually Against Civilians Aged 15 and Older in the United States by Activity, National Crime Victimization Survey, 2003-2005
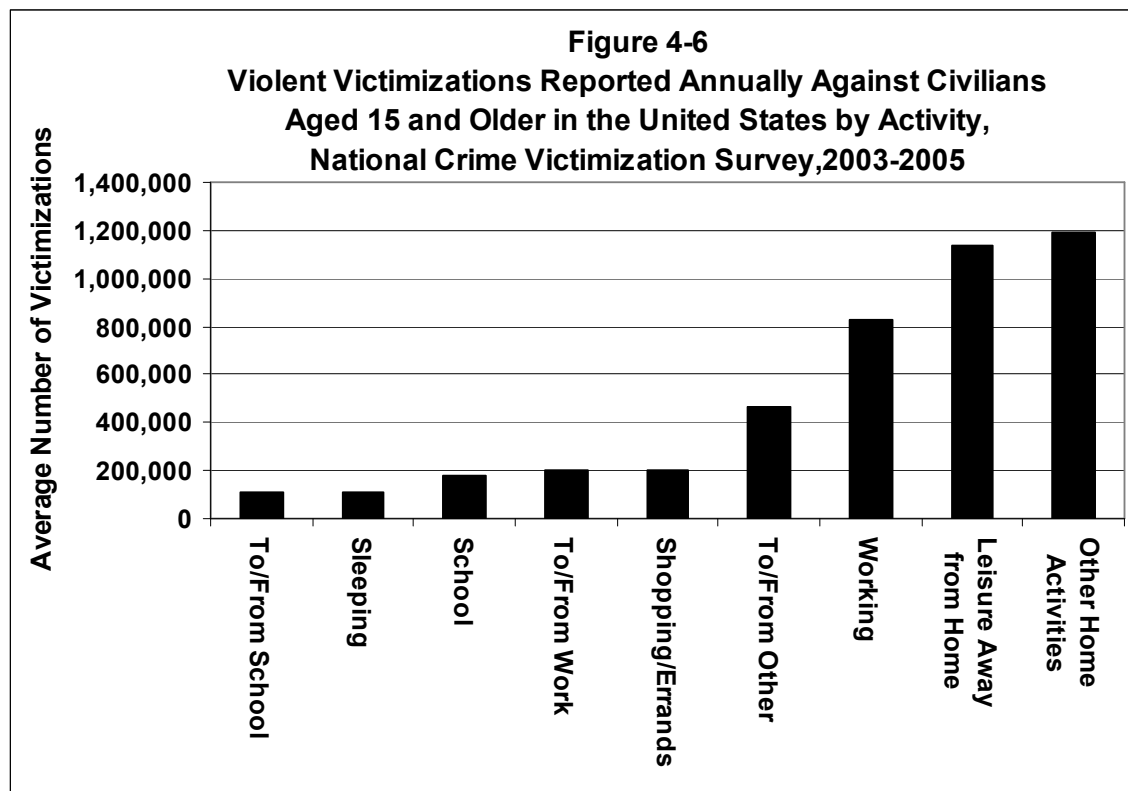
Figure 4-7 presents the incidence of violence in different activities for males and females. For every category except sleeping and other activities at home, males experienced more violence than females. Looking at the figure, one may interpret the higher incidence of violence at home to mean that females face higher levels of risk than males while at their own residence. However, time use data is needed to confirm or deny this hypothesis; an alternate explanation would argue the higher incidence of violence at home is the result of women spending more time at home than men. In other words, if the time-based rate of violence at home is equal for men and women and women spend more time at home, the total number of victimizations reported will be much higher for females. As for the other activity categories, shopping and the commute to or from school had similar levels of violence for males and females. The remaining categories all showed higher levels of violence for males. Leisure away from home produced the highest incidence of violence for males; this category averaged approximately 250,000 more victimizations each year than any other. It will be interesting to add time use data to the analysis to reassess how risky each of activity is for males and females.

Figure 4-7
Average Estimate of Violent Victimizations Against American Civilians Aged 15 and Older by Sex, National Crime Victimization Survey, 2003-2005

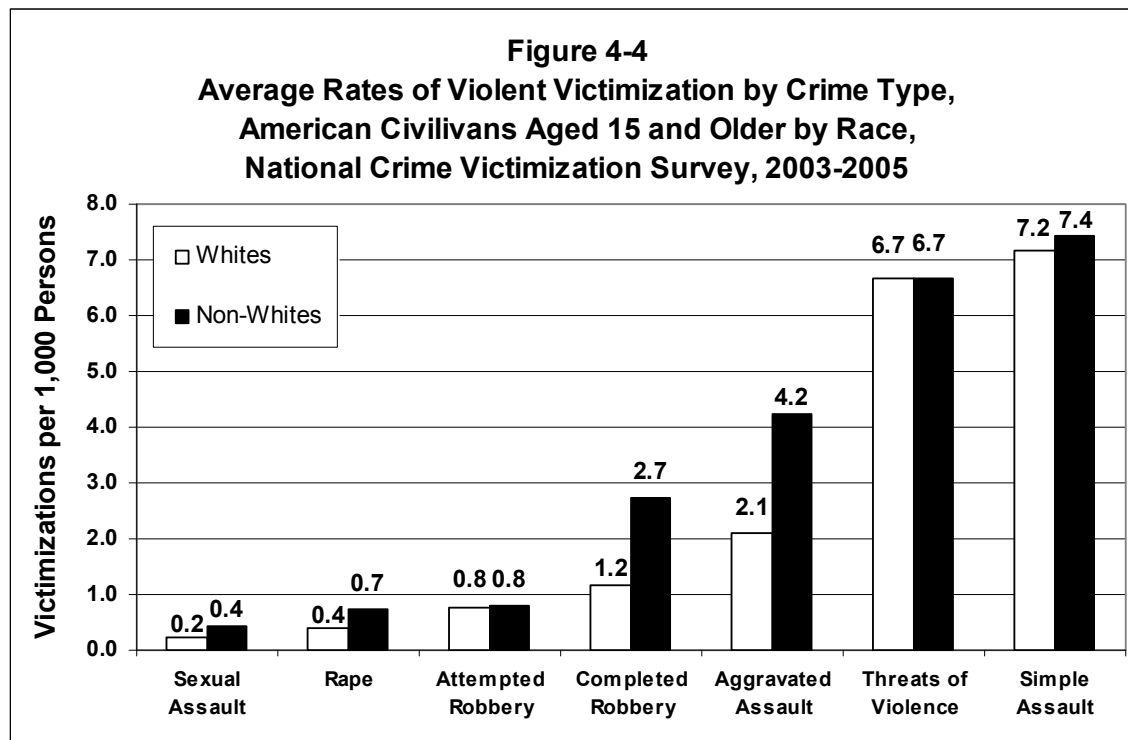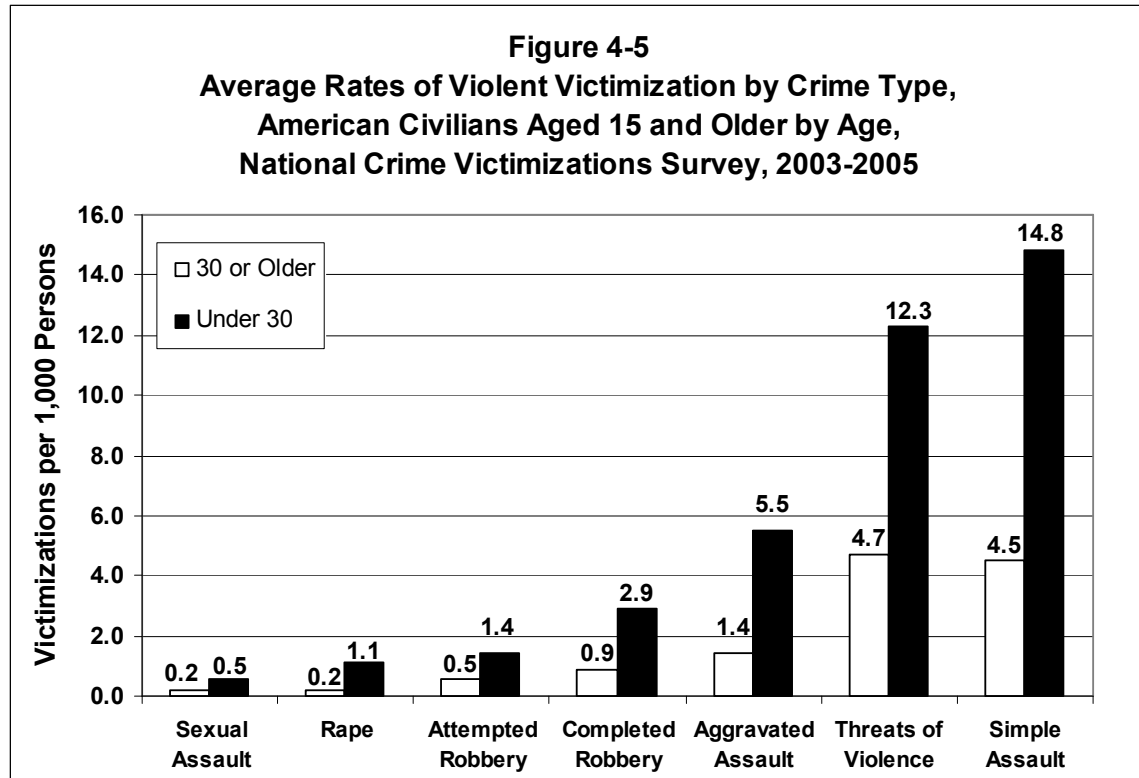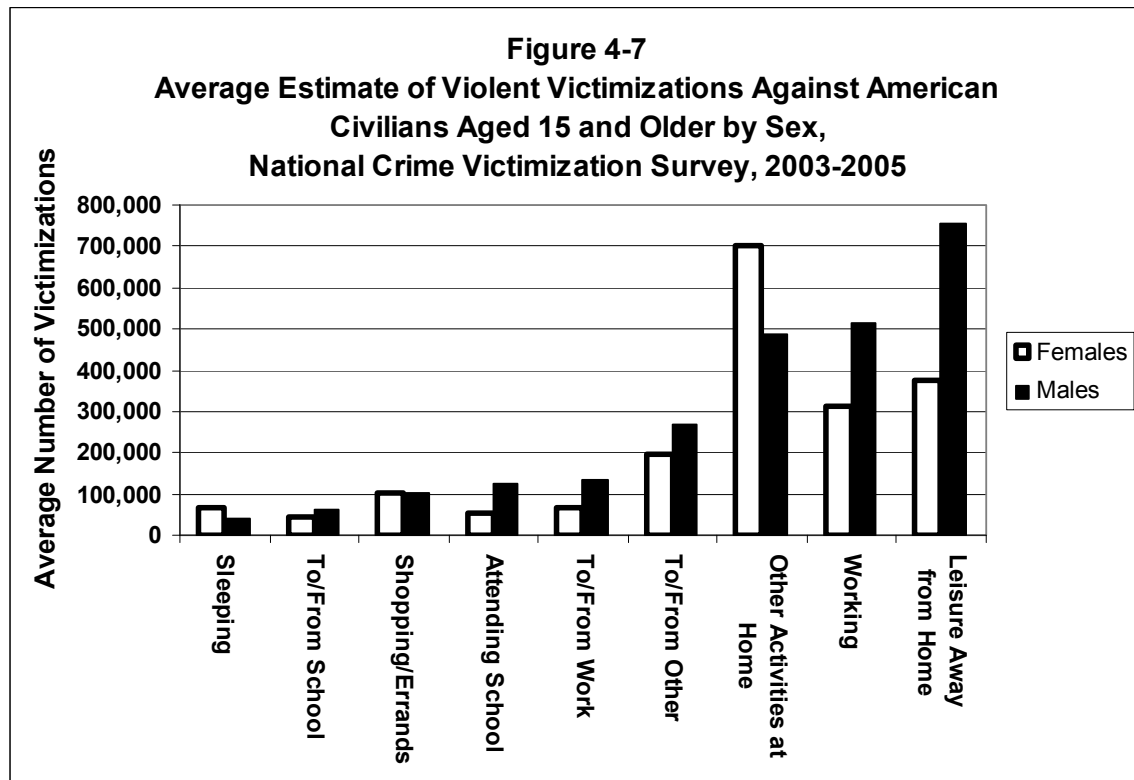Figure 4-8 shows how activity-specific violence is distributed across the dichotomous racial variable used in this analysis. In general, the incidence of violence against whites is much higher than that perpetrated against non-whites. Looking at the figure, the differences are quite large for every category. For example, the incidence of violence in leisure and other home activities is nearly three times higher for whites. Of course, this is the result of a massive population size difference between white and non-whites in America; whites comprised approximately 80% of the NCVS sample. Thus adding time use information to this analysis will enable a more accurate depiction of violence risk by controlling for the population size of the dichotomous race categories as well as the time each group spent engaging in each activity. In general, the picture of risk provided by the incidence information in Figure 4-8 is not much different than what was found for violence in general and for men and woman. Leisure activity away from home and other activities at home produce the most violence; working produces the third highest incidence of violence. On the opposite end of the spectrum, sleeping and going to or from school produce the lowest levels of violence. It is not possible to make any valid conclusions about how race is related to the risk of violence in various activities using the NCVS data presented. Of main concern is the inability to calculate a rate to control for the vastly different population size of each racial category; time use data presented in the next chapter helps overcome this limitation. To conclude this discussion of the link between demographics and activity-specific violence, the age of victims is considered.

Figure 4-8
Average Estimate of Violent Victimizations Against American Civilians Aged 15 and Older by Race, National Crime Victimization Survey, 2003-2005
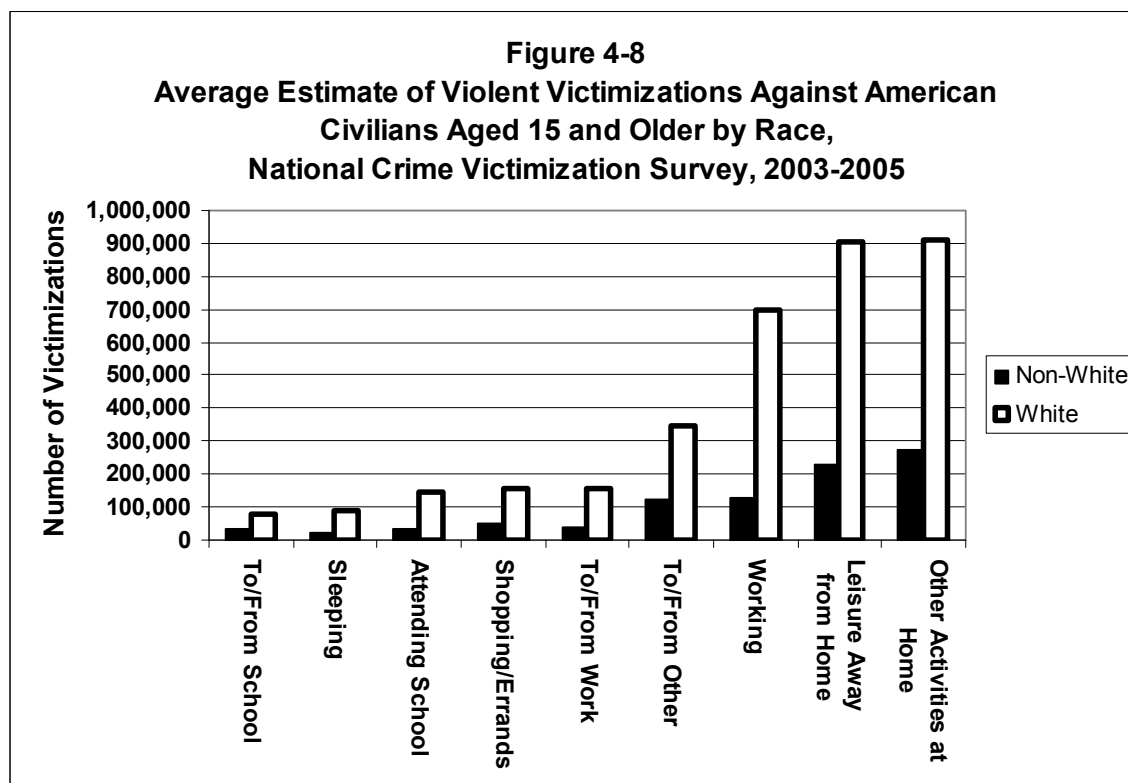
Figure 4-9 is the first analysis of a demographic variable that does not show a clear pattern for a majority of the activity categories. Unlike sex and race, the dichotomous age variable indicates some activities involve more young victims than others and vice versa. For example, the incidence of violence during leisure away from home is twice as high for those under 30 years of age while the incidence during work is almost twice as high for those aged 30 or older. The higher incidence of violence at work for those over 30 may simply be due to the fact that this age group contains a much larger number of employed persons. A similar argument could be made for the leisure category by assuming persons under 30 are spending a lot more time in this activity. The complexity of the variation between activity categories in Figure 4-9 is a great example of why time use data should be added to activity-specific estimates of violence. Without knowing how many people engaged in each activity and for how long, it is nearly impossible to conclusively say if one activity is more dangerous than another or if age has an effect on an individual's risk of violence; the same is true for trying to understand the role of race and sex. In general, the figures presented in this section have indicated there is variation the levels of violence reported in different activities and by different demographic groups. However, without knowledge of the population size of those participating in the activity and the person-hours spent there this analysis is incomplete. Chapters 6 and 7 of this dissertation provide a more accurate picture of risk by calculation participant-, visitor- and time-based rates of violence for the activity and demographic categories discussed here. The remaining portion of this section describes the distribution of specific crime types across everyday activities.

Figure 4-9
Average Estimate of Violent Victimizations
Against American Civilians Aged 15 and Older by Age,
National Crime Victimization Survey, 2003-2005
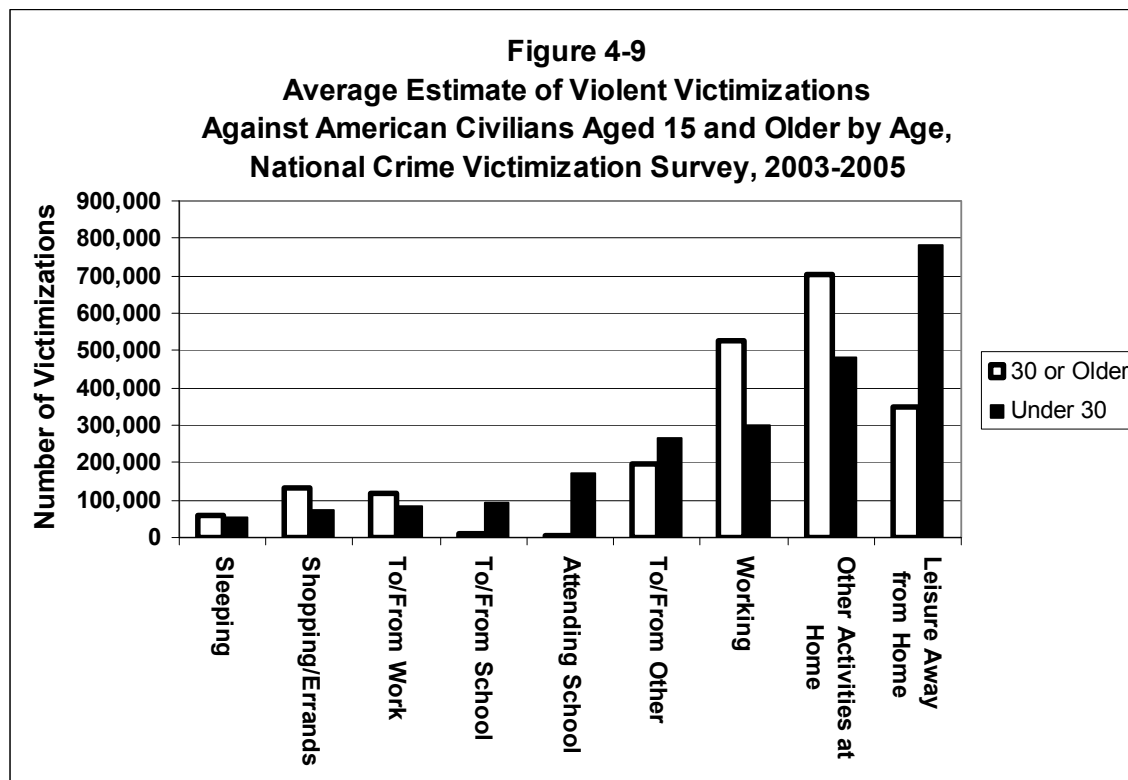
Figures 4-10 to 4-16 present information concerning the estimated number of specific types of violence in nine everyday activities. Unlike the first four figures in this section, the average number of victimizations is not used because fluctuations in the number of victimizations reported are large enough in some categories that the average is not an appropriate descriptor. In other words, the coefficient of variation for many of the activity categories was larger than 0.5. By showing the annual estimates, these figures give the reader a better idea of how the NCVS estimates are susceptible to problems of disaggregation. When violence is divided into seven crime types and then split across nine activity categories, it is not possible to produce an estimate for every activity. This is especially true for rare forms of violence such as rape (Figure 4-10). However, this discussion will be useful in identifying which activities a crime type is concentrated in and how this relates to the general patterns of distribution described above.

Figure 4-10
Estimated Number of Rapes Involving
American Civilians Aged 15 and Older by Activity,
National Crime Victimization Survey, 2003-2005

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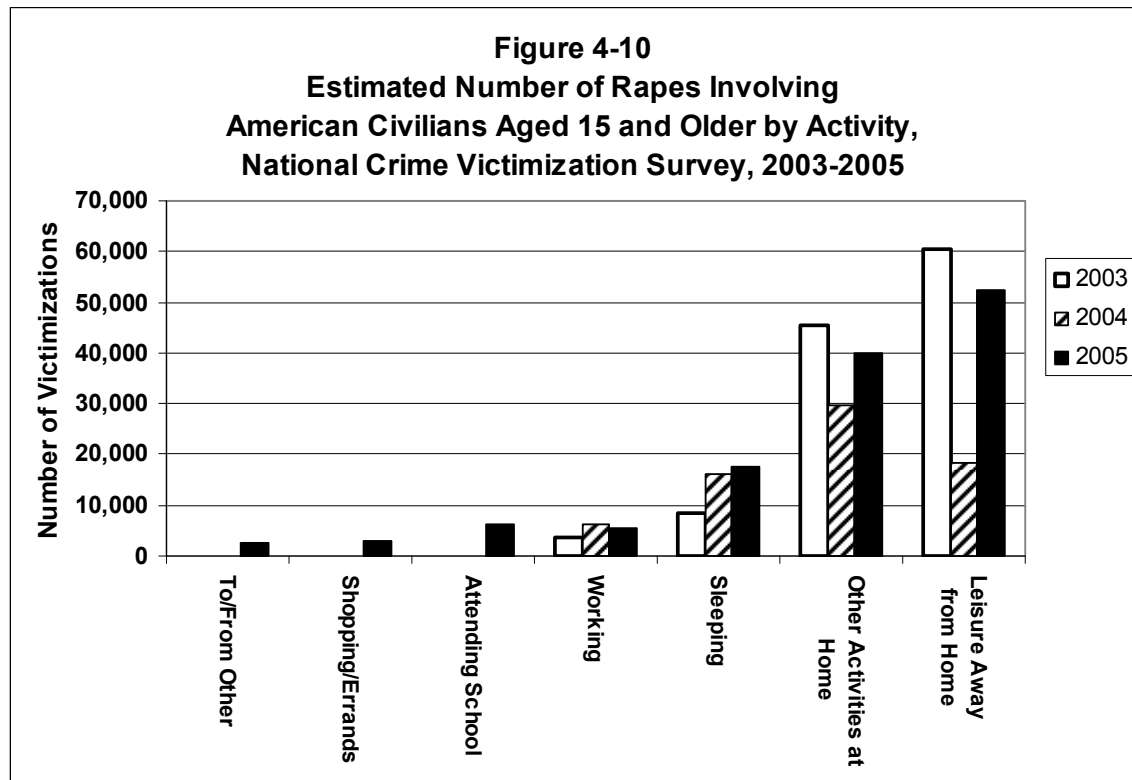
Beginning with rape, Figure 4-10 indicates a rape was reported every year in just four of the nine activity categories; these are working, sleeping, other home activities and leisure. According to the data, the highest incidence of rape is seen in the leisure and other home activity categories. This fits the pattern described above for violence in general. A major departure from the distribution of violence in general is the high number of rapes reported for the sleeping category. When describing violence in general, sleeping usually appeared on the left side of each figure indicating a relatively low incidence when compared to other activities. For rape, sleeping has the third highest incidence of any activity. This may be due to the fact that an individual who is asleep not only is easier to subdue but is also in an environment conducive to rape (i.e. alone in a bed as opposed to on a crowded subway). A similar pattern is seen in Figure 4-11 which shows the activity-specific distribution of sexual assaults.

Figure 4-11
Estimated Number of Sexual Assaults Involving American Civilians Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005
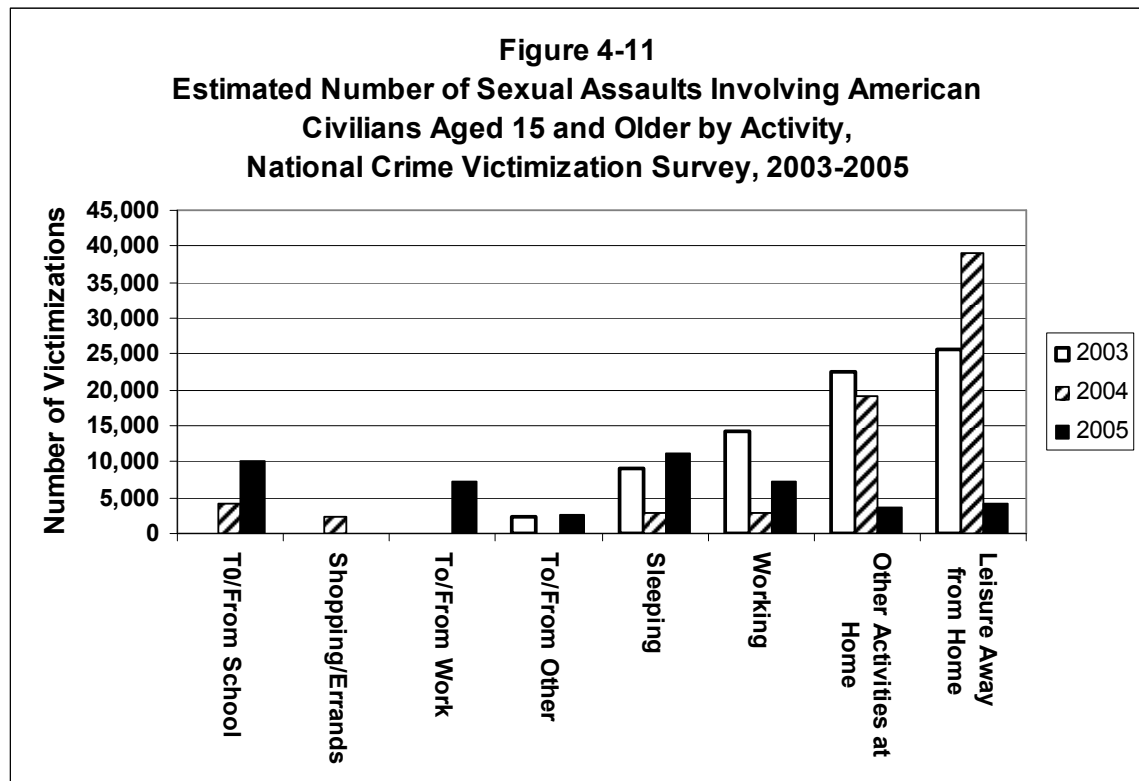
Figures 4-12 and 4-13 show the activity-specific distribution of completed and attempted robberies respectively. Unlike rape and sexual assault, a completed or attempted robbery was reported in each activity every year. For both types of robbery, the highest incidence was reported during leisure activity and other activities at home. The lowest incidence was reported during sleep, school and the commute to and from school. The figures indicate the number of offenses estimated during each activity were not constant for all three years; the variation between years was greater for some activities than for others. Because participant-, visitor- and time-based rates of violence will be calculated on an annual basis, it will be interesting to see how much these rates vary between years and if an average rate can be used to describe the study period. In short, both types of robbery examined here mimic the activity-specific distribution of violence in general.

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Figure 4-12
Estimated Number of Completed Robberies Involving Civilian Americans Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005

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Figure 4-13

Estimated Number of Attempted Robberies Involving Civilian Americans Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005
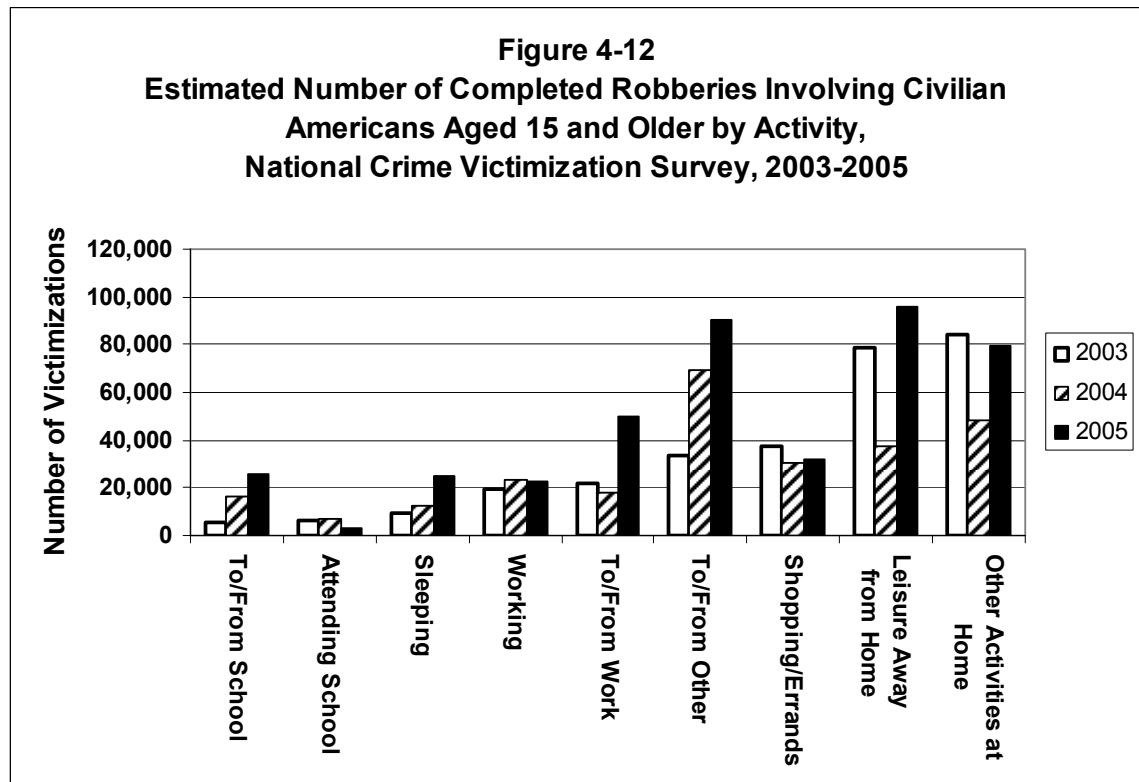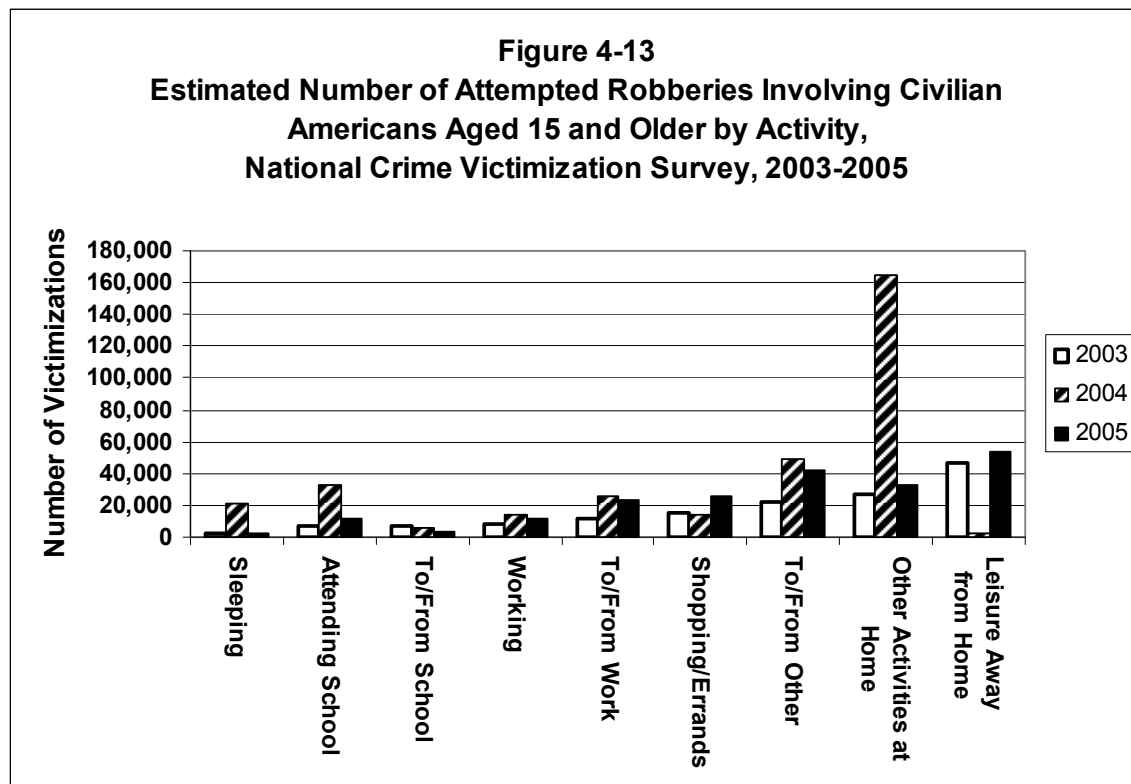
Figures 4-14 and 4-15 outline the distribution of assaults across everyday activities.

Figure 4-14 indicates aggravated assaults are less common than simple assaults (Figure 4-

15) but that both are concentrated in leisure activity and other activities at home. A

major difference between these two types of assaults is that simple assault is much more

common during school hours than aggravated assault. In fact, for simple assaults

attending school is the fourth most dangerous activity in America based on incidence

alone; for aggravated assault it is the seventh most dangerous. For both forms of assault,

the commute to and from school is the least dangerous followed by sleeping. Unlike the

other crime types above, the incidence of assaults was more stable during the study

period. This is likely due to the prevalence of this offense and the ability of the NCVS to

detect it. The final crime type to be examined is the threat of violence.

Figure 4-14
Estimated Number of Aggravated Assaults Involving American Civilians Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005

Figure 4-15

Estimated Number of Simple Assaults Involving American Civilians Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005
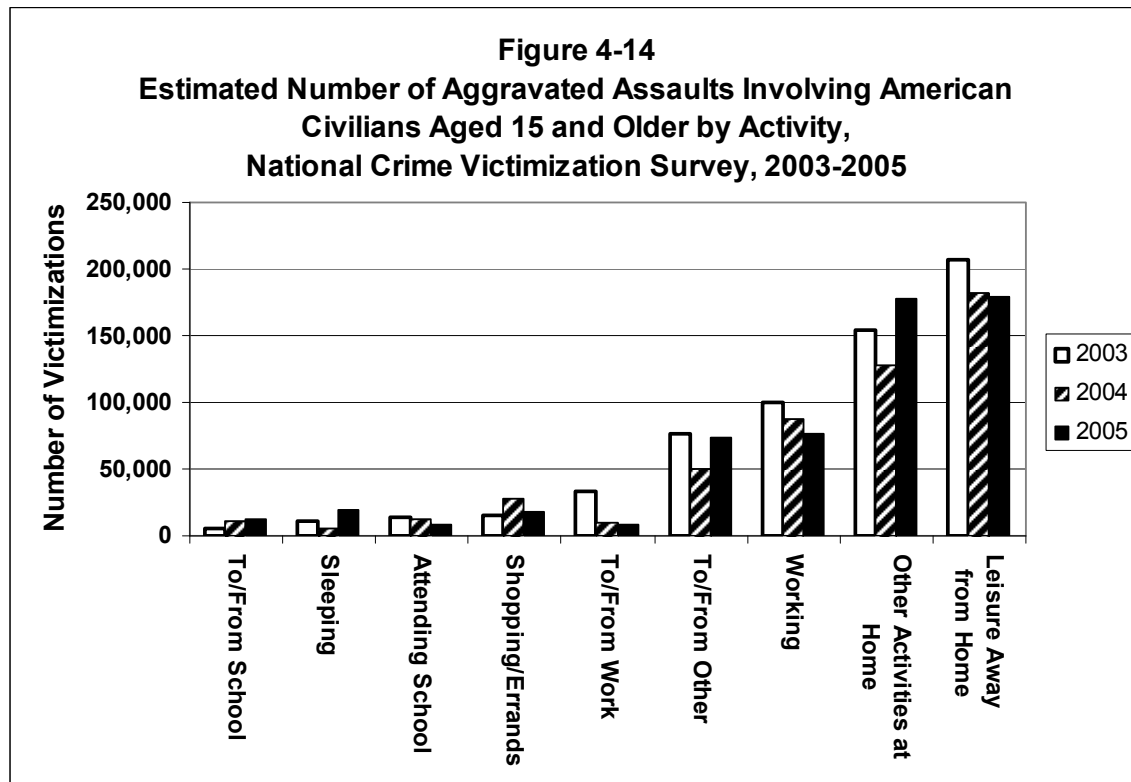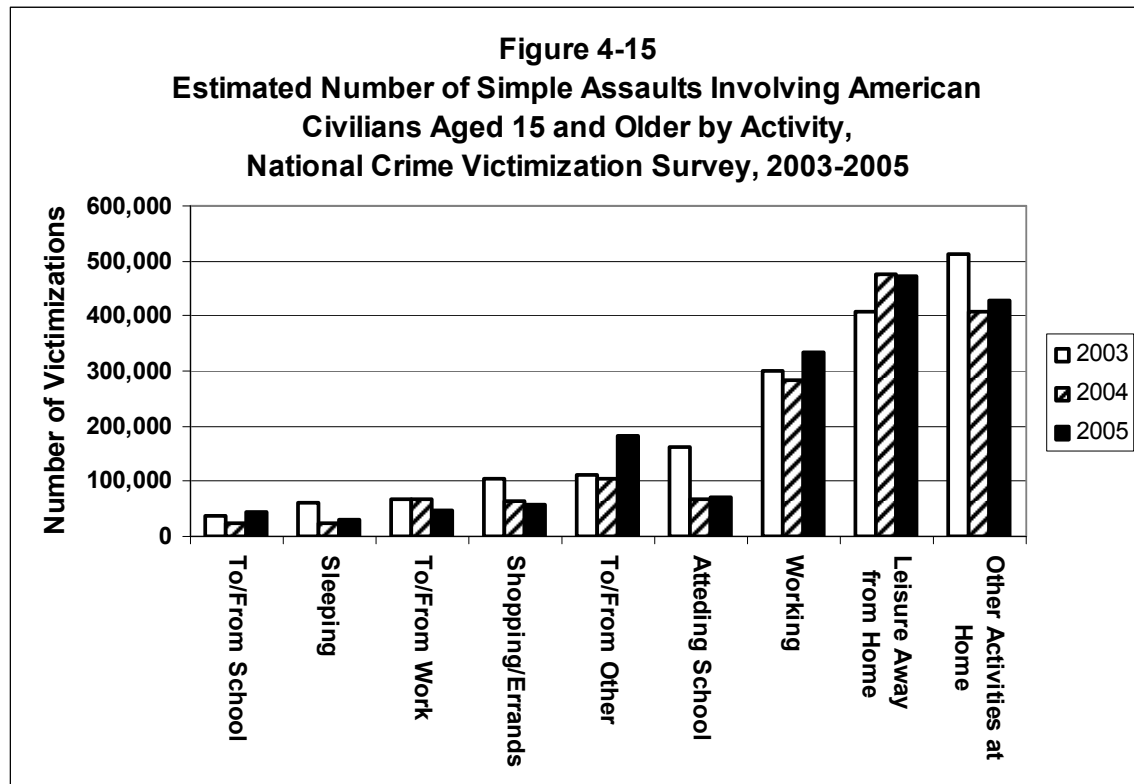
Figure 4-16 outlines the how threats of violence were distributed across everyday activities between 2003 and 2005. Unlike the distribution pattern for violence in general, robberies and assaults, threats of violence were more common at work than during leisure activity away from home. While the difference is not excessive, it is interesting to note that this is the only crime type where work sees more violence than leisure. It is not possible to definitively say why this pattern is seen however it may be linked to an employee's unwillingness to engage in physical violence because they do not want to lose their job or a customer expressing dissatisfaction without resorting to physical violence. Besides the workplace anomaly, the activity-specific distribution of violent threats falls in line with what was observed for violence in general.

Figure 4-16
Estimated Number of Threats of Violence Against American Civilians Aged 15 and Older by Activity, National Crime Victimization Survey, 2003-2005
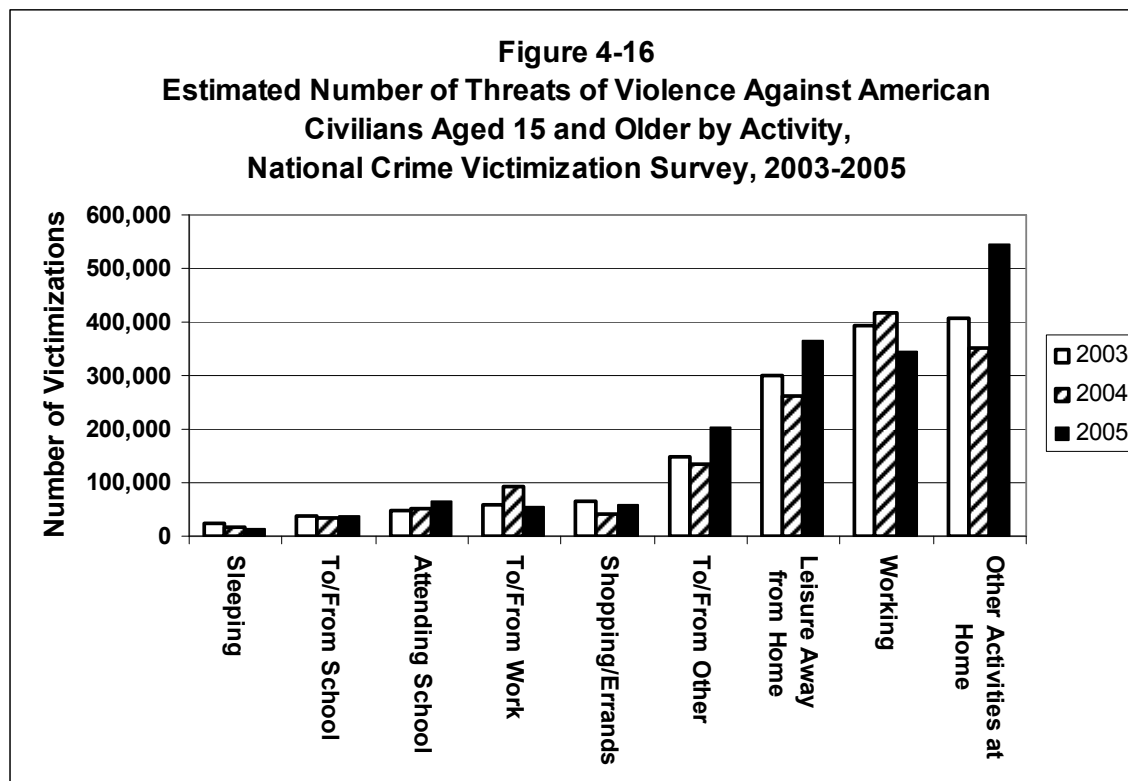
In summary, this section has described how violence and specific types of violence are distributed across nine everyday activities Americans engage in. Based on the incidence of violence alone the following conclusions can be made: (1) leisure away from home, other activities at home and working consistently produce higher levels of violence than other activities, (2) sleeping and the commute to and from school generally produce the lowest levels of violence, and (3) rape and sexual assaults are an exception to the finding of low levels of violence during sleep. This section also explored the role of demographics with regard to the incidence of violence in various activities. While differences between demographic groups were found, the lack of time use data does not allow conclusions to be made about how risky an activity is for different groups. Because it is impossible to know how many people were engaged in an activity and for how long, looking at the incidence alone may be misleading. As noted above, Chapters 6 and 7 will address this issue using participant-, visitor- and time-based rates of violence. The final section of this chapter will describe the distribution of violence across different types of places. Place is defined broadly and specifically in the section that follows to elucidate a better understanding of how violence is spread out across the places Americans frequent.

The Distribution of Violence Across Types of Places

This section explores the distribution of violence in America across different types of places. The section has two parts; the first describes violence in different places using a broad definition of location that includes being at home, away from home or in-transit. The second describes the incidence of violence in six different types of places: (1) home, (2) friend's home, (3) commercial buildings, (4) street or outdoors, (5) bar or restaurant,

and (6) public transportation. Just like the activity data presented above, the figures that follow need to be interpreted with caution as they do not include any information about the number of people frequenting a place or how long they stay there. Instead, these are estimates of violence that occurred in a type of location during the study period. This incidence data is combined with time use data in Chapters 6 and 7 to calculate participant-, visitor- and time-based rates of violence. Unlike the previous section, the incidence of specific crime types in various locations is not reported here. Rates of specific types of violence will be reported in later chapters but have been omitted here to conserve space. The discussion begins with an overview of how crime is distributed across broad place categories.

Figure 4-17
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Broadly Defined Types of Place, National Crime Victimization Survey, 2003-2005
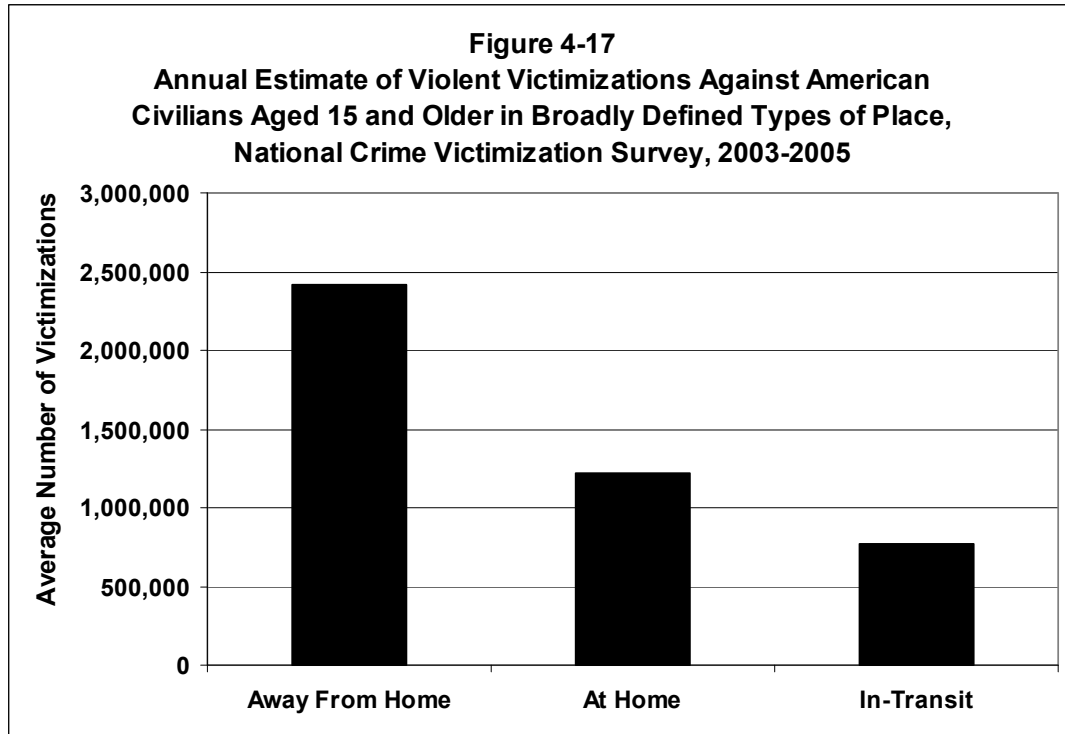
Figure 4-17 shows the distribution of violence across three broad types of place: at home, away from home and in-transit. Looking to the graph, it is immediately clear that the majority of violence occurs away from home. In fact, nearly twice as many victimizations were reported away from home than were reported at home. On the surface, this seems to contradict the findings of the previous section that consistently found other activities at home produced a large amount of violent. However, if one considers the fact that being away from home was split across five activity categories it becomes clear why being away from home has the highest incidence of violence in Figure 4-17. The data presented indicate the in-transit category has the lowest levels of violence. The figures that follow describe how violence in these categories is distributed across dichotomous demographic groups.

Figure 4-18 shows how the incidence of violence in different types of place varies by the sex of victims. Much like the data presented in Figure 4-7, these data indicate females experience more violence at home than males. While away from home and in-transit, males experience more violence than females. Figure 4-19 presents the incidence of violence in different locations for whites and non-whites indicating white victims are much more prevalent than non-white victims no matter the location. Of course both of these pieces of information are of limited importance or significance because they do not account for the population size of these groups. The NCVS data at hand does not provide enough information to calculate rates of violence whether they be visitor- or time-based. For now, only simple conclusions about the total number of victimizations can be made.

Figure 4-18
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Broadly Defined Types of Place by Sex, National Crime Victimization Survey, 2003-2005

Figure 4-19
Annual Estimate of Violent Victimizations Against American
Civilians Aged 15 and Older in Broadly Defined
Types of Place by Race
National Crime Victimization Survey, 2003-2005

Figure 4-20 shows the incidence of violence reported in different locations for Americans younger than 30 and those aged 30 or older. According to the data, Americans under 30 produce more victimization than their counterpart for every location except home. The higher incidence of violence at home for those over 30 could be a function of (a) the fact that they spend more time at home or (b) the population size of this group is much larger. When time-use information is added to the analysis this unknown piece of information can be sorted out.

The broad place categories used in the figures above are an excellent starting point for an understanding about how violence is distributed on an aggregate level. However, a category such as away from home encompasses a wide array of types of places that could easily differ in the amount of risk they expose Americans to. In an attempt to make this analysis more complete, place has been further disaggregated into six specific types of place. The figures that follow describe how the incidence of violence is spread across these categories as well as how demographics are related to the total number of victimizations.

Figure 4-20
Annual Estimate of Violent Victimizations Against American
Civilians Aged 15 and Older in Broadly Defined
Types of Place by Age,
National Crime Victimization Survey, 2003-2005
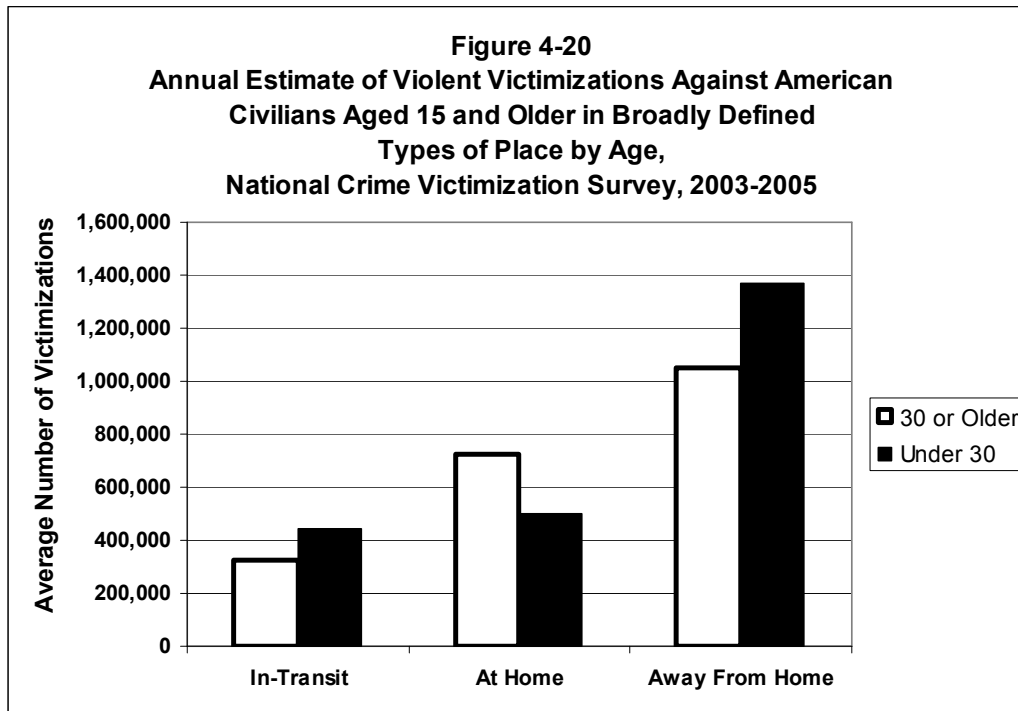
Figure 4-21 displays the average number of victimizations estimated for the American

population each year in six different types of place. Much like the activity-specific

analysis performed in the previous section of this chapter, the figure indicates the largest

number of victimizations occurs at home. Working backwards from there, the street and

outdoor areas host the second highest levels violence. Commercial buildings and friends'

homes produce nearly equal amounts of violence but at much lower levels; compared to

home these locations are responsible for approximately one-third as much violence.

Public transportation produces the lowest number of victimizations with bars and

restaurants falling somewhere in between. When combined with time use data it will be

possible to determine which of these places is the most dangerous, which is the safest and

how much more safe or dangerous each is when compared to the other. At this point

however, all that can be said is that the highest numbers of victimizations occur at home

and the lowest numbers occur on public transportation.

Figure 4-21
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Specific Types of Place, National Crime Victimization Survey, 2003-2005

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Figure 4-22
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Specific Types of Place by Sex, National Crime Victimization Survey, 2003-2005
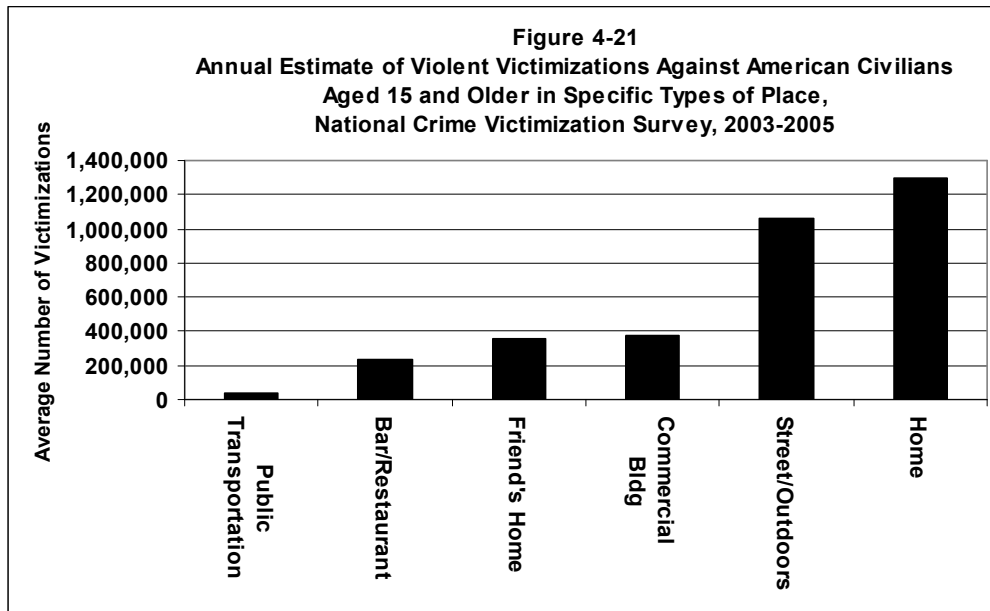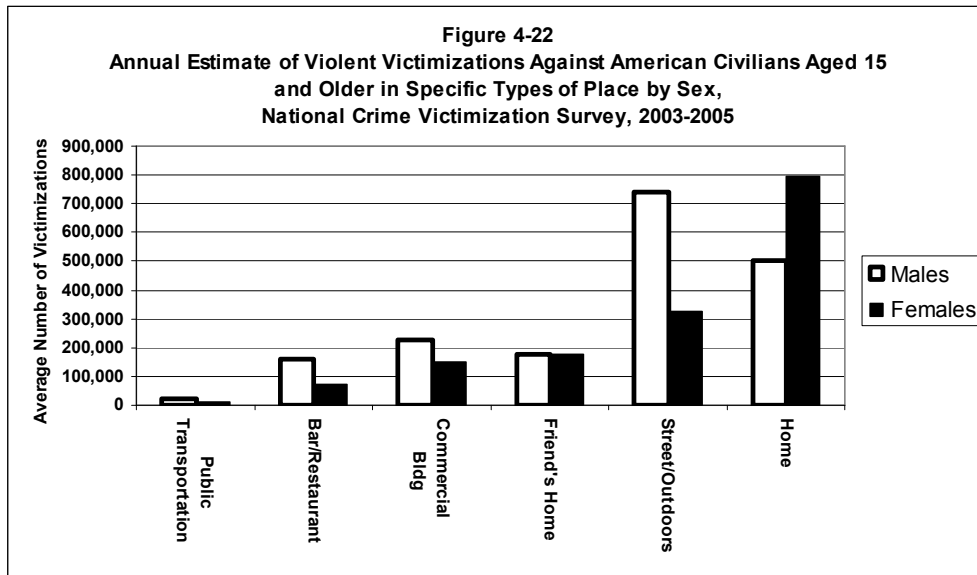
Figure 4-22 is an overview of how sex is related to the total number of victimizations reported in different types of place. Once again, the data show females experienced more victimization at home than males; in this case approximately 300,000 more victimizations a year. A new finding is that males experienced nearly 400,000 more violent victimizations on the street or outdoors than females. At a friend's home, males and females experienced equal amounts of victimization. For the remaining categories, males reported more victimization than females. When time use data is added to the analysis the relative risk of each place will be much more precise than looking at the incidence alone. In general, the incidence data indicate males produce more violence in every type of place other than home or a friend's home.

Figure 4-23
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Specific Types of Place by Race National Crime Victimization Survey, 2003-2005
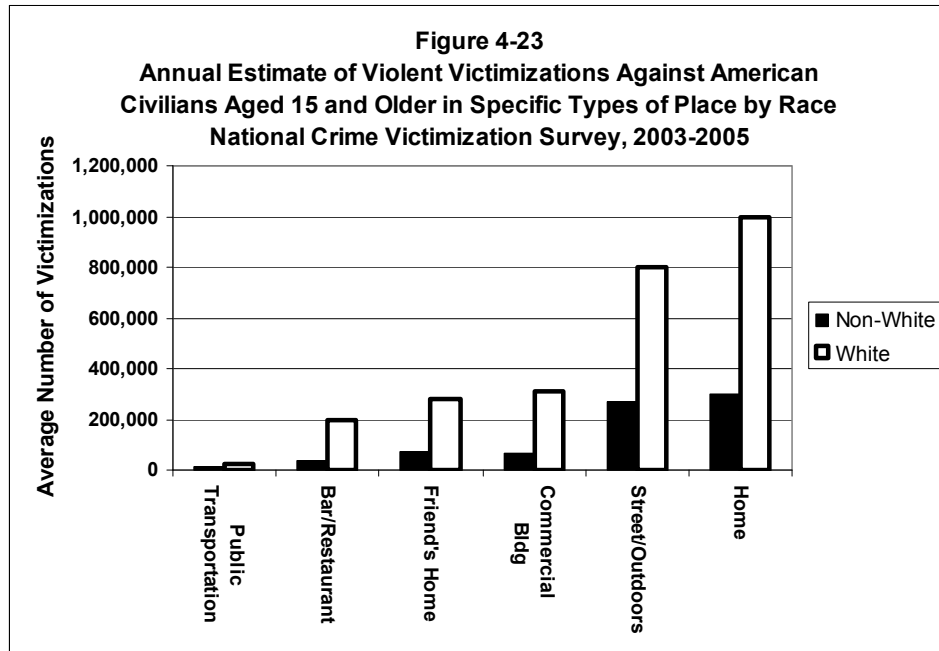
The data presented in Figure 4-23 are consistent with what has been said about race and violence throughout the activity- and place-specific analysis of this chapter. In short, the number of white victims in any type of place is much higher than the number of non-white victims. This is attributed to the skewed population of the NCVS which is nearly 80% white. Until time use data is added to the analysis this information is highly misleading because it does not control for the number of people present or person-hours spent at a location; these rates are reported in Chapters 6 and 7.

Figure 4-24 is the final portion of the analysis into the relationship between age, violence and types of place. The data indicate more violence is reported by those under 30 on the street, at a friend's home and at bars or restaurants. Those aged 30 or older produce more violence than their counterpart at home and at commercial buildings. The number of victimizations reported on public transportation is nearly equal for both groups. It must be noted here once again that this dichotomous variable is misleading when looking at the incidence alone based solely on the number of people in each group. Obviously the age group 15-29 contains far fewer people than the group 30-80+. This means even though those older than 30 may be producing more violence at home, the actual rate of violence may be much lower than it is for those under 30. Only with the addition of time use data can this issue be addressed.

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Figure 4-24
Annual Estimate of Violent Victimizations Against American Civilians Aged 15 and Older in Specific Types of Place by Age National Crime Victimization Survey, 2003-2005
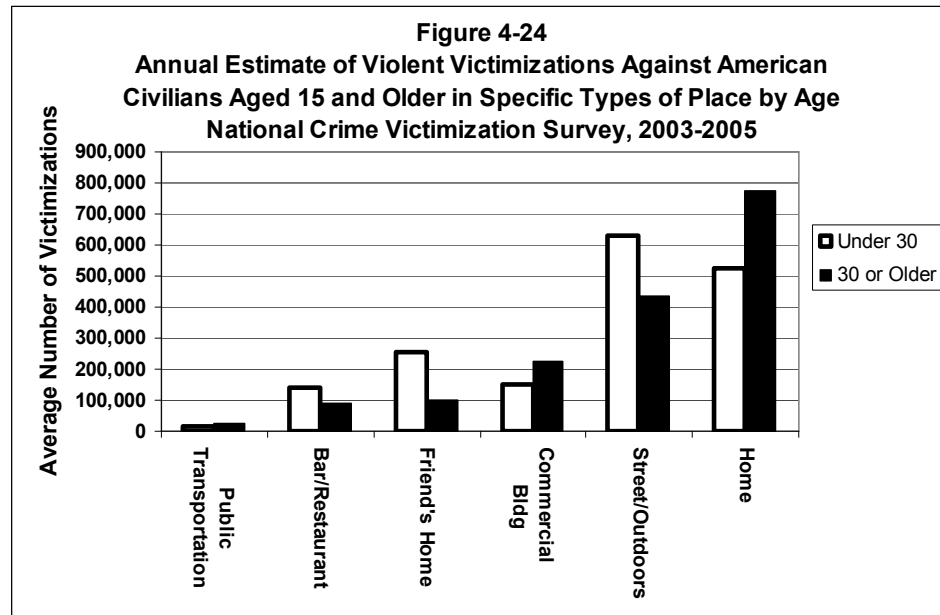
SUMMARY

In summary, this chapter has provided a conventional analysis of violence risk as a baseline for subsequent chapters. The first portion of the analysis presented risks across different demographic groups. The second portion enumerated the incidence of violence in different activities and types of place. Types of places were defined broadly and specifically here for a more complete understanding of how violence is concentrated. In general, the data indicate the majority of violence occurs away from home. When disaggregated into more specific types of place, home has the highest incidence of violence followed by the street or outdoors. Public transportation has the lowest incidence of violence for any type of place. The demographic variables examined indicated there are differences between dichotomous groups based on age, sex and race however until time use data is added to the analysis any conclusions about the relative danger of a type of place are not valid. Differences in the population size of Americans visiting these places and the amount of time they spend there will likely alter the relative risk of these locations. The next chapter will quantify this information so that it can be used in Chapters 6 and 7 to calculate participant-, visitor- and time-based rates of violence for these activities and locations.

Chapter 5—Time Use in America

OVERVIEW

This chapter provides the final pieces of information needed to calculate participant-,

visitor- and time-based rates of violence in America for specific activities and places. To

review, three pieces of information are necessary for these calculations: (1) the incidence

of violence in activities and places, (2) the number of people who visit specific places and

engage in various activities and (3) the amount of time spent in different places or

activities. Chapter 4 quantified the incidence of violence in various activities and places

using National Crime Victimization Survey (NCVS) data. Unfortunately the NCVS only

describes the incidence of violence in America; it does not provide the other two pieces

of information necessary for calculating activity- and place-specific rates of violence. In

this study, the American Time Use Survey (ATUS) is used to quantify the number of

people visiting different types of places or engaging in specific activities. The ATUS is

also used to determine the amount of time Americans spend in these same activities and

places. In Chapters 6 and 7, the ATUS data presented in this chapter will be combined

with the violence statistics presented in Chapter 4. By combining these two surveys, it

will be possible to use participant-, visitor- and time-based rates to determine which

activities and types of place are the most dangerous. The participant- and visitor-based

rates are reported as violent victimizations per 1,000,000 persons; the time-based rates

are reported as violent victimizations per 1,000,000,000 person-hours.

This chapter is broken into two sections. The first describes how the ATUS is used to

estimate how many Americans engage in specific activities or visit different types of

place every day. This section includes population estimates for the activities and types of place in question. The second section outlines the procedure used to estimate the amount of time these same populations spend in the activity or type of place of interest. Time use estimates are provided that show two pieces of information: (1) the number of person-hours an individual spends in the activity or place and (2) the total number of person-hours Americans spent in the activity or place each year. These population size and time use estimates are reported for the American civilian population aged 15 and older. The chapter includes information about the American population in general and demographic subgroups based on the age, sex and race of individuals. The chapter begins by estimating the daily population of various activities and types of place.

POPULATION ESTIMATES FOR ACTIVITIES AND TYPES OF PLACE

The ATUS can be used to quantify the number of Americans who engage in a specific activity or visit a certain type of place. Much like the NCVS population estimate procedure described in Chapter 4, the ATUS assigns a weight to each individual interviewed that is used to estimate how the survey's sample represents the entire American population. Three different weights are included in each ATUS file. The weights enable population estimates to be made for a single year of data or for multiple years if datasets are combined. The weights account for the reality that some activities are more likely to occur on a weekday or weekend. This means the average daily population reported may vary slightly throughout the week for different activities and types of place. However, because this dissertation examines time use over the course of a year it is acceptable to use the average. Because the purpose of this dissertation is to

calculate annual participant- and visitor-based rates of violence, the appropriate weight to use is "TUFINLWGT". The other two weights available are "TU04FWGT" and "TU06FWGT"; these weights should be used when combining datasets from multiple years. Making population estimates for various activities and types of place is simple. By summing the weights for each respondent who engaged in an activity and dividing it by 365, the average daily population of the activity is had. In other words, these estimates describe how many Americans engage in the activity everyday rather than the total number of Americans who participated in the activity in a given year. For example, in 2003 it was estimated that 225 million Americans slept on any given day (see Table 5-1 below). The remainder of this section will present daily population estimates for the nine activity and six place type categories used in this dissertation. When combined with the violence incidence information found in Chapter 4, it is possible to calculate participant- and visitor-based rates of violence for different activities and types of place in America.

Table 5-1 **Daily Population Estimate for Nine Everyday Activities,** **Civilian Americans Aged 15 and Older,** **American Time Use Survey, 2003-2005**
Activity	**2003**	**2004**	**2005**	**Average***
Sleeping	224,977,790	227,990,287	230,296,949	227,755,009
Other Activities At Home	223,936,248	226,809,781	228,615,742	226,453,924
To/From Other	173,934,188	175,534,198	176,897,937	175,455,441
Shopping/Errands	135,498,426	136,526,674	136,562,700	136,195,933
Leisure Away from Home	121,627,486	122,506,625	126,300,909	123,478,340
Working	91,959,674	91,479,456	93,989,392	92,476,174
To/From Work	84,733,361	84,557,225	87,760,279	85,683,622
Attending School	12,783,503	13,346,327	12,337,656	12,822,496
To/From School	11,428,563	12,998,777	11,705,440	12,044,260

Source: ATUS Activity Files, 2003-2005
*Note: Coefficient of variation is less than 0.1 for all activities.

Table 5-1 contains the daily population estimate for nine everyday activities Americans

engage in. Remember, the ATUS activity categories have been recoded to match the

NCVS activity categories. Looking at the table, it is immediately evident that sleeping

and other activities at home have the largest daily population of any activity. In other

words, Americans engage in these activities more often than any other activity examined.

When the daily population of these activities is compared to the estimated population of

the entire American civilian population aged 15 or older, which is just over 225 million

people, the data indicate 99% of Americans engage in these activities everyday. Moving

down the list the other activities Americans engage in the most are going to and from

places other than work or school, shopping or running errands, and leisure activity away

from home. Note that each of these activities has a daily population of more than 100

million persons; however they are still must less common than sleeping or other activities

at home. The least common activities are attending school and the commute to and from

school; only 5% of the American population engages in this activity. The data indicate

the daily population of each activity was constant throughout the study period. Thus the

routine activity patterns of Americans were not changing drastically between 2003 and

2005. The next tables presented discuss the population size differences between

demographic subgroups based on the age, sex and race of Americans.

Table 5-2 Average Population Estimates for Nine Everyday Activities, American Civilians Aged 15 and Older by Sex, American Time Use Survey, 2003-2005		
	Average Daily Population*	
Activity	**Males**	**Females**
Sleeping	109,917,250	117,837,759
Other Activities At Home	109,177,102	117,276,822
To/From Other	83,479,561	91,975,880
Leisure Away from Home	60,460,607	63,017,733
Shopping/Errands	60,305,359	75,890,574
Working	51,627,345	40,848,829
To/From Work	47,855,934	37,827,688
Attending School	6,160,851	6,661,645
To/From School	5,749,504	6,294,756
Source: ATUS Activity Files, 2003-2005 *Note: Coefficient of variation is less than 0.1 for all activities.		

Table 5-2 shows the average male and female daily population for nine everyday activities in America. For each of the demographic variables examined, the average daily population is used to conserve space. The coefficient of variation for each of the activities was very low, less than 0.1, making this an acceptable way to present the data. Annual daily population estimates will be used when calculating participant- and visitor-based rates of violence in Chapter 6. Looking at Table 5-2, the population distributions are very similar to the general American public. The only difference is that males engage in leisure activity more often than shopping or running errands however the difference between these two activities is very small. The average daily population difference between these activities was much larger for females, approximately 12 million people. This indicates females are more likely than males to go shopping or run errands and that they engage in this activity more often than leisure activity away from home. The next two tables presented below describe the daily population estimates for each of these activities based on the race and age of Americans.

Table 5-3 Average Population Estimates for Nine Everyday Activities, American Civilians Aged 15 and Older by Race, American Time Use Survey, 2003-2005		
	Average Daily Population*	
Activity	**Whites**	**Non-Whites**
Sleeping	189,562,176	38,192,833
Other Activities At Home	188,433,766	38,020,158
To/From Other	147,195,640	28,259,802
Shopping/Errands	114,589,613	21,606,320
Leisure Away from Home	104,779,417	18,698,923
Working	77,930,509	14,545,665
To/From Work	72,331,195	13,352,427
Attending School	9,975,254	3,018,400
To/From School	9,025,860	2,847,242

Source: ATUS Activity Files, 2003-2005

*Note: Coefficient of variation is less than 0.1 for all activities.

Tables 5-3 and 5-4 display the daily population for nine everyday activities based on the

race and age of Americans. Going down the activity list for both tables, the data indicate

a similar population distribution to that seen in Table 5-1. In general, sleeping and other

activities at home are the most common and activities related to school are the least

common. Table 5-3 shows that while there are large size differences between the white

and non-white daily population estimates, both groups distribute themselves in similar

ways across the nine activities. The same is true for age with those aged 30 or older

outnumbering those under 30 in every activity category other than school activities.

Indeed those under thirty comprise the vast majority of students attending school in

America. This finding is not surprising considering the education system of America is

organized around and tailored to the young. In summary, there does not appear to be

major differences in the distribution patterns of Americans across everyday activities

based on their age, sex or race. The major differences between groups are seen in the

total number of activity participants. These data call into question any analysis of

activity-specific victimization risk that does not include denominator data. Knowing that

there are large differences in the number of participants for an activity such as leisure

away from home based on the age of individuals, using the incidence of violence alone to

quantify risk is an incomplete way of describing this phenomenon. The next portion of

this section will present similar tables describing the daily population of different types of

place. The estimates describe the American population as a whole and by demographic

subgroups.

	Table 5-4	
	Average Population Estimates for Nine Everyday Activities, American Civilians Aged 15 and Older by Age, American Time Use Survey, 2003-2005	
	Average Daily Population	
Activity	**Under 30**	**30 or Older**
Sleeping	59,443,547	168,311,461
Other Activities At Home	58,912,392	167,541,532
To/From Other	48,687,124	126,768,317
Leisure Away from Home	36,041,973	87,436,367
Shopping/Errands	35,261,445	100,934,489
Working	23,149,809	69,326,365
To/From Work	21,539,135	64,144,487
Attending School	11,668,524	1,153,971
To/From School	10,010,240	2,034,020
Source: ATUS Activity Files, 2003-2005		
*Note: Coefficient of variation is less than 0.1 for all activities.		

The ATUS provides information about the routine activities of Americans as well as the places they visit. This portion of the chapter describes the estimated daily population for six different types of place. These are the same types of place used in Chapter 4 to describe the distribution of violence. It should be noted here that the activity Americans were engaged in during their visit to a type of place in neglected for this portion of the analysis. Table 5-5 shows the distribution of the American population across six types of place for the years 2003-2005; the average daily population is also included in the table. The data indicate that the average daily population for the different types of place is an acceptable way to discuss the distribution of Americans across the place categories. While there was variation between the years, it was not so great that the mean cannot be used as to describe the general distribution patterns. Looking at the table, home is by far the most commonly visited type of place. In general, more than 99% of Americans visit their home everyday. The next most common type of place visited is a commercial building. The most uncommon type of place Americans visit is public transportation; on any given day approximately 10 million Americans use public transportation. Just like the activity population estimates above, the data in Table 5-5 will be combined with victimization data in Chapter 6 to produce participant- and visitor-based estimates of violence for each type of place. The next paragraphs will describe how the daily population for these types of place varies across demographic variables.

Table 5-5 Daily Population Estimate for Six Types of Place, Civilian Americans Aged 15 and Older, American Time Use Survey, 2003-2005				
Type of Place	**2003**	**2004**	**2005**	**Average***
Home	225,264,036	228,111,115	230,407,893	227,927,681
Commercial Building	95,356,611	96,124,090	100,059,606	97,180,102
Friends Home	61,299,173	63,750,432	64,737,791	63,262,465
Bar or Restaurant	58,966,439	61,196,877	64,388,323	61,517,213
Street or Outdoors	51,851,275	54,971,420	58,727,368	55,183,355
Public Transportation	10,610,821	10,734,248	10,017,035	10,454,035
Source: ATUS Activity Files, 2003-2005 *Note: Coefficient of variation is less than 0.1 for all types of place.				

Tables 5-6, 5-7 and 5-8 show the estimated daily population for six different types of place based on the sex, race and age of Americans. In general, the patterns observed in these tables mimic what was seen in the demographic breakdown for different activities presented in the beginning of this section. For every type of place the daily population is much larger for whites than non-whites; the same is true for age where those aged 30 or older comprise a much larger population than their younger counterpart. Thus like the activity data presented above, these data reaffirm the notion that without time use information using the incidence of violence alone provides and incomplete and inaccurate picture of violence risk. The population differences between these groups are so large that calculating a rate is the only way to truly assess the relative danger of a type of place for different demographic groups. The data also indicate that there are vast differences between the daily populations of one type of place compared to another. This means the relative risk of a type of place will be misconstrued using incidence information alone. For example, the NCVS data in Chapter 4 indicated home had the highest levels of violence and public transportation had the lowest. However, until we divide the number of victimizations by the daily population the incidence data could be misleading and make a person's home seem much more dangerous than it really is. This is one of the best justifications for the completion of this study.

Getting back to the daily population estimates in Tables 5-6, 5-7 and 5-8, home and commercial places represent the most commonly visited type of place regardless of demographic subgroups; public transportation is the least commonly visited type of place. The types of place that fall in between these categories show different patterns for

different subgroups. For instance, on any given day there were more men at bars or restaurants than at a friend's home; the opposite was true for women. When comparing whites to non-whites, non-whites were more likely to visit a friend's home than a bar while whites showed the opposite. For now, these population estimates provide insight into the distribution of Americans across different types of place but say nothing about how much time they spend there. Thus the next step in this analysis is to estimate the amount of time Americans spend in various activities and types of place. When this information is in hand, it will be combined with the population estimates presented here to quantify the total number of person-hours Americans spent in every activity or type of place each year. In essence, the time-based rates calculated in Chapter 7 would not be possible without first estimating the daily population for different activities and types of place. Even if the time spent in these categories was known, it must be put into context by multiplying the number of person-hours by the number of persons. Logic would assume that if time use varies across activities and places so will the size of participant or visitor populations. The next section describes how ATUS weights are used to estimate the number of person-hours Americans spend in different activities and types of place. This is the final piece of information needed to calculate time-based rates of violence.

Table 5-6 Average Population Estimates for Six Types of Place, American Civilians Aged 15 and Older by Sex, American Time Use Survey, 2003-2005		
	Average Daily Population*	
Type of Place	**Males**	**Females**
Home	110,039,855	117,887,826
Commercial Building	41,002,535	56,177,567
Bar or Restaurant	31,299,787	30,217,426
Friends Home	28,621,170	34,641,295
Street or Outdoors	27,601,006	27,582,349
Public Transportation	5,238,328	5,215,706
Source: ATUS Activity Files, 2003-2005 *Note: Coefficient of variation is less than 0.1 for all types of place.		

Table 5-7

Average Population Estimates for Six Types of Place, American Civilians Aged 15 and Older by Race, American Time Use Survey, 2003-2005

	Average Daily Population*	
Type of Place	**Whites**	**Non-Whites**
Home	189,660,050	38,267,631
Commercial Building	81,277,003	15,903,099
Bar or Restaurant	53,322,857	8,194,356
Friends Home	52,583,088	10,679,378
Street or Outdoors	45,234,713	9,948,642
Public Transportation	6,852,203	3,601,832

Source: ATUS Activity Files, 2003-2005

*Note: Coefficient of variation is less than 0.1 for all types of place.

Table 5-8 Average Population Estimates for Nine Everyday Activities, American Civilians Aged 15 and Older by Age, American Time Use Survey, 2003-2005		
	Average Daily Population*	
Type of Place	**Under 30**	**30 or Older**
Home	59,488,596	168,439,086
Commercial Building	23,510,833	73,669,269
Friends Home	22,661,305	40,601,160
Street or Outdoors	17,686,831	37,496,524
Bar or Restaurant	17,002,437	44,514,776
Public Transportation	5,085,138	5,368,897
Source: ATUS Activity Files, 2003-2005 *Note: Coefficient of variation is less than 0.1 for all types of place.		

TIME USE ESTIMATES FOR ACTIVITIES AND TYPES OF PLACE

The purpose of this section is to provide the final piece of information needed to produce time-based rates of violence. Chapter 4 quantified the incidence of violence in activities and places and the previous section enumerated the daily population in both. This section gives estimates of how much time Americans spend in different activities and types of place. These estimates are calculated using the same weighting variable used to estimate the daily population. The methodology for estimating the amount of time spent in each activity or type of place is slightly different. Rather than simply summing the weights and dividing by 365, the number of person-hours spent in an activity or type of place if obtained by multiplying the weight "TUFINLWGT" with the amount of time each respondent spent in either category. The sum of these numbers is then divided by the sum of the "TUFINLWGT" to produce an estimate of how many minutes Americans spent in different activities and types of place. Dividing this number by 60 converts the estimate from person-minutes to person-hours; remember the time-based rates will be reported in victimizations per 1 billion person-hours. The remainder of this section discusses how American time use varies across activities, types of place and demographic variables. The information presented here will be combined with victimization information from Chapter 4 to quantify the relative risk of different activities and types of place.

The discussion of time use variations in America begins with Table 5-9 which presents the number of person-hours spent in each of the nine everyday activity categories of interest. The time use estimates described here and throughout the rest of the chapter

refer to the amount of time a participant spent in the activity. In other words, these estimates only refer to Americans who participated in the activity not Americans in general. For example, in 2003 Americans who worked spent 8.08 person-hours at work however this estimate does not mean every American worked for this amount of time every day. This is why the total number of person-hours for each year totals more than 24 person-hours a day. As the population estimates showed, with the exception of sleeping and other activities at home Americans did not engage in every activity on a typical day. Looking to the table, the data indicate Americans spent more time sleeping than they did in any other activity. Working and other activities at home were the second and third most time consuming activities. The commute to and from school was the least time consuming activity with Americans averaging just 0.56 person-hours a day in this activity. Without getting into great detail, it is more important to note the fact that there are vast differences in the amount of time spent in each of the nine everyday activities presented in Table 5-9. Knowing that until this dissertation NCVS data analyses were limited to looking at the incidence of violence in activities alone, the information presented here clearly indicates this method is inaccurate. Incidence only analyses are appropriate if the amount of time spent in each activity is equal; clearly this is not true of the nine activity categories created by the NCVS. The paragraphs that follow will describe how time use varies for these activities based on the age, sex and race of Americans.

Table 5-9 Time Use Estimate for Nine Everyday Activities, Civilian Americans Aged 15 and Older, American Time Use Survey, 2003-2005				
	Person-Hours Participants Spent in Each Activity per Day			
Activity	**2003**	**2004**	**2005**	**Average***
Sleeping	8.58	8.56	8.63	8.59
Working	8.08	8.17	8.13	8.13
Other Activities At Home	7.96	8.02	7.94	7.97
Attending School	5.63	5.77	5.73	5.71
Leisure Away from Home	2.94	2.93	2.89	2.92
Shopping/Errands	1.50	1.54	1.49	1.51
To/From Other	1.28	1.24	1.23	1.25
To/From Work	0.67	0.71	0.74	0.71
To/From School	0.60	0.58	0.50	0.56
Source: ATUS Activity Files, 2003-2005 *Note: Coefficient of variation is less than 0.1 for all activities.				

The discussion of how time use varies across demographics begins with the sex of American civilians. Table 5-10 shows the average number of person-hours males and females spent in each of the nine everyday activities. The average number of person-hours was used to conserve space and because there was little variation in time use during the study period. The data indicate there are differences in time use between men and women for most but not all activities. The activities that saw little difference between the sexes are: sleeping, commuting to/from work, commuting to/from school, commuting to/form other places, leisure activity and shopping or errands. Every other activity category saw a difference of at least 0.5 person-hours per day; the largest difference observed was for the other activities at home category. These data indicate the lifestyles of men and woman do differ when the type of activities they engage in are considered. Once again, the information presented in Table 5-10 highlight the need to combine victimization data with time use data to produce a more accurate picture of risk than examining the incidence of violence alone.

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Table 5-10

Activity-Specific Time Use Estimates for Civilians Aged 15 and Older By Age, Sex and Race, United States, 2003-2005

| | | | | Average Number of Person-Hours Spent in Each Activity by Participants | | | |
| | | (A) | (B) | (C) | (D) | (E) | (F) 30 or | (G) All |
Activity		**Males**	**Females**	**Whites**	**Non-Whites**	**Under 30**	**Older**	**Americans**
(1)	Sleeping	8.52	8.66	8.53	8.88	9.05	8.43	8.59
(2)	Other Activities at Home	7.37	8.53	7.99	7.89	6.42	8.52	7.97
(3)	Working	8.49	7.67	8.13	8.12	7.73	8.26	8.13
(4)	Attending School	6.06	5.38	5.64	5.96	5.96	3.15	5.71
(5)	Shopping or Errands	1.37	1.62	1.50	1.55	1.48	1.52	1.51
(6)	Leisure Away from Home	3.07	2.78	2.89	3.10	3.43	2.71	2.92
(7)	To/From Work	0.77	0.63	0.70	0.74	0.63	0.73	0.71
(8)	To/From School	0.57	0.56	0.55	0.60	0.56	0.59	0.56
(9)	To/From Other	1.23	1.27	1.24	1.28	1.24	1.25	1.25

*Note: Rate is based on the population size of each of dichotomous demographic groups. Each variable, for example age, is analyzed independently of the others.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

Table 5-10 also shows the average number of person-hours whites and non-whites spent in each of the nine everyday activities during the study period. Unlike sex, it appears race has little effect on the amount of time Americans spend in different activities. The data indicate no activity saw a difference greater than 0.5 person-hours based on the race of Americans. In general, the time use patterns for whites and non-whites were similar to the American population as a whole. While the average number of person-hours spent in each activity per day does not vary much between these racial categories, the total time spent in each per year will be vastly different. Remember that the total time is equal to the number of person-hours multiplied by the daily population multiplied by 365. Thus because whites and non-whites have vastly different daily populations for each activity, the total amount of time spent in each will also be different. This will alter the time-based rates of violence which depend on the total amount of time spent in an activity every year. For now the important piece of information here is that time use does not vary much based on the race of Americans. The next paragraph describes how time use varies based on the age of American civilians.

The effect of age on time use is the final demographic to be explored. Table 5-10 shows the average number of person-hours spent in nine everyday activities for Americans under 30 years of age and those aged 30 or older. According to the data, age has a larger effect on time use than any other demographic examined. Four of the activities saw little or no difference between the groups; these were to/from work, to/from school, to/from other and shopping or errands. The other five activities all saw differences greater than 0.5 person-hours. The largest difference was observed for the attending school category in which those under 30 spent an extra 2.81 person-hours per day compared to their

counterpart. Other activities at home saw the next largest difference with those aged 30 or older spending an additional 2 person-hours per day at home. The differences for working, sleeping and leisure away were just over 0.5 person-hours per day. These data indicate age has a large effect on the routine activities of Americans. In general those under 30 spend more time away from, less time working, and more time in leisure activity. It will be interesting to note how these time use differences alter the risk of violence in everyday activities. Clearly using the incidence information presented in Chapter 4 alone is an inappropriate way to asses the risk of violence. Beyond vast differences in the daily population for these groups, the data in Table 5-10 also indicate large differences in the time spent in most of these activities. The remainder of this section will discuss how time use varies across different types of place.

The first portion of this section has indicated time use varies across everyday activities in America. The data presented above also indicate the demographics of age and sex influence how much time Americans spend in these activities; race had little effect on time use. The purpose of the last portion of this section is to describe how time use varies across different types of place. The analysis begins with time use variations for the American population as a whole and is followed by a discussion of how age, sex and race influence the amount of time spent in these locations. Table 5-11 presents time use estimates for the six types of place in question. Just like the activity-specific time use estimates above, these estimates refer to the average amount of time spent at a type of place for those who visited the location. In other words, the estimate refers to how much time a person would typically spend at a location if they were to go there; these estimates

do not refer to every American. Looking at the data home stands out as the type of place Americans spend the most time at; according to the data more than 16 person-hours a day are spent at home. Visiting a friend's home is the next most time consuming activity with an average of just under three person-hours spent at this type of place. The other four types of place all saw less than two person-hours a day spent in the location. Public transportation was the type of place where Americans spent the least amount of time. These data indicate there are large differences in time use across different types of place and justify the need to combine victimization data with time use data. This is especially true for the home category where a great deal of violence was reported in Chapter 4. If this information is not combined with the time use data below it appears home is a very dangerous place. However, the data in Table 5-13 indicate Americans are spending lots of time at home and therefore the time-based rate of violence may be much lower than it is for other types of place. This will be addressed in Chapter 7. The remaining portion of this section will discuss how time use varies across types of place by the age, sex, and race of Americans.

Table 5-11			
Time Use Estimates for Six Types of Place,			
Civilian Americans Aged 15 and Older,			
American Time Use Survey, 2003-2005			
	Person-Hours Participants Spent in Each Activity per Day		
Type of Place	**2003**	**2004**	**2005**	**Average***
Home	16.58	16.62	16.63	16.61
Friends Home	2.64	2.64	2.60	2.63
Public Transportation	1.61	1.42	1.58	1.54
Commercial Building	1.39	1.40	1.44	1.41
Bar or Restauraunt	1.12	1.11	1.11	1.11
Street or Outdoors	1.07	1.09	1.12	1.09
Source: ATUS Activity Files, 2003-2005			
*Note: Coefficient of variation is less than 0.1 for all types of place.			

Table 5-12 shows the average number of person-hours males and females spend in different types of place each day. Once again, home stands out as the type of place where men and women spend most of their time. The other types of place examined also show time use patterns similar to the American population as a whole. When the differences between men and women are examined, the only category with a difference greater than 0.5 person-hours is home. According to the data, women spent an average of 1.35 more person-hours at home when compared to men. Time use for every other type of place category was relatively similar for both men and women.

When the race of Americans is considered, it appears time use does not vary much between whites and non-whites. According to the data presented in Table 5-12, none of the types of place examined saw a difference of more than 0.5 person-hours per day for either of these racial categories. This is similar to the activity-specific findings above where race appeared to have little to no effect on time use. While time use may not vary much, the population size of these groups is vastly different meaning the total amount of time spent in each type of place will be different. This will alter the time-based rates calculated in Chapter 7. For now, the only conclusion to be made is that Americans spend similar amounts of time in different types of place no matter their race.

Table 5-12

Place-Specific Time Use Estimates for Civilians Aged 15 and Older By Age, Sex and Race, United States, 2003-2005

	Average Number of Person-Hours Spent in Each Activity by Participants						
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
						30 or	
Type of Place (Broad)	Males	Females	Whites	Non-Whites	Under 30	Older	All Americans
(1) Home	15.91	17.26	16.57	16.79	15.48	17.01	16.61
(2) Friends Home	2.83	2.46	2.60	2.77	3.02	2.41	2.63
(3) Bar or Restaurant	1.13	1.09	1.13	1.00	1.09	1.10	1.09
(4) Commercial Building	1.31	1.48	1.35	1.69	1.28	1.78	1.41
(5) Public Transportation	1.60	1.48	1.60	1.42	1.45	1.40	1.54
(6) Street or Outdoors	1.30	0.89	1.14	0.88	1.12	1.11	1.11

*Note: Rate is based on the population size of each of dichotomous demographic groups. Each variable, for example age, is analyzed independently of the others.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

The last demographic examined is how the age of Americans influences the amount of
time spent in different types of place. The data presented in Table 5-12 indicate age has
little effect on the time spent in three of the six types of place; these are commercial
buildings, the street and bars or restaurants. The other three categories all show a
difference of more than 0.5 person-hours per day between Americans under 30 and those
aged 30 or older. The largest difference is found at home where the older demographic
spends 1.53 more person-hours per day. Thus like the activity-specific analysis above,
young Americans are spending less time at home than their counterpart. The next largest
difference seen in Table 5-16 is for the friend's home category; the young spend more
time at friend's homes than those aged 30 or older. Finally, the data indicate Americans
aged 30 or older spend an extra 0.5 person-hours a day on public transportation. Once
again, it appears age has a larger effect on time use than any of the other demographics
examined. It will be interesting to see how these differences influence the time-based
rates to be calculated in Chapter 7.

Chapter 6—Participant-Based Rates of Violence for Activities and Types of Place

OVERVIEW

The results presented in this chapter represent a new interpretation of violence risk in America. Using participant- and visitor-based rates of violence, the data presented here account for the transient nature of people in time and space. Unlike traditional population-based rates of violence, the rates presented here do not use a resident or Census population; this type of population measurement assumes humans are immobile in time and space. Instead, the denominator used to calculate the participant- and visitor-based rates of violence in this chapter only include the number of individuals *participating* in each activity or *visiting* each type of place. From this point forward, participant-based rates will refer to the risk of violence in everyday activities and visitor-based rates will refer to the risk of violence in different types of place. The term visitor is used to describe how many people go to different types of place because it is more accurate than the term participant. In short, you do not participate in different types of place, you visit them; conversely you do not visit activities you participate in them. For both types of rate calculations, the number of visitors or participants is estimated using the American Time Use Survey (ATUS). These estimates were presented in Chapter 5 as the average daily population participating in each activity or visiting each type of place. To calculate participant-based rates of violence for an activity such as attending school, you simply divide the number of victimizations by the number of participants. Because National Crime Victimization Survey (NCVS) violence estimates are made on a calendar year basis, it is necessary to divide each estimate by 365 to match victimization estimates with the ATUS participant or visitor population estimate. In this dissertation, participant-

based rates of violence are reported as the *number of violent victimizations per 1 million participants.* Visitor-based rates of violence are reported as the *number of violent victimizations per 1 million visitors.* These rates do not account for the amount of time participants spent in each activity; those rates are presented in Chapter 7.

The participant- and visitor-based rates presented here are the first level of refinement for the activity- and place-specific risk assessment. Moving beyond incidence alone, these rates control for the number of potential victims in each activity. Even without knowing how much time Americans spent in an activity or type of place, it is still possible to get a better idea about the relative risk of each using the number of participants as a denominator for rate calculations. Accordingly, this chapter seeks to: (1) quantify the risk of violence in activities and types of place using participant- and visitor-based rates, (2) compare these activities and types of place to one another to determine their relative safety from violence and (3) compare the risk of violence across demographic variables using participant- and visitor-based rates. By the end of the chapter these objectives will be met and the reader will have a better understanding of how violence risk varies based on the number of participants in an activity or visitors to a type of place.

DANGEROUS ACTIVITIES: PARTICIPANT-BASED COMPARISONS

The Participant-Based Risk of Violence in Different Activities

This section describes how the risk of violence is distributed and varies across everyday activities in America. Table 6-1 includes activity-specific violence rates for the American public in general and for dichotomous demographic subgroups. This

subsection focuses on all Americans and is subsequently followed by another subsection on how risk varies across demographic variables. Looking at Table 6-1, Column G presents the average violence rate in each activity for all Americans. Going down the rows, the results indicate sleeping (Row 1) is the safest activity and attending school (Row 4) is the most dangerous. The violence rate for sleeping is by far the lowest with just 1.4 violent victimizations per 1 million participants. The rate of violence while sleeping is so low that the next safest activity, shopping or errands (Row 5), is still three times more risky for Americans than being asleep. According to the results, the relative danger of everyday activities in America from safest (#1) to most dangerous (#9) is:

1. Sleeping   (LEAST DANGEROUS)
2. Shopping or Errands
3. To/From Work
4. To/From Other
5. Other Activities at Home   (MODERATELY DANGEROUS)
6. Working
7. To/From School
8. Leisure Away from Home
9. Attending School   (MOST DANGEROUS)

These rates represent the first attempt to quantify the relative violence risk for various activities using participant-based rates, so we cannot compare these results to previous research. But we can compare the *relative* safety of each activity examined here, and we can establish a baseline for comparisons of future research results to these.

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Table 6-1

Participant-Based Rates of Violence Against Civilians Aged 15 and Older By Age, Sex and Race, United States, 2003-2005

		(A) Males	(B) Females	(C) Whites	(D) Non-Whites	(E) Under 30	(F) 30 or Older	(G) All Americans
		Average Victimization Rate (Victimizations per 1,000,000 Participants in Each Activity)*						
(1)	Sleeping	1.1	1.6	1.4	1.4	2.5	0.8	*1.4*
(2)	Other Activities at Home	12.3	16.4	13.2	19.7	22.5	11.5	*14.2*
(3)	Working	27.1	21.1	24.7	23.8	35.3	20.8	*24.4*
(4)	Attending School	57.0	21.9	40.5	32.3	40.8	14.8	*38.6*
(5)	Shopping or Errands	4.7	3.8	3.8	6.3	5.5	3.6	*4.1*
(6)	Leisure Away from Home	34.2	16.4	23.8	33.2	59.5	11.0	*25.2*
(7)	To/From Work	7.7	4.9	6.0	8.5	10.7	4.9	*6.3*
(8)	To/From School	29.3	20.3	23.3	29.0	26.6	21.9	*24.7*
(9)	To/From Other	8.8	5.8	6.3	11.8	15.1	4.4	*7.1*

*Note: Rate is based on the population size of each of dichotomous demographic groups. Each variable, for example age, is analyzed independently of the others.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

An easy way to describe the relative safety of activities is to create an index using a benchmark activity. By dividing the rate of individual activities by the rate of a benchmark activity and multiplying this number by 100, it is possible to create an index where values over 100 represent more dangerous activities. Conversely, values less than 100 indicate a safer activity. Table 6-2 displays the relative safety of two activities, sleeping and other activities at home, as compared to the other seven activities Americans participate in. Sleeping was chosen as a benchmark activity because it is the safest activity. Other activities at home is used as an alternate benchmark to compare the risk of activities away from home to the risk of violence while Americans are <u>awake</u> at home. Beginning with sleeping (Column A), the data indicate all everyday activities examined are more dangerous than being asleep. While this finding is no different than the data presented in Table 6-1, the risk assessment indicates activities vary with regard to their relative danger when compared to sleeping. As noted above, shopping or running errands is three times more dangerous than being asleep; the commute to and from work or other places is five times as high. Compared to sleeping, Americans experience ten times more risk in their own home when they are awake. This is an interesting finding that suggests being at home is more dangerous when a person is awake; it also suggests being at home is more dangerous than shopping or commuting to and from work or other places. Before making conclusions about why being at home appears to be more dangerous, it is important to remember that these risk estimates do not control for the amount of time spent at home. Therefore, when time use estimates are added to the analysis it is possible that the relative danger of other home activities will decrease due to the fact that Americans spend more time engaged in other activities at home than any other activity

except working and sleeping (see Table 5-9). The participant-based rates indicate working, the commute to and from school and leisure away from home are all eighteen times more dangerous than being asleep. The most dangerous activity, attending school, is twenty-eight times more dangerous than sleeping. Except for the finding that other activities at home are more dangerous than three of the activities away from home, the relative risk of everyday activities falls in line with the routine activity or lifestyle approach. The results indicate there are variations in the relative risk of activities and thus participating in certain activities is more dangerous. In general, activities that bring people away from home and into public places are more dangerous. Making conclusive statements about the relative safety of activities should only done after determining time-based rates of violence for these nine everyday activities (see Chapter 7). Until then the information presented here is intrinsically interesting as it shows how using participant-based rates produces a different picture of risk than looking at the incidence of violence alone. These results reaffirm the notion that adding time use data to studies of victimization is an important step forward for criminological research and theory.

Because sleeping is such a safe activity, it is useful to compare the risk of everyday activities to violence rates during other activities at home to assess how victimization rates vary across activities Americans participate in while they are awake. Looking again at Table 6-2, Column B indicates the relative risk of everyday activities is not as widespread when other activities at home are used as a benchmark for safety. This portion of the analysis indicates four activities are safer than other activities at home and four are more dangerous. The four safer activities were already discussed above. The

results indicate activities that are more dangerous do not dwarf the violence rate of other activities at home. For example, attending school is only three times more dangerous than other activities at home; it is twenty-eight times more dangerous than being asleep. In fact, the relative risk of each activity is only two or three times higher for the four activities that are more dangerous. This indicates the risk of violence varies, but to a lesser degree, for activities participants engage in while awake.

Table 6-2
The Relative Safety of Everyday Activities,
Participant-Based Comparisons,
United States, 2003-2005

	Activity	(A) Risk of Violence During Activity Compared to Sleeping*	(B) Risk of Violence During Activity Compared to Other Activities at Home*
(1)	Sleeping	100	10
(2)	Other Activities at Home	1,014	100
(3)	Working	1,743	172
(4)	Attending School	2,757	272
(5)	Shopping or Errands	293	29
(6)	Leisure Away from Home	1,800	177
(7)	To/From Work	450	44
(8)	To/From School	1,764	174
(9)	To/From Other	507	50

*Note: Relative risk was determined by dividing the violence rate of each activity by the rate for sleeping (Column A) or other activities at home (Column B) and multiplying the result by 100. The index scale should be interpreted as any value over 100 means the activity is more dangerous than the benchmark used (i.e. sleeping or other activities at home). Values less than 100 indicate the activity in question is safer than the benchmark. To determine how much more dangerous an activity is divide the index value by 100. For example, working is 17 times more dangerous than sleeping (1,743/100 = 17.43). To determine how much safer an activity is divide 100 by the index value. For example, sleeping is 10 times safer than other activities at home (100/10 = 10).

Source: Calculated using Table 6-1 (see above).

In summary, this participant-based portion of the analysis has shown three things: (1) sleeping is the safest activity, (2) attending school is the most dangerous activity and (3) the risk of violence varies between activities. The third conclusion is perhaps the most interesting as it reaffirms a major tenant of the routine activity approach; *different activities expose people to different levels of risk.* Until this study, the relative risk of activities has been unknown. In fact, while the results of this analysis may not be completely surprising, they do represent the first time in criminological history that the risk of violence in different activities has been quantified numerically. Thus we can conclusively say that based on the number of people who participate in everyday activities in America, the risk of violence is not distributed evenly across different activities. Before this study criminologists were limited to assuming risk varies between activities because it makes sense logically. The information presented here not only reaffirms that logic but gives quantitative evidence as to how much risk actually varies between activities. Continuing forward, the next subsection describes how the activity-specific risks of violence reported in Table 6-1 vary between demographic groups.

The Participant-Based Risk of Violence in Activities by Age, Sex and Race

The routine activity approach argues differences between victimization rates for demographic groups are the result of different activity patterns that expose some people to more risk than others. The purpose of this subsection is to compare participant-based rates of violence in different activities across three dichotomous demographic variables. Rather than discuss differences between the raw rates, this results are described using the percent difference for each rate based on the age, sex or race of individuals. This

provides a more accurate picture of how large, small or non-existent these differences

are. According to the theory, controlling for the number of people who participate in an

activity should result in demographics having a small effect on rates of violence. In other

words, if whites are participating in leisure away from home more frequently than non-

whites, the population size put into the denominator will control for this and produce

similar rates of violence. If large differences still exist, it indicates activity patterns alone

cannot explain the variation in victimization rates across demographic variables. For an

easier understanding and discussion, this and future results that compare percent

differences between groups will focus on activities that (a) have a lower risk of violence

for a demographic subgroup than expected and (b) have a percent difference of more than

100%. Differences of less than 100% are not discussed because they are not large

enough to warrant excessive attention. For example, a 100% difference means the rate

difference is two-fold between groups where as anything less than 100% is not. This

dissertation is concerned with finding large, tangible differences between groups. It is

not concerned with minor variations that may not convince policy makers and

theoreticians of a conclusive link between demographics and the risk of violence in

specific activities. The discussion of demographics begins by comparing the risk of

violence in everyday activities for males and females.

According to the lifestyle approach, males experience more victimization because they

spend more time in risky activities as compared to females. Table 6-3 shows the percent

difference in risk between males and females for nine everyday activities. Because these

rates are based on the number of participants in each activity, the lifestyle approach

would argue the differences should be minor between these groups. Looking down Column A, the data indicate sleeping and other activities at home are the only activities that pose a higher risk for females than males (Rows 1 and 2). While these differences are in the opposite direction as expected, men should always have more risk, they are relatively small and much less than 100%. In fact, only two of the nine activities show a difference between males and females that is greater than 100%. According to the data, leisure away from home and attending school are both at least two times more dangerous for males than females; the other seven activities have victimization rates that are roughly the same. These data indicate at least two things. First, the routine activity approach does hold true for seven of the nine everyday activities; the sex of victims does not greatly influence their risk of violence no matter their activity. Put another way, the risk of violence in many activities does not vary greatly between males and females. Second, attending school and leisure away from home are two activities that expose males to more risk in general as well as compared to their female counterpart. For example, attending school is the most dangerous activity for Americans in general but is three times more risky for males than females. The results presented in Chapter 7 will take this analysis a step further by adding the amount of time spent in each activity to the denominator which may result in different patterns for males in females. One possibility is that males are spending more time than females in leisure and thus victimization rates may not differ as much when time is considered. For now, the data indicate the routine activity approach is correct in implying what a person does is as important, if not more important, than their sex when determining the relative risk of violence they are exposed to.

Table 6-3

Differences in Participant-Based Activity-Specific Victimization Rates for Dichotomous Age, Sex and Race Variables, United States, 2003-2005

		% Difference Between Participant-Based Rates of Violence for Demographic Groups		
		(A) Males/Females*	(B) Non-Whites/Whites	(C) Under 30/30 or Older
(1)	Sleeping	-33	0	200
(2)	Other Activities at Home	-25	33	95
(3)	Working	29	-3	70
(4)	Attending School	160	-25	176
(5)	Shopping or Errands	21	39	54
(6)	Leisure Away from Home	108	28	443
(7)	To/From Work	56	29	117
(8)	To/From School	45	20	21
(9)	To/From Other	52	47	244

*Note: Percent differences should be interpreted as the difference in victimization rate for the demographic group on the left compared to the group on the right. For example, the violent victimization rate while sleeping is 33% lower for males than females; it is 108% higher while males engage in leisure away from home.

Source: Calculated using data presented in Table 6-1 (see above).

Knowing that sex only has a large impact on the participant-based rate of violence in two everyday activities, it is now time to examine the effect of race on the relative safety of activities. While race has never really been linked to large differences in activity patterns, the results presented in Chapter 4 clearly indicated non-whites are more likely to become victims of violence than whites. The question now becomes whether this difference is linked to some activities being more dangerous than others for non-whites. Column B in Table 6-3 indicates that for each of the nine everyday activities examined, none had a percent difference greater than 100%. To be more precise, none of the activities even saw a percent difference of at least 50%. This indicates participant-based rates of violence do not vary greatly between whites and non-whites no matter the activity. In simple terms, non-whites experience higher levels of victimization overall no matter their activity. The only activities found to be safer for non-whites are attending school and working. While attending school, the participant-based rate of violence for non-whites is 25% lower than it is for whites; it is 3% lower while working. Again these differences are in the opposite direction as expected but are not very large. All of these data indicate using race to predict victimization in specific activities would not be very effective. While the rates of violence are higher for non-whites in almost every activity, the difference when compared to whites is negligible. Once again it appears knowing what a person does paints a more accurate picture of risk than knowing their race alone.

The final demographic variable considered is age which the lifestyle approach argues leads to increased exposure to risk for the young because they spend more time away from home and with persons of the offending age. Using 30 years of age as a cutoff, the

data presented in Table 6-3 indicate age may be the only demographic variable examined that still has a large effect on violence rates when victimizations are disaggregated by activity. Column C indicates that for five of the nine activities, those under thirty are much more likely to be victimized than those aged 30 or older. The largest difference between these groups was leisure activity away from home with the young experiencing a victimization rate 443% higher than those aged 30 or older. In other words, while leisure activity is more dangerous than say sleeping for all Americans, it is especially risky for those under 30 years of age. To and from other places and sleeping were also more dangerous for the young; the victimization rate at least 200% higher for both activities. The other two activities with substantially higher victimization rates were attending school and to/from work. The percent difference between victimization rates during other activities at home nearly reached the 100% cutoff, it was 95%. This indicates that for almost every activity, persons under 30 are much more likely to be victimized. The only activities that were roughly as dangerous for both age groups are working, the commute to and from school and shopping. The finding that working exposes all Americans, regardless of age, to similar risks of violence mirrors Lynch's (1987) conclusions about the work domain.

These results indicate Americans under 30 years of age are at least twice as likely to be victimized in all everyday activities except working, commuting to school, other activities at home and shopping or errands. In short, unlike race and sex, age appears to be a strong predictor of victimization even when an activity-specific approach is used. Without jumping to conclusions before the time spent in these activities is examined and

used to calculate time-based rates of violence, the finding that age continues to be a good predictor of violence might be the result of young people engaging in activities with other youths who are of the offending age. For example, perhaps leisure away from home, a relatively dangerous activity, is more dangerous for youth because they participate in the activity with other persons who are the same age. Thus the dangerous activity is made more dangerous because of the demographic characteristics of fellow participants. Put another way, 25 year olds enjoy leisure with other 25 year olds while those in their 60s go out with other elderly people who are unlikely offenders. The dramatic differences seen between age groups emphasize the need to examine this demographic characteristic more carefully. By disaggregating age further into 10-year intervals and by single year of age it will be possible to quantify more specific risk assessments that better predict victimization (see Chapter 8). For now, the participant-based rates clearly indicate age is an important consideration for activity-specific risk assessments.

This subsection has described the link between demographic variables and the risk of violence in everyday activities. The three conclusions that can be made from this portion of the analysis are: (1) sex has little effect on the risk of violence in different activities with the exception of attending school and leisure activity where males are twice as likely to be victimized, (2) race has little effect on the risk of violence in different activities and (3) age is a robust predictor of victimization in five of the nine activities; working, shopping, other home activities and commuting to school are the exceptions. These conclusions are all in line with the routine activity approach which argues demographics are less important than activity patterns when determining the risk of victimization. The

routine activity approach argues age should remain a strong predictor of victimization assuming people hang out with others who are the same age. Thus almost every activity the young engage in is with those of the offending age. In essence, this results in greater exposure to those of the offending age and higher rates of victimization no matter the activity. Because these rates do not account for the amount of time Americans spent in each activity the risk analysis is incomplete and the conclusions tentative. In Chapter 7 a similar analysis is performed and the results are compared to what is presented here. The last portion of this section describes how the risk of violence in different activities varies by crime type.

The Participant-Based Risk of Violence in Activities by Crime Type

The final piece of this participant-based, activity-specific risk assessment describes how the risk of violence in different activities is distributed by crime type. Until now the rates presented were representative of the risk for all forms of violence; this subsection disaggregates victimization further into seven crime types. Table 6-4 has been organized so that each column represents a specific crime type and each row a specific activity; Column G refers to all forms of violence combined. Beginning on the left (Column A), the data indicate threats of violence are most common during work (Row 3) and school (Row 4); the same is true of simple assault (Column B). Remember that more than 50% of the violence captured by the NCVS falls into one of these two crime types (see Chapter 4). While the participant-based rate of threats is nearly equal for working and attending school, the same is not true for simple assaults. The rate of simple assault while attending school is more than double that while working; in other words, being

assaulted at school is much more likely than at work or any other activity for that matter. It is important to note here once again that any type of violence other than threats and simple assaults is extremely rare no matter the activity. Even threats and simple assault occur at very low rates; the highest rate of any form of violence is simple assaults at school with 21.3 violent victimizations per 1,000,000 participants. Again this means that approximately 21 of every 1 million Americans attending school, or 0.002%, were the victim of a simple assault during the study period. In short, violence, especially the most serious forms, is rare when disaggregated by activity.

Table 6-4

Participant-Based Rates of Violence for Nine Everyday Activities by Crime Type, United States, 2003-2005

Activity	(A) Threats of Violence	(B) Simple Assault	(C) Aggravated Assault	(D) Attempted Robbery	(E) Completed Robbery	(F) Sexual Assault	(G) Rape	(H) Any Type of Violence
	Victimizations Per 1,000,000 Participants in Each Activity*							
(1) Sleeping	0.2	0.5	0.1	0.1	0.2	0.1	0.2	*1.4*
(2) Other Activities at Home	5.3	5.4	1.9	0.9	0.9	0.2	0.5	*14.2*
(3) Working	11.4	9.1	2.6	0.3	0.6	0.2	0.1	*24.4*
(4) Attending School	11.7	21.3	2.5	3.6	1.2	0.0	0.4	*38.6*
(5) Shopping or Errands	1.1	1.5	0.4	0.4	0.7	0.0	0.0	*4.1*
(6) Leisure Away from Home	6.9	10.0	4.2	0.8	1.6	0.5	1.0	*25.2*
(7) To/From Work	2.2	2.0	0.5	0.6	1.0	0.1	0.0	*6.3*
(8) To/From School	8.5	7.9	2.2	1.2	3.6	1.1	0.0	*24.7*
(9) To/From Other	2.5	2.1	1.0	0.6	1.0	0.0	0.0	*7.1*

*Note: A rate of 0.0 indicates the number of violent victimizations per 1,000,000 participants is less than 0.1.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005

When examining attempted and completed robberies (Columns D and E respectively), an

interesting pattern is seen with regard to school. The highest rate of attempted robberies

occurs at school while the highest rate of completed robberies occurs on the way to and

from school. Thinking back to the original formulation of the routine activity theory, this

result is likely due to increased guardianship on school grounds. Compared to the

unmonitored environment during the commute to and from school, being on school

property exposes students to much higher levels of guardianship. Besides fellow

students, teachers, staff members and security guards are all capable of monitoring

students and preventing victimizations. This could explain why attempted robberies are

much more common during school hours while completed robberies occur during the

commute. For both crime types, the rate of 3.6 victimizations per 1,000,000 participants

is still much lower than the risk of a threat or simple assault during these same activities.

It will be interesting to see how these relative risks change when the time spent in each

activity is considered in Chapter 7,

Moving along to aggravated assault (Column C), the data indicate that the greatest risk

for this crime type is had during leisure away from home. The high rate of aggravated

assault during leisure activity could be linked to increased alcohol consumption or

increased exposure to strangers. Compared to an activity like work or school, leisure

away from home tends to be less structured and more public. Less structured refers to the

notion that at work and school individuals are usually in contact with the same or similar

people. Of course this is not true of those who work in a service industry that caters to

strangers and the public but for other professions the work environment is usually stable

and predictable. Leisure activity on the other hand can occur in numerous venues ranging from parks to bars each of which attract their own clientele. Thus when engaging in leisure activity individuals may be exposed to a wide array of fellow patrons or visitors creating increased exposure to risk. Despite the structured nature of work and school, these activities have the next highest rates of aggravated assault victimization. Without rejecting the reasoning above, these activities may actually be producing violence *because* of the structured environment. In other words, because the same individuals are constantly meeting in time and space this increases opportunities for confrontation while also minimizing it. Confrontation is minimized in these environments because people are often familiar with one another and engaging each other in a professional manner because they are working or going to school. On the same note, spending lots of time with the same people allows grudges and arguments to steep over time possibly erupting into violence. When the amount of time spent at work and school is factored into the rates the relative risk of these activities compared to leisure may drop even more. Until then it is only possible to note that aggravated assaults are most likely to occur in leisure away from than any other activity.

The final two crime types to be discussed are sexual assault and rape. Looking across the columns it is quite clear that of any type of violence these two are the least common. In fact, the rate for many of the activities is less than 0.1 violent victimizations per 1,000,000 participants. The highest rates of sexual assault occur on the way to and from school; the highest rates of rape during leisure away from home. The reason these crime types concentrate themselves in those activities is likely due to the logic stated above,

lack of guardianship, increased exposure to strangers and/or increased alcohol consumption whether it be by the victim or offender during leisure activity. Once again it is necessary to hold off on broad conclusions about why one activity is so dangerous until the amount of time spent in the activity is considered. As the examples in Chapter 2 showed, the relative risk of an activity depends upon the risk assessment methodology whether it be an incidence measure, participant-based rate or time-based rate. For now it is sufficient to say that the risk of sexual assault and rape is much lower than any other form of violence and that this risk is concentrated in a small proportion of the everyday activities Americans engage in.

This subsection has explored how the risk of violence for various crime types is distributed across the everyday activities Americans engage in. The results indicate simple assault and threats are the most common types of violence experienced and the risk of these attacks is highest while attending school. The risk of aggravated assault and rape appears to be concentrated in leisure activity away from home while sexual assault is most common during the commute to and from school. When looking at robberies, completed and attempted crimes saw a slightly different pattern where attempts were most common during school while completed robberies were most common during the commute to and from school. The concentration of violence, no matter the type, during activities related to school and leisure could be explained by the fact that these activities attract and involve younger persons; this is especially true of school. Thus those who engage in these activities are more likely to be in the company of persons who are of the offending age and thereby expose themselves to higher levels of risk. For now, these

conclusions are preliminary but informative. When the time spent in each activity is considered the relative risk of each activity may change dramatically. However, for the current chapter it is safe to say that participant-based rates of violence vary by crime type and activity with certain activities posing a much greater threat to participants than others. The next section of this chapter describes how the visitor-based risk of violence varies between the types of place Americans frequent.

DANGEROUS TYPES OF PLACE: VISITOR-BASED COMPARISONS

Visitor-Based Risks of Violence in Different Types of Place

Having quantified the relative danger of everyday activities, this section uses visitor-based rates of violence to describe the distribution of risk across various types of place. Remember, visitor-based rates use the number of people who visit a type of place in the denominator. The term visitor is used instead of participant for clarity; individuals do not participate in certain types of place, they visit them. The data presented here and in the subsections that follow enumerate the risk of violence for three broad types of place and six specific types of place. Table 6-5 presents the visitor-based risk of violence in each type of place for Americans in general and for three dichotomous demographic groups. For now, the discussion will be limited to the relative risk of violence for the American population as a whole. The next subsection will describe how these risks are distributed when the population is disaggregated by age, sex and race. The discussion begins by examining the relative risk of three broad types of place.

The visitor-based risk of violence for all Americans is shown in Column G of Table 6-5.

Rows 1-3 of that same table are the three broad types of place examined in this analysis.

Looking at the data, it is evident that away from home is the most dangerous type of

place; 33 of every 1,000,000 persons who visited a location away from home became a

victim of violence. The rate of violence away from home was two times higher than at

home and three times higher than while in-transit. According to the data, being in-transit

is the safest type of place. This finding does not agree with the routine activity approach;

home should be the safest type of place. One explanation for this finding would be that

these rates do not account for the time spent in each type of place. The visitor population

for each broad type of place is similar and thus the denominator in each rate calculation is

nearly identical. When a broad definition of place is used, it makes sense that each

population would be approximately the same size. For example, any individual who

leaves their house at least one time a day will be counted in the visitor population of each

type of place; leaving home implies you must be in-transit and away from home during

the day. This conundrum reemphasizes the need to utilize the person-hour when

performing place specific risk assessments. Without a measure such as this, the results of

these rate calculations can be misleading. The results presented in Chapter 7 will

overcome this problem and provide much more accurate measures of risk.

The bottom portion of Table 6-5, Rows 4-9, gives the visitor-based rate of violence for

six specific types of place. Going down Column G, the street jumps out as the most

dangerous type of place Americans can visit. The rate indicates 53 of every 1,000,000

people who visited the street or outdoors was a victim of violence. Note that this is

higher than the rate for being away from home and much higher than any of the specific

types of place examined. By disaggregating place using more specific definitions, it is

easier to see how the risk of violence varies between different types of place that are

away from home. The data actually indicate that except for the street, every other type of

place is less dangerous than being at home[1]. Thus the high risk of violence while away

from home is actually concentrated on the street. Once again, the limitations of visitor-

based rates must be noted as the relative risk of places away from home will likely

change when the time spent in these locations is accounted for. The relative risk of home

compared to other types of place is summarized in Table 6-6. The data indicate the risk

of violence at a friend's home is nearly equal to the risk at home. The risk of violence at

bars, commercial buildings and on public transportation is approximately two times lower

than the risk at home. The street is the only type of place more dangerous than home; the

violence rate is three times higher.

This portion of the analysis has focused on the visitor-based risk of violence in different

types of place for Americans in general. Using broad definitions of place, two

conclusions can be made: (1) being away from home is more dangerous than being at

home or in-transit and (2) being in-transit is the safest type of place. Using specific

definitions of place, three conclusions can be made: (1) being on the street or outdoors is

the most dangerous type of place, (2) public transportation is the safest type of place and

(3) the elevated danger Americans face while they are away from home is concentrated

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[1] Violence rates differ between home (broad) and home (specific) due to definitional issues. When in-transit is examined as a type of place this includes victimizations that occur at various points along the trip between point A and B. Thus a person going to work who is victimized at home will be coded as in-transit violence. See Chapter 3 for a full explanation of the coding procedure.

on the street. Because these rates do not include information about the time spent in each type of place, it is premature to discuss the theoretical or policy implications of these findings. Knowing that Americans spend a great deal of time at home compared to the time spent in the other types of place examined, time-based rates of violence need to be calculated to determine more accurate risk estimates. The results presented here are informative and useful but ultimately incomplete. This subsection has focused on the American population as a whole and the conclusions made only apply to that group. The next subsection explores how the visitor-based risk of violence in different types of place varies across demographic variables.

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Table 6-5
Visitor-Based Rates of Violence Against Civilians Aged 15 and Older By Age, Sex and Race,
Disaggregated by Type of Place,
United States, 2003-2005

	(A) Males	(B) Females	(C) Whites	(D) Non-Whites	(E) Under 30	(F) 30 or Older	(G) All Americans
Type of Place (Broad)							
(1) Home**	11.8	17.5	13.7	19.7	23.0	11.8	14.8
(2) Away from Home	42.7	23.0	31.8	37.3	67.4	19.7	32.9
(3) In-Transit	12.9	8.2	9.6	16.2	21.9	6.3	10.7
Type of Place (Specific)							
(4) Home	12.6	18.4	10.1	11.8	22.7	5.8	15.6
(5) Friend's Home	16.7	14.0	10.1	9.0	17.8	8.5	15.3
(6) Bar or Restaurant	14.0	6.6	14.5	18.9	30.7	6.8	10.4
(7) Commercial Building	15.1	7.4	14.5	21.1	24.1	12.6	10.7
(8) Public Transportation	12.6	6.8	10.4	11.8	5.8	13.4	9.9
(9) Street or Outdoors	73.7	32.1	48.2	73.7	97.3	31.8	52.9

Average Victimization Rate (Victimizations per 1,000,000 Visitors to Each Type of Place)

*Note: Rate is based on the visitor population size of each dichotomous demographic group. Each variable, for example age, is analyzed independently of the others.

**Note: Rates of violence vary slightly between home (broad) and home (specific) because the in-transit category includes victimizations that occur at any point during the trip including the individual's home. When place is specifically defined these victimizations fall back into the home category which results in a slightly higher rate.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

	Table 6-6 **The Relative Safety of Different Types of Place for All Americans, Visitor-Based Comparisons, United States, 2003-2005**	
		(A)
	Type of Place	**Risk of Violence at Type of Place Compared to Home**
(1)	Home	100
(2)	Friend's Home	98
(3)	Bar or Restaurant	67
(4)	Commercial Building	69
(5)	Public Transportation	63
(6)	Street or Outdoors	339

*Note: Relative risk was determined by dividing the violence rate of each type of place by the rate for home and multiplying the result by 100. The index scale should be interpreted as any value over 100 means the type of place is more dangerous than home. Values less than 100 indicate the type of place in question is safer than home. To determine how much more dangerous an activity is divide the index value by 100. For example, the street is 3 times more dangerous than sleeping (339/100 = 3.4). To determine how much safer a type of place is divide 100 by the index value. For example, public transportation is 1.6 times safer than other activities at home (100/63 = 1.6).

Source: Calculated using Table 6-5 (see above).

Visitor-Based Risks of Violence in Different Types of Place by Age, Sex and Race

The previous subsection outlined the relative risk of violence in different types of place

for the American public as a whole. This subsection disaggregates the American public

into dichotomous groups based on the age, sex and race of individuals. The purpose of

this is to determine if demographic variables are still important for describing the risk of

violence when these risks are disaggregated by the types of place Americans visit. The

lifestyle approach argues this type of analysis should result in minor differences between

demographic groups. In other words, the risk of violence in various types of place should

not be vastly different for people no matter their age, sex or race. Visitor-based rates of

violence for each demographic group examined can be found in Table 6-5 (Columns A

through F). Much like the activity specific analysis above, the percent difference

between demographic groups has been calculated to describe how the risk of violence

varies for each type of place. This information is summarized in Table 6-7. Once again,

this discussion will only focus on differences that are greater than 100% or are in the

opposite direction than expected.

When comparing visitor-based rates of violence for males and females in various types of

place, the data indicate males experience a higher risk of violence in every type of place

except home. In general, the risk of violence at home is approximately 30% lower for

males than females (Column A, Rows 1 and 4). This is the only example of a rate

difference that is in the opposite direction than expected however the difference is much

lower than the 100% cutoff used to describe vast disparities in risk. As for differences

greater than 100%, males are twice as likely to be victimized at bars, commercial

buildings and on the street. Every other type of place examined had a percent difference less than 100%. These results indicate sex does play a role when describing the risk of violence in some types of place but not others. It is too early to say if the differences in risk between males and females reject some tenants of the routine activity approach. Because the theory argues risk is based on where people go, not their demographic characteristics, the finding that some places are more dangerous for males contradicts this logic. However, it may be that males are spending more time in these places than females which could lead to more victimizations overall. When time-based rates of violence are calculated in Chapter 7, it will become clear whether or not these differences are robust or spurious depending on the risk assessment method used.

The second demographic variable examined here is race. Looking at Column B in Table 6-6, the results indicate there is no type of place where whites and non-whites have vast differences in the risk they are exposed to. None of the nine types of place examined saw a percent difference greater than 100%; however non-whites had a higher visitor-based rate of violence for almost every type of place A friend's home was the only place where the difference was in the negative direction; the risk for non-whites is 11% lower than the risk for whites. While in the opposite direction than expected, an 11% difference is negligible. Much like the activity-specific assessment above, it appears race is a demographic that does not influence the risk of violence in different types of place. In short, it is where an individual goes, not their race that best describes their risk of a violent attack.

The final demographic analyzed in this subsection is age. The activity-specific assessment presented earlier in this chapter indicated age is the one demographic that continues to have a large effect on the risk of violence even when risk is disaggregated by activity. The results in Table 6-7 mirror this finding (see Column C). Of the nine types of place examined, six saw a percent difference greater than 100%. The only types of place that did not reach the 100% cutoff were: home (broadly defined), commercial buildings and public transportation. This means the risk of violence in the other six types of place is at least twice as high for those under 30; in most cases the risk was at least three times as high (greater than 200%). Of the three types of place that did not see a percent difference greater than 100%, two had a difference of more than 90% while the third saw a difference in the opposite direction. The results indicate public transportation is more dangerous for those aged 30 or older than it is for Americans under 30. The difference between the two groups was 57% which falls short of the 100% cutoff. It will be interesting to note if this difference disappears when time is added to the denominator of the rate calculations. If people aged 30 and older are spending more time on public transportation the finding that it is more dangerous for this group may be reversed when time-based rates of victimization are enumerated. At this stage of the risk assessment it looks as though the young are exposed to much higher levels of risk no matter the places they visit. Of course the risk of each place varies but in general if a 21 year old and a 50 visit the same type of place the 21 year old is at least twice as likely to be victimized; public transportation is the only exception. Thus age is once again the only demographic variable that appears to have a large impact on the risk of violence in different activities and types of place. As explained above this could be due to the fact that people under the

age of 30 are more likely to frequent these types of place with persons who are also under the age of 30 resulting in more exposure to persons of the offending age. However, it could also be that people under 30 are spending more time in these types of place and hence more victimizations are reported in each. When time-based rates of violence have been quantified for this activities it will be easier to determine if this explanation is correct or if age really is a demographic with a large impact on activity- and place-specific rates of violence.

In summary, this subsection has explored the effect of demographic variables on visitor-based rates of violence for different types of place. In general, the major findings were: (1) race does not affect place-specific rates of violence, (2) for the most part sex does not affect place-specific rates of violence and (3) age has a large effect on violence rates with those under 30 experiencing much higher rates of violence in almost every type of place. These results are in support of the routine activity approach which argues demographic differences in victimization rates should be minimized or disappear altogether when attacks are disaggregated by the types of place Americans visit. These results are quite similar to the activity-specific analysis presented earlier in the chapter. In general it appears: (1) the race of an individual is less important than their routine activities when estimating their risk of a violent attack, (2) the sex of an individual helps predict violence in some places and activities but not others and (3) age is the only demographic examined that undoubtedly influences the risk of victimization in almost every activity and type of place. Remember that these conclusions are limited to participant- and visitor-based rates of violence that do not account for the time spent in different types of place. Chapter 7 is

a complementary analysis that uses time-based rates of violence to explore how dangerous activities and types of place are for different demographic groups. These rates will refine the risk assessment and reaffirm or reject the conclusions made here. The next subsection of this chapter describes how the risk of violence in different types of place varies by crime type.

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Table 6-7
Differences in Visitor-Based Place-Specific Victimization Rates
for Dichotomous Age, Sex and Race Variables,
United States, 2003-2005

	% Difference Between Visitor-Based Rates of Violence for Demographic Groups		
	(A) Males/Females	**(B)** Non–Whites/Whites	**(C)** Under 30/30 or Older
Type of Place (Broad)			
(1) Home	-33	44	95
(2) Away from Home	86	17	242
(3) In-Transit	57	69	248
Type of Place (Specific)			
(4) Home	-31	16	295
(5) Friend's Home	20	-11	110
(6) Bar or Restaurant	113	30	348
(7) Commercial Building	104	45	91
(8) Public Transportation	84	13	-57
(9) Street or Outdoors	130	53	206

*Note: Percent differences should be interpreted as the difference in victimization rate for the demographic group on the left compared to the group on the right. For example, the violent victimization rate while at home is 33% lower for males than females; it is 86% higher for males while away from home.

Source: Calculated using data presented in Table 6-5 (see above).

Visitor-Based Risks of Violence in Different Types of Place by Crime Type

The purpose of this subsection is to discuss how visitor-based rates of violence vary by

crime type. The data presented in Table 6-8 represent the risk of specific types of

violence in different types of place. Rows 1-3 contain information concerning the risk of

violence in broadly defined types of place. Beginning with threats of violence and simple

assault (Columns A and B respectively), the data indicate being away from home exposes

Americans to the highest levels of risk for these offenses; the rates are lowest while in-

transit. Once again the relative safety of being in-transit is likely to change when the

time spent in this type of place is added to the analysis; Americans spend less time in-

transit than the other two types of place. For threats and simple assault, the risk of

violence while away from home is two times higher than while at home. This is most

certainly due to the public nature of being away from home and the increased exposure to

strangers this brings with it. When the visitor-based rates of threats and simple assaults

are compared to other crime types it is clear that every other offense is much less

common. Thus while in any of these locations, Americans should not be worried about

being raped or robbed so much as they should be concerned with being threatened or

assaulted. The major finding here is that Americans are exposed to higher levels of risk

for the most prevalent forms of violence while they are away from home.

Table 6-8
Visitor-Based Rates of Violence for Different Types of Place by Crime Type,
United States, 2003-2005

	(A) Threats of Violence	(B) Simple Assault	(C) Aggravated Assault	(D) Attempted Robbery	(E) Completed Robbery	(F) Sexual Assault	(G) Rape	(H) Any Type of Violence
	Victimizations Per 1,000,000 Visitors to Each Type of Place*							
Type of Place (Broad)								
(1) At Home	5.5	5.8	1.9	0.3	1.1	0.3	0.5	14.8
(2) Away From Home	11.0	12.6	4.1	1.1	1.6	0.5	0.8	32.9
(3) In-Transit	3.6	3.0	1.4	0.8	1.6	0.0	0.0	10.7
Type of Place (Specific)								
(4) Home	5.2	6.0	1.9	0.3	1.1	0.3	0.5	15.6
(5) Friend's Home	4.7	5.2	2.5	0.5	0.8	0.5	1.4	15.3
(6) Bar or Restaurant	3.3	4.9	1.6	0.0	0.3	0.0	0.3	10.4
(7) Commercial Building	5.5	3.8	0.5	0.3	0.3	0.3	0.0	10.7
(8) Public Transportation	2.5	2.5	1.9	1.1	1.6	0.3	0.0	9.9
(9) Street or Outdoors	17.0	16.7	8.2	3.8	6.3	0.3	0.5	52.9

*Note: A rate of 0.0 indicates the number of victimizations per 1,000 is less than 0.1.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005

When more serious forms of violence are considered, a similar pattern emerges. For

every type of violence examined, being away from home has a higher visitor-based risk

than being at home. The risk of experiencing an aggravated assault for example is twice

as high while away from home; the same is true of sexual assault. The risk of an

attempted robbery is four times higher away from home than it is at home. For

completed robberies and rape, the risk is higher while away but is not twice as high.

Both forms of robbery are the only crime types examined where being in-transit is more

dangerous than being at home. This is an apparent contradiction of the routine activity

approach which argues home should always be the safest type of place. However, until

the time spent in these types of place is accounted for it is premature to say the results are

not in line with the theory. In summary, the visitor-based risk assessment indicates two

things: (1) being away from home increases an individual's risk of violence whether it is

minor or severe and (2) victimization is more likely at home than while in-transit for

every type of crime except attempted and completed robberies. To get a better idea about

the distribution of violence while away from home Rows 4-9 of Table 6-8 give rates of

violence for six more specific types of place.

By disaggregating place into more refined categories the information presented in Rows

4-9 indicates the risk of specific forms of violence varies between types of place. While

the data have already shown being away from home is more risky than being at home, the

six specific place categories used indicate this risk is concentrated on the street or

outdoors. For every crime type except sexual assault and rape, the rate of violence on the

street is much higher than any other type of place. These results indicate that while away

from home the most dangerous place an American can visit is the street and other outdoor settings. This is especially true of robberies where the risk of these crimes is much higher on the street than any other type of place away from home. For example, the risk of a completed robbery is 23 times higher on the street than at a bar or commercial building. Thus a major finding from this portion of the analysis, that mirrors what was previously found is that the street is the most dangerous type of place an American can visit while away from home.

Looking at individual crime types, threats of violence and simple assault appear to have a similar distribution across the different types of place examined. For both types of crime, the rate of violence is lowest on public transportation. While the risk of violence does vary between the other four types of place, the differences are small enough to say that Americans are exposed to nearly equal levels of risk at home, in commercial buildings, at a friend's home or at a bar. This finding is interesting as theory would suggest home should be the safest place no matter the crime type. Instead it appears the risk of threats of violence and simple assaults are highest on the street, lowest on public transportation and nearly equal in other types of place. The risk of these crimes on the street is at least three times higher than the other types of place examined. The data indicate more serious forms of violence see the same distribution pattern as the most prevalent types of violence; there are exceptions but for the most part risk in places other than the street is similar. The paragraphs that follow discuss how the risks of aggravated assault, robberies and sex crimes vary across different types of place.

Looking down Column C, the data indicate the risk of an aggravated assault is approximately equal between home and places away from home. The exceptions to this are the street which is by far the riskiest type of place and commercial buildings which are much safer than any other type. When completed and attempted robberies are considered, it is interesting to note the relative danger of public transportation. These are the only crimes where public transportation is the second most dangerous type of place next to the street. Thus Americans are more likely to be robbed on the street or public transportation than any other type of place considered; the risk in any other type of place is extremely low. As for sexually based offenses, a friend's home is the riskiest type of place a person can visit. This would make sense when thinking about acquaintance rape or improper sexual contact from a non-stranger such as a family member. In both cases an offender has an advantage over his or her victim while they are in the comfort of their own home. Surprisingly, the risk of rape or sexual assault is very low on the street. This is a drastically different picture than what is typically seen on television and in movies where victims are attacked on dark streets or in alleys. Certainly this type of attack does occur however it is not nearly as common as an attack at a friend's home which is twice as risky as the street. For now, the basic conclusions that can be made about severe forms of violence and types of place are: (1) with the exception of sexually based offenses, the street is the most dangerous place to visit, (2) robberies are concentrated on the street and public transportation and (3) the visitor-based risk of violence does not vary much between types of place other than the street. The next chapter improves the accuracy of this national level risk assessment by adding time use data to the denominator of risk calculations.

Chapter 7—Time-Based Risks of Violence for Activities and Types of Place

OVERVIEW

This chapter is the final portion of a three pronged risk assessment utilized in this dissertation. The three pronged assessment quantifies risk using (1) the incidence of violence, (2) participant- and visitor-based rates of violence and (3) time-based rates of violence. Chapter 4 began the assessment by describing the incidence of violence in activities and types of place. While informative, the information presented in Chapter 4 neglected the number of people who participate in different activities and the amount of time they spend in each activity; this is also true for the data concerning types of place. Chapter 6 detailed the second prong of the approach by describing how the risk of violence is distributed using participant- and visitor-based rates of victimization. Despite the fact that participant-based rates of multiple activities have never been quantified or published before in the same study, this analysis goes one step further to ensure the most accurate picture of violence risk is obtained. Participant-based rates are more precise than the incidence measures used in Chapter 4, however they still neglect the fact that Americans spend different amounts of time in different activities. Thus the final step in this analysis is to add the time spent in each activity to the denominator of violence rate calculations. Using time use data from Chapter 5, this chapter presents the most recent and accurate time-based rates of violence found in the criminal justice literature. To date, time-based rates have only been used once (Cohen and Felson, 1979) to describe the relative risk of violence in different types of place; the methodology employed in that study has never been applied to activities. The time-based rates used here are reported as the number of violent victimizations per 1 billion person-hours spent in an activity or

type of place. One billion person-hours is the equivalent of one billion people engaging in an activity for one hour or one hundred million people engaging in an activity for 10 hours. Because the civilian American population aged 15 and older is just over two hundred million people, it may be easiest to think about 1 billion person-hours as this population participating in an activity for roughly 5 hours. For example, the time-based rate of violence for Americans while sleeping is 153 violent victimizations per one billion person-hours. This could be interpreted in the following way: *if every American slept for 5 hours, only 153 people of the more than 200 million would be victimized*.

The current chapter has three purposes: (1) to quantify the risk of violence in activities and types of place using time-based rates, (2) to compare the relative safety of these activities and places to one another and (3) to compare the risk of violence across demographic variables. The time-based rates presented here are the most complete view of the risk Americans face while engaging in different activities and visiting different types of place. Unlike the first two prongs of this approach, no additional data could refine these rates as they account for the number of incidents, population size and time spent. Until victimization and time use data are collected simultaneously, the results presented represent the latest, most accurate, activity- and place-specific rates of violence in the world.

DANGEROUS ACTIVITIES: TIME-BASED COMPARISONS

The Time-Based Risk of Violence in Different Activities

This subsection of the chapter describes how the risk of violence varies for different activities using time-based rates of victimization. For now, the discussion focuses on Americans in general and does not distinguish between types of violence. The two subsections that follow describe how rates of violence vary between demographic groups and by crime type. Table 7-1 contains time-based rates of violence for nine everyday activities. The rates presented are for the American population as a whole (Column G) and for three dichotomous demographic groups (Columns A-F). Looking down Column G it is clear that the time-based risk of violence varies for different activities. According to the data, sleeping (Row 1) is the safest activity; the commute to and from school (Row 8) is the most dangerous. The difference in risk between these two activities is massive. The rates imply that if 200 million Americans engaged in both of these activities for five hours, 153 would become victims while sleeping whereas 43,554 would become victims on the commute to and from school. The violence risk while going to and from school is a clear outlier in the data presented; it is the only activity with a time-based rate of more than 10,000 victimizations per 1 billion person-hours. The extremely high rate is due to the fact that the daily population of this activity is relatively small as is the participation time. Thus the denominator is much smaller than any other activity examined which results in a much higher rate. Before discussing why the school commute is so dangerous, the relative risk of each activity examined should be addressed.

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Table 7-1
Time-Based Rates of Violence Against Civilians Aged 15 and Older By Age, Sex and Race, United States, 2003-2005

| | Average Victimization Rate (Victimizations per 1 Billion Person-Hours of Participation)* | | | | | | |
| | (A) | (B) | (C) | (D) | (E) | (F) | (G) |
Activity	Males	Females	Whites	Non-Whites	Under 30	30 or Older	All Americans
(1) Sleeping	124	180	150	168	268	110	*153*
(2) Other Activities at Home	1,656	1,924	1,662	2,515	3,521	1,352	*1,804*
(3) Working	3,203	2,739	3,027	2,939	4,587	2,518	*3,010*
(4) Attending School	9,490	4,092	7,211	5,445	6,878	4,675	*6,728*
(5) Shopping or Errands	3,352	2,313	2,475	4,060	3,766	2,377	*2,727*
(6) Leisure Away from Home	11,176	5,891	8,208	10,671	17,390	4,036	*8,607*
(7) To/From Work	9,904	7,717	8,603	11,290	16,841	6,769	*9,009*
(8) To/From School	53,229	36,630	42,818	51,450	48,119	34,118	*43,554*
(9) To/From Other	7,224	4,592	5,152	9,141	12,078	3,417	*5,807*

*Note: Rate is based on the population size of each of dichotomous demographic groups. Each variable, for example age, is analyzed independently of the others.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

Table 7-2 displays the relative risk of each everyday activity as compared to sleeping and other at home activities. The rationale for choosing these activities as benchmarks is the same as was described in Chapter 6. Sleeping is a good benchmark because it is the safest activity. Other activities at home is also a good benchmark as it enables a comparison of risk between the activities Americans engage in while they are awake. It should be noted here that when the time spent at home is accounted for, other activities at home is the second safest type of activity. This differs from the participant- and visitor-based rates presented in Chapter 6 where four activities, including sleeping, were considered safer than being awake at home. Looking down Column A, the relative safety of sleeping is apparent and undeniable. Every other activity examined is at least ten times more risky than sleeping. In fact, the data indicate that just by waking up and getting out of bed in the morning the risk of violence goes up twelve-fold. When engaging in activities away from home, the risk of violence ranges from 18-285 times greater than while asleep. By examining the relative safety of each activity compared to sleeping, it is clear that the risk of violence is higher away from home but there is also a great deal of variation in risk between these activities. For example, working is 20 times more dangerous than being asleep but leisure activity is 56 times more dangerous. Additionally, an individual is three times more likely to be victimized on the commute to and from work than they are while working. These data all indicate the risk of violence is not distributed evenly across activities and thus people who spend more time in the high risk activities should experience higher levels of victimization. Because sleeping is so safe, it may be more useful to compare the risk of violence while awake at home to the other seven activities that occur while away from home.

Column B of Table 7-2 shows the relative risk of violence in each activity compared to other activities at home. The first thing to notice is that using other home activities as a benchmark results in much smaller differences in risk between activities. In general, most of the activities are between two and five times more dangerous than the benchmark. The results indicate working (Row 3) and shopping (Row 5) are twice as risky as other activities at home. The commute to and from places other than work and school (Row 9) is three times as risky while attending school (Row 4) is four times as dangerous. Leisure away from home (Row 6) and the commute to work (Row 7) are both five times more risky than being at home. Going to and from school (Row 8) is twenty-four times more dangerous than other activities at home; note that this same activity is 285 times more risky than sleeping. These results indicate the risk of violence while awake is not distributed evenly between home and places away from home. They also indicate that while Americans are away from home certain activities expose them to more risk than others. With time-based rates of violence in hand, it is now possible to interpret why some activities may be more dangerous than others. Previously, interpretations based on population-based rates would have fallen to the criticism that the time spent in each activity is not accounted for.

	Table 7-2 **The Relative Safety of Everyday Activities,** **Time-Based Comparisons,** **United States, 2003-2005**		
		Relative Risk* of Each of Each Activity Compared to…	
		(A)	**(B)**
	Activity	**Sleeping**	**Other Activities at Home**
(1)	Sleeping	100	8
(2)	Other Activities at Home	1,179	100
(3)	Working	1,967	167
(4)	Attending School	4,397	373
(5)	Shopping or Errands	1,782	151
(6)	Leisure Away from Home	5,625	477
(7)	To/From Work	5,888	499
(8)	To/From School	28,467	2,414
(9)	To/From Other	3,795	322

*Note: Relative risk was determined by dividing the violence rate of each activity by the rate for sleeping (Column A) or other activities at home (Column B) and multiplying the result by 100. The index scale should be interpreted as any value over 100 means the activity is more dangerous than the benchmark used (i.e. sleeping or other activities at home). Values less than 100 indicate the activity in question is safer than the benchmark. To determine how much more dangerous an activity is divide the index value by 100. For example, working is 20 times more dangerous than sleeping ($1,967/100 = 19.67$). To determine how much safer an activity is divide 100 by the index value. For example, sleeping is 13 times safer than other activities at home ($100/8 = 12.5$).

Source: Calculated using Table 7-1 (see above).

Activities at Home: Why are they safe and why does being awake increase the risk of
violence?

When time-based rates of violence are used to describe the risk of everyday activities, the
safest activity for Americans is sleeping. Sleeping is at least ten times safer than any
other activity examined. To explain the extremely low rates of violence Americans face
while they are asleep it is best to think about the environments people choose to sleep in.
Unlike the other activities in this analysis, sleeping is the only one in which the
participant is completely defenseless. In other words you cannot recognize danger,
defend yourself or call the police while you are asleep. Thus avoiding violence while
asleep requires an individual to isolate themselves from potential offenders. This can be
done in numerous ways. Most importantly, this activity typically occurs at home
meaning individuals are able to control who is allowed into the location. This can be
accomplished by locking doors, windows and other access points. While asleep in a
secure location, limiting offender access from within is accomplished by sleeping alone
or sharing a bed with a trusted person such as a wife, boyfriend or intimate partner. The
point here is that if outsiders cannot get in, other persons inside the house are the only
source of risk. Think about your own life. When was the last time you shared a bed,
bedroom or even a residence with a stranger while asleep? When all of these protective
measures are taken an individual is rarely in the same location as a potential offender. Of
course husbands, wives and intimate partners can attack a person while they are asleep
but it is safe to say that most people are not likely to share a bed with someone they are
afraid of. Hence the relative safety of sleeping can be attributed to the notion that
humans seek out a safe place to sleep instinctively knowing that we are vulnerable to

attack while asleep. In the future it would be interesting to distinguish between stranger and acquaintance violence during sleep to determine if insiders or outsiders are more likely to attack an American during this activity. For now it is only possible to say that sleeping exposes Americans to the lowest levels of risk and this is likely due to the isolated and controlled environments people choose to sleep in.

After sleeping, the next safest activity category is other activities at home. To be clear, this category includes any activity occurring at home other than sleep. Much like sleeping the relative safety of this activity is likely due to the fact that individuals control access to their home and selectively screen out people who are likely to attack them. Thus in most households, the people who converge in time and space within these environments are likely to know one another and may even be blood relatives. So why are other activities at home twelve times more risky than being asleep? To answer this it is best to think about the difference between being asleep or awake at home. When individuals are asleep they cannot speak to, argue with or insult someone else. Assuming some form of basic human interaction is at the beginning of all violent encounters, sleeping persons do not make good instigators. On the other hand, a person who is awake is completely capable of antagonizing a family member, roommate or visitor to their home. The other point to consider is the mobility of conscious humans. By design the human body is relatively immobile while asleep; this prevents injury and enables the body and its muscles to rest and recover. When thinking about individuals converging in time and space, an immobile body can only come in contact with an offender if the offender seeks out the sleeping person. Conversely, people who are awake are capable of

moving throughout the home as they please which can lead to more interactions between offenders and potential victims. To summarize, the increased risk at home when individuals are not asleep is likely due to (a) the ability of conscious persons to instigate violence through human interactions and (b) the increased mobility of conscious persons in space. While other activities at home are more dangerous than sleeping, the risk at home is still low compared to that faced when an individual ventures away from their residence. The next paragraphs will discuss the relative safety of activities occurring away from home.

Activities Away from Home: How Does the Risk of Violence Vary?

The previous paragraphs discussed why activities at home expose Americans to lower levels of violence than activities outside of the home. This subsection describes how the risk of violence varies between activities away from home and interprets the results of the time-based risk assessment. In-transit activities such as the commute to work or school are not included in this discussion; they are discussed in the subsection that follows. For now the emphasis is on individual activity categories and neglects the trip to and from these activities. Looking at the time based rates of violence in Table 7-1, the relative safety of away from home activities ranked from the safest to most dangerous is: shopping or errands (safest), working, attending school and leisure (most dangerous). The paragraphs that follow will discuss potential explanations for this pattern.

The risk of violence Americans face while shopping or working is approximately the same. During the study period Americans experienced 2,727 violent victimizations per 1

billion person-hours of shopping and 3,010 violent victimizations per 1 billion person-hours while working. Both of these activities are roughly twice as risky as other activities at home but not as risky as leisure or attending school. Lower rates of violence for shopping and working can be attributed to the guardianship provided by others engaged in the activity and the lack of strangers in the workplace. Certainly jobs that cater to the public will expose employees to more strangers but without disaggregating the activity by job type it is safe to assume that most workers come into contact with the same or roughly the same coworkers during every shift. This likely results in a familiarity between coworkers that is capable of preventing violence through increased guardianship. Conversely these daily interactions also provide the appropriate milieu for grudges, arguments and ultimately violence to emerge because of the time spent together in a sometimes stressful work environment. However, assuming most people do not want to lose their job because of a violent incident or outburst, violence in the workplace should be relatively rare even if negative interactions occur. As for shopping, the low violence rate is likely to be the result of guardianship provided by other store patrons who can act as witnesses or peacekeepers. For example, think about shopping at a busy Wal-Mart on Saturday. Certainly going to this store increases a person's exposure to strangers however the atmosphere is not conducive to violence. The strangers act as a source of informal social control while the store manager and security act as place managers who wish to prevent violence. In other words, the patrons and store management are crime suppressors that keep levels of violence low during this activity. Thus at the national level it appears workplaces and retail establishments are successful at keeping levels of violence low. Indeed there is probably a great deal of variation at the local level between

the risk of violence while working or shopping however that is beyond the scope of this dissertation. In the future, comparing time-based rates of violence between stores or workplaces could identify safe or dangerous locations and help inform crime prevention measures. At this point, the major finding is that while away from home an individual's risk of violence is lower while working or shopping that it is while attending school or engaging in leisure activity.

Attending school is the second most dangerous activity an American can engage in while they are away from home but not in-transit. Compared to all the activities examined, only three are more dangerous than attending school (see Table 7-1). The rate of violence while attending school is two times higher than while working or shopping. The most obvious reason for this is the fact that attending school is an activity that usually involves people of the offending age. Even at the collegiate level where non-traditional students may be well over 30 or 40, their classmates are likely to be younger than 25. Thus anyone who attends school will be exposed to potential offenders solely because of the age demographics of this activity. Thinking back to working and shopping, these are both activities that involve people of the offending age but do not cater to them exclusively like school does. Despite having a higher violence rate than working or shopping, attending school is not the most dangerous activity in America. This is likely due to high levels of guardianship on school grounds. Teachers, administrative staff, security officers and other students can all act as guardians on school property. As the next section will show, the rate of violence going to and from school is much higher than while attending school. Because school administrators are typically concerned with

preventing violence on school grounds, the routes students take to and from school are not protected properly. This issue is addressed in the subsection below. In summary, violence while attending school is more likely than while working or shopping but less likely than while engaged in leisure activity. While the risk of violence at school is likely to vary between schools, cities and states, this analysis cannot disaggregate the data at hand to these local boundaries. In the future, the methodology used in this dissertation could be applied to the local level to identify and target the school or schools that expose students to the highest levels of risk.

Leisure activity is the most dangerous activity Americans can engage in while away from home and the third most dangerous activity overall. The risk of violence during leisure is 8,607 victimizations per 1 billion person-hours; approximately three times higher than when working or shopping. Because leisure activity is a broad category, explaining the high rate of violence is somewhat subjective. The most basic explanation for violence during leisure activity is alcohol consumption whether it be at a bar, friend's home or other setting. Remember that leisure is not confined to one specific type of place and includes everything from exercising in a park to drinking at a bar. When leisure involves alcohol, individuals participating in the activity are exposed to more risk because (a) drinking lowers inhibitions creating more potential offenders and (b) intoxicated persons are often seen as easier targets for criminal attack. Take for example a Friday night at a popular college bar. The bar acts as a meeting place that causes people to converge in time and space. As the night progresses and the bar becomes more crowded, people are more likely to come into physical contact with one another and the potential for a volatile

situation increases. By adding alcohol to the mix, offender motivation may be increased and guardianship decreased. Drunken individuals may not consider the consequences of their actions in addition to losing the situational awareness needed for capable guardianship. This leads to increased opportunities for victimization. While outside the scope of this dissertation, future analyses could include NCVS variables pertaining to the victim's assessment as to whether an offender was intoxicated during the time of an attack. In addition to alcohol, the fact that leisure occurs away from home and often at night also explains the higher violence rate. Remember the lifestyle approach argues being away from home, especially at night, is more risky. Hence the temporal nature of this activity may make it more dangerous. Once again, a future analysis of leisure activity could examine the timing of victimization compared to other activity categories. For now it is sufficient to say that leisure is the most dangerous activity to participate in away from home and one of the most dangerous activities in general. The final subsection will discuss how violence rates vary across the three different in-transit activities.

In-Transit: Why Different Destinations Pose Varying Levels of Risk

Trips to and from various destinations are unique from activities at home and activities away from home because a participant is typically moving through space. For example, when a person attends school that activity is confined to school property and the physical or social environment a participant is exposed to is relatively stable. On the other hand, the trip to and from school can expose participants to a wide array of physical environments depending on the route and mode of transportation used. Take for example

a student walking to school in an inner city. Some portions of this trip may occur in safe and familiar areas while others take place in or near high crime areas. Additionally, the student may be exposed to more strangers and fewer guardians on the street than he is at home or school. Thus being in-transit may result in higher levels of violence because the activity's location is unstable and often unpredictable. This subsection describes how the risk of violence while in-transit varies depending on the final destination; in this study different destinations represent different in-transit activities. Rates of violence for the in-transit activities discussed here can be found in Table 7-1, Column G, Rows 7-9.

Looking at the data, the commute to and from school is the most dangerous activity in America as well as the most dangerous in-transit activity. The time-based rate of violence for this activity is so large that it dwarfs the risk Americans face in any other activity. It is four times higher than the next most dangerous activity with a time-based risk of 43, 554 violent victimizations per 1 billion person-hours of participation. The commute to and from work is the second most dangerous in-transit activity; going to and from places other than work or school is the safest. The extreme risk Americans are exposed to while going to and from school is most easily explained by two things: (1) this activity caters to and involves people of the offending age and (2) levels of formal guardianship are low off school property. Because formal education typically targets younger people, logic would argue the commute to and from this activity would also involve young persons. This means the activity of commuting to and from school causes young, unsupervised students to converge in time and space resulting in a high risk of violence for participants. It is important to note here however that the participant

population for this activity is smaller than any other activity (see Chapter 5). In other words, even though this is the most risky activity in America the total number of violent victimizations associated with the activity is low. Using the incidence of violence alone, the commute to and from school is considered to be the safest activity in America (see Chapter 4). This reality highlights the need to account for the time spent in different activities when assessing their relative risk. In Chapter 9, the relativity of the three types of risk assessment used in this dissertation is discussed in further detail to show how risk estimates are the product of the methodology used to generate them.

Knowing that the commute to and from school is the most dangerous, it is now important to discuss the relative risk of the other two in-transit activities. Commuting related to work is the second most dangerous activity Americans can participate in and the second most dangerous in-transit activity. The rate of violence during the commute to work is 9,009 victimizations per 1 billion person-hours of participation. In other words, this commute exposes Americans to slightly higher levels of risk than leisure away from home. The rate of violence for commuting to work is almost twice as high as the rate for commuting to places other than work or school. This is an interesting finding because work, unlike school, is an activity that does not cater to the young. In fact, the majority of the participant population for this activity is older than 30 years of age (see Chapter 5). The same is true for commuting to and from other places. Thus any explanation of the risk these two in-transit activities expose Americans to cannot rely on the age of participants as the main reason for higher levels of violence. Instead, the relative danger of these two activities is related to their public nature and the increased exposure to

strangers that participants experience. However there still must be a reason why commuting to work is so much more dangerous than commuting to other places. One explanation would be that the commute to work has a regular, predictable temporal cycle that makes it unique from going to and from other places. For example, going to and from other places includes such activities as going to a grocery or doctor's appointment. This type of commuting may occur on a regular schedule however it is not nearly as predictable as the commute to work. Timing of the commute to work depends on business hours which tend to be similar across occupations. This is why trains going into New York City are packed between 7:30-10:00am and trains coming out of the city are crowded between 4:30-7:00pm. Consequently commuting to work is performed in an environment that includes more opportunities for individuals to converge in time and space and explains why more violence occurs during this activity than during the commute to other places.

The main finding of this subsection is that the risk of violence during in-transit activities varies depending on the destination. Commuting to school is the most dangerous in-transit activity followed by commuting to work. Going to and from places other than these is the safest in-transit activity however it is still more dangerous than four of the other activities Americans participate in. In other words, of the five most dangerous activities in America three are in-transit activities. The higher levels of violence seen during these activities can be attributed to two things: (1) participants are moving through space which exposes them to a continually changing public environment and (2) participants come into contact with strangers while commuting who may be potential

offenders or ineffective guardians. The extremely high levels of violence seen during the commute to school can be linked to the relatively young participant population; school caters to the young therefore it is young people who will be going to and from school. Combined with lower levels of guardianship off school property, this activity gives an advantage to potential offenders and allows fights or arguments that started on school property to culminate into violence after school. The other two in-transit activities are not relegated to the young therefore high levels of violence are best explained by increased contact between strangers in public places. As noted above, commuting to work is unique from commuting to other places because it has a predictable temporal pattern that concentrates workers of different occupations in time and space. Assuming offender motivation is constant, this activity should and does create more violence than going to and from other places. These data present a new interpretation of violence risk while in-transit and shed light on how where you are going will affect the likelihood of victimization. Remember that the rates reported here are for Americans in general and do not account for the mode of transportation used. Future research on in-transit activities could attempt to discern if the risk of violence is lower for those using a personal automobile as opposed to walking or taking public transportation. The idea here is that riding in a car limits an individual's exposure to others and could result in much lower rates of victimization. For now, it is only possible to say that commuting, no matter the mode of transportation or destination, exposes Americans to more risk than activities at home and in some cases is even more dangerous than activities away from home. This information is useful for public policy and police deployment decisions as well as criminological theory (see Chapter 9). The next section disaggregates the risk of violence

by the age, race and sex of Americans in a final attempt to discern if routine activity patterns are better predictors of violence risk than demographics alone.

The Time-Based Risk of Violence in Different Activities by Age, Sex and Race

The purpose of this subsection is to describe how time-based rates of violence for different activities vary across the demographics of age, sex and race in America. Table 7-3 reports the percent difference between three dichotomous demographic groups. Just like the demographic comparisons in Chapter 6, this portion of the analysis will focus on percent differences that are either (a) in the opposite direction as expected or (b) greater than 100%. According to the theoretical framework employed in this study, activity-specific rates of violence should not vary greatly between demographic groups because it is the routine activity patterns of individuals, not demographic characteristics, that best explain variation in victimization risks. The participant-based rates presented in Chapter 6 showed that age was the only demographic variable that continued to be a good predictor of violence when risk was disaggregated by activities. Sex was an important predictor for just two activities, attending school and leisure, while race did not have a large effect for any of the nine everyday activities. This section describes how risks vary between demographic groups when the time spent in everyday activities is accounted for.

Table 7-3
Differences in Time-Based Activity-Specific Victimization Rates
for Dichotomous Age, Sex and Race Variables,
United States, 2003-2005

	Activity	% Difference Between Time-Based Rates of Violence for Demographic Groups		
		(A) Males/Females*	(B) Non–Whites/Whites	(C) Under 30/30 or Older
(1)	Sleeping	-31	11	144
(2)	Other Activities at Home	-14	34	160
(3)	Working	17	-3	82
(4)	Attending School	132	-32	47
(5)	Shopping or Errands	45	39	58
(6)	Leisure Away from Home	90	23	331
(7)	To/From Work	28	24	149
(8)	To/From School	45	17	41
(9)	To/From Other	57	44	253

*Note: Percent differences should be interpreted as the difference in victimization rate for the demographic group on the left compared to the group on the right. For example, the violent victimization rate while sleeping is 31% *lower* for males than females; it is 90% *higher* while males engage in leisure away from home.

Source: Calculated using data presented in Table 7-1 (see above).

Beginning with sex (Column A), the time-based risk assessment produces a pattern
similar to the participant-based risk assessment found in Chapter 6. In general, males
have a higher risk of violence in every activity away from home while females face more
risk in their own homes. For example, while sleeping males the risk of violence for
males is 31% lower than females; it is 11% lower for other activities at home. These
results are interesting because rates of violence that are not disaggregated by activity are
higher for males (see Chapter 4) which suggests males are more at risk no matter their
activity. Instead, the activity-specific time-based rates of violence reported in this
chapter indicate males are safer at home than their female counterparts. However, the
heightened risk of violence females are exposed to at home is relatively small. In other
words, females are more likely than males to become a victim of violence at home but
this risk is not twice as high. The increased risk of violence for females at home is likely
due to the simple fact that they make better targets of attack. Assuming interactions at
home do not routinely involve strangers and are limited to family members, friends and
acquaintances, females make better targets of violence than males because of their
physical attributes. Physically males tend to be bigger and stronger than females
meaning female victims are easier to offend against successfully. Future research into
activities at home could investigate offender characteristics to confirm that males are
attacking females and that these males are not strangers. The research at hand can only
say for certain that males experience less risk than females at home but the difference is
not substantial.

The only activity away from home with a percent difference greater than 100% was attending school. The time-based rate of violence during this activity is 132% higher for males. The higher risk of violence against males during school hours is likely due to the fact that this activity concentrates young males, who make excellent potential offenders, in time and space. While this activity also concentrates young females, theory argues they are less likely to offend and thus the activity is not nearly as dangerous for this sex. It is interesting to note however that the percent difference between the sexes during the commute to and from school is only 45%. In other words, while at school males are exposed to a higher risk of violence but during the commute home the risk of violence is similar for males and females. This could be the result of lower guardianship during the commute which makes both males and females easier targets. It also may mean that female victims are better protected by the guardianship measures in place on school property or that guardianship measures are less effective at deterring offenders who target males. Further research into the topic of violent victimizations experienced while attending school could examine if males are being targeted by other males to confirm that guardianship on school property is less effective at deterring male offenders. Until this is done, the data at hand only suggest that males are more likely to be victimized at school than females even when the time spent in this activity is accounted for.

The other activities that take place away from home all have similar rates of violence between males and females; the rate is higher for males in every activity but the percent difference is not above 100%. Leisure activity saw a percent difference of 90% indicating males are almost twice as likely as females to become a victim during this

activity. This finding is a slight departure from the participant-based rate differences

presented in Chapter 6 and highlights the importance of accounting for the time spent in

activities to paint an accurate picture of risk variations. The heightened risk of violence

for males during this activity can be attributed to males participating in leisure with other

males resulting in an increased exposure to potential offenders. In summary, the time-

based risk assessment has shown that sex is a strong predictor of violence for just one of

the nine everyday activities. This supports the routine activity approach and confirms

that the risk of violence depends much more upon what an individual does than their

demographic makeup. The fact that males experience much higher levels of violence

while attending school suggests violence prevention programs focusing on this activity

would be more effective if they targeted males rather than students in general. The next

demographic variable examined is race which was shown to have no substantial effect on

participant-based rates of violence.

The population-based rates of violence presented in Chapter 4 indicated non-whites

experience higher levels of violence than whites when the routine activities of individuals

are neglected. Column B of Table 7-3 indicates none of the everyday activities in

America were substantially more risky for non-whites. When the risk of violence is

disaggregated by activity using time-based rates, whites and non-whites experience

similar levels of risk no matter the activity. In general, the rate of violence was higher for

non-whites in every activity however the percent difference between the two

demographic groups is less than 100%. In fact, for every activity the percent difference

is less than 50% between these groups. Two activities saw lower rates of violence for

non-whites; these are attending school and working with a percent difference of 32% and 3% respectively. Despite the fact that the percent difference for these activities is in the opposite direction as expected, the differences are much less than 100%. Thus just like the participant-based rates, race does not appear to be a strong predictor of violence risk. Accordingly, crime prevention programs may be more effective if they target the dangerous activities Americans engage in rather than a demographic subgroup of the population based on the race of individuals. The final demographic examined is age which was shown to be a strong predictor of violence risk when participant-based rates of violence were used to describe the risk of everyday activities.

Looking down Column C of Table 7-3, the time-based risk assessment indicates Americans younger than 30 experience much higher levels of violence in five of the nine everyday activities examined. The young have a higher rate of violence for every type of activity however only five saw a percent difference greater than 100. The simplest explanation for these large differences is the fact that people tend to engage in activities with persons of a similar age. This means any activity young Americans participate in is likely to involve more persons of the offending age. The largest difference seen was for leisure away from home where the time-based risk is 331% higher for young Americans; this translates to a risk that is four times greater. Besides increased exposure to individuals of the offending age, this large rate difference may also be due to higher alcohol consumption amongst young persons. In other words, when participating in leisure that involves drinking young persons probably consume more alcohol than those over the age of 30. This increased alcohol consumption can result in more persons

becoming offenders and/or more persons becoming suitable targets. In either case, it is clear that leisure away from home is much more risky for those under 30 years of age. The other activities with much higher rates of violence for the young are sleeping, other activities at home, commuting to work and commuting to other places. Assuming all of these activities are engaged in with persons of a similar age, people under 30 experience more risk because they are exposed to a much higher quantity of potential offenders.

It is interesting to note that there is not much difference in the rate of violence between these age groups for the activity of attending school. Because this activity involves many young persons, these results indicate that even older persons who attend school suffer from the increased exposure to individuals of the offending age; the same is true of the commute to and from school. The fact that shopping has a similar time-based rate for both age groups can be attributed to the notion that this activity does not cater to any specific age group. Instead, shopping centers in America are product-specific not age-specific which means when persons converge in time and space during this activity exposure to strangers and public places is equal between age groups. Finally, the finding that working is only slightly more dangerous for the young complements what Lynch (1987) found in his analysis of the work domain. Remember that Lynch's logistical regression analysis of victimization found that age is a poorer predictor of victimization at work than knowing the job duties and working environment of an individual. Without disaggregating working by occupation, this analysis has also shown that age does affect the rate of violence in this activity but the percent difference between the dichotomous age groups is less than 100%. In summary, the time-based risk assessment confirms that

age is a robust predictor of victimization for five of the nine everyday activities Americans engage in. While the young experience higher levels of violence in all of the activities examined, their risk of violence is at least twice as high during: leisure away from home, sleeping, other activities at home, going to and from work and going to and from other places. The fact that these differences are so great warrants a more detailed analysis of how the risk of violence varies with age. In Chapter 8, age is disaggregated further into 10-year intervals and by single year of age to obtain a clearer portrait of how the risk of violence changes over an individual's lifespan.

In conclusion, the purpose of this subsection was to determine if demographic characteristics continue to be a strong predictor of violence when risk is disaggregated by the everyday activities Americans participate in. The demographics examined were age, sex and race. Results of the time-based risk comparison indicate age is the only demographic variable that continues to have a strong effect on the risk of violence no matter the routine activity patterns of individuals. For five of the nine activities in question, the risk of violence was at least two times higher for Americans under 30 years of age. This finding is markedly different from the sex and race analysis where few if any activities were much more dangerous for one of the demographic groups. With respect to the sex of Americans, attending school was the only activity that was twice as risky for males; every other activity saw a percent difference less than 100%. At home activities were found to be more dangerous for females but the difference between the sexes was small. Race on the other hand did not have a large effect on the risk of violence in any activities; no single activity saw a percent difference greater than 50%.

These findings indicate the routine activity approach is correct in theorizing that differences in risk between demographic groups will be minimal when the risk of violence is disaggregated by the types of activities Americans engage in. Age is the only demographic that appears to affect the risk of violence regardless of an individual's routine activities. Thus the major finding here is that knowing what activities an individual participates in will provide a better assessment of their risk of violence than knowing their sex or race. This suggests combining the age and routine activity patterns of an individual is the best way to predict and prevent violence. Chapter 9 will go into further detail about the practical applications of this information and the national and local level policy implications it has. The next subsection describes how the time-based rates of violence vary by activity and crime type.

The Time-Based Risk of Violence in Different Activities by Crime Type

This subsection is the final portion of the time-based risk assessment that quantifies the risk of violence Americans face in different everyday activities. The first two subsections described the risk of violence for Americans in general and for different demographic subgroups of that population. The purpose of this subsection is to describe how the risk of violence in different activities varies by crime type. Table 7-4 presents time-based rates of violence in everyday activities for seven different crime types. These rates represent the relative risk of violence for the American population in general. These rates are not disaggregated further by demographic variables due to the limited number of cases for each crime type; disaggregating by activity, crime type and demographics would result in estimates based on too few cases. Columns A through F of Table 7-4

each represent a specific type of crime; the violence rate of each crime type is reported for the nine everyday activities. Column G is the time-based victimization rate for all forms of violence. The discussion begins with the least serious forms of violence, threats and simple assaults, and continues from there to describe how the risk of more serious forms of violence is distributed across everyday activities.

Time-Based Rates of Threats and Simple Assaults in Different Activities

Looking down Columns A and B of Table 7-4, the risk of threats of violence and simple assaults in different activities is similar for both crime types. As expected, the rate for these crimes is highest during the commute to and from school; for both crimes the rate is greater than 14,000 victimizations per 1 billion person-hours of participation. When compared to other activities, the risk of being threatened or experiencing a simple assault is approximately five times higher during the school commute than the next most dangerous activity. Because the participant population and time spent in this activity are both small compared to other activities, the extremely high risk during the school commute does not result in a large number of victimizations. As reported in Chapter 4, the total number of incidents reported during this commute is the lowest of any activity examined. Accordingly the incidence of violence makes the school commute seem safe when it actually is the most dangerous activity in America. This reaffirms the necessity of time-based rate calculations that account for exposure to risk when determining the relative danger of activities. The information in Table 7-4 is also informative because it shows that while violence is likely during the school commute, the vast majority of it is minor relative to the other types of violence captured by the NCVS. In short, students

going to and from school are exposed to high levels of risk but the violence experienced

tends to be threats and simple assaults.

When looking at the distribution of threats and simple assaults across other types of

activities, the data indicate home is by far the safest place to be. Sleeping and other

activities at home have the lowest time-based rates of violence for both crime types. One

interesting finding is that the risk of simple assaults is twice as high for sleeping

Americans as compared to the risk of a threat. Intuitively this makes sense as threats are

likely the result of an argument that requires the persons involved to be awake. In other

words, a sleeping person does not make a good target for threats as they will not provoke

the threat or realize that they have been threatened. Simple assaults on the other hand are

easily committed against a sleeping person and the effects of this attack will be felt and

recognized even while asleep. However, the rates of these crimes are so low that it is

unnecessary to worry about becoming a victim while sleeping. Putting the rate into

context, if 200 million Americans slept for five hours only 54 would be the victim of a

simple assault; just 27 would experience a threat of violence. Put another way,

approximately 0.000027% of participants would be the victim of a simple assault. While

awake at home the rate for these types of violence is much higher but still low compared

to other activities. The victimization rate for threats and simple assaults during other

activities at home is less than 1,000; this means 0.00033% of participants will be

victimized. These results show once again that being at home, no matter the activity, is

much safer than engaging in any type of activity away from home. When the incidence

of violence at home was described in Chapter 4, a contradictory conclusion was reached;

more victimizations occurred during other activities at home than any other activity. By

controlling for the time spent at home, this analysis has shown that the high incidence of

victimization at home is the result of Americans spending a great deal of time in a very

safe activity. If Americans spent as much time away from home as they do at home,

levels of violence in the United States would be substantially higher. In summary, the

risk of threats and simple assaults during activities at home, whether Americans are

sleeping or awake, is low compared to other activities.

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Table 7-4

Time-Based Rates of Violence for Nine Everyday Activities by Crime Type, United States, 2003-2005

| | | | | Victimizations Per 1 Billion Person-Hours Spent in Each Activity | | | | |
Activity	(A) Threats of Violence	(B) Simple Assault	(C) Aggravated Assault	(D) Attempted Robbery	(E) Completed Robbery	(F) Sexual Assault	(G) Rape	(H) Any Type of Violence
(1) Sleeping	27	54	17	12	22	11	20	*153*
(2) Other Activities at Home	659	683	233	114	107	23	58	*1,804*
(3) Working	1,405	1,116	320	41	80	30	18	*3,010*
(4) Attending School	2,050	3,729	445	635	202	0	76	*6,728*
(5) Shopping or Errands	743	1,000	273	242	445	11	13	*2,727*
(6) Leisure Away from Home	2,350	3,438	1,439	261	536	175	332	*8,607*
(7) To/From Work	3,086	2,768	773	918	1,356	108	0	*9,009*
(8) To/From School	15,107	14,090	3,896	2,208	6,350	1,903	0	*43,554*
(9) To/From Other	2,010	1,653	831	475	806	21	11	*5,807*

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005

Shopping or running errands exposes Americans to the lowest risk of a threat or simple assault while away from home. With respect to threats, the rate while shopping is nearly equal to the rate while participating in other activities at home. The low risk of these crime types while shopping is likely due to the structured nature of this activity. While strangers will come into contact while shopping, the interactions occur in well defined spaces that are controlled by place managers who have every intention of keeping their business free of violence. As Jacobs (1961) noted, store owners will lose customers if people do not feel safe in their shops. The lost revenue violence would bring to shopkeepers means more controls are put in place to keep commercial centers violence free. In short, while away from home Americans are safest will shopping. With regard to threats and simple assaults, every other activity away from home is more dangerous than shopping, including the commute to and from a store.

After shopping, working exposes Americans to the lowest risk of a threat or simple assault. The risk of a threat is approximately two times higher while working compared to shopping; simple assaults occur at nearly equal rates between these activities. The low risk of these types of violence while working can be attributed to two things: (1) office settings typically involve contact with the same people everyday meaning stranger interactions are limited and (2) engaging in violence at work jeopardizes an individual's career. Because the focus of this dissertation is the relative risk of activities, working is not disaggregated by occupation; all workers and jobs are considered equal. Previous studies have shown that the risk of violence varies by job type. The findings of those studies indicate working in public venues, especially entertainment venues, that involve

lots of face-to-face contact are the most risky (Block et. al, 1985; Wikström, 1985; Lynch, 1987; Collins et. al, 1987; Mahew et. al, 1989). This would indicate that time-based rates of violence should be higher for these occupations and lower for occupations that are less public. Unlike previous research on the topic, using time-based rates would produce a more refined risk assessment; the data would also be much more recent. Two future avenues of research would be to calculate time-based rates of threats and simple assaults for (a) different occupations and (b) for victimizations involving strangers and non-strangers. For now the data at hand can only be used to describe the relative risk of work compared to other activities. The results indicate that while working is more dangerous than being at home, it is a safer activity than five of the seven away from home activities when considering the risk of a threat or simple assault.

Moving on to other activities that occur away from home, the four remaining activities all have a time-based rate of violence that ranges between 1,600 and 3,700 victimizations per 1 billion person-hours of participation. This means each activity is more dangerous than sleeping, other activities at home, shopping or working but is less dangerous than going to and from school. The data in Table 7-4 indicate the risk of threats and simple assaults is nearly equal while attending school or participating in leisure activity. In other words, going to school is as dangerous as going out for fun. This is only true of minor forms of violence, the pattern changes when more serious offenses are considered. Of the two in-transit activities yet to be considered, the data indicate commuting to and from work is more dangerous than going to and from other places. As noted above, this is

likely due to the regular and predictable temporal nature of going to work which results

in higher concentrations of Americans in time and space. In summary, the last four

activities examined do not show equal levels risk for a simple assault or threat but they

could be seen as a group with similar levels of risk for participants. This group would

represent activities that are more dangerous than being at home, working or shopping, but

less dangerous than the school commute.

In conclusion, the time-based rate of threats and simple assaults during different activities

varies greatly from extreme safety at home to excessive danger during the commute to

and from school. The rates presented in Table 7-4 show that of any crime type,

Americans are most likely to become the victim of a threat or simple assault no matter

their routine activity pattern. When the lifestyles of individuals is considered, activities

such as leisure, attending school and in-transit activities expose individuals to more risk.

Persons who spend most of their time at home will be insulated from these attacks;

workers and shoppers will also be exposed to less risk. These findings indicate an

individual's risk of minor forms of violence is dependent on their lifestyle and the

activities they choose to participate in. The subsection that follows will describe how the

risk of more serious forms of violence is distributed across activity categories.

Time-Based Rates of Serious Forms of Violence

The previous subsection described the distribution of minor forms of violence across

everyday activities. This section focuses on serious forms of violence and will determine

how the risk of victimization varies by activity. To be clear, serious forms of violence

include aggravated assault, attempted robberies, completed robbery, sexual assault and rape (Columns C-F in Table 7-4). The data presented in Chapter 4 indicated the incidence of these crimes is much lower than that of simple assaults and threats. The time-based rates of violence presented in Table 7-4 reaffirm this finding; all forms of serious violence have much lower rates than the victimization rates for threats and simple assault. The paragraphs that follow discuss how these rates vary by activity and crime type.

Beginning with activities occurring at home, the results of the time-based risk assessment show that serious forms of violence are extremely rare while Americans are asleep. For each crime type, the risk of an attack is less than 25 victimizations per one billion person-hours of participation. In short, the likelihood is so low that Americans should feel safe when they sleep at night because they are. While the rates may be higher for some specific locations in the United States, these data and findings apply to the entire American population regardless of their actual location. If local data were used in future studies, it might be possible to determine which locations, if any, are dangerous. Because the NCVS and ATUS samples are randomly selected from the Current Population Survey, homeless persons or those who sleep on the streets are not included or interviewed. Thus the time-based rate for this subpopulation may be much higher than those who sleep at their home; the next section will show that the street is by far the most dangerous type of place to visit. Moving on to the risk of serious violent attacks while Americans are awake at home, the results show once again that being at home is much safer than being away from home or in-transit. The most common type of attack during

other activities at home is aggravated assault; the rate is two times higher than those reported for either type of robbery, ten times higher than that of sexual assault and four times higher than rape. Sexually oriented offenses are by far the least common type of crime experienced during other activities at home. These results show once again that when the amount of time Americans participate in activities is accounted for any activity occurring at home is much safer than those occurring outside of an individual's household.

Compared to other away from home activities, working exposes Americans to the lowest risk of a serious violent attack. Some studies have claimed violence in the workplace is increasing (Flannery, 1996) and while this research does not dispute that point, it indicates the risk of serious forms of violence is very low. Besides aggravated assault, every serious type of violence has a time-based rate of less than 100 victimizations per one billion person-hours; a finding that does not apply to any other activity examined. This means it is highly unlikely that any employee, no matter the occupation, will become the victim of a serious violent attack. For example, the risk of being raped at work is actually lower than it is while at home. Again, it is likely that these rates vary by occupation and this would be an interesting avenue of research in the future. One occupation that has consistently been shown to expose workers to a high risk of robbery is driving a taxi (Mayhew, 2000; Smith, 2005; Mayhew and Chappell, 2007). If time-use and victimization data were combined for different occupations it would be easy to pinpoint which are the most dangerous and tailor prevention programs for these jobs.

The current data only show that the risk of serious forms of violence while working is lower than any other activity away from home.

Compared to working, serious forms of violence are much more common for activities related to school. As expected, time-based rates of victimization are highest during the commute to and from school; rape is the only exception. The difference in risk between attending school and going to and from school is large indicating students suffer from the lack of guardianship found off school property. During school hours the most common form of serious violence is attempted robbery; the completed robbery rate is one-third that of attempted robbery. An opposite pattern is seen during the school commute where the rate of completed robberies is three times higher than the rate of attempted robberies. This indicates guardianship on school property is higher than it is during the commute which prevents the successful completion of a robbery. When considering sexually based offenses, sexual assault is rare during school hours; during the study period none of the NCVS interviewees reported a sexual assault while attending school. Conversely, the rate of sexual assault during the school commute is higher than any other activity. The time-based rape rates were in the opposite direction with a higher rate during school hours; no rapes were reported during the commute to and from school. The rape rate while attending school is the second highest for any of the everyday activities. During the study period, the NCVS estimates there were approximately 6,100 rapes or about 2,000 a year, committed against students while they were attending school. Thus the high risk results in a relatively small number of victimizations because the participant population is small compared to other activities. In general the time-based risk

assessment has shown activities related to school expose Americans to more risk than being at home or at work. The commute to and from school is the riskiest activity for all forms of serious violence except rape. The main finding here is that lower levels of guardianship off school property create a risky environment for students that can result in serious forms of violence.

Leisure activity away from home exposes Americans to a higher risk of serious forms of violence than almost every other everyday activity included in this analysis. If going to and from school was removed from the study, leisure would have the highest time-based rate for aggravated assault, sexual assault and rape. The high risk of these crime types is likely due to alcohol consumption and stranger interactions. The loss of inhibitions while drinking can result in people doing things they would not do while sober such as throwing a punch instead of just walking away from an argument. When drinking is combined with stranger interactions in a public setting, this creates numerous opportunities for violence. Besides creating motivated offenders, drinking can also produce suitable targets for violence. This is especially true for crimes such as sexual assault and rape where an intoxicated victim cannot stop the attack. When the two types of robbery are considered, the completed robbery rate is two times higher than the attempted robbery rate. Again the higher rate of completed robberies could be due to intoxicated persons being easier targets for this type of crime. To test the hypothesis that high rates of serious forms of violence are the result of alcohol consumption, a future study could add offender information collected by the NCVS to the analysis. Specifically, the NCVS variable V4240 provides information about whether the victim

believed the offender was under the influence of alcohol or drugs. Unfortunately the NCVS does not collect information about victim alcohol consumption therefore this dataset could not be used to test the hypothesis that drunken individuals make better targets for violence. In summation, leisure away from home exposes Americans to high levels of risk for serious forms of violence and is the second most dangerous activity compared to the commute to and from school.

The last away from home activity to consider is shopping or running errands. The time-based rates show this is one of the safest activities Americans can participate in while away from home; only working could be considered safer with regard to serious forms of violence. Completed robberies aside, the risk of serious types of violence is low while shopping. In fact, the rates for aggravated assault, attempted robberies, sexual assault and rape are the lower than any other away from home or in-transit activity except working. According to the time-based rates, the risk of a completed robbery is higher than any other serious form of violence while shopping. Because shopping requires customers to carry some form of payment, this is an excellent activity for robbers to target. While the emergence of credit and debit cards has made it easier for shoppers to leave large sums of cash at home or in the bank, many transactions will still involve cash meaning shoppers are a good target for robbery. Indeed robbers could steal credit cards and use them to purchase goods however cash is much more disposable and can be used to buy items sold in illicit markets where sellers do not accept credit cards. For example, a person who robs to feed his drug addiction is likely to want cash from the victim as this is the preferred payment method for most drug transactions. To summarize, shopping is a

safe away from home activity that exposes participants to a low risk of serious types of violence. The most likely type of serious violence an American will experience in this activity is a completed robbery however the risk of this crime type is higher in other away from home activities; working and attending school are the only exceptions to this statement. As noted above shopkeepers prefer a safe environment for their customers because violence is bad for business. Results of the time-based risk assessment indicate storekeepers in America are providing an exceptionally safe environment for their customers.

The last two activities to be discussed are the commute to work and trips to and from other places; these are both in-transit activities. In general, the commute to and from work exposes Americans to a higher risk of serious types of violence than commuting to and from other places; the risk of an aggravated assault is the only exception. As discussed before, the regular and predictable temporal aspects of commuting to work result in more people converging in time and space than trips to and from other places do. During the commute to work, attempted and completed robberies are the most common types of serious violence perpetrated against participants. The time-based rate of completed robberies is higher than that of attempted robberies meaning most attacks are successful. Trips to and from other places expose Americans to the greatest risk of completed robberies and aggravated assaults; the rate for both crime types is nearly equal. Sexual assault and rape are rare during trips to places other than work or school and occur at rates similar to those seen at home. On the other hand, the rate of sexual assault during the work commute is the third highest overall. Because the sexual assault category

includes things like unwanted sexual contact without force, groping on public transportation would fall under this definition. Since commuting to work occurs on a regular and similar schedule for most occupations, the likelihood that public transportation vehicles will be crowded during this activity is high. Crowded subway cars, buses and trains all create numerous opportunities for groping. In short, the time-based risk assessment has shown that commuting to work is more dangerous than commuting to and from other places when considering the likelihood of serious types of violence. This finding is attributed to the notion that the routine and regular timing of commuting to work makes this activity separate from trips to and from other places. In essence, more people are meeting in time and space during the work commute and this creates more opportunities for serious forms of violence.

In conclusion, this subsection has described the risk of serious forms of violence in nine everyday activities. The results indicate Americans are exposed to exceedingly low levels of risk at home no matter their activity; sleeping is safer than being awake but both activities can be considered low risk. While away from home, working and shopping are the safest activities Americans can engage in. Serious types of violence are rare during these activities compared to other activities that occur outside the home. Leisure activity and going to and from school expose Americans to higher levels of risk than any other activity; the school commute is the most dangerous. Attending school is more dangerous than working or shopping but less dangerous than the other five activities that occur away from home. In every activity, sexual assault and rape are the least common forms of serious violence. The other crime types examined show different risks depending on the

activity. For example, during the commute to work robberies are the most common

serious form of violence experienced. During leisure activity, aggravated assaults have

the highest time-based rate. Thus the results indicate the risk of serious violence not only

varies by activity but that some activities cater to a specific crime type more than others.

The next and final section of this chapter explores how time-based rates of violence vary

across different types of place. The section begins by describing the risk of violence for

Americans in general and then focuses on how risk varies by demographic variables and

crime types.

DANGEROUS TYPES OF PLACE: TIME-BASED COMPARISONS

This section is the final portion of the time-based risk assessment used to describe the

risk of violence in America. The previous section described how the risk of violence is

distributed across different activities; this section focuses on the risk of violence in

different types of place. The discussion begins with an overview of the risk Americans

are exposed to when they visit different types of place. By using time-based rates, the

results represent the most complete picture of place-specific risk available in the criminal

justice literature. Unlike the visitor-based rates presented in Chapter 6, these data

account for the time spent in locations. Because humans are transient in time and space,

these rates are better measures of place-specific risk than the incidence of violence in

different types of place or visitor-based rates. After the risk of violence for Americans in

general has been described the discussion continues on to describe how demographic

variables influence the risk of violence. The last subsection of the chapter relates to the

risk of specific types of violence in different types of place. The data presented in this

section are useful to criminologists, public policy makers and law enforcement practitioners.

The Time-Based Risk of Violence in Different Types of Place

This subsection describes the risk of violence Americans are exposed to in different types of place. The time-based rates presented in Table 7-5 are applicable to the American civilian population aged 15 and older and should be interpreted appropriately. Columns A-F present violence rates for dichotomous demographic subgroups of this population based on the age, race and sex of individuals; Column G contains rates for the population as a whole. This subsection is only concerned with the rates presented in Column G. The next subsection will discuss how violence rates vary across demographic variables. The purpose of the current discussion is to (a) describe how violence rates vary between different types of place and (b) quantify the relative risk of different types of place compared to one another. Remember that this study defines types of place using broad and specific definitions; Rows 1-3 include data for broad types of place while Rows 4-9 use more specific definitions. The discussion begins by describing the risk of violence in broadly defined types of place.

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Table 7-5
Time-Based Rates of Violence Against Civilians Aged 15 and Older By Age, Sex and Race,
Disaggregated by Type of Place,
United States, 2003-2005

			Average Victimization Rate (Victimizations per 1 Billion Person-Hours Spent in Each Activity)*				
	(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**
Type of Place (Broad)	**Males**	**Females**	**Whites**	**Non-Whites**	**Under 30**	**30 or Older**	**All Americans**
(1) Home	756	1,031	841	1,211	1,521	707	*904*
(2) Away from Home	5,703	3,628	4,601	5,439	8,766	2,966	*4,738*
(3) In-Transit	8,915	5,857	6,643	11,015	15,330	4,312	*7,375*
Type of Place (Specific)							
(4) Home	785	1,069	871	1,260	1,561	738	*938*
(5) Friend's Home	5,964	5,699	5,607	6,790	10,166	2,814	*5,820*
(6) Bar or Restaurant	12,434	6,000	8,990	11,937	20,261	5,109	*9,333*
(7) Commercial Building	11,484	5,003	7,689	7,007	12,188	6,015	*7,555*
(8) Public Transportation	7,969	4,745	6,428	6,529	4,760	7,542	*6,431*
(9) Street or Outdoors	56,428	36,377	42,381	83,362	89,309	28,912	*48,277*

*Note: Rate is based on the population size of each dichotomous demographic group. Each variable, for example age, is analyzed independently of the others.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005.

At Home, Away from Home or In-Transit: Which is More Dangerous?

Rows 1-3 of Table 7-5 present the time-based risk of violence in three broadly defined

types of place. The data in Column G indicate being in-transit is the most dangerous type

of place; home is the safest type of place. These results are slightly different than the

visitor-based rates presented in Chapter 6 which indicated being in-transit is the safest

type of place. As noted in previously, one problem with using visitor-based rates to

quantify the risk of violence in broad types of place is the fact that almost every

American will visit each place everyday. For example, any person who leaves their home

will be counted in the away from home and in-transit categories. This results in a similar

visitor population for each type of place. Thus when the time spent in each category is

accounted for, a better and more precise risk estimate is had. To asses the relative risk of

these broad place categories, Table 7-6 uses an index to compare violence at home to the

other two categories. The results indicate being away from home is five times more

dangerous than being at home; being in-transit is eight times more dangerous. The

results of the time-based risk assessment are in line with the routine activity approach.

Namely being away from home or in-transit is more dangerous than being at home

because of increased exposure to strangers in public settings. In summary, the time-

based risk assessment indicates being away from home or in-transit is much more

dangerous than being at home. The next subsection describes how the risk of violence

varies between more specific types of place.

		Table 7-6 The Relative Safety of Different Types of Place, Time-Based Comparisons, United States, 2003-2005
	Type of Place (Broad)	**Relative Risk of Violence in Each Type of Place Compared to Home**
(1)	Home	100
(2)	Away from Home	524
(3)	In-Transit	816
	Type of Place (Specific)	
(4)	Home	100
(5)	Friend's Home	620
(6)	Bar or Restaurant	995
(7)	Commercial Building	805
(8)	Public Transportation	686
(9)	Street or Outdoors	5,147

*Note: Relative risk was determined by dividing the violence rate of each type of place by the rate for home and multiplying the result by 100. The index scale should be interpreted as any value over 100 means the type of place is more dangerous than home. Values less than 100 indicate the activity in question is safer than home. To determine how much more dangerous a type of place is divide the index value by 100. For example, visiting a bar is 10 times more dangerous than being at home (995/100 = 9.95).

Source: Calculated using Table 7-5.

The Risk Violence in Specific Types of Place

This subsection discusses the time-based risk of violence in six specific types of place. Using broadly defined categories, the results of the risk assessment indicated being away from home or in-transit is more risky than being at home. Using more specific definitions, this portion of the analysis will describe how the risk away from home varies between different types of place (Rows 4-9 of Table 7-5, Column G). Looking at the data, it is immediately clear that the risk of violence while visiting places away from home is highest on the street. In fact, being on the street is 51 times more dangerous than being at home. This finding mirrors the original time-based rates calculated by Cohen and Felson (1979) which found the street to be much more dangerous than being at home or elsewhere. Because this analysis uses time-based rates, the street is considered to be extremely risky because Americans do not spend much time in this type of place (see Chapter 5). Remember that time spent on the street includes people walking or biking; time spent in cars or other forms of transportation is not included. The high risk of violence on the street is likely due to the public nature of this setting and the lack of guardianship. Because the street is a public place, violence prevention is the responsibility of local police departments, residents and pedestrians. These three types of guardians each have limitations to how much crime they can prevent because streets cover a great deal of space in any city or township. For example, a street that is one-hundred feet wide and one mile long is equal to 528,000 square feet. Thus patrolling this amount of space or providing guardianship by being eyes on the street requires a great deal of manpower and dedication. This means the street is likely to be unsupervised, especially by formal entities such as the police, and thereby creates a good environment

for crime. In short, the high risk of violence Americans face while away from home is concentrated on the street where the time-based rate of violence is at least five times higher than any other type of place.

After the street, the next most dangerous type of place is a bar or restaurant where the risk of violence is ten times higher than it is at home. The high risk of violence in this setting is undoubtedly due to alcohol consumption; while people can drink at the other types of place examined, it is not the purpose of these locations. The high risk of violence at bars is conversant with the literature on bar violence that suggests bars produce violent incidents on-site and in the surrounding areas (Roncek and Bell, 1981; Roncek and Maier, 1991; Levei, 1997, Murray and Ronncek, 2008). Because this analysis describes risk at the national level it is improper to say that all bars are extremely dangerous; it is only possible to say that in general this type of place is more dangerous than the others examined. Remember that Sherman (1992) reported bar violence in Milwaukee was concentrated in a small proportion of taverns, a finding that is likely to apply to most cities in the United States. Thus this analysis confirms bars are conducive to violence especially when compared to other types of place. In the future, a local study of bar violence could calculate time-based rates of violence within a city and even calculate these rates for specific hours of the day. For example, it would be possible to determine which bars are the most dangerous for customers and if these bars become more dangerous as the night goes on. With the data at hand it is only possible to say that bars and restaurants expose Americans to higher levels of violence than any other type of place except the street.

Commercial buildings are the third most dangerous type of place Americans can visit behind bars and the street. The high rate of violence for this type of place is due to the limited amount of time spent in these locations; typically less than 1.5 hours per day is spent in commercial buildings (see Chapter 5). Because commercial buildings are usually open to the public these environments increase interactions between strangers and thereby create opportunities for violence. The violence rate at commercial buildings is eight times higher than it is at home. The relatively high rate of violence for this type of place is an interesting finding since shopping or running errands was found to be one of the safest away from home activities. However, when you consider that leisure activity such as attending a sporting event or watching a movie would occur in a commercial building this could explain why the rate of violence in this type of place is high. Remember that leisure activity is one of the most dangerous activities an American can engage in. Thus the relatively high risk of violence at commercial buildings can be attributed to the reality that these buildings host a variety of activities some of which may be dangerous. This finding emphasizes the need to consider activities and places as separate entities because the risk of violence during an activity may be related to the location where it occurs. In the future it would be interesting to note how the time based rate of violence for an activity such as leisure varies depending on the type of place where it occurs. However, the current study is limited to saying that commercial buildings expose Americans to relatively high levels of risk no matter their activity.

The time-based rate of violence on public transportation indicates this setting is

approximately seven times more dangerous than being at home. However, the results

indicate public transportation is safer than being on the street, at a bar or in a commercial

building. One of the reasons public transportation may be safer than these settings is the

limited number of activities this type of place hosts. For example, leisure activity does

not occur on public transportation but could occur in any other type of place examined.

Instead, public transportation only hosts in-transit activities which were shown to vary in

risk depending on the destination. Previous research on crime related to public

transportation has emphasized the reality that a good proportion of violent attacks occur

outside of the vehicles passengers ride in but rather on platforms, at bus stops, in parking

lots or on the streets near transit hubs (Loukaitou-Sideris, 1999; Clarke and Smith, 2000;

Loukaitou-Sideris et al., 2002). Thus the risk of violence during in-transit activities will

actually change throughout the duration of the trip depending on the location of an

individual whether they are walking on the street to a station, waiting at a station, or

riding in a train car. An excellent application of the risk quantification method used in

this dissertation would be to compare the relative risk of violence on public transit

systems in different cities based on the time riders spend in each system. If temporal data

were available, it would also be possible to describe how the risk of violence varies

depending on the time of day. However, with the NCVS and ATUS data used here it is

only possible to say that riding on public transportation is more dangerous than being at

home but less dangerous than visiting other types of place such as a bar, commercial

building or the street.

Finally, the safest type of place an American can visit outside of their own home is a

friend's house. However, the time-based rates indicate even this type of place is still six

times more dangerous than an individual's home. This is an interesting finding because

visiting a friend's home should not expose a person to a large number of strangers. Thus

the increased risk at this type of place is likely due to the fact that people visit friend's

homes to engage in leisure activity which then puts them at a higher risk of violence even

if the people participating in the activity with them are not strangers. In the future it

would be interesting to disaggregate violence at a friend's home into stranger and non-

stranger crimes and by the activity victims were engaged in at the time of the attack. This

would help criminologists understand why a friend's home is so much more dangerous

than your own home. Perhaps much of the difference is due to the fact that while at

home approximately half of the time spent in this setting involves sleeping which has the

lowest rate of violence of any everyday activity. For example, if the violence rate during

other activities at home is compared to the rate of violence at a friend's home the

difference is lower. A friend's home is only three times as dangerous as your own home

while you are awake. In summary, a friend's home is the safest place an American can

visit while away from home however this setting is still six times more dangerous than

their own home. This suggests even when Americans are in contact with non-strangers

while away from home they still experience higher levels of violence.

In conclusion, this subsection has described the risk of violence Americans face when

they visit six different types of place. As expected, being at home is the safest place to

be; the most dangerous type of place to visit is the street. A friend's home is the safest

place to visit while away from home but the time-based rate of violence in this setting is still six times higher than it is at home. Bars and restaurants are ten times more dangerous than an individual's home while public transportation and commercial buildings are seven and eight times more risky respectively. The findings indicate the risk of violence while away from home is concentrated on the street and that risk varies between other types of place. In essence, the risk of violence changes over space and time as an individual moves from one location to another. For example, walking to a bar exposes individuals to high levels of violence on the street and lower levels of violence inside the bar; however both locations are still much more risky than being at home. These results refer to the risk of violence for all American civilians aged 15 and older. The next subsection describes how the risk of violence in different types of place varies between demographic groups based on the age, sex and race of individuals.

The Time-Based Risk of Violence in Different Types of Place by Age, Sex and Race
This subsection describes how time-based rates of violence in different types of place vary across dichotomous demographic categories. Because the previous subsection described the risk of violence for Americans in general, this subsection takes the analysis one step further by disaggregating risk according to the age, race and sex of Americans. Much like the activity-specific analysis found in the first portion of the chapter, the purpose of this subsection is to determine if demographic variables become less important when risk is disaggregated by routine activity patterns such as the types of place Americans visit. According to the theoretical framework employed in this dissertation, the risk of violence should not vary greatly between demographic subgroups.

Table 7-5 (Columns A-F) contains time-based rates of violence for each subgroup; the differences between these groups have been summarized in Table 7-7. Keeping with the discussion technique used in the activity-specific analysis to describe the percent differences between demographic subgroups, this subsection will only highlight differences that are in the opposite direction as expected or differences of 100% or more. The analysis begins by describing how the sex of Americans alters their risk of violence in different types of place.

Table 7-7

Differences in Time-Based Place-Specific Victimization Rates
for Dichotomous Age, Sex and Race Variables,
United States, 2003-2005

		% Difference Between Time-Based Rates of Violence for Demographic Groups		
		Males/Females	**Whites/Non-Whites**	**Under 30/30 or Older**
Type of Place (Broad)				
(1)	Home	-27	44	115
(2)	Away from Home	57	18	196
(3)	In-Transit	52	66	256
Type of Place (Specific)				
(4)	Home	-27	45	112
(5)	Friend's Home	5	21	261
(6)	Bar or Restaurant	107	33	297
(7)	Commercial Building	130	-9	103
(8)	Public Transportation	68	2	-37
(9)	Street or Outdoors	55	97	209

*Note: Percent differences should be interpreted as the difference in victimization rate for the demographic group on the left compared to the group on the right. For example, the violent victimization rate while at home is 27% lower for males than females; it is 52% higher while males are in-transit.

Source: Calculated using data presented in Table 7-5 (see above).

When considering differences in the risk of violence men and woman face in various types of place (Column A), the results of the time-based assessment indicate women are exposed to more risk at home than men. Whether this type of place is defined broadly, the time-based rate of violence at home is approximately 27% lower for men than women. This finding mirrors the activity-specific portion of the analysis that found women are more like to be victimized at home no matter the activity. When victimization rates are calculated without disaggregating by activity or type of place, men appear to be more at risk than women (see Chapter 4). This study however shows that this is not always the case and that victimization rates at home are higher for women but lower everywhere else. Despite the fact that women have a higher risk of violence at home, the difference is nowhere near the 100% cutoff used to identify types of place that are substantially more risky for one sex over the other. Besides home, every other type of place is more risky for males. Bars and commercial buildings are both twice as dangerous for men, indicating sex does matter at these types of place. This finding is conversant with the activity-specific analysis that found the risk of violence is 90% higher for men during leisure activity. Because bars and commercial buildings both host leisure activity, it makes sense that these places would be more dangerous for men. In essence, this result indicates bars and commercial buildings that attract a large number of male visitors are likely to be the most dangerous. The major findings for this portion of the demographic analysis are that (a) home is more dangerous for females and (b) the risk of violence at bars and commercial buildings is twice as high for men compared to women. The next paragraph describes how race is related to the risk of violence in different types of place.

Thus far, race is the one demographic variable that has not shown a substantial difference in risk between dichotomous subgroups. When time-based rates of violence in everyday activities were compared between whites and non-whites, no single activity saw a percent difference greater than 50%. The results presented in Column B of Table 7-7 suggest the risk of violence in different types of place is similar for both racial categories. Because non-whites have a higher victimization rate overall (see Chapter 4), the only type of place with a rate difference in the opposite direction for this group is commercial buildings where the rate for non-whites is 9% lower than it is for whites. Again this difference is small and not nearly enough to suggest non-white have a substantially higher risk of violence in these locations. The only type of place that approached the 100% cutoff is the street where the risk of violence is 97% higher for non-whites. This represents the first time race has shown a large effect on the risk of violence in any type of place or activity whether participant- or time-based rates were used. The higher risk of violence on the street for non-whites may be related to this population's proximity to crime. In other words, if non-whites are more likely to live in urban centers with high crime rates the streets in these neighborhoods should be more dangerous. However, without disaggregating these racial categories into urban and non-urban populations this hypothesis cannot be tested. This of course represents an avenue for future research as it would be intrinsically interesting to determine why non-whites are exposed to more risk on the street. Thus the results of this demographic analysis indicate knowing where individuals visit provides a better idea about their victimization risk than knowing their race alone. The next and last demographic variable to be considered is age.

Throughout this dissertation, age has proven to be the only demographic variable that continues to be an excellent predictor of victimization even when risk is disaggregated by activities and types of place. The visitor-based rates presented in Chapter 6 indicated the risk of violence in different types of place was more than 100% higher for those under 30 in almost every type of place; public transportation was the only exception. The percent differences reported in Column C of Table 7-7 show that when the time spent in different places is considered, every type of place except public transportation is much more dangerous for those under 30. This is especially true of bars where the time-based violence rate is 297% higher for young persons. Once again the high rates of violence those under 30 experience when they visit any type of place is likely due to the fact that they visit these places with others who are also of the offending age. For example, if a 27 year old male goes out to a bar to meet girls he generally will frequent establishments that attract girls of a similar age and vice versa. The finding that public transportation is more dangerous for those over 30 is interesting and represents the first time in this dissertation that a time-based rate is higher for this subgroup of Americans. One explanation for this increased risk is the fact that public transportation is unique because riders have no choice as to who they will share a train or subway car with. In other words, public transportation is for everyone and thus creates an environment where persons over 30 cannot selectively avoid individuals of the offending age. Some might say the same is true of the street; however the street is not an enclosed environment that forces people to be within an arm's reach of one another. This means public transportation is distinctly different from the other types of place examined in this analysis and appears to create an

environment that is more dangerous for people over 30 because they are placed in a confined space with strangers many of whom may be of the offending age. Because completed robbery is one of the most common forms of serious violence occurring on public transportation (see Table 7-8 below) people over 30 may be seen as better targets for this crime because they carry more cash or wear more jewelry. In either case this is an interesting finding that warrants more attention. In closing, age is once again the only demographic variable that has a significant impact on the risk of violence no matter the type of place Americans visit. On a local level this means places that cater to a younger crowd will undoubtedly produce more violence and thus prevention measures should target these areas.

This subsection has focused on the differences in violence rates between demographic subgroups for different types of place. Much like the activity-specific analysis found in the first half of this chapter, sex appears to have an effect on the rates of some types of place but not all of them. For example, home was found to be more dangerous for women while bars and commercial buildings appear to be more dangerous for men. Time-based rates of violence in other types of place are not substantially higher for one sex over the other. When considering the race of Americans, no single type of place saw a percent difference between groups larger than 100%. The street came close with non-whites experiencing a time-based rate of violence that is 97% higher than whites. This finding is likely the result of these Americans living in closer proximity to crime than whites however future research is needed to confirm that hypothesis. It might be the case that in urban settings, whites and non-whites have similar victimization rates on the

street. Finally, age is once again the only demographic variable that has an undeniable effect on the risk of violence no matter the type of place Americans visit. With the exception of public transportation, the rate of violence in every type of place is at least two times higher for those under 30. The rate on public transportation is actually 57% lower for those under 30 as compared to their older counterpart. These results suggest the routine activity approach is correct in portraying the risk of violence as a consequence of lifestyle patterns not demographics. In other words, an individual's risk of violence is better quantified by knowing where they go rather than who they are. Of course age is an exception to this but the results still indicate victimization rates that are not disaggregated by activities and types of place provide an incomplete picture of risk.

The Time-Based Risk of Violence in Different Types of Place by Crime Type

This subsection is the final portion of the time-based risk assessment for different types of place. Up to this point, the risk of violence in different types of place has been described as an aggregate total of all crime types. The purpose of this subsection is to discuss how the risk of specific forms of violence varies between types of place. This subsection is broken up into seven pieces; each one describes the risk of a specific form of violence. The discussion begins by with the least serious type of violence, threats, and continues from there to describe more serious forms of violence. The rates presented in Table 7-8 are applicable to the American civilian population aged 15 and older. Because of a limited number of cases, the risk of specific forms of violence is not calculated for demographic groups. If more years of data were added to the analysis in the future, it

might be possible to make demographic comparisons. The results presented in this subsection provide excellent information about how the risk of specific types of violence varies depending on the places Americans visit.

Table 7-8

Time-Based Rates of Violence for Different Types of Place by Crime Type, United States, 2003-2005

	Victimizations Per 1,000 Persons Engaging in Each Activity*							
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Type of Place (Broad)	Threats of Violence	Simple Assault	Aggravated Assault	Attempted Robbery	Completed Robbery	Sexual Assault	Rape	Any Type of Violence
(1) At Home	336	361	123	22	64	17	39	904
(2) Away From Home	1,578	1,829	607	157	257	63	101	4,738
(3) In–Transit	2,548	2,183	891	609	1,053	84	8	7,375
Type of Place (Specific)								
(4) Home	308	361	122	24	70	18	35	938
(5) Friend's Home	1,766	1,958	930	172	295	205	495	5,820
(6) Bar or Restaurant	2,877	4,527	1,530	79	139	41	125	9,333
(7) Commercial Building	3,896	2,699	307	233	249	137	0	7,555
(8) Public Transportation	1,563	1,648	1,213	631	1,070	228	0	6,431
(9) Street or Outdoors	15,552	15,210	7,580	3,615	5,794	209	398	48,277

*Note: A rate of 0.0 indicates the number of victimizations per 1,000 is less than 0.1.

Source: Calculated using NCVS Incident-Level Extract Files, 2003-2005 and ATUS Activity Files, 2003-2005

Threats of Violence

Throughout this dissertation, the NCVS data have shown that no matter how you view the risk of an activity or type of place, threats and simple assaults are the most common types of violence Americans experience. Column A of Table 7-8 presents the time-based rate of threats in different types of place. The data indicate the risk of a threat is lowest at home whether broad or specific place categories are used. When Americans leave their home, the risk of a threat is at least five times higher no matter their destination. As with violence in general, the type of place that exposes Americans to the highest risk of a threat is the street; the rate is 50 times higher on the street than it is at home. Commercial buildings are the next most risky place however the rate here is only 13 times higher than it is at home. The risk of a threat is nearly equal between a friend's home and public transportation but both settings are less risky than a bar. These results suggest that home is a very safe type of place, the street is extremely dangerous, and the other types of place fall somewhere in between these two outliers. These findings mirror those reported for the risk of violence in general. The similarities are likely the results of threats accounting for a large proportion of the violence in America. In other words, if most violence is minor, the distribution of minor victimizations across different types of place should be similar to the distribution of all victimizations. The next subsection describes the risk of simple assaults in different types of place.

Simple Assaults

The risk of a simple assault in different types of place is very similar to the risk of a threat. The street is the most risky type of place to visit, home is the safest and every

other type of place is somewhere in between these extremes. For almost every type of place, the difference in rate between threats and simple assaults is relatively small; the only exceptions are bars and commercial buildings. At bars, simple assaults are more common than threats of violence indicating intoxicated persons may be more likely to resort to physical violence than verbal attacks. Conversely, threats are more likely at commercial buildings than simple assaults. This pattern may be the result of fewer interactions between intoxicated persons at commercial buildings as this type of place does not cater to alcohol consumption in the way a bar does. Thus less alcohol consumption in commercial buildings prevents violence from escalating into simple assaults. The time-based risk assessment suggests threats of violence and simple assaults are not only the most common forms of victimization Americans experience but that the risk of these crime types is nearly equal in any type of place. The subsections that follow will show that more serious forms of violence are rare and show different distributions depending on the crime type. The first type of serious violence to be considered is aggravated assaults.

Aggravated Assaults

The time-based rates of aggravated assault (Column C of Table 7-8) indicate this type of violence is the most common behind threats and simple assaults. However, the rates of aggravated assault in different types of place are at least 2 or 3 times lower than those of threats or simple assaults. This emphasizes the fact that more serious forms of violence are rare compared to minor forms of violence. The risk of an aggravated assault is highest on the street and lowest at home; the rate is 62 times higher on the street than at

home. Compared to simple assaults and threats where the street was approximately 50 times more risky than an individual's home, it appears more serious forms of violence are even less likely at home. In other words, violence at home is rare, but serious violence at home is exceedingly rare. While away from home but not on the street, bars and public transportation are the most risky types of place for Americans to visit. Victimization rates are higher at bars than on public transportation however both settings are more dangerous than commercial buildings or a friend's home. The rate of aggravated assaults at commercial buildings is very low and suggests that while this type of place may be risky for minor forms of violence, aggravated assaults are infrequent. In summary, the time-based risks of aggravated assault lend themselves to three main findings: (1) the street is dangerous and exposes Americans to a high risk of aggravated assault relative to other types of place, (2) aggravated assault is much less common than minor forms of violence and (3) bars and public transportation are the most dangerous places to visit other than the street. The subsections that follow will show that these findings are not applicable to the other types of serious violence. Instead, it appears the risk of serious forms violence in different types of place varies by crime type. The next subsection describes the distribution of attempted robberies across different types of place.

Attempted Robberies

Time-based rates of attempted robbery are presented in Column D of Table 7-8. Looking at the data, the first thing to note is that these rates are much lower than those of aggravated assault. This means that while aggravated assaults were found to be much less common than threats or simple assaults, attempted robberies occur even more

infrequently. Thus the data indicate that as violence becomes more serious, it also

becomes less common. The time-based rate of attempted robberies is highest on the

street and lowest at home. As with the other crime types, these two types of place are

outliers with an extremely high rate on the street and a very low rate at home. Public

transportation is the second most dangerous place Americans can visit with respect to

attempted robberies. The rate on public transportation is nearly three times higher than it

is at commercial buildings which are the next most dangerous type of place. As noted

before, public transportation is unique because it concentrates people in time and space

and places them in close proximity, many times within an arm's reach, of strangers and

potential offenders. It appears this reality is creating a better environment for attempted

robberies than any other type of place. Bars have a low attempted robbery rate indicating

that violence in this type of place is more likely to be combative in nature rather than for

monetary gain. Assuming drunken persons make good targets for robbery because they

cannot defend themselves, it appears these attacks do not happen inside a bar but rather

on the streets in the surrounding area. In summary, the time-based rates show the risk of

attempted robberies is concentrated on the streets and public transportation. The next

subsection describes how the risk of a completed robbery is distributed across different

types of place.

Completed Robberies

This subsection describes the distribution of completed robberies across different types of

place. Looking down Column E of Table 7-8, the risk of completed robberies follows a

similar pattern to that of attempted robberies. In general, the street and public

transportation are the most dangerous types of place while home is the safest. It is interesting to note that the completed robbery rate is actually higher than the attempted robbery rate in every type of place. This indicates that if a person is going to rob someone, it is likely that this attack will be successful. The street provides an excellent milieu for completed robberies because it gives robbers many more escape route options than public transportation or any type of structure. For example, if you rob someone on the train you will have to wait until the next stop to flee the scene. This gives people more time to either stop the attack or get a good look at the offender's face. This may be why the robbery rate on public transportation is five times lower than it is on the street. To conclude, the time-based rate of completed robbery indicates the street and public transportation are the most dangerous types of place to visit. The rates also show that completed robberies are more common than attempted robberies no matter the location. The next two subsections will discuss the risk of sexually based offenses in different types of place.

Sexual Assaults

The time-based rates presented in Column F of Table 7-8 indicate the risk of a sexual assault does not have a similar distribution as other types of violence. Remember that up until this point the risk of every type of violence examined has been concentrated on the street. In most cases the risk of violence on the street was at least three times higher than anywhere else. Sexual assault on the other hand is most likely to occur on public transportation and the risk is almost equal to that found on the street or at a friend's home. This finding is best explained by the fact that crowded public transportation

vehicles provide numerous opportunities for inappropriate sexual contact such as groping. A friend's home may be so dangerous because sexual assault victims may be victimized by someone they know who takes advantage of an existing relationship to gain access to potential targets. Future research should determine how many sexual assaults involve strangers and how these are distributed between types of place. For now the results can only lend themselves to three conclusions: (1) sexual assault is a very rare type of violence, (2) the risk of this crime is highest on public transportation with similar levels of risk on the street and at a friend's home and (3) the risk of sexual assault is lowest at home. The next subsection describes how the risk of rape is distributed across different types of place.

Rapes

The risk of rape shows a similar distribution to the risk of sexual assault. The only difference is that because this crime is very rare, no victimizations were recorded on public transportation or in commercial buildings. Thus the high risk of sexual assault on public transportation does not translate into a high risk of rape as well. Again this may be due to the fact that public transportation is more conducive to minor forms of sexual violence such as inappropriate touching. Raping someone in a public transportation vehicle might expose offenders to a large number of witnesses who could either (a) act as guardians and stop the attack or (b) provide police with a description that would lead to their capture. It appears that instead of attacking Americans on public transportation, rapists tend to commit their crimes on the street or at their home. In both types of place, the rape rate is actually two times higher than the rate of sexual assault. This indicates

rapists either exploit unsupervised streets or use their own home to attack victims. Acquaintance rape is one type of sexual crime that is beginning to garner more attention and this research confirms that being attacked at a friend's home is actually more likely than being attacked at any other type of place. In the future it would be interesting to examine the distribution of stranger and non-stranger rapes across different types of place to better pinpoint how the risk of rape varies depending on the places Americans visit. This type of information could be used in fear of crime studies to determine if Americans' perception of risk matches what is actually seen. The last subsection is a brief summary of the time-based risk assessment that disaggregated risk by type of place and crime type.

Summary

This portion of the time-based risk assessment has focused on the risk of various crimes in different types of place. The results indicate the majority of the risk Americans face is related to threats of violence and simple assaults. These two types of crime are the most common and their time-based rates are much higher than any other forms of violence. For every type of crime examined, Americans are exposed to the lowest levels of risk at home. For every crime type except rape and sexual assault, the street is the most dangerous type of place to visit. Bars provide a good environment for physical altercations such as simple and aggravated assaults, however the risk of robberies and sexually based offenses is low in this type of place. Public transportation was found to be one of the more dangerous types of place especially when considering the risk of aggravated assault, sexual assault and both types of robbery; the NCVS did not record

any rapes on public transit during the study period. Four conclusions can be used to summarize the findings of the crime type risk assessment: (1) home exposes Americans to less risk than any other type of place for all forms of violence, (2) the street is the most dangerous type of place Americans can visit, (3) public transportation provides an excellent setting for sexual assault, robbery and aggravated assault and (4) bars provide a good environment for combative violence such as simple and aggravated assault. In short, the information presented here is useful for any academic or practitioner interested in preventing a specific form of violence as it shows how different forms of violence are distributed across different types of place. Thus crime prevention strategies will be more focused if they use this information to target high risk environments.

Chapter 8—The Risk of Violence Over the Life Course

OVERVIEW

The purpose of this chapter is to delve deeper into the effect age has on the risk of violence in America. The rationale for this chapter comes from the fact that age is the only demographic variable included in the analysis that was found to have a substantial effect on the risk of violence in different activities and types of place. The rates presented in Chapters 6 and 7 indicated the risk of violence in different activities and types of place does not vary greatly between Americans no matter their sex or race. Only a handful of activities and types of place had a violence rate that was two times higher for males. No activity or type of place was twice as risky for whites or non-whites. Conversely, age had a large effect on violence rates; in many instances the risk of violence for those under 30 was at least two times higher than persons aged 30 or older. Because age is continuous variable, creating dichotomous groups using a cutoff is an acceptable method of inquiry however there are alternatives. In this chapter, age is examined using a continuous measure and 10-year intervals. By disaggregating age into more categories, it is possible to gather a better picture of how the risk of violence actually changes over the life course. For example, a time-based rate for dichotomous age groups assumes every person in each group has an equal rate of violence no matter their actual age. Thus this method presumes a person who is 35 has the same risk of violence while away from home as someone who is 70. While this might be correct, the overall violence rates presented in Chapter 4 indicated the risk of violence declines

rapidly with age. In this chapter, time-based[1] rates are presented that describe how the risk of violence in different activities and types of place changes with age.

The first portion of this chapter discusses how the risk of violence in different activities and types of place varies across 10-year intervals of age. The intervals used are: 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79 and 80+. Note that the first interval only includes 5 years of age because the ATUS and NCVS data do no include information for the entire age range of 10-19. The second portion of this chapter describes how the risk of violence varies by single year of age for Americans aged 15-30. This age range was chosen for two reasons: (1) the earlier chapters of this dissertation identified this age group as high risk and (2) there is not enough victimization in the later years of life to calculate rates by single year of age. Thus this chapter is broken into two portions that will give more specific information about how the risk of violence in different activities and types of place varies over the life course.

The methodology used to calculate the violence rates presented in this chapter differs slightly from that used in Chapters 6 and 7. In those chapters a violence rate was calculated for each year and the three year average was reported for each activity and type of place. In this chapter, it was not possible to use an average rate to describe the risk of violence for each age group. When the violence data was disaggregated by age,

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[1] Participant- and visitor-based rates are not presented in this chapter because time-based rates provide the most accurate risk assessment. Remember that interpreting participant- and visitor-based rates is difficult as they do not account for the amount of time spent in an activity or type of place which can produce misleading results.

activity and type of place many categories had no victimization for a given year[2]. This led to large standard deviations for the calculated average which resulted in coefficient of variation values that were much larger than 0.5. In other words, it would not be appropriate to use a three year average to describe the risk of violence for these specific age categories. To overcome this problem, victimization and time use data for the three years were summed and rates were calculated by dividing the total number of victimizations recorded from 2003-2005 by the total amount of time spent in an activity or type of place during the same time period. The following equation outlines the calculation used:

$$\frac{(2003 \text{ victimizations}) + (2004 \text{ victimizations}) + (2005 \text{ victimizations})}{(2003 \text{ time spent}) + (2004 \text{ time spent}) + (2005 \text{ time spent})} = \text{Time-Based Rate of Violence}$$

Despite data limitations and a slightly different method of analysis, the results of this age-specific inquiry are interesting and useful. By disaggregating age into more specific categories it is possible to examine fully how the risk of violence in different activities and types of place changes over the life course. The next section focuses on how this risk is distributed across the American public using 10-year intervals of age.

ACTIVITY- AND PLACE-SPECIFIC RISKS BY 10-YEAR INTERVALS OF AGE

The purpose of this section is to describe how the risk of violence in different activities and types of place varies depending on the age of American civilians aged 15 and older.

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[2] The limited number of cases in each age category, especially single year of age, means that violence can only be studied as an aggregate of all crime types. If more years of data were added to the analysis in the future it might be possible to determine how the risk of violence varies by crime type in different activities and types of place.

Unlike the dichotomous age categories used in Chapters 6 and 7, this section calculates

the risk of violence using 10-year intervals. The objective here is to provide a more

complete assessment of how the risk of violence in everyday activities and types of place

varies over the life course. As noted above, using a dichotomous age variable to describe

risk assumes all persons within a wide age range have an equal risk of violence. By

disaggregating the dichotomous groups into 10-year intervals, it will be possible to

determine if risk is distributed equally across age groups or if the risk of violence is

different for age groups that were lumped together in the dichotomous analysis. The

section begins by describing the time-based risk of violence for different types of place.

The Risk of Violence in Different Types of Place by 10-Year Age Intervals

This subsection describes the risk of violence in nine different types of place. Just as

before, violence rates are reported for three broad types of place and six specific types of

place. This information is presented in Table 8-1. Beginning with the broad place

categories (Columns A-C), the data clearly show that the risk of violence declines with

age in all three types of place. While the time-based rates presented in Chapter 7 already

indicated that being 30 or older exposed Americans to lower levels of risk, these data

show that within that age group there is a great deal of variation in the violence rate. For

example, the risk of violence at home for Americans in their 30s is 1,091 victimizations

per 1 billion person-hours of visitation whereas the rate for people in their 70s is 134

victimizations per 1 billion person-hours. In short the risk of violence at home for people

in their 30s is eight times higher than it is for people their 70s; the risk is 37 times higher

when compared to people in their 80s. The dramatic drop in violence rates with age for

each broad place category can be explained as a function of people visiting places with

others of a similar age. Because the violence rates in Table 8-1 account for time spent in

each location, claiming that violence rates are higher for the young because they spend

more time away from home is improper. Instead, there is something unique about the

environments the young hang out in that makes them more dangerous. Most notably

would be the idea that young persons hang out with other young persons who are of the

offending age. Assuming that this holds true for people of all ages, as individuals move

through the life course they will begin to spend less and less time with those of the

offending age. In summary, these results indicate that the relative danger of a place will

depend on the age of a visitor; the older the person the lower the risk.

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Table 8-1

Time-Based Rates of Violence Against Americans for Nine Types of Place by 10-Year Intervals of Age, 2003-2005

Violent Victimizations per 1 Billion Person-Hours of Visitation*

| | Place Type (Broad) | | | | Place Type (Specific) | | | | |
| | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) |
Age	Home	Away From Home	In-Transit	Home	Friend's Home	Bar or Restaurant	Commercial Building	Public Transport	Street or Outdoors
15-19	1,309	10,791	19,908	1,205	12,994	15,302	8,405	5,916	82,463
20-29	1,834	7,249	12,870	1,760	8,169	21,747	14,488	3,262	96,719
30-39	1,091	4,205	6,326	1,104	3,931	9,121	10,383	7,413	40,379
40-49	1,133	2,893	5,127	1,150	3,999	7,102	7,666	8,481	30,948
50-59	687	2,667	4,145	644	3,129	3,232	6,174	8,059	30,653
60-69	408	1,086	1,557	387	524	1,372	1,850	9,724	15,388
70-79	134	426	601	133	0	485	625	2,676	1,456
80+	29	767	0	28	0	0	0	0	8,130

*Note: A rate of zero indicates no victimizations were captured by the NCVS for the age group during the three year period.

Sources: Calculated using NCVS Incident-Extract Files from 2003-2005 and ATUS Activity Files from 2003-2005.

When types of place are defined more specifically (Columns D-I of Table 8-1), a similar

pattern is found. With the exception of public transportation, the risk of violence in

different types of place drops as people get older. In some instances, like bars and

commercial buildings, the risk of violence is higher for 20-29 year olds than it is for those

aged 15-19. The increased risk this age group experiences could be related to the

availability of alcohol in these settings. While those under 21 could drink in public

places with the help of a fake ID, it is much easier for those of the legal drinking age to

consume alcohol in public. Therefore this age group may be more likely to spend time

amongst intoxicated persons than their younger counterpart. In Chapter 7, the time-based

rates of violence indicated persons over 30 were more at risk on public transportation

than those under 30. Looking at Column H of Table 8-1, the results indicate that the risk

of violence is higher for those over 30 and actually continues to increase between the

ages of 20-69. This is the only example of a type of place that becomes more dangerous

as people get older. As Chapter 7 explained, this is likely due to the unique nature of

public transportation which forces people of all ages and demographics to concentrate

themselves in time and space in an enclosed environment. This differs from a bar or

commercial building where patrons can select an establishment that suits their

preferences. Public transportation runs on a set path, at set times and riders cannot

choose who they will come into contact with. Thus this is a distinct type of place that

may oblige older persons to be amongst persons of the offending age even if they do not

want to be. Figure 8-1 is a comparison of the violence rate at bars and on public

transportation that is meant to show how different the risk pattern is for these two types

of place over the life course.

Figure 8-1
The Time-Based Risk of Violence at Bars and
on Public Transportation by Age,
United States, 2003-2005
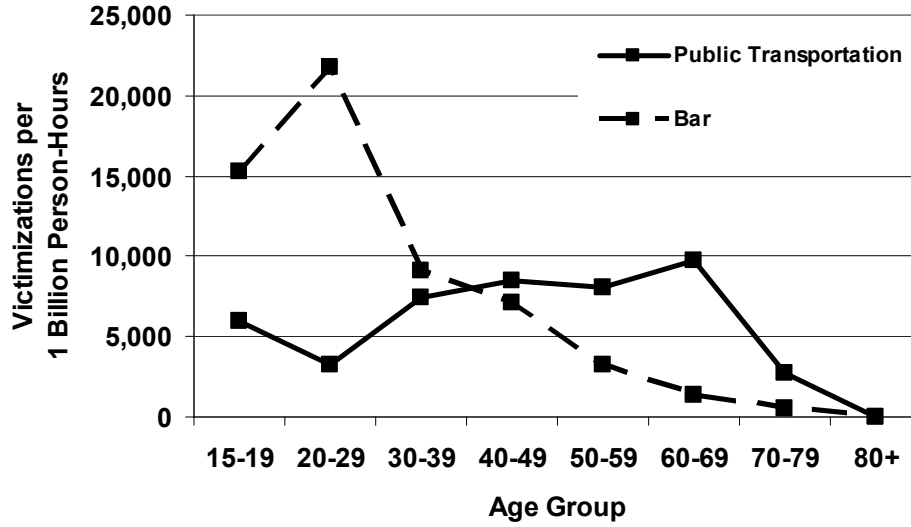
Looking at Figure 8-1 two patterns are immediately clear: (1) the risk of violence at bars declines with age and (2) the risk of violence on public transportation increases with age until it drops off at age 70. According to the data, the risk of violence at bars for people under 30 is much higher than it is on public transportation. However, the risk of violence at these two types of place is nearly equal between the ages of 30-49. From 50-69, the risk of violence is much higher on public transportation that it is at bars. From 70 onwards, the risk on public transportation drops down to levels that are similar to bars. These patterns are interesting and represent a new view of the risk of violence on public transportation and at bars. In Chapter 7 it was only possible to say that persons aged 30 and older are exposed to more risk on public transportation. However, by disaggregating age into 10-year intervals it is now possible to say that as Americans get older public transportation becomes more dangerous for them. As for bars, the data indicate the risk of violence declines with age and the risk for those under 30 is substantially higher at bars than it is on public transportation.

In summary, this subsection has described how the risk of violence varies across different types of place when the age of Americans is disaggregated into 10-year intervals. The major finding here is that every type of place, except public transportation, is safer for older people and that the risk of violence declines rapidly with age. Public transportation on the other hand is more dangerous for those between the ages of 40-69 than any of the other age groups. These findings suggest that places attracting young visitors will be more dangerous than those attracting older individuals. This information can be used by Americans to avoid high risk places based on the age composition of the clientele. The

finding that public transportation is more dangerous for older people is interesting and suggest crime prevention programs and public awareness campaigns should target this age demographic more than any other. On suggestion might be adding a subway or train car that is reserved for older people to isolate them from potential offenders. The next subsection of this chapter will describe how the risk of violence in everyday activities varies with age. It will be interesting to see if all activities become safer with age or if some become more dangerous.

The Risk of Violence in Different Activities by 10-Year Age Intervals

This subsection describes how the risk of violence in different activities varies across 10-year intervals of age. Table 8-2 presents time-based rates of violence for the nine everyday activities included in this analysis. Beginning with sleeping (Column A), the rates indicate that the risk of violence during this activity declines with age. The only exception is the difference between the 15-19 age group and the 20-29 age group where the risk is slightly higher for the older group; the difference is very small and could be an artifact of the estimation technique and should not be seen as a major finding. In short, sleeping is not only the safest activity in America but it becomes safer with age. As for other activities that occur at home (Column B), the data indicate that these too become safer as American progress through the life course. Like sleeping, the risk of violence for those aged 20-29 during other activities at home is higher than the 15-19 age group. Because the difference is larger than that seen for sleeping, it appears that this is not the result of the estimation technique. Instead, the higher risk of violence for those aged 20-29 could be the result of this age group's ability to purchase and consume alcohol legally.

Thus households with persons in their 20s may produce more violence because of increased alcohol availability. In the future it would be interesting to add information about offender intoxication to the analysis to test this hypothesis.

Table 8-2

Time-Based Rates of Violence Against Americans for Nine Everyday Activities by 10-Year Intervals of Age, 2003-2005

Violent Victimizations per 1 Billion Person-Hours Spent in Each Activity*

| | AT HOME | | AWAY FROM HOME | | | | IN-TRANSIT | | |
| | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) |
Age	Sleeping	Other Activities at Home	Working	Attending School	Shopping or Errands	Leisure Away from Home	To/From School	To/From Work	To/From Other
15-19	233	2,913	3,579	8,123	3,834	20,123	59,850	11,389	13,962
20-29	288	3,822	4,776	765	3,748	15,427	20,866	17,707	11,005
30-39	162	2,113	3,218	3,991	3,190	7,850	24,794	11,109	4,379
40-49	179	2,134	2,447	3,631	2,693	4,584	31,824	5,708	4,618
50-59	81	1,272	2,301	0	2,521	3,852	28,700	3,760	4,159
60-69	39	724	1,181	0	1,535	703	32,017	4,129	1,080
70-79	0	239	658	0	603	262	42,285	3,862	337
80+	35	23	0	0	1,150	669	0	0	0

*Note: A rate of zero indicates no victimizations were captured by the NCVS for the age group during the three year period.
Sources: Calculated using NCVS Incident-Extract Files from 2003-2005 and ATUS Activity Files from 2003-2005.

The finding that activities at home become safer with age mirrors the place-specific analysis presented in the previous subsection. Moving on, it is now pertinent to discuss how the risk of violence during activities occurring away from home (Columns C-F) varies throughout the life course of Americans. Beginning with work (Column C), a similar pattern to those observed for at home activities is seen; the risk is highest for those aged 20-29 but declines with age after Americans hit 30 years of age. Explaining why working becomes safer with age is hard to do without disaggregating this activity into different occupations. One hypothesis would be that older persons tend to be employed in low risk occupations while the young are more likely to work in the service industry where they come into contact with strangers, work in a public environment and/or handle money. Remember that Lynch's (1987) analysis of the work domain found that age did not have a significant effect on the risk of victimization. Instead, his research indicated it was what people do at work that puts them at a higher risk of violence. Future research on the time-based risk of violence at work should determine: (1) which occupations are the most dangerous, (2) what are the demographic characteristics of employees in these occupations and (3) if the low risk of violence at work for older persons is related to the occupations they work in. Because the purpose of this dissertation is to describe the risk of violence in activities compared to one another these three issues are not addressed here. In summary, the findings indicate working becomes safer with age and those aged 20-29 experience the highest risk of violence at work.

The risk of violence while attending school (Column D) shows an interesting pattern as Americans get older. Most notable is the fact that during the study period, the

victimization rate for persons aged 50 and older is 0. This is the result of ATUS interview procedures where Americans over the age of 50 are not asked if they are a student. This means it was not possible to calculate time use estimates for this age strata because the student identification variable was used when recoding ATUS activity categories into the 9 NCVS activity categories. Of course this does not mean that no one over this age is attending school, however without designing a new recoding procedure or altering the ATUS collection procedure it is not possible to determine how much time people over the age of 50 spend attending school. Because going to and from school is a separate activity than attending school, it was possible to determine the risk of violence in this activity as the recoding procedure does not depend on the student identification variable.

For persons under the age of 50, the risk of violence while attending school is highest for 15-19 year olds; it is lowest for Americans in their 20s. The extremely low risk of violence for persons in their 20s while attending school may be the result of the learning environment they study in. For example, persons aged 15 to 19 are likely to study in high schools where students are compelled to attend everyday even if they don't want to. Conversely, after high school most people attending school will do so at an institution such as a community college or university where students are committed to obtaining an education. According to Gottfredson and Hirschi (1991), having a strong attachment to school indicates individuals have high self-control because obtaining a degree requires them to delay immediate gratification. Thus persons who attend a college or university will be exposed to persons of the offending age however these people may be more likely

to have high self-control and low motivation to become an offender. However, the higher rates of violence for people in their 30s and 40s while attending school indicates these people are exposed to more risk even if they are studying outside of a high school. One explanation for this finding would be that while attending school, people in their 30s and 40s come into contact with people of the offending age who may see older people as better targets for violence. Ultimately this is an issue that needs to be studied in greater detail and more years of data could help tease out the relationship between violence at school and age.

Shopping and leisure (Columns E and F) are different away from home activities that both get safer with age. For people under the age of 60, the risk of violence is much higher during leisure activities away from home. After 60, this pattern reverses and shopping becomes more dangerous than leisure. It is important to note here that the decrease in risk between 15-19 year olds and the 50-59 age group is much larger for leisure away from home than it is for shopping. In short, the risk of violence while shopping is 38% lower for those in their 50s than it is for Americans aged 15-19; the risk during leisure is 80% lower for those in their 50s. This indicates that unlike leisure, shoppers may have fewer choices in where they can engage in this activity. For example, individuals going out to a bar at night usually have numerous options, especially in cities, so they can pick a bar that suits their preferences; some may want a bar with a young crowd while others may seek out a quiet, upscale bar for business men. Conversely, when shopping choices are limited; stores are organized around products such as groceries or sporting goods meaning the clientele who enter these establishments will

come from a wide variety of demographic backgrounds. In other words, the small change in risk over the life course is likely due to the fact that the environments that people shop in do not change as they get older. Leisure on the other hand is an activity where participants can select environments that cater to their age group or personal preferences which causes a dramatic decrease in the risk of violence over the life course. This also explains why leisure becomes safer than shopping in the later years of life. In summary, the data indicate that shopping and leisure are two activities that become safer with age however the decrease in risk is much more substantial for leisure.

The place-specific analysis presented in Chapter 7 indicated that being in-transit was the most dangerous type of place for Americans no matter their age when place is defined broadly. When the effect of age was considered in this chapter using 10-year intervals it was found that the risk while in transit declines as Americans get older. Columns G-I of Table 8-2 disaggregate this risk further by describing how the risk of violence changes with age and the destination of in-transit activities; this data is also presented in Figure 8-2. Looking at the data, it is immediately clear that the trip to and from school is the most dangerous type of in-transit activity. However, unlike most of the other activities discussed in this subsection, the school commute does not follow a predictable pattern where the risk of violence declines with age. Instead it appears that the risk is highest for those aged 15-19, drops for those aged 20-29 and then slowly increases over the life course. The only exception here is for the 80+ age group where no victimizations were recorded during the study period. On the other hand, the patterns observed for travel to or from work and other places are different; the risk of violence decreases with age. This

suggests that the destination of in-transit activities not only affects the risk of violence overall, but also the risk of violence over the life course. The high risk of violence during the commute to and from school is likely the result of increased exposure to those of the offending age. Indeed even elderly people who attend school are likely to commute with young people because the student population tends to be young. In summary, the age graded risk assessment indicates that the destination of travel will determine if the risk of violence increases or decreases with age.

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Figure 8-2
The Risk of Violence During In-Transit Activities
by 10-Year Age Intervals,
United States, 2003-2005
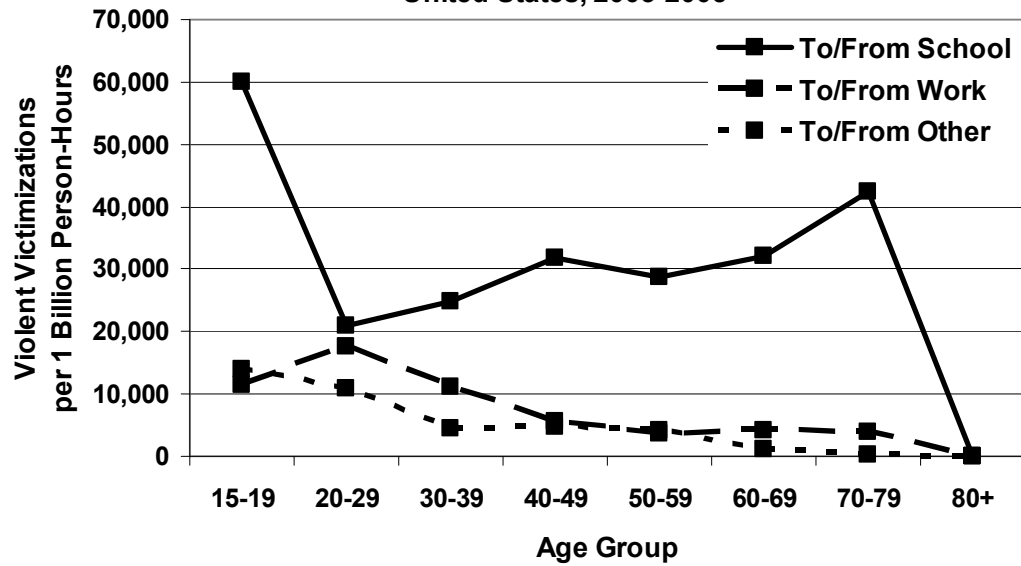
This subsection has described how the risk of violence in everyday activities varies throughout the life course. For most activities, the risk of violence declines with age. For others such as the commute to and from school the violence rates actually increase with age. In most cases there is a dramatic drop in the risk of violence between the 15-19 age group and the groups over 50 years of age. One exception to this finding is shopping where the risk of violence does not drop significantly with age. In general, the decrease in violence over the life course can be attributed to the notion that people participate in activities with others of a similar age. This means as Americans grow older, so do the individuals they come in contact with meaning older persons will be less likely to come into contact with those of the offending age. Additional data from the ATUS could be used to test this hypothesis and represents another major project that could be undertaken in the future. At this point however it is only possible to conclude that when exposure to risk is accounted for using time-based rates, the risk of violence decreases with age for most activities. This means that the relative risk of locations will not only depend on the activity they host, but the age of participants as well.

ACTIVITY- AND PLACE-SPECIFIC RISKS BY SINGLE YEAR OF AGE

The purpose of this section is to describe how the risk of violence in different activities and types of place varies by single year of age for Americans aged 15-30. There are two reasons why this age range was chosen: (1) Americans younger than 30 were found to have higher victimization rates for almost every activity and type of place whether dichotomous or interval measures of age were used and (2) the number of violent incidents captured by the NCVS involving persons over 30 was too small to disaggregate

by single year of age. The previous section has shown that when age is disaggregated into 10-year intervals a much clearer picture of risk was obtained compared to the dichotomous measure used in Chapter 7. Examining the risk of violence by single year of age produces an even more complete view of violence risk because even 10-year age intervals neglect the fact that the lifestyles of individuals can change rapidly between 15 and 30 years of age. The section begins by describing the risk of violence in various types of place.

The Risk of Violence in Different Types of Place and Activities by Single Year of Age

The time-based risks of violence in different activities and types of place are presented in Tables 8-3 and 8-4 below. Looking at the tables, it is clear that the risk of violence is not constant during this 15 year age period. In fact, there is no uniform pattern as to how the risk of violence decreases or increases with age. For some types of place and activities the risk of violence peaks around 20-22 years of age; bars and leisure activity are a good example of this. On the other hand, the risk of violence in some of other activities and types of place bounces up and down with each single year of age; public transportation and the commute to and from work are a good example of this. In general, these findings may be the result of estimates based on too few cases. This suggests additional years of data should be added to the analysis to improve the reliability of victimization estimate. Remember that disaggregating by activity, type of place and single year of age produces a limited number of incidents recorded in each category. For now, the only general conclusion that can be made is that the risk of violence does in fact vary by single year of

age for Americans aged 15 to 30. This suggests using dichotomous and 10-year intervals of age to produce risk estimates is likely to overestimate the risk of violence for some ages and underestimate the risk for others.

Table 8-3

Time-Based Rates of Violence Against Americans for Six Types of Place by Single Year of Age, 2003-2005

Violent Victimizations per 1 Billion Person–Hours of Visitation*

Type of Place (Specific)

Age	(A) Home	(B) Friend's Home	(C) Bar or Restaurant	(D) Commercial Building	(E) Public Transportation	(F) Street or Outdoors
15	1,157	13,535	6,421	2,408	8,252	92,483
16	1,163	4,393	6,859	8,581	8,719	54,075
17	1,177	11,652	9,332	3,532	0	58,142
18	984	15,899	24,075	9,007	0	109,069
19	1,663	22,554	25,991	20,960	19,153	113,974
20	1,696	11,713	17,889	13,603	0	107,204
21	3,390	10,788	22,953	7,976	10,205	123,918
22	1,851	11,273	44,194	18,967	15,625	164,716
23	1,735	5,894	29,109	18,940	0	95,259
24	1,639	5,695	38,432	23,196	0	51,335
25	1,453	5,724	10,704	10,657	0	86,079
26	1,821	8,160	15,825	24,643	11,721	101,692
27	2,088	3,217	9,876	6,845	0	63,784
28	815	6,344	11,381	13,054	0	78,494
29	1,317	12,155	14,687	8,583	0	96,681
30	1,119	4,143	11,270	17,329	22,963	50,186

*Note: A rate of zero indicates no victimizations were captured by the NCVS for the age group during the three year period.

Sources: Calculated using NCVS Incident-Extract Files from 2003-2005 and ATUS Activity Files from 2003-2005.

Table 8-4
Time-Based Rates of Violence for Nine Everyday Activities by Single Year of Age, United States, 2003-2005

Violent Victimizations per 1 Billion Person-Hours Spent in Each Activity*

| | AT HOME | | AWAY FROM HOME | | | | IN-TRANSIT | | |
Age	Sleeping	Other Activities at Home	Working	Attending School	Shopping or Errands	Leisure Away from Home	To/From School	To/From Work	To/From Other
15	159	2,437	0	13,563	1,953	22,594	74,563	29,875	20,436
16	0	3,182	4,617	9,067	2,076	12,087	87,687	18,321	8,708
17	278	2,465	933	4,968	2,096	17,625	44,718	8,851	5,715
18	183	2,455	5,746	3,302	6,616	24,736	23,083	6,042	17,089
19	666	4,420	4,001	6,980	6,389	25,719	70,690	9,980	22,622
20	337	4,539	6,633	0	2,604	21,013	22,258	42,301	12,701
21	612	8,075	4,659	4,838	6,710	19,119	0	29,000	17,307
22	88	4,147	6,560	0	3,355	24,192	79,309	35,677	20,224
23	283	4,131	6,141	0	1,901	14,863	10,880	5,495	11,768
24	468	2,905	5,564	0	3,699	13,642	30,140	14,933	5,363
25	160	3,103	2,089	2,445	4,297	13,499	0	8,415	14,642
26	0	4,037	6,165	0	2,162	11,363	76,974	23,509	7,401
27	797	3,157	2,374	0	1,301	7,129	0	11,354	8,156
28	0	1,842	4,863	0	3,661	10,537	28,908	14,955	8,538
29	166	3,250	3,588	0	8,168	12,328	33,308	8,652	4,636
30	79	2,207	3,929	0	3,740	7,197	44,917	24,300	7,430

*Note: A rate of zero indicates no victimizations were captured by the NCVS for the age group during the three year period.
Sources: Calculated using NCVS Incident-Extract Files from 2003-2005 and ATUS Activity Files from 2003-2005.

SUMMARY

This chapter has analyzed the risk of violence in different activities and types of place using 10-year intervals of age and by single year of age. The results indicate that the risk of violence does change with age when either measure is used. The 10-year interval analysis suggests every activity and type of place in America becomes safer with age. The only exception is public transportation where the risk of violence actually increases with age. The data suggest after 50 years of age, the risk of violence in American drops significantly. This is likely due to the notion that older people spend less time in the company of persons who are of the offending age. When the risk of violence was analyzed by single year of age, the findings suggest there is no uniform pattern in risk between 15 and 30 years of age. The results these two approaches to risk determination suggest the dynamic nature of age can not be overlooked when performing a risk assessment. Lumping multiple years of age into dichotomous categories or 10-year intervals of age ignores the reality that age changes an American's risk of violence. In the future, more data could be added to the analysis to improve the precision of victimization estimates (see Chapter 9). Disaggregating the datasets by activity, place and age produces a limited number of incidents in each category. For now, the information can only show that the risk of violence does vary with age suggesting age graded violence prevention programs may better target high risk individuals.

Chapter 9—Conclusion

OVERVIEW

This chapter summarizes the major findings of the study, discusses the implications of these and proposes numerous avenues for future research. The chapter begins by reviewing the research questions laid out in Chapter 1 and answers these questions using data presented in Chapters 4-8. After the major findings have been summarized, the second section of this chapter discusses the implications of this study with relation to criminological theory, research methodology, and public policy. This section is written for academics and practitioners alike who are concerned with risk assessments and crime prevention. To be clear, the policy and crime prevention implications refer to programs aimed at civilian Americans aged 15 and older. Because the data did not provide information about all Americans these implications are limited in scope. The final section of this chapter will suggest numerous possibilities for future research.

As a national-level study, this dissertation provides a framework that could be applied to other nations or adapted to be used on a more micro-level. The current study provides anyone concerned with violence prevention a great deal of information about how the risk of violence is distributed across activities, types of place and demographic subgroups in America. While not new, the risk assessment methodology employed here represents a major refinement of victimization rate calculations. Most importantly, these time-based rates are able to account for the transient nature of humans in time and space. By providing a methodological framework that can be applied to future research, this

dissertation is the beginning of a more scientific approach to understanding the link between exposure to risk and victimization.

RESEARCH QUESTION ANSWERS

To summarize the major findings of this study, it is easiest to answer each research question individually using data that was already presented in Chapters 4-8. The information used in this section is not new; however it has been reorganized or presented in a different format to emphasize key findings. The discussion begins with an overview of how time use varies across different demographic variables. The lifestyle profiles presented are a novel addition to the criminal justice literature and could be used in other studies focusing on exposure to risk. These profiles are combined with victimization information to answer the second and third research questions. The time-based rates of violence used to quantify risk enable readers to identify which activity is the most dangerous and how dangerous one activity is compared to the other; this can also be done for the types of place examined. Finally, the last subsection will address how the risk of violence varies across activities, types of place, and demographic variables. The results suggest what an individual does may be a better predictor of violence than their demographic makeup. In answering the four research questions, this section provides a foundation for the sections that follow. These discuss the implications of the results and outline possibilities for future research in this area. This section begins by answering the first of four research questions concerning the link between exposure to risk and violence.

Research Question #1:

How Do Lifestyles Vary Between Demographic Subgroups of the American Population?

The theoretical framework of this dissertation argues an individual's risk of violence is dependent upon their lifestyle or routine activity pattern. In essence, some lifestyles expose individuals to more risk than others and this affects their chance of becoming a victim. Exposure to risk is a central concept of the theoretical framework; it refers to the amount of time an individual spends in a place or activity. According to the approach, differences in victimization rates between demographic subgroups of a population are the result of routine activity patterns, not a demographic characteristic. For example, Hindelang et al. (1978) formulated the lifestyle approach using victimization data that showed persons under 35 years of age were much more likely to experience assaultive violence. They argued this was the result of young people spending more time away from home which exposed them to more risk. Unfortunately, this work and attempts to replicate this work have suffered from a lack of time use data. Hindelang et al. (1978) were not able to quantify the lifestyles of their study population and thus basic tenants of the proposed theory could not be tested. Cohen and Felson (1979) utilized time use data in the formulation of the routine activity approach however the data were limited to three broad types of place. The authors were not able to determine how much time people spent in different activities and did not compare this information to the demographics of individuals. In the years that followed the emergence of these theoretical approaches, numerous attempts were made to operationalize the exposure to risk concept (Cohen and Cantor, 1981; Cohen et al., 1981; Gottfredson, 1984; Clarke et al., 1985; Hough, 1987; Kennedy and Forde, 1990; Miethe and McDowall, 1993). To date, criminologists have not agreed upon a standard way of quantifying an individual's exposure to risk;

demographic proxies, categories, frequencies and the person-hour have all been used. This lack of continuity has hindered the progress of theory testing and development and is due in large part to the absence of data concerning how populations use their time. Using data from the American Time Use Survey (ATUS), this dissertation answers the first research question by creating time use profiles for the American public. Profiles have been created for Americans in general as well as demographic subgroups of the population. The data describe how Americans budget their time with respect to the activities they participate in and the types of place they visit. In short, these data quantify the lifestyles and routine activity patterns of Americans.

This dissertation suggests the person-hour is the best way to quantify a population's lifestyle or exposure to risk. A major limitation of demographic proxies, category and frequency measures is their inability to measure the amount of time a population was exposed. For example, knowing that a respondent goes out for leisure two nights a week says nothing about how long they go out for. When using this metric, a person who goes out for 5 hours two nights a week is considered equal to a person who goes out for 1 hour two nights a week. To increase the precision of risk assessments, the person-hour can be used to determine exactly how much time a person or population was exposed. Using ATUS data from 2003-2005, this dissertation has created time use profiles for the civilian population of the United States aged 15 and older (see Table 9-1). These profiles are a substantial contribution to the criminal justice literature because they give researchers a new tool for understanding how lifestyles vary across demographic categories. Unlike proxies, frequencies and categories, the profiles in Table 9-1 enumerate the actual amount

of time Americans spent in different activities and types of place. In other words, this data is a major refinement of previous attempts to quantify how populations move in time and space. The discussion begins with an overview of how the sex of individuals affects their time use.

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Table 9-1
Time Use Statistics for American Civilians Aged 15 and Older by Age, Sex and Race, 2003-2005

		Average Number of Person-Hours Spent in Each Activity or Type of Place Per Day*						
		(A)	(B)	(C)	(D)	(E)	(F)	(G)
Activity		**Males**	**Females**	**Whites**	**Non-Whites**	**Under 30**	**30 or Older**	**All Americans**
(1)	Sleeping	8.52	8.66	8.53	8.88	9.05	8.43	**8.59**
(2)	Other Activities at Home	7.37	8.53	7.99	7.89	6.42	8.52	**7.97**
(3)	Working	8.49	7.67	8.13	8.12	7.73	8.26	**8.13**
(4)	Attending School	6.06	5.38	5.64	5.96	5.96	3.15	**5.71**
(5)	Shopping or Errands	1.37	1.62	1.50	1.55	1.48	1.52	**1.51**
(6)	Leisure Away from Home	3.07	2.78	2.89	3.10	3.43	2.71	**2.92**
(7)	To/From Work	0.77	0.63	0.70	0.74	0.63	0.73	**0.71**
(8)	To/From School	0.57	0.56	0.55	0.60	0.56	0.59	**0.56**
(9)	To/From Other	1.23	1.27	1.24	1.28	1.24	1.25	**1.25**
Type of Place (Broad)								
(10)	At Home	15.49	16.78	16.21	16.35	15.07	16.65	**16.23**
(11)	Away from Home	7.51	6.34	6.92	6.85	7.69	6.62	**6.91**
(12)	In-Transit	1.46	1.42	1.43	1.46	1.44	1.43	**1.44**
Type of Place (Specific)								
(13)	Home	15.91	17.26	16.57	16.79	15.48	17.01	**16.61**
(14)	Friend's Home	2.83	2.46	2.60	2.77	3.02	2.41	**2.63**
(15)	Bar or Restaurant	1.13	1.09	1.13	1.00	1.12	1.11	**1.11**
(16)	Commercial Building	1.31	1.48	1.35	1.69	1.45	1.40	**1.41**
(17)	Public Transportation	1.60	1.48	1.60	1.42	1.28	1.78	**1.54**
(18)	Street or Outdoors	1.30	0.89	1.14	0.88	1.09	1.10	**1.09**

*Note: These data do not imply that every person in the population or subpopulation participates in every activity or visits every type of place. They should be interpreted as the amount of time spent in each activity or location by participants and visitors. Source: Calculated using ATUS Activity Files for the years 2003-2005.

Routine Activity Patterns and the Sex of Americans

The routine activity approach suggests males experience more victimization than females because they are exposed to more risk (Hindelang et al., 1978; Cohen and Felson, 1979). According to the approach, the routine activity patterns of males cause them to be outside of the home more than females meaning males are routinely exposed to more risk than females. Thus higher victimization rates for this demographic subgroup could be attributed to the fact that they are simply spending more time in risky environments. To determine if the routine activity patterns of males are substantially different than those of females, the ATUS was used to create a time use profile for each demographic subgroup. Looking at Table 9-1, Column A describes how American males use their time while Column B shows the same information for females. The data is presented as the average number of person-hours a day a participant or visitor will spend in a given activity or type of place. Remember that 0.5 person-hours is equal to 30 minutes so a value of 8.50 indicates a participation time of 8 hours and 30 minutes. When discussing differences in time use between demographic subgroups, this dissertation only focuses on those larger than 0.5 person-hours or 30 minutes. This tactic keeps the discussion pointed and highlights dramatic differences in time use. When comparing males to females, only three activities and two types of place show a time use difference greater than 30 min. The most dramatic difference is at home (Rows 10 and 13); the data indicate females spend an extra 1.3 person-hours at home each day compared to males. For every other type of place included in the analysis, the difference is less than 0.5 person-hours. When activities are considered, females are found to spend an extra 1.16 person-hours participating in other activities at home (Row 2) as compared to males. Males on the

other hand were found to spend an extra 0.82 person-hours working (Row 4) and 0.68 person-hours attending school (Row 3). Thus it appears that some of the extra time males spend away from home is spent working or attending school[1]. In summary, the lifestyle profiles for men and women indicate woman do spend more time at home than men and this could be an explanation for their lower rates of victimization. This however is not the focus of research question number one, that topic is addressed by research question number 4. For now it is most important to emphasize the finding that men spend more time away from home than women and they spend more time attending school and working than women do.

Race and Lifestyle: Is There a Difference?

The theoretical framework used in this dissertation suggests people of different races share similar routine activity patterns. This means differences in victimizations rates have less to do with what people do than where they do it. If you can assume high crime inner-city areas are more likely to be inhabited by minorities, then it is reasonable to expect these populations will be in closer proximity to crime. Thus no matter their activity, their exposure to risk is higher because there is a higher concentration of motivated offenders in the environment. Proximity to crime is a concept of the routine activity approach that is not operationalized in this dissertation. The objective here is to define lifestyle profiles for Americans at the national level. The section on "Avenues for Future Research" found later in this chapter describes how the proximity to crime concept could be added to future analyses. Time use profiles were created for the

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[1] Of course this is not true of every individual male however at a national level this is the routine activity pattern observed.

American public using the dichotomous race category: white or non-white (see Columns C and D in Table 9-1). The data indicate that the theoretical framework is correct in hypothesizing that race has a small effect on the routine activity patterns of Americans. No activity or type of place examined saw a difference of more than 30 minutes between the two racial categories. Therefore the major finding here is that race does not have a large effect on the time use of Americans. Whites and non-whites are participating in the same activities and visiting the same places for approximately the same amount of time.

Age and Lifestyle: Does Getting Old Really Change Things?

Unlike sex and race, age is a dynamic demographic that does not remain unchanged throughout an individual's life. The lifestyle approach argues age has an enormous effect on the routine activity patterns of individuals. Most importantly, as people grow older they begin to spend more time at home which lowers their exposure to risk. Two tables are used to present age-based lifestyle profiles for Americans. In Table 9-1, Columns E and F use the dichotomous variables, under 30 and 30 or older, to describe the lifestyles of Americans. The other profiles presented can be found in Table 9-2 which describes time use in America using 10-year intervals of age. The profiles presented in Table 9-2 are an excellent example of the dynamic nature of lifestyles over the life course.

Looking at Table 9-1, it is clear that age has a larger effect on time use than any of the other demographic variables examined. Using the 30 minute difference cutoff, 5 of the activities and 5 of the types of place were found to be substantially different for the two age groups. With regard to activities, the young spend more time sleeping, attending

school and participating in leisure activity away from home than their counterpart.

Persons aged 30 and older on the other hand spend more time working and participating

in other activities at home. When the types of place Americans visit is considered,

people aged 30 or older spend more time on public transportation and at home. The

young spend more time away from home and at friends' homes than their older

counterpart. Thus age appears to have a dramatic effect on lifestyle with the young

spending much more time away from home and in activities with a high potential for

violence. For example, leisure and school are both activities that concentrate people of

the offending age and thereby produce opportunities for violence. To learn more about

the effect of age on routine activity patterns, 10-year intervals of age were used to create

new subgroups of the American population. These subgroups are more precise

descriptors of age that provided a clearer picture of how time use changes over the life of

an individual.

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Table 9-2
Time Use Profiles for American Civilians Aged 15 or Older by 10-Year Intervals of Age, 2003-2005

	Average Number of Person-Hours Spent in Each Activity or Type of Place Each Day*							
	(A) 15-19	(B) 20-29	(C) 30-39	(D) 40-49	(E) 50-59	(F) 60-69	(G) 70-79	(H) 80+
Activity								
(1) Sleeping	9.46	8.82	8.44	8.23	8.21	8.50	8.87	9.31
(2) Other Activities at Home	6.13	6.59	7.42	7.59	8.23	9.70	11.10	11.82
(3) Working	5.94	8.17	8.31	8.46	8.29	7.62	6.28	6.94
(4) Attending School	6.67	3.97	2.87	3.57	0.00	0.00	0.00	0.00
(5) Shopping or Errands	1.41	1.52	1.49	1.43	1.55	1.68	1.58	1.48
(6) Leisure Away from Home	3.72	3.25	2.77	2.66	2.60	2.77	2.85	2.71
(7) To/From Work	0.46	0.67	0.76	0.73	0.74	0.65	0.52	0.58
(8) To/From School	0.52	0.68	0.60	0.69	0.45	0.56	0.49	0.19
(9) To/From Other	1.23	1.25	1.22	1.25	1.27	1.31	1.28	1.03
Type of Place (Broad)								
(10) At Home	15.23	14.98	15.53	15.51	16.13	17.91	19.76	20.93
(11) Away from Home	7.63	7.72	7.31	7.47	7.06	5.41	3.86	3.24
(12) In-Transit	1.39	1.47	1.47	1.49	1.45	1.41	1.30	1.03
Type of Place (Specific)								
(13) Home	15.61	15.41	15.88	15.86	16.49	18.30	20.15	21.32
(14) Friend's Home	3.05	3.00	2.42	2.29	2.37	2.61	2.38	2.69
(15) Bar or Restaurant	0.87	1.24	1.11	1.03	1.14	1.13	1.18	1.27
(16) Commercial Building	1.67	1.34	1.39	1.30	1.34	1.52	1.56	1.46
(17) Public Transportation	1.07	1.65	1.57	1.92	1.83	1.60	2.48	1.44
(18) Street or Outdoors	1.19	1.00	1.16	1.18	1.07	1.00	0.97	0.80

*Note: These data do not imply that every person in the population or subpopulation participates in every activity or visits every type of place. Instead they should be interpreted as the amount of time spent in each activity or location by participants and visitors.

Source: Calculated using ATUS Activity Files for the years 2003-2005.

Beginning with time use at home, the profiles presented in Table 9-2 indicate the amount

of time Americans spend at home increases with age. Looking at Rows 10 and 13, the

data indicate the amount of time spent at home increases from approximately 15 person-

hours a day for those aged 15-19 to 21 person-hours a day for Americans older than 80.

Conversely the amount of time spent away from home decreases from approximately 8

person-hours a day for those aged 15-19 to just 3 person-hours a day for those older than

80. This information clearly indicates that the routine activity approach is correct in

assuming that as people age they begin to spend more time at home. All of the other

types of place examined did not show a large difference between age groups. Thus it is

really the amount of time spent at home that truly differentiates the young from the old.

While away from home, the young and old tend to spend very similar amount of time in

the types of place they visit. Public transportation is one of the only exceptions where the

time spent in this type of place increases with age. In short, when lifestyle profiles are

made based on the types of place Americans visit, the data indicate that as people get

older they spend more time at home and more time on public transportation. For all of

the other types of place examined, it does not appear that age has a large effect on the

amount of time people spend in each. This means the major shift in routine activity

patterns that comes with age is limited to the amount of time spent at home and on public

transportation; in both cases getting older means spending more time in each type of

place.

When the amount of time spent participating in everyday activities is measured across

10-year intervals of age, only four of the nine activities considered show a dramatic

change over the life course. The largest difference is seen for other activities at home (Row 2) where Americans in their 80s reported spending an additional 5 person-hours a day in this activity compared to people in their 20s. As before, the data clearly show that as Americans age they spend more time at home. Leisure activity away from home shows the opposite pattern with people in their 20s participating for approximately 1 person-hour a day more than people in their 80s. This finding indicates that younger Americans are not only spending more time away from home, but that they spend this time participating in activities that might expose them to higher levels of risk. For example, drinking at a bar could expose Americans to a higher level of risk because of increased interactions with strangers or intoxicated persons. This means that the extra hour spent in this activity by those in their 20s may result in more violence and higher rates of victimization overall. The dramatic shift in lifestyle over the life course for these two activities is summarized in Figure 9-1. As the figure shows, the amount of time spent in these two activities changes with age and is in the opposite direction for each activity. More importantly, the increase in time spent at home is much larger than the decrease in time spent participating in leisure. Looking back to Table 9-2, it appears that as Americans age the increase in time spent at home is the result of these people leaving the workforce or working fewer hours. It also appears that the time spent attending school decreases dramatically with age especially after the age of 19. In conclusion, the activity-specific time use profiles presented in Table 9-2 confirm that Americans spend more time doing things at home as they age and less time working or attending school.

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Figure 9-1
Time Use In Different Activities by 10-Year Age Intervals,
American Civilians Aged 15 and Older, 2003-2005

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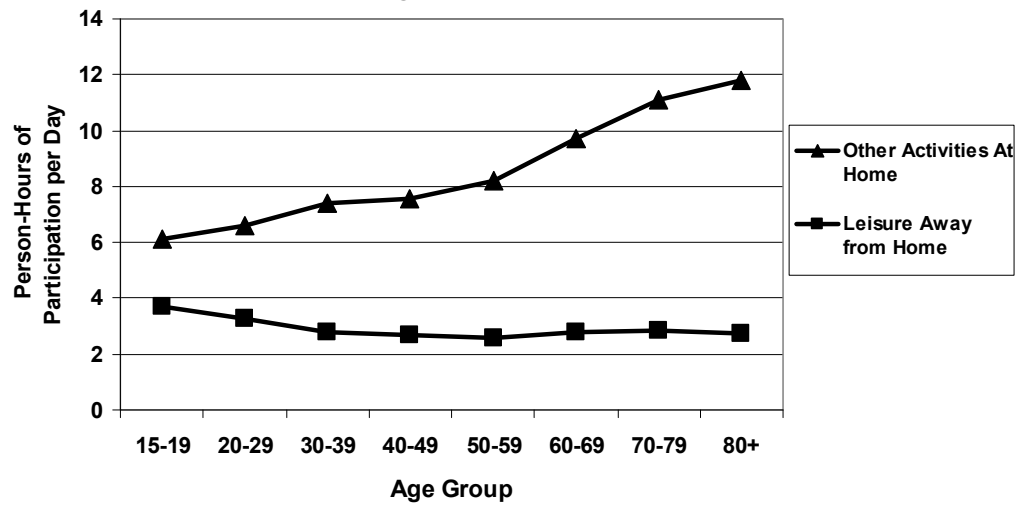
Summary

The first research question of this dissertation pertains to the link between demographic

categories and time use. The theoretical framework of this study argues lifestyles

determine how much risk an individual is exposed to. The framework also suggests that

routine activity patterns will vary with age and sex as these demographics are directly

related to roles and expectations that alter the amount of time people spend away from

home. Race on the other hand should not have a large effect on the lifestyles of

individuals because this demographic has less to do with aspects of life that alter the

routine activities of individuals. For example, getting married, raising a child and getting

a job are more closely linked with getting older than being white or non-white. Likewise,

the sex of Americans is likely to influence their role in raising children or working full

time. In the past, especially when the theoretical approaches were developed, females

were expected to stay at home and raise children while men worked.

To date, the criminological literature has suffered from a lack of time use data to create

lifestyle profiles. Indeed, operationalization of the exposure to risk concept has suffered

from this lack of data leaving criminologists with an incomplete idea about how lifestyles

really are related to the demographics of a population. In the past, the lifestyles of

populations have been quantified using frequencies, categories, demographic proxies and

the person-hour. This section has used data from the American Time Use Survey to

produce time use profiles for Americans based on their age, sex and race. Using the

person-hour as a metric of time use, the profiles presented here are the latest attempt to

numerically quantify the routine activity patterns of Americans.

Five major conclusions can be made from the data presented in this section: (1) females spend more time away from home than males, (2) males spend more time working and attending school than females, (3) race does not alter the routine activity patterns of Americans, (4) the amount of time spent at home increases with age, and (5) older people spend more time on public transportation than younger persons. In short, the data presented here are in general support of the routine activity approach. The time use profiles confirm that some demographics influence the lifestyles of individuals while others do not. The data also indicate that for many activities and types of place the amount of time spent is consistent no matter the age, sex and race of Americans. In general, the most important thing to consider is the amount of time spent at home as this is theorized to be the safest place because individuals tend to have the greater control over this environment. For now it is not possible to discuss how time use is related to victimization because the scope of this question pertains to lifestyles not victimization. The remaining three research questions will not only discuss how the risk of violence is related to activities and types of place, but how this risk is distributed across demographic variables.

Research Question #2:
What is the Risk of Violence in Different Types of Place?

Now that lifestyle profiles of American civilians have been presented and discussed, it is important to move on to the second research question concerning the risk of violence in different types of place. Remember that the routine activity approach emphasizes the link between lifestyles and victimization by suggesting some persons spend more time in

dangerous types of place which results in a greater risk of victimization. In this dissertation, the National Crime Victimization Survey (NCVS) is used to estimate the number of violent victimizations that occur each year in different types of place. By combining this information with the time use profiles presented above, it is possible to calculate time-based rates of violence that effectively describe the relative risk of different types of place. On their own, the NCVS data provide an incomplete picture of risk because it is only possible to estimate the incidence of violence in different types of place. Because the NCVS does not collect information about the lifestyles of individuals, the incidence of violence in different types of place cannot be compared to the number of visitors or the time spent in each location. In essence, quantifying the relative risk of violence in different types of place using the estimated number of victimizations alone assumes the number of visitors and time spent in various locations is equal. The time use profiles presented earlier in this chapter clearly indicate that time use is by no means uniform across different types of place. To account for the transient nature of Americans in time and space, time-based rates of violence have been calculated to determine which type of place is the most dangerous. For more information about the incidence of violence or visitor-based rates of violence see Chapters 4 and 6 respectively. This summary only includes the results of the time-based risk assessment as this is arguably the most accurate way to determine which type of place is the most dangerous.

By dividing the number of victimizations by the total amount of time spent in each type of place, the results presented in Figures 9-2 and 9-3 indicate which type of place is the most dangerous in America hour-for-hour. Remember that these time-based rates are

reported as the number of violent victimizations per 1 billion person-hours of visitation. Like any other traditional crime rate, a higher time-based rate indicates more risk. The rates presented are for the American population as a whole and should be interpreted appropriately. When answering research question number four these rates will be further disaggregated along demographic variables. At this point, the results can only show which types of place are generating the most violence per hour of visitation. It should be noted that the time-based rates are for violence in general; information about the risk of specific violent crime types can be found in Chapter 7.

The rates presented below can be used to determine how much risk individuals are exposed to based on their routine activity patterns. For example, people who spend more time in high risk types of place should expect to experience more victimization. The opposite is also true; people who do not visit high risk types of place or who spend a great deal of time at home will be exposed to low levels of risk. Because the victimization and time use data come from separate sources, it was not possible to directly link time spent in a type of place to the risk of victimization. If the NCVS collected more information about the lifestyles of respondents it would be possible to perform statistical tests that cannot be used with these datasets. For now it is only possible to describe how the risk of violence varies across different types of place.

Figure 9-2 presents time-based rates of violence for three broadly defined types of place. According to the data, being in-transit is the most dangerous type of place; home is the safest. Remember that in-transit is a broad category that involves a number of different

settings. Unlike the other two types of place, persons who are in-transit experience a constantly changing environment as they move through space from one destination to another. This may explain why this type of place is more dangerous than the other two; in a short period of time people in-transit come in contact with a large number of persons and/or environmental settings. It should be pointed out that the number of contacts will depend on the mode of transportation because some vehicles are more private than others. For example, commuting in a car reduces exposure to others while commuting on a subway increases exposure to strangers. Without defining type of place more specifically, it is only possible to hypothesize a link between mode of transportation and risk at this point. The important finding here is that being in-transit is more dangerous than being at home or away from home.

As expected, home is the safest type of place for Americans. The risk of violence is four times higher while away from home and seven times higher while in-transit. Theory would suggest that home is the safest type of place because individuals at home rarely come into contact with persons they don't know and homeowners are usually responsible for the security of their property. This differs from public settings where contacts with strangers may be frequent and the security of a setting is usually in the hands of someone else. When place is defined broadly, it is not possible to differentiate between different destinations an American might visit while away from home. In short, it is only possible to say that being away from home is more dangerous than being at home regardless of the type of place. To delve deeper into this issue, Figure 9-3 presents time-based rates of violence in six different and more specific types of place.

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Figure 9-2
The Time-Based Risk of Violence in Broadly Defined Types of Place
United States, 2003-2005
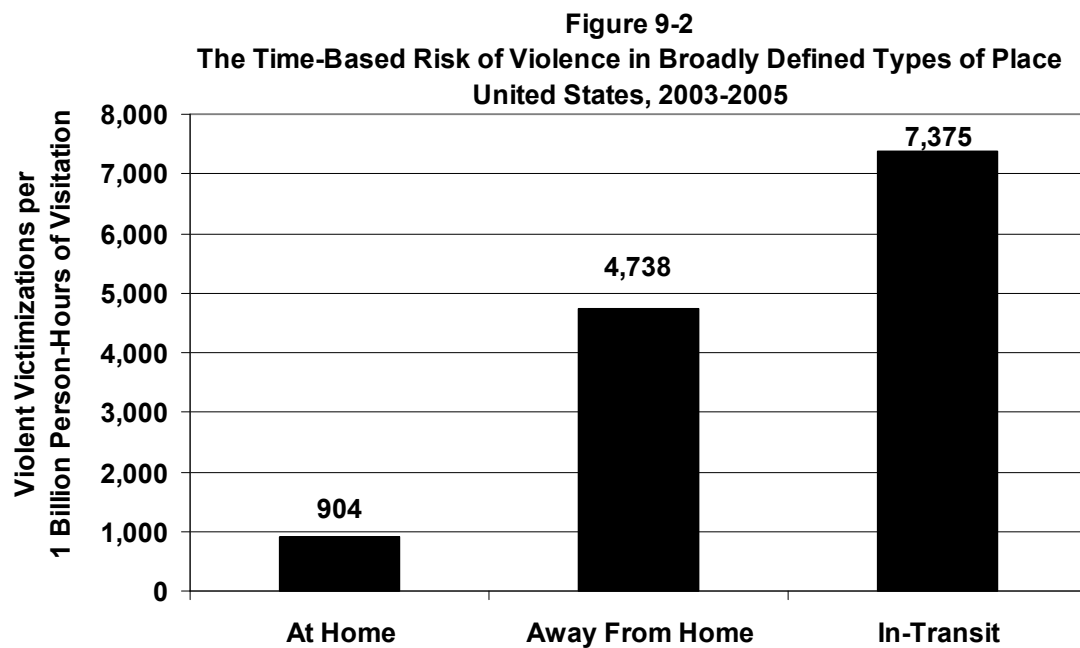
The data presented in Figure 9-3 indicate the risk of violence is lowest at home and unequally distributed across destinations away from home. The street is the most dangerous type of place Americans can visit; the risk of violence is 50 times higher on the street than it is at home. The street is an obvious outlier with a violence rate five times higher than the second most dangerous type of place. The high rate of violence stems from the fact that Americans spend very little time on the street but generate a deal of violence while they are there. Jacobs (1961) made numerous observations about the effect ordinary people, business owners and residents have on street security. Because the risk of violence reported here is an average it must be recognized that some streets will be much safer than this while others will be much more dangerous. Micro-level studies within a city or neighborhood would best determine how dangerous a street is and who is responsible for making it dangerous or safe. After the street, bars and restaurants are the second most dangerous type of place. The risk of violence in these establishments is nearly ten times higher than it is at home. The heightened risk of violence in bars and restaurants is likely due to increased exposure to strangers and the availability of alcohol. In the future, information about offender intoxication and relation to the victim could be added to the analysis to test this hypothesis. With the current data, it is only possible to conclude that bars and the street are the most dangerous types of place for Americans to visit. The other types of place examined had roughly equal time-based rates of violence that ranged from 5,800-7,500 victimizations per 1 billion person-hours of visitation. One interesting finding is that visiting a friend's home is five times more dangerous than being at home. This data indicates that even when visiting a location that may have a low concentration of strangers, the risk of violence is still higher than it is at home.

Figure 9-3
The Time-Based Risk of Violence in
Specifically Defined Types of Place,
United States, 2003-2005
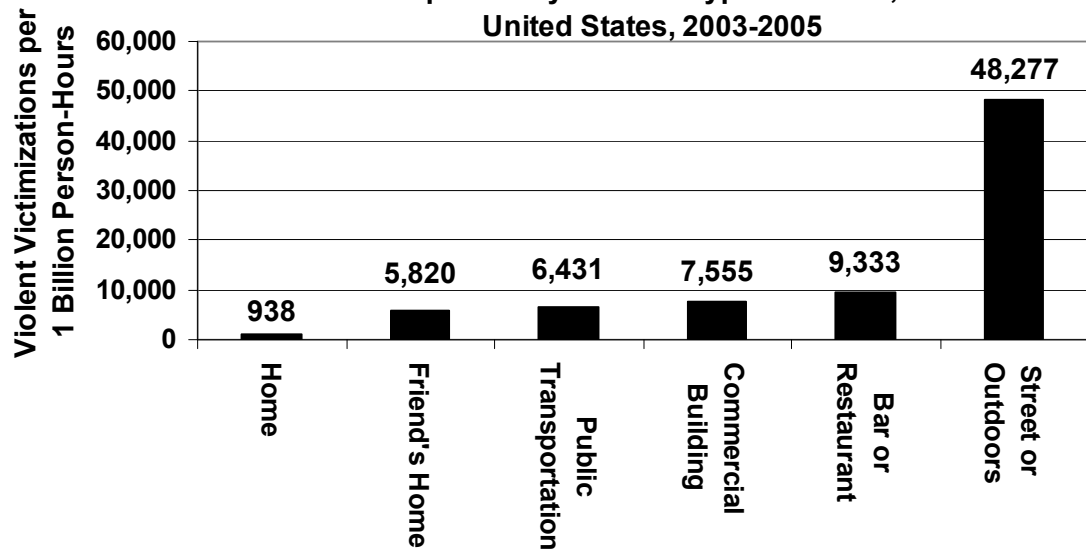
In conclusion, the data presented here support the theoretical framework of this dissertation. Overall, home is the safest type of place Americans frequent while places away from home are much more dangerous. Using broad definitions, being in-transit was found to be the most dangerous type of place. It is more dangerous than being at home or away from home. The high risk of violence while in-transit can be attributed to the fact that people commuting from one destination to another are exposed to a dynamic environment which may result in lots of contact with strangers in a short amount of time. Additionally, being in-transit means individuals will likely move between various types of place; this is different than visiting one type of place and staying there for an extended period of time. According to the analysis of more specific location categories, the street is the most dangerous type of place. Because many individuals commuting from one type of place to another will use the street to get there, this helps explain why being in-transit is so dangerous. Public transportation is also more dangerous than being at home however the risk on this mode of transportation is much lower than individuals walking on a street.

The rates of violence for other specifically defined types of place confirm that being at home is much safer than being anywhere else. The fact that the risk of violence is not evenly distributed across different types of place also provides support for the theoretical framework. According to the routine activity approach and environmental criminology, the risk of violence will vary between different types of place because each produces different opportunities for violence. For example, the risk of violence at a bar should be higher than it is at a friend's house because bars are public establishments that serve

alcohol. According to the results, the risk of violence at a bar is almost two times higher than it is at a friend's house. In summary, the major conclusions that can be made from the data used to answer research question number two are: (1) home is the safest type of place, (2) being in-transit is more dangerous than being at home or away from home, (3) the street is the most dangerous type of place, and (4) the risk of violence while away from depends on the type of place an individual visits. The next section answers research question number three by using time-based rates of violence to describe the risk of violence in everyday activities.

Research Question #3:
What is the Risk of Violence in Different Everyday Activities?

The third research question of this dissertation attempts to take the place-specific analysis presented above a step further by determining the risk of violence in everyday activities. The theoretical framework of this dissertation argues an individual's risk of violence is dependent upon where they go and what they do. Take a commercial building for example, a wide variety of activities take place inside commercial buildings some of which may be more dangerous than others. Sporting arenas and retail stores are both commercial buildings however arenas host leisure activity while stores attract shoppers. The time-based rates used to answer research question number two neglect this reality; remember that types of place and activities are separate entities that can be analyzed individually or together. In this dissertation activities are considered separately from types of place. Time-based rates of violence are used to describe the distribution of risk across different everyday activities. As mentioned previously, the incidence of violence and participant-based rates of violence for different everyday activities are not included

in this summary because time-based rates are more accurate. The incidence of violence in activities can be found in Chapter 4; Chapter 6 contains participant-based rates of violence. Time-based rates of violence for the nine everyday activities examined in this dissertation are presented in Figure 9-4. As before, higher rates mean more danger. The figure has been organized so that the safest activity is on the left and the most dangerous activity is on the right. The time-based rate of violence for each activity is printed above each bar in the graph. For more information about the risk of specific violent crime types in everyday activities see Chapter 7.

Figure 9-4
The Time-Based Risk of Violence in Everyday Activities,
United States, 2003-2005
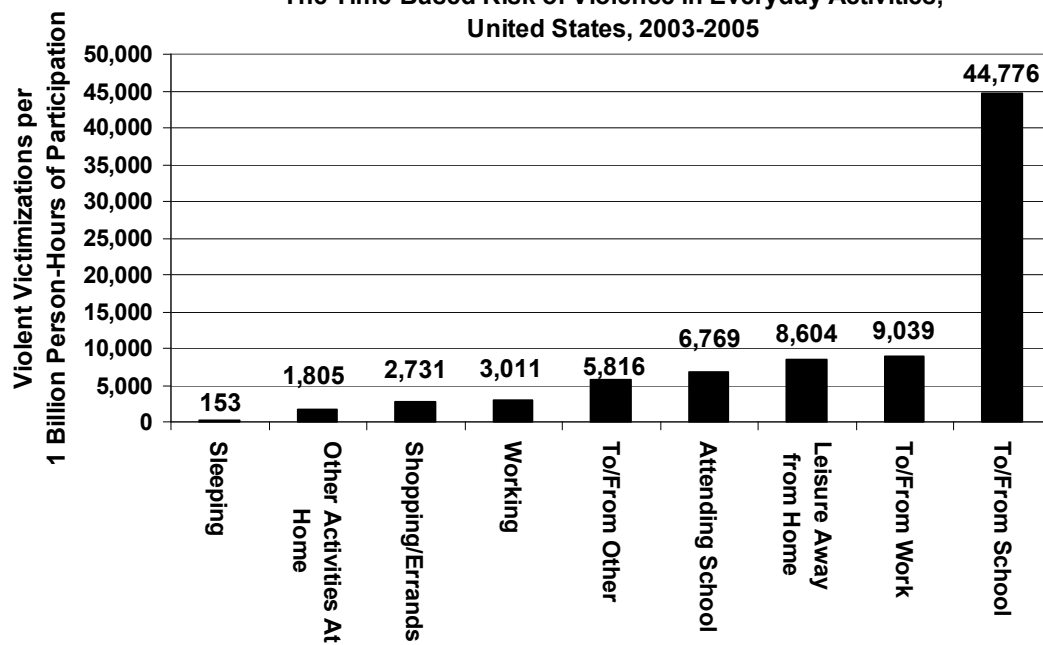
Beginning on the left side of Figure 9-4, the safest activities Americans can participate in are sleeping and other activities at home; both of these are considered to be activities that take place at home.[2] This confirms the findings of the place-specific analysis which indicated home was by far the safest type of place. It is interesting to note however that what people do at home alters their risk of violence. According to the data, the risk of violence is much lower at home while people are asleep than when they are awake. Compared to sleeping, being awake at home is 12 times more dangerous. Although the risk of violence is significantly higher during other activities at home, it is still lower than any other activity that occurs away from home. Thus home is the safest place to be and sleeping at home is the safest activity. The extremely low rate of violence during sleep can be attributed to three things: (1) the infrequent or limited contact sleeping individuals have with other persons, (2) the inability of sleeping persons to communicate with others which prohibits them from provoking violence intentionally or not, and (3) the tendency for persons to sleep in locations where they feel safe. In summary, the activity-specific risk assessment indicates the risk of violence at home depends on the activities of Americans. While asleep, individuals are exposed to extremely low rates of violence. While awake, the risk of violence is higher than when Americans are asleep but still lower than any other activity taking place outside of the home.

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[2] Sleeping is an activity that does not necessarily occur at home every night; however the ATUS data does not differentiate between sleep that occurs at home or in other locations. Therefore the rates presented here apply to sleeping at home. To determine the risk of violence while sleeping in other locations a source other than the ATUS would have to be used to quantify time use. For now, the place-specific time-based rates presented in the previous section give the best insight as to how the risk of violence while sleeping would vary if this activity were performed away from home. Most notably would be the street where the extremely high risk of violence in this type of place would expose individuals who sleep outdoors to a great deal of risk.

When activities that take place away from home are considered, the risk of violence participants are exposed to varies greatly. The two safest away from home activities are shopping and working. The risk of violence in these activities is nearly equal with shopping being slightly less dangerous than working. The relatively low risk of violence during shopping can be attributed to the controlled environments retail stores provide for people who participate in this activity. Business owners are interested in providing a safe shopping environment because customers are unlikely to frequent stores that make them feel unsafe. Additionally, unlike some of the other activities examined here, shopping is an activity typically relegated to commercial buildings. This means shoppers are unlikely to be spending time in high risk environments such as the street or bars. Working on the other hand is an activity that takes place in a wide variety of different types of place. Indeed working could take place at a commercial building, a bar, on public transportation or on the street. Previous research on violence in the workplace has consistently shown that the risk of violence depends on the location of the work environment and the duties of employees (Block et al., 1985; Collins et al., 1987; Lynch, 1987; Fattah, 1991; Wilkinson, 2001; Mayhew and Chappell, 2007). The results of this analysis indicate that while working is more dangerous than being at home, it is not as dangerous as many other activities that occur outside of the household. In the future, it would be interesting to disaggregate the risk of violence at work by occupation. For now, the data only show that working is not a very dangerous activity when compared to the other activities Americans participate in while away from home. To summarize, working and shopping are the two safest away from home activities and the only ones with a time-based rate less than 5,000 violent victimizations per 1 billion person-hours of participation.

Attending school and leisure activity away from home are the other two away from home

activities considered in this dissertation. Going to and from school or other forms of

commuting are considered to be in-transit activities. Looking at Figure 9-4, the results

indicate leisure activity is more dangerous than attending school; both activities are more

dangerous than working or shopping. The heightened risk of violence for students is

likely due to the fact that this activity concentrates young people of the offending age in

time and space. The high risk of violence during leisure activity can be attributed to the

fact that leisure activity is more likely than any other away from home activity examined

to involve the consumption of alcohol. Thus persons participating in leisure may (a) be

in the presence of intoxicated persons, (b) be intoxicated themselves, and/or (c)

participate in this activity at a high risk location such as a bar. Because alcohol

consumption can lower the inhibitions of offenders and the situational awareness of

victims, leisure is an example of an everyday activity that provides an excellent

opportunity structure for violence. In short, compared to other activities at home the risk

of violence while attending school is nearly four times higher and the risk during leisure

activity is almost five times higher. These results indicate that while away from home,

the risk of violence Americans are exposed to depends on the activities they participate in

as some activities are much more dangerous than others.

The last three activities to be discussed here are all considered to be in-transit activities.

Remember that the place-specific analysis above found time-based rates of violence are

highest when Americans are in-transit. Going a step further, this activity-specific

analysis attempts to determine how the risk of violence varies while Americans are in-transit depending on their final destination. The data presented in Figure 9-4 indicate the risk of violence is lowest when people are going to and from other places, highest while commuting to school, and somewhere in between when traveling to and from work. The risk of violence for individuals going to school is an obvious outlier; this activity is 25 times more dangerous than other activities at home. The high risk of violence can be attributed to: (a) young persons concentrating themselves in time and space during this activity and (b) the relatively unsupervised nature of routes to and from school. Another important consideration is the fact that the commute to school, like any in-transit activity, may require individuals to spend time on the street where the risk of violence is higher than any other type of place. When comparing the other two in-transit activities, the risk of violence during the commute to work is substantially higher than the risk during travel to and from other places. Because all in-transit activities may involve meeting strangers, being on the street, and exposure to a constantly changing environment it is interesting that the destination would alter a person's risk of violence.

One explanation for the higher rates of violence during the commute to work and school would be the fact that these activities are much more likely to have a regular and predictable temporal pattern. This means participants are going to work and school at approximately the same time every day and returning on a predictable timetable. The same cannot be said of the commute to other places where individuals typically plan travel around their own schedule not the school or work day. This means commuting to work and school is likely to involve a higher density of persons, many of whom may be

strangers or of the offending age, which results in a higher risk of violence. To summarize, the risk of violence Americans face while they are in-transit is related to their final destination. The commute to and from school is the most dangerous activity in America; going to and from work is the second most dangerous. Travel to and from places other than work or school is less dangerous, however this activity is still more dangerous than working or shopping. In general, it appears the risk of violence is higher during travel to a destination than it is during the activity that follows commuting.

In summary, the time-based rates presented in Figure 9-4 indicate the risk of violence varies for different everyday activities. Six major conclusions can be made from this data: (1) the commute to and from school is the most dangerous activity in America, (2) sleeping is the safest activity in America, (3) activities taking place at home are much safer than activities occurring away from home, (4) being awake substantially increases the risk of violence at home, (5) the risk of violence while in-transit varies depending on an individual's destination, and (6) working and shopping are the safest away from home activities Americans can participate in. In essence, this activity-specific risk assessment indicates that the risk of violence is highest for away from home and in-transit activities and lowest for activities taking place at home. Because the risk of violence is unequal for different everyday activities, this implies people who spend more time in dangerous activities will be exposed to more risk. Conversely, people who spend a great deal of time at home or sleeping will be exposed to very low levels of risk. In the future it would be interesting to determine how the risk of violence varies depending on the location of activities. For example, it would be possible to quantify the risk of violence during

leisure activity at a bar and compare it to the risk of leisure at a friend's home. For now, the purpose of research question number three is to quantify the risk of violence Americans face in different everyday activities regardless of where they take place. The final research question adds more information to the violence rates presented here by disaggregating place- and activity-specific risks along demographic variables.

Research Question #4:
How Does the Risk of Violence in Different Activities and Types of Place Vary Between Demographic Subgroups of the American Population?

The fourth research question of this dissertation is a logical progression from the first three. Answering those questions provided information about the risk of violence Americans face in different activities and types of place; time use profiles were also created for the American public based on various demographic variables. The purpose of this question is to go one step further and disaggregate the risk of violence in different activities and types of place by the age, race and sex of Americans. By combining the time use profiles presented above with victimization information, time-based rates of violence were calculated for three dichotomous subgroups: (1) *male* or *female*, (2) *white* or *non-white*, and (3) *under 30* or *30 or older*. Violence rates were also calculated for different age groups using 10-year intervals and single year of age. In the paragraphs that follow, the relationship between demographic variables and time-based rates of violence is discussed using the percent difference between groups. For an easier discussion of the tables, only large differences of more than 100% or those in the opposite direction as expected are highlighted. The 100% cutoff was used while describing the risk of violence in Chapters 6 and 7 because it is a simple measure that can be used when discussing the findings of this research with public policy makers and practitioners alike.

Using a high cutoff point also ensures the differences are dramatic and unlikely to be the result of imprecise estimations. By answering the research question at hand, it is possible to determine if demographic groups, activities or types of place should be the focus of crime prevention efforts. The discussion begins with an overview of the relationship between sex and the risk of violence in America.

The Risk of Violence in Activities and Types of Place for Males and Females

The general victimization rates presented in Chapter 4 indicate males are more likely to be victimized than females. According to the data presented earlier, the violent victimization rate for men is 44% higher than it is for women; these rates are reported as the number of victimizations per 1,000 persons. Thus without considering the routine activity patterns of men and women, the data suggest men are always more likely to be victimized. In this portion of the discussion, risk is disaggregated by activities and types of place to provide a more in-depth look at the relationship between sex and the risk of violence. Table 9-3 presents time-based rates of violence for men and women (Columns A and B) and the percent difference between these groups (Column C). When looking at Column C, the numbers presented should be interpreted as the percent difference in the victimization rate of males compared to females. For example, Row 10 indicates that the time-based risk of violence at home is 27% lower for males as compared to females. The discussion of this table begins by describing activities and types of place that are more dangerous for females than males.

The general victimization rate for men and women reported in Chapter 4 indicated males should have a higher risk of violence no matter their activity or location. Thus every percentage in Column C of Table 9-3 should be a positive number. Looking at the data, two activities and types of place do not meet this general pattern. Home, whether it is defined broadly or specifically is more dangerous for women than it is for men. Sleeping and other activities at home are also more dangerous for women; this is expected as both take place at home. While the percent difference between men and women for these activities and types of place does not meet the 100% cutoff, this finding is in the opposite direction as expected. More research is needed to determine why women have a higher risk of violence at home. Most importantly, the relationship of the offender to the victim should be established to determine if women are being victimized at home by strangers or non-strangers; it would also be helpful to know the offender's sex. It cannot be said that women have a higher risk of violence at home because they spend more time there; these rates already account for time use. Thus there is something intrinsically different about home that makes it more dangerous for women. The bright point in all of this is the finding that home is the safest place to be; this means even though women are exposed to more danger here the risk of violence is still low compared to any other type of place or activity.

Table 9-3				
The Risk of Violence in Different Activities and Types of Place by Sex, United States, 2003-2005				
		Violent Victimizations per 1 Billion Person-Hours of Participation or Visitation		
		(A)	**(B)**	**(C)**
Activity		**Males**	**Females**	**% Difference***
(1)	Sleeping	124	180	-31
(2)	Other Activities at Home	1,656	1,924	-14
(3)	Working	3,203	2,739	17
(4)	Attending School	9,490	4,092	132
(5)	Shopping or Errands	3,352	2,313	45
(6)	Leisure Away from Home	11,176	5,891	90
(7)	To/From Work	9,904	7,717	28
(8)	To/From School	53,229	36,630	45
(9)	To/From Other	7,224	4,592	57
Type of Place (Broad)				
(10)	At Home	756	1,031	-27
(11)	Away From Home	5,703	3,628	57
(12)	In-Transit	8,915	5,857	52
Type of Place (Specific)				
(13)	Home	785	1,069	-27
(14)	Friend's Home	5,964	5,699	5
(15)	Bar or Restaurant	12,434	6,000	107
(16)	Commercial Building	11,484	5,003	130
(17)	Public Transportation	7,969	4,745	68
(18)	Street or Outdoors	56,428	36,377	55

*Note: Percent difference compares the rate of Column A to the rate of Column B. For example, the rate of violence while sleeping is 31% lower for males as compared to the rate for females.

Source: Calculated using ATUS Activity Files (2003-2005) and NCVS Incident Level Extract Files (2003-2005)

The remaining activities and types of place were all found to be more dangerous for men. When looking at Column C of Table 9-3, it is clear that the difference in risk is not equal for every activity or type of place. In other words, the risk of violence is not always 44% higher as a general victimization rate would suggest. In reality, these differences range from negative numbers to more than 100%. In general, the percent difference for most activities and types of place was relatively similar to the general victimization rate difference of 44%. Some categories such as working or visiting a friend's house had a much smaller difference while others saw a larger difference. Two types of place were found to be at least twice as dangerous for men as compared to women; these are bars and commercial buildings. Only one activity, attending school, met the 100% cutoff. These results suggest crime prevention efforts that target schools, bars and commercial buildings might be more successful if they catered to males as it appears this demographic subgroup is experiencing much more risk compared to females. Leisure activity away from home is another dangerous activity for males however the percent difference did not reach 100%.

These results provide support for the theoretical framework which assumes an individual's sex has less to do with their risk of victimization than their routine activity pattern. While males do have a higher risk of violence in most activities and types of place, the difference in risk between these categories is very large. This means anyone, regardless of their sex, who spends more time in high risk activities or types of place exposes themselves to a greater likelihood of danger. Take leisure away from home for example. Compared to other activities at home this activity is approximately seven times

more dangerous for men and three times more dangerous for women. Thus while sex

does have an effect on the risk of violence during leisure, this activity is very dangerous

for Americans no matter their sex meaning persons who participate in leisure for

extended periods of time are more likely to be victimized. In conclusion, the results of

the time-based risk assessment indicate knowing what people do is as important, if not

more important, than knowing their sex when attempting to determine the likelihood of

victimization. The results also clearly show that using general victimization rates to

describe risk overlooks the reality that different activities and types of place expose

Americans to varying levels of danger. These general rates also neglect the finding that

the difference in risk between men and women is not stable across activities and types of

place. The next demographic variable considered is race where a similar analysis is used

to determine if this characteristic influences victimization rates.

Race, Violence and Routine Activity Patterns

The theoretical framework of this dissertation suggests race should not have a large effect

on the risk of violence in different activities or types of place. In Chapter 4, a general

violence rate was calculated to describe the risk of violence for whites and non-whites in

America. According to data, the rate of violence for non-whites is 28% higher than it is

for whites; note that this is less than the difference between men and women. This

suggests non-whites should have a higher risk of violence no matter their routine activity

pattern. Table 9-4 presents time-based rates of violence for different activities and types

of place for whites and non-whites. As before, Column C contains the percent difference

between the time-based rate of violence for non-whites as compared to whites.

Table 9-4 The Risk of Violence in Different Activities and Types of Place by Race, United States, 2003-2005			
	Violent Victimizations per 1 Billion Person-Hours of Participation or Visitation		
	(A)	**(B)**	**(C)**
Activity	**Non-Whites**	**Whites**	**% Difference***
(1) Sleeping	168	150	11
(2) Other Activities at Home	2,515	1,662	34
(3) Working	2,939	3,027	-3
(4) Attending School	5,445	7,211	-32
(5) Shopping or Errands	4,060	2,475	39
(6) Leisure Away from Home	10,671	8,208	23
(7) To/From Work	11,290	8,603	24
(8) To/From School	51,450	42,818	17
(9) To/From Other	9,141	5,152	44
Type of Place (Broad)			
(10) At Home	1,211	841	44
(11) Away From Home	5,439	4,601	18
(12) In-Transit	11,015	6,643	66
Type of Place (Specific)			
(13) Home	1,260	871	45
(14) Friend's Home	6,790	5,607	21
(15) Bar or Restaurant	11,937	8,990	33
(16) Commercial Building	7,007	7,689	-9
(17) Public Transportation	6,529	6,428	2
(18) Street or Outdoors	83,362	42,381	97
*Note: Percent difference compares the rate of Column A to the rate of Column B. For example, the rate of violence while sleeping is 11% higher for non-whites as compared to the rate for whites.			
Source: Calculated using ATUS Activity Files (2003-2005) and NCVS Incident Level Extract Files (2003-2005)			

Looking at the table, the general pattern observed indicates non-whites have a higher risk of violence than whites for nearly every activity and type of place. The only exceptions are working, attending school and commercial buildings where whites have a higher risk of violence. The percent difference between whites and non-whites while working or visiting a commercial building is less than 10% for both of these categories indicating a relatively small difference; attending school has a larger difference (~30%). Despite the fact that this finding is contrary to the general victimization rate, these difference are nowhere near the 100% cutoff used in this dissertation to identify substantial variations in risk. In fact, no single category in Table 9-4 reaches this cutoff mark. The street or outdoors (Row 18) is the closest with a difference of 97%. In the future, it would be interesting to disaggregate these rates a step further to determine if this finding is the result of non-whites living in closer proximity to crime than whites. For example, victimization and time use data could be matched on the urban status of respondents to determine if non-whites are more likely to live in urban areas. If so, this may explain why they face a much higher risk of violence on the street compared to whites. For now, it is only possible to conclude that non-whites are more likely than whites to be victimized in most activities and types of place. However, just like the section on sex and time-based rates these data indicate the risk of violence varies more between activities than it does between races. In other words, there are dangerous activities and safe activities and these do not change based on the race of individuals. While the risk of violence may be higher for non-whites in most activities, the relative risk of each activity is more useful for determining if a person is exposed to high levels of risk. Thus once

again it appears it is not who you are but what you do that determines your levels of risk. The third and final demographic variable to be considered is the age of Americans.

Age and the Risk of Violence: A Demographic That Matters?

Age is a distinct demographic from sex or race because it is not static over an individual's life. With rare exception, a person's race and sex do not change between birth and death. Age on the other hand is a measure of life that changes on a predictable, annual cycle. In this dissertation age is examined using three different approaches. The first uses a dichotomous measure and groups Americans as under 30 years of age or 30 years of age or older. The second uses the following 10-year intervals: 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+. The third and final approach measures age as a continuous variable for the ages 15-30. This multifaceted approach is used to provide a more accurate picture of the relationship between age and the risk of violence in America. When a general victimization rate was calculated for the American population using the dichotomous age measure (see Chapter 4), the risk of violence for individuals under 30 was three times higher than it was for their older counterpart. According to the theoretical framework of this dissertation, young persons experience more victimization because they spend more time with persons of the offending age. This assumes individuals participate in activities with others who are of the same or similar age. The activity- and place-specific data below cannot verify that most activities involve homogenous age groups; this represents an avenue for future research. At this point, the data can only show how the risk of violence in different activities and types of place varies with age.

Table 9-5 The Risk of Violence in Different Activities and Types of Place by Age, United States, 2003-2005			
	(A)	**(B)**	**(C)**
Activity	**Under 30**	**30 or Older**	**% Difference**
(1) Sleeping	268	110	144
(2) Other Activities at Home	3,521	1,352	160
(3) Working	4,587	2,518	82
(4) Attending School	6,878	4,675	47
(5) Shopping or Errands	3,766	2,377	58
(6) Leisure Away from Home	17,390	4,036	331
(7) To/From Work	16,841	6,769	149
(8) To/From School	48,119	34,118	41
(9) To/From Other	12,078	3,417	253
Type of Place (Broad)			
(10) At Home	1,521	707	115
(11) Away From Home	8,766	2,966	196
(12) In-Transit	15,330	4,312	256
Type of Place (Specific)			
(13) Home	1,561	738	112
(14) Friend's Home	10,166	2,814	261
(15) Bar or Restaurant	20,261	5,109	297
(16) Commercial Building	12,188	6,015	103
(17) Public Transportation	4,760	7,542	-37
(18) Street or Outdoors	89,309	28,912	209

*Note: Percent difference compares the rate of Column A to the rate of Column B. For example, the rate of violence while sleeping is 144% higher for those under 30 as compared to the rate for those aged 30 or older.

Source: Calculated using ATUS Activity Files (2003-2005) and NCVS Incident Level Extract Files (2003-2005)

The data in Table 9-5 clearly show that age has a large effect on the risk of violence even when an activity- and place-specific approach is used. Unlike sex and race, the dichotomous age measure resulted in a large percent difference between groups for nearly every activity and type of place. With respect to everyday activities, five of the nine included in this analysis saw a percent difference greater than 100%. As for different types of place, every one except public transportation had a percent difference of at least 100%. It is interesting to note that the percent difference for different activities and types of place is not equal nor is the difference always near 200% as the general victimization rate would suggest. Instead some of the differences are closer to 100% while others exceed 300%. Overall, the data indicate that Americans under the age of 30 undoubtedly experience more risk no matter their routine activity pattern. This of course falls in line with the routine activity approach which argues these individuals engage in the same activities as their older counterparts however they do so with persons of the offending age because they themselves are of the offending age.

Looking at the percent difference for various types of place, bars and friend's homes are both nearly 300% more dangerous for Americans under the age of 30. As mentioned above, bars produce numerous opportunities for violence because they serve alcohol and typically involve interactions with strangers. Adding people of the offending age to this environment increases the number of criminal opportunities even more and thus Americans under the age of 30 are frequenting highly criminogenic environments whether intentional or not. Of course young people who go to bars with an older crowd will avoid the added risk of socializing with people of the offending age. The finding

that friend's homes are much more dangerous for persons under 30 can also be tied to young people fraternizing with others of the offending age. Every other type of place examined is more dangerous for young persons except for public transportation. The risk of victimization on public transportation is 37% lower for persons under 30. Unlike other types of place, people cannot choose the age demographic of their public transportation vehicle. Additionally, these vehicles are unique because they put strangers in close proximity of one another; many times within an arms reach. Thus unlike a shopping center that may attract shoppers of a wide range of age, public transportation does not allow this mix of people to distance themselves from one another. This is important for avoiding confrontations and fleeing from dangerous settings either before, after or during an attack. To summarize, every type of place except public transportation was at least two times more risky for Americans younger than 30 indicating places that host this age demographic will certainly produce more violence.

The activity-specific portion of this analysis indicates that of any activity examined, leisure away from home has the largest risk difference; the time-based rate of violence is more than 300% higher for persons under 30. Combined with the finding that friend's homes and bars are also much more dangerous for the young, this data indicates leisure occurring in one of these two places would be very dangerous for persons under 30. The high rate of violence during leisure may be attributed to the consumption of alcohol. This hypothesis could be tested by adding offender description variables to the analysis and is discussed in greater detail below in the section on avenues for future research. The other activities examined were all found to be more dangerous for those under 30 however

none broke the 300% difference mark. In short, the data show that people under 30 are

more likely to be victimized in every type of activity. Using a dichotomous measure of

age neglects the dynamic nature of this demographic. For example, at this point in the

analysis people in the 40s are considered to be equal to those in their 60s. When

answering research question number one, the time use data presented clearly indicated

that lifestyles change with age when 10-year intervals are used. In Chapter 4, the

victimization data indicated the risk of violence declines with age as well. To be more

exact in describing the risk of violence, time-based rates of violence for activities and

types of place were calculated for Americans using 10-year intervals of age. These rates

can be found in Table 9-6.

In general, the risk of violence declines with age for every activity and type of place

except public transportation. The typical pattern seen is an increase and risk for those in

their 20s from those aged 15-19 followed by a steady decline in risk as people age.

Those aged 60 and older usually have lower victimization rates than any other age group.

Public transportation is the only type of place that becomes more dangerous with age. As

noted above, this is likely due to the fact that people of all ages ride public transportation

which results in older people being exposed to those of the offending age in an enclosed

environment. Compare this to bars or restaurants where older persons can seek out

establishments that cater to an older and often more mature crowd. The data in Table 9-6

show the risk of violence in bars declines steadily with age suggesting Americans are

able to avoid danger in certain types of place but not others. These data indicate using

more precise descriptors of age results in a clearer view of how the risk of violence

changes over the life course. While it is acceptable to use dichotomous measures of age, they overlook the dramatic decline in violence risk that comes with age. Most importantly, they overestimate the risk of violence for the elderly. The finding that leisure activity and places that host leisure activity become safer with age mirrors British Crime Survey data that showed the elderly are victimized at lower rates when they engage in leisure away from home (Clarke et al., 1985). This research extends that finding to more activities and types of place.

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Table 9-6
Time-Based Rates of Violence in Different Activities and Types of Place for American Civilians Aged 15 or Older by 10-Year Intervals of Age, 2003-2005

		(A) 15-19	(B) 20-29	(C) 30-39	(D) 40-49	(E) 50-59	(F) 60-69	(G) 70-79	(H) 80+
		Violent Victimizations per 1 Billion Person-Hours*							
Activity									
(1)	Sleeping	233	288	162	179	81	39	0	35
(2)	Other Activities at Home	2,913	3,822	2,113	2,134	1,272	724	239	23
(3)	Working	3,579	4,776	3,218	2,447	2,301	1,181	658	0
(4)	Attending School	8,123	765	3,991	3,631	0	0	0	0
(5)	Shopping or Errands	3,834	3,748	3,190	2,693	2,521	1,535	603	1,150
(6)	Leisure Away from Home	20,123	15,427	7,850	4,584	3,852	703	262	669
(7)	To/From Work	11,389	17,707	11,109	5,708	3,760	4,129	3,862	0
(8)	To/From School	59,850	20,866	24,794	31,824	28,700	32,017	42,285	0
(9)	To/From Other	13,962	11,005	4,379	4,618	4,159	1,080	337	0
Type of Place (Broad)									
(10)	At Home	1,309	1,834	1,091	1,133	687	408	134	29
(11)	Away from Home	10,791	7,249	4,205	2,893	2,667	1,086	426	767
(12)	In-Transit	19,908	12,870	6,326	5,127	4,145	1,557	601	0
Type of Place (Specific)									
(13)	Home	1,205	1,760	1,104	1,150	644	387	133	28
(14)	Friend's Home	12,994	8,169	3,931	3,999	3,129	524	0	0
(15)	Bar or Restaurant	15,302	21,747	9,121	7,102	3,232	1,372	485	0
(16)	Commercial Building	8,405	14,488	10,383	7,666	6,174	1,850	625	0
(17)	Public Transportation	5,916	3,262	7,413	8,481	8,059	9,724	2,676	0
(18)	Street or Outdoors	82,463	96,719	40,379	30,948	30,653	15,388	1,456	8,130

Source: Calculated using ATUS Activity Files for the years 2003-2005 and NCVS Incident-Level Extract Files for the years 2003-2005.

Knowing that the risk of violence is considerably higher for those under 30, the final portion of this analysis examines age as a continuous variable for Americans aged 15-30. This age range was chosen because (a) the risk of violence is higher for these Americans compared to those older than 30 and (b) the limited number of violent incidents reported by those over 30 years of age prevents the production of reliable violence estimates. The complete results of this analysis can be found in Chapter 8; this discussion will focus on two activities to be more concise. Figure 9-5 shows the time-based risk of violence for Americans aged 15-30 during leisure away from home and other activities at home. Looking at the figure, the first thing to notice is that each activity has a unique distribution of risk between the ages of 15 and 30. During other activities at home, the data indicate that besides the ages of 20-22, the relative danger of this activity does not change much between the ages of 15 and 30. Leisure on the other hand is an excellent example of an activity that becomes safer with age. According to the data, after 22 years of age the risk of violence in this activity drops substantially and continues to decline with age. The remaining data presented in Chapter 8 indicate there is no distinct pattern for every activity and type of place examined. For example, the risk of violence in different activities and types of place is not always highest for those aged 20-22 and does not necessarily become substantially safer with age. For now, it is only possible to say that the risk of violence does change by single year of age for every activity and type of place examined.

Figure 9-5
Time-Based Rates of Violence
for Two Everyday Activities by Single Year of Age,
United States, 2003-2005
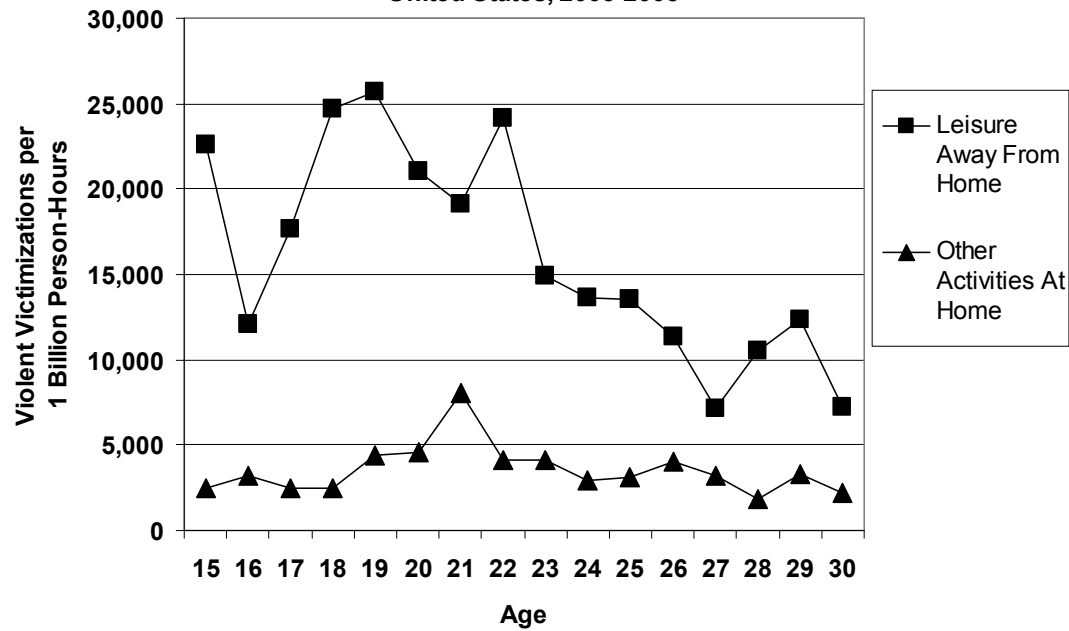
In conclusion, this portion of the demographic analysis has shown that age has a larger effect on the risk of violence than the sex or race of Americans. Overall, the data indicate that younger persons have a higher risk of violence in every activity and type of place except public transportation. This is true when age was operationalized using a dichotomous measure, 10-year intervals and as a continuous variable. The results of this multifaceted approach indicate the dynamic nature of age cannot be overlooked when assessing the risk of violence in America. The 10-year interval analysis showed the risk of violence declines steadily with age for those over 30. This means dichotomous measures that group people in their 60s with Americans in their 30s overestimate the risk of violence for the elderly. Going a step further, this study also examined the risk of violence in different activities and types of place by single year of age for Americans aged 15-30. The purpose of this was to produce an even more specific risk assessment that digs deeper into the issue of how age changes an individual's risk of violence. Like dichotomous measures of age, intervals also aggregate individuals into larger groups meaning they may provide a time-based rate that overestimates the risk of violence for some individuals while underestimating it for others. The activity- and place-specific risk assessment indicated that each activity and type of place has a unique distribution of danger between the ages of 15-30. For example, some activities see a large decrease in risk with age while others see little change between single years of age. One limitation of the single year of age analysis is the limited number of cases included in this analysis. Because the victimization data are being disaggregated by single year of age and the activity or type of place where it occurred, the estimates would be better if more years of data were included. This is discussed below in the section on avenues for future research.

Indeed if more years of data were included in the analysis it may be possible to find a
distinct risk pattern that is applicable to all activities and types of place. In conclusion,
age was found to have a larger effect on the risk of violence Americans face than either
of the other demographic variables included in this analysis. The general victimization
rate reported in Chapter 4 indicated young people were much more likely to be
victimized no matter their routine activity pattern; this activity- and place-specific
analysis confirms that being young means a higher risk of violence in every activity and
type of place except public transportation.

Summary: Routine Activities, Demographics and Risk

The purpose of research question number four was to determine if demographic variables
influence the risk of violence when an activity- or place-specific assessment is used.
Because the findings of research questions two and three indicated that the risk of
violence varies greatly between activities and types of place, this information indicates an
American's likelihood of attack is dependent on their routine activity patterns. People
who spend more time in high risk activities and locations are exposed to more danger.
Taking those findings a step further, this research question addresses the issue of how
age, sex and race alter an American's risk of violence when they participate in an activity
or visit a type of place. The theoretical framework utilized in this dissertation argues sex
and race should not have a substantial effect on the risk of violence when risk is
disaggregated by activities and types of place. On the other hand, the framework
suggests age will still have a large effect on risk assuming individuals participate in
activities and visit types of place with others of a similar age. This means people of the

offending age fraternize with other people of the offending age while older persons do not have as much contact with this age group. To examine the effect of these demographic variables on the risk of violence, time-based rates were used to determine if one group experiences more risk than the other. The results indicate that sex and race do not alter an American's risk of violence nearly as much as age does. In short, predicting or estimating an American's risk of violence would be more precise if you knew their age as opposed to their sex or race. Additionally, the large difference in risk between activities and types of place are often more important than the differences between males and females or whites and non-whites. For example, while males have a higher victimization rate for nearly every activity and type of place, this does not mean males are always exposed to more risk. One comparison is the risk of violence a stay at home dad and a working mom are exposed to. According to the data presented, because the male stays at home his risk of violence is much lower than his wife who spends time away from home. *Thus it is not who you are but what you do that truly determines your risk of violence in America*.

IMPLICATIONS OF THE RESEARCH

This section discusses implications of the current research project. Because the risk of violence in everyday activities is of interest to a variety of groups and disciplines, this section has been written broadly to include implications for criminological theory, risk assessment methodology, public policy, urban planning and crime prevention. The current section does not include suggestions for future research; the final section of this chapter covers this topic. Instead this portion of the chapter focuses on how the study's

findings impact the way we understand the risk of violence and what this means for academics and practitioners concerned with researching and preventing this phenomenon.

Implications for Criminological Theory

The results of this dissertation provide support for the routine activity approach (Cohen and Felson, 1979), the lifestyle perspective (Hindelang et al., 1978) and environmental criminology (Brantingham and Brantingham, 1981). Most importantly, the time-based rates of violence for different activities and types of place clearly indicate these approaches are correct in assuming that the risk of violence is lowest at home. This may seem commonsensical however before this dissertation the criminal justice literature had not confirmed home was the safest place to be using time use data since Cohen and Felson's (1979) original work. When violence rates were calculated for activities and types of place away from home, the findings also provided support for the three theories employed in the theoretical framework. In short, the results show the risk of violence varies greatly between different activities and types of place. Theory suggests this should be the case as some activities and places provide a better criminal opportunity structure than others. Take bars for example where the legitimate business of serving alcohol to customers creates numerous opportunities for crime. This atmosphere is different than a friend's home where criminal opportunities are present but not as frequent; friends' homes do not normally involve stranger interactions and alcohol consumption is not the intended purpose of these locations. These results imply criminological theory, especially theories of victimization, cannot and should not neglect the routine activity patterns of individuals. Because the risk of violence varies so greatly between activities,

it is improper to quantify an individual's risk without considering their lifestyle. For example, while young people have a much higher victimization rate overall, the risk of violence at home is still very low for this group. This means young people who spend a good deal of time at home are actually exposed to a small amount of risk. Thus a major theoretical implication of this work is that, *it is what Americans do not who they are that alters their risk of violence.*

Because this dissertation took a victim-oriented approach to understanding violence, it is not appropriate to discuss how this research impacts theories of offender motivation. Remember that the theoretical framework used in this study assumes offender motivation is constant throughout time and space. Without delving into issues about why people become offenders, what can be inferred from the current study is that activities and types of place with a high risk of violence could also be seen as having a high rate of offender success. In other words, what is dangerous for victims is productive for offenders. This means routine activity patterns could be used to identify high risk offenders, just as they can be used to identify high risk victims. In essence, determining which individuals out of pool of potential offenders will engage in violence would be easier if information about their lifestyles were known. A potentially violent offender who spends a great deal of time at home will probably have a lower success rate than one who spends a lot of time at a bar. This suggests adding information about the routine activity patterns of individuals to theories of offender motivation may increase their explanatory power. Most importantly, it would help account for the presence or absence of criminal

opportunities on a given day or throughout the life course. Even the most motivated offenders cannot commit a crime if they are not given the opportunity to do so.

To conclude, the findings of this research suggest criminologists and criminological theory cannot overlook the routine activity patterns of individuals. From a victimological standpoint, knowing what people do and where they go is useful information for determining how much risk they are exposed to. From an offender motivation standpoint, this information helps determine the number of criminal opportunities a potential offender comes in contact with. Quantifying lifestyles or routine activity patterns is rather difficult and can be done in a number of ways; however this is a methodological not theoretical issue. The next section discusses the implications this work has for risk assessment methodology and exposure to risk quantification.

Implications for Risk Assessment Methodology

Many people are concerned with the relative safety of different places and activities; danger avoidance is a routine part of life. This dissertation has taken a macro-level approach to understanding the risk of violence in everyday activities and types of place. The methodology employed could easily be used in the future for additional macro-level studies or adapted for micro-level applications. In either case, the findings of this research have implications for activity- and place-specific risk assessment methodology. The paragraphs that follow will discuss the relativity of activity- and place-specific risk assessments and the utility of the person hour as a way to operationalize the exposure to risk concept. The final subsection discusses how victimization surveys could be

amended to include exposure to risk variables. In general, the results of this study suggest using the person-hour to quantify a population's or individual's exposure to risk is more precise than using demographic proxies, frequencies or categorical measures.

The Relativity of Activity- and Place-Specific Risk Assessments

In this dissertation, a three pronged risk assessment was used to determine the risk of violence in different activities and types of place. The relative risk of each activity and type of place was determined using: (1) the incidence of violent victimizations, (2) participant- or visitor-based rates of violence, and (3) time-based rates of violence. The purpose of this section is to discuss the relativity of activity- and place-specific risk assessments. In other words, the findings indicate the relative danger of activities and places is dependent upon the method used to quantify risk. As noted in earlier chapters, determining activity- and place-specific risks of violence is complex because the routine activity patterns of individuals vary with regard to what people do, where they go, and how long they stay there. Thus risk assessments that do not account for the transient nature of humans in time and space are ultimately limited in their explanatory power.

Figure 9-6

The Relative Risk of Everyday Activities by Risk Assesment Method, United States, 2003-2005
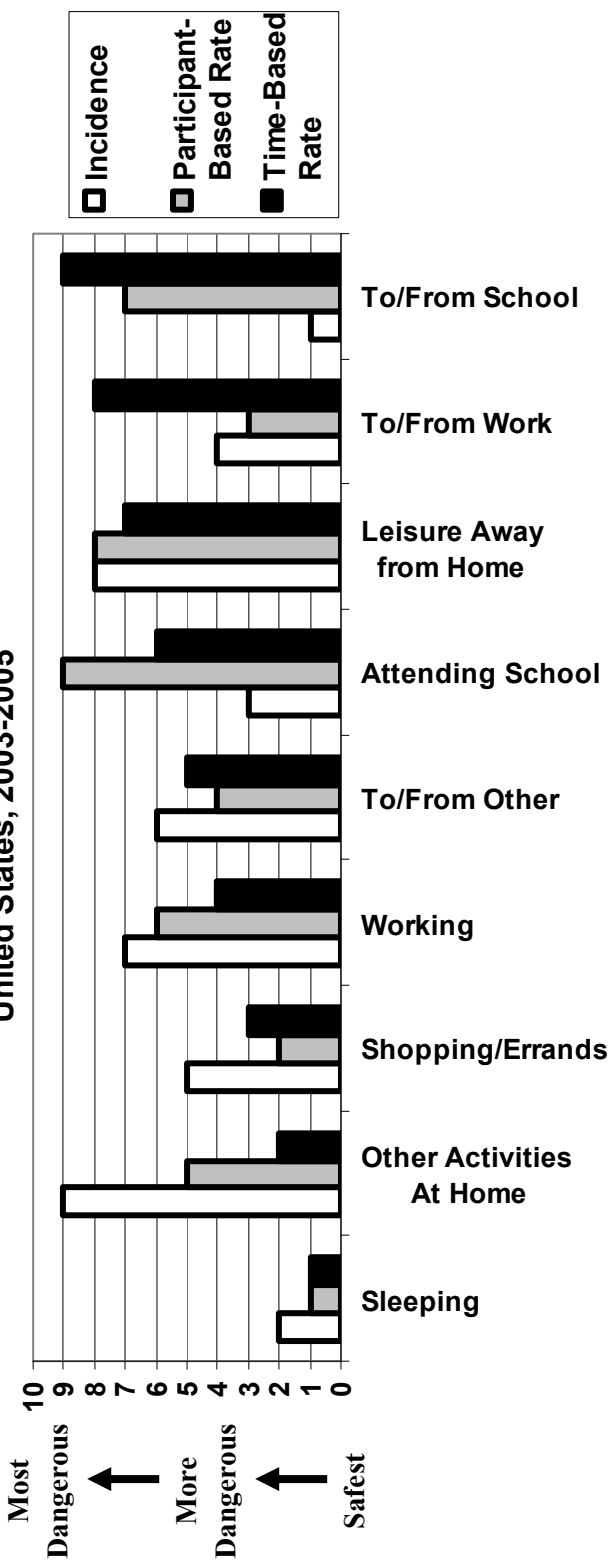
Figure 9-1 is a summary of the three prong risk assessment used in the dissertation. To show the relative nature of activity-specific risk quantification, the danger of each activity has been ranked on a scale of 1-9 for each prong of the approach. A ranking of 1 indicates the activity was deemed the safest by the methodology used; a ranking of 9 has been assigned to the most dangerous activities. For example, when the incidence of violence was used to quantify risk going to and from school was the seen as the safest activity (rank=1) while other activities at home were the most dangerous (rank=9). The remaining rankings, 2 through 8, are given out based on which activity is the second safest (rank=2), third safest (rank=3), etc. The paragraphs that follow will discuss Figure 9-1 and point out how different risk assessment methodologies produce different pictures of risk.

The y-axis of Figure 9-1 has been labeled to indicate the relative safety of each activity. Remember that these rankings are arbitrary and only describe the risk of violence in different activities from least to greatest. You cannot determine how much more dangerous an activity is using this scale; for that information see Chapters 4, 6 and 7. Looking at the figure, it is immediately clear that each prong of the assessment produced a different picture of risk.[3] Had each method resulted in the same rankings, the bars for each activity would be equal. Instead the opposite is observed; for most activities each method produced a different rank. This finding suggests any activity-specific risk assessment should be multifaceted to ensure accurate results. For example, when the incidence of violence was used to determine the relative risk of activities, other activities

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[3] The same was true for the place-specific risk assessment. To conserve space a figure was not presented because the results were so similar. The discussion is limited to the activity-specific analysis but applies to the place-specific analysis as well.

at home were found to be the most dangerous while going to and from school was the safest. Using the incidence of violence alone is misleading however because this measure of risk does not account for the number of participants or the amount of time they spend in each activity. When this information is used to calculate time-based rates, the relative danger of these two activities reverses; the school commute becomes the most dangerous activity while other activities at home become the second safest. In other words, combining time use information with victimization data changes the relative risk of activities.

Assuming time-based rates of violence are the most accurate way to describe risk, the findings of this dissertation would suggest using the incidence of violence to identify high risk activities is an improper method because it neglects the transient nature of individuals in time and space.[4] Using incidence alone could result in the improper allocation of resources such as law enforcement or program funding. Policy makers dealing with issues related to violence in everyday activities need to be aware that using the incidence of adverse outcomes to quantify risk is incomplete. Because incidence is a simple way to quantify risk, it is an easy option for policy makers as people with a wide array of educational and cultural backgrounds can understand that more violence in an activity means it is more dangerous. Legislators should demand better information about how time use is related to any adverse outcome such as victimization, disease or injury. By obtaining a clearer picture of how risk is distributed throughout time and space,

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[4] It would be reasonable to use the incidence of violence as the only risk assessment methodology if the activities in question all had equal participant populations and the participants all spent the same amount of time in each activity. If this were the case, rates would not improve the risk assessment and the incidence of violence would the best way to quantify the relative risk of each activity.

lawmakers can better decide how to combat society's ailments. Note that these ailments are not limited to crime even though this dissertation is focused on violence. The person-hour could be used to quantify an individual's exposure to any sort of risk such as cell phone radiation, UV rays, the H1N1 flu virus, or second-hand smoke. The major point here is that policy makers need to ask for and researchers need to produce better activity-specific risk assessments that utilize time use data because the incidence of adverse outcomes is a misleading measure of risk.

The Person-Hour: A Novel Way to Quantify Exposure to Risk

Drawing heavily from the epidemiological literature, this dissertation chose to use the person-hour to quantify exposure to risk. In the criminal justice literature, the person-hour had only been used once before to study the risk of personal crime (Cohen and Felson, 1979) and once to study the risk of car crime in different types of place (Clarke and Mayhew, 1998). Every other attempt to operationalize the exposure to risk concept of the routine activity approach has used a categorical, frequency or demographic measure to estimate an individual's or population's exposure to risk. As noted before, these measures are acceptable ways to operationalize the exposure to risk concept however they are not as precise as using the person-hour. Additionally, these measures cannot be used in the denominator of time-based rates. Thus the person-hour represents an excellent metric of time use that has been underutilized by the criminal justice community.

In this study, the American Time Use Survey (ATUS) was used to quantify the amount of time Americans spent in various activities and types of place. This source of time use information has only been available since 2003. The relatively late onset of time use surveys in America helps explain why criminologists have rarely used the person-hour to quantify exposure to risk in this country. A methodological implication of this work then is to introduce the ATUS as a reputable data source that can be used to numerically quantify the routine activity patterns of Americans at the national level. Time use estimates can be made for a variety of demographic groups, activities and types of place. The categories used in this analysis were chosen to allow ATUS estimates to be matched with NCVS victimization estimates. In reality, the ATUS activity categories are so specific that it is likely the data could be aggregated into any number of activity categories to suit a researcher's needs. For example, if violent death records contain information about the type of place a body was found or the activity a victim was participating in at the time it would be possible to calculate time-based rates for this phenomenon. To review, this research has shown the person-hour is a precise measure of exposure to risk and the ATUS is a publicly available source that quantifies the lifestyles of Americans using this metric.

Finally, the person-hour could easily be used in future studies that wish to quantify a population's or individual's exposure to risk. This analysis chose to use the ATUS because it was a macro-level study. On the micro-level, participants in a study could keep time use diaries to enumerate how much time they spend in different activities and locations. This would be unique because victimization and time use information would

be collected from the same individuals. While this has been done on the British Crime Survey, a frequency measure not the person-hour was used (Gottfredson, 1984; Clarke, et al., 1985). A study that collected lifestyle and victimization information simultaneously would enable a more rigorous testing of the exposure to risk concept. The next subsection describes how victimization surveys could be altered to collect better information related to the routine activity patterns of a respondent population.

Victimization Survey Changes

Scholars have argued victimization surveys should collect more information about the lifestyles of respondents (Gottfredson, 1981; Skogan, 1986). The findings of this research agree with that suggestion. When time use data from the ATUS was combined with victimization data from the NCVS, it was possible to use time-based rates to describe the risk of violence in different activities and types of place. These rates provided a new picture of violence risk in America that indicates the relative danger of one activity compared to another. While this information is interesting and useful, the results were limited to descriptive statistics. Had victimization and time use information been collected from the same respondents, the current analysis could have involved more complex statistics. For example, logistic regression could be used to determine if participating in an activity increases the chances of victimization; this statistic could also be used to determine which activities are the most dangerous. Additionally, linear regression could be used to determine how much the risk of violence increases for each minute of participation in an activity. Again, a major limitation of the current datasets is

that they were collected from different respondents. If the NCVS and ATUS collection

procedures were combined, the United States would have one of the most complete

datasets concerning routine activity patterns and victimization. Streamlining the

collection of these two surveys may reduce costs while simultaneously increasing the

utility of victimization data in America.

Implications for Crime Prevention Programs

The main objective of this dissertation was to quantify the risk of violence in different

activities and types of place. Using victimization and time use data from America, the

relative safety of each activity and type of place was determined using time-based rates of

violence. This section discusses how the current risk assessment can be used to inform

crime prevention programs in the United States. To be clear, this is a national level study

meaning the results cannot be directly extrapolated to the local level. Instead, it is

recommended that local entities use the risk assessment methodology employed here to

determine the distribution of risk in their community. At the national level, the findings

of this research suggest funding activity- and place-specific crime prevention programs is

an excellent way to target violence. For example, the federal government could provide

schools with grants to help them protect children commuting to and from school.

Learning more about the distribution of risk on a local level is important to researchers,

law enforcement officials and members of the community. Danger avoidance and

violence prevention both require knowing where high risk areas exist and what activities

are dangerous. This section begins by describing the implications this study has for

reducing violence in America's most dangerous activity.

Making America's Most Dangerous Activity Safer: Securing the School Commute

The results of this dissertation indicate the trip to and from school is the most dangerous activity in America. The risk of violence during this activity is 25 times higher than it is during other activities at home and nearly 300 times more dangerous than sleeping. When compared to the risk of violence students face while attending school, the commute is almost 7 times more dangerous. Thus a major implication of this research is that crime prevention programs aimed at protecting students need to address this aspect of the school day. Going to and from school is a required activity for any student who is not home schooled or learning via the internet. This means while school administrators may only take responsibility for problems occurring on campus, they need to understand that protecting students goes beyond the schoolyard.

A limitation of the current analysis is an inability to disaggregate the risk of violence by mode of transportation. Indeed transportation to school includes but is not limited to: walking, driving oneself, getting a ride from a parent/friend, biking, public transportation and school buses. In the future it would be interesting to analyze how violent victimizations during the school commute are distributed across different types of place. Despite this limitation, the current analysis can still be used to inform crime prevention programs targeting the commute to and from school. For example, the results of this dissertation indicate the street is more dangerous than any other type of place. Because this finding neglects the activity Americans were engaged in during their attack, it can be inferred that any activity performed on the street is more dangerous than those performed

elsewhere. One reason the street provides a great environment for crime is the lack of guardianship this type of place has. This means students who commute to school on the street are exposed to a high level of risk.

Making routes students take to school safer involves adding guardianship to the streets they walk or bike along. Examples of guardians that could be added to commuting routes include but are not limited to:

- crossing guards

- residents who live along streets that host trips to and from school

- parents

- teachers

- people who are in the area for other legitimate reasons

In a perfect world, the entirety of a student's walk to school would be performed in the presence of a capable guardian. However, an in-transit activity such as this exposes participants to a constantly changing environment. In essence, unless a capable guardian is moving in time and space with the potential victim, levels of guardianship are in flux throughout the journey. For example, crossing guards only provide guardianship for students at specific intersections. On the other hand, parents who walk their kids to school provide guardianship for the entire trip. Crime prevention programs that wish to target violence during the school commute should attempt to ensure guardianship for students for the entire journey.

One way to ensure guardianship is to require parents to pick up and drop off their students at school each day. Under this system, parents would either have to walk with their children to school or drive them in a personal automobile. Some parents may consider this to be a major inconvenience especially in dual income households; students aged 15 and older may also consider this method an undue burden on their maturity. This is understandable but the point has to be made that if parents want to ensure their kids are protected on the way to school going with them is an excellent way. In school systems where requiring parents to personally deliver their child each day is unfeasible, alternate methods of increasing guardianship exist. A classic example is the school bus which removes students from the streets and concentrates them in a manageable space. Without knowing the relative danger of school buses compared to walking, it is impossible to say if this is a safer way to get students back and forth between school and home. Because buses typically only have one adult guardian on board, a driver, the concentration of young people in an enclosed environment actually creates a number of criminal opportunities. The number of opportunities for violence on a school bus could be reduced by adding adults or other capable guardians to the setting. For example, parents could take turns riding the bus to ensure students behave en route to and from school. Relying on a driver to provide guardianship is inherently flawed as this person should be focused on the road not his or her passengers. In summary, removing commuting students from the streets using personal automobiles and buses is one way to reduce opportunities for violence in America.

In school districts where busing is not an option or not necessary, ensuring that students will have a protected walk to and from school is more difficult. The largest obstacle is finding guardians who are willing to monitor the street before and after school and guaranteeing these guardians are present everyday along the entirety of routes to school. One way to overcome this obstacle is to limit the routes students can take to school or create safe routes for students to follow. If schools required students to take a specific route to school, this would limit the number of guardians needed to provide protection. Put simply, fewer routes to school mean fewer guardians are needed. While requiring students to take specific routes may seem to infringe upon individual liberties, it really is no different than using a school bus. A bus takes students up and down the same streets at roughly the same time everyday and this route is rarely changed. If parents and students will not agree to take specific routes, schools can compromise by setting up safe routes for students. With the help of crossing guards, police, parents and neighborhood residents, schools could create safe routes that provide guardianship for students for the majority if not the entirety of their commute. Unlike a required route system, parents and their children could decide if the safe route would be used. Schools and Parent Teacher Associations (PTAs) could work together in finding people to monitor the safe route. In reality, the time commitment for monitoring these routes is small; roughly two hours a day, five days a week. Using volunteers would lower if not eliminate the cost of a program such as this.

In conclusion, the commute to and from school is the most dangerous activity in America. The relative danger of this activity is so great that violence prevention

programs aimed at students cannot neglect the high level of risk that exists before and after school. The findings of this research suggest students who use the street to get to school are exposed to the highest levels of risk. On a local level, schools need to begin collecting data about violence that occurs during this commute to identify high risk routes, areas or modes of transportation. With this information in hand it would be easier to diagnose the local problem, if there is one, and create crime prevention measures tailored to the local circumstances. If schools worked together it may be easier to recruit parents and members of the community to help in the creation of safe routes that provide students with constant guardianship between their home and school. This would increase the pool of potential volunteers and ultimately help lower costs. The high risk of violence during the commute to and from school is alarming and represents a major concern for anyone concerned with reducing violence against students.

Age Graded Violence Prevention: Dangerous Activities, Dangerous Youth

A major finding of this dissertation is that all activities and types of place become safer with age. The only exception is public transportation where older Americans are victimized at a higher rate than their youthful counterpart. Preventing violence on public transportation is discussed in the next subsection; this subsection focuses on the need to consider age when developing activity- and place-specific crime prevention measures. Knowing that some activities and places are much more dangerous than others, persons concerned with crime prevention can target high risk activities and locations to protect Americans. The dramatic difference in risk between activities and locations indicates this

may be more effective than attempting to target high risk demographic groups. When the risk of violence was compared for different demographic groups, the results indicated knowing what people do and where they go is a better way to estimate their likelihood of an attack. While differences in risk do exist between demographic subgroups of the American population, these do not outweigh the differences seen between various activities and types of place. Age was the only demographic examined that had a substantial effect on the risk of violence. In general, if you are under 30 your risk of violence is at least two times higher in every activity and type of place compared to people aged 30 or older. This means activity- and place-specific crime prevention programs need to not only consider the relative danger of different activities and locations, but the age demographic of the participant population as well. The results indicate that on a local level, areas and locations that attract persons under 30 will ultimately produce more violence than similar establishments catering to an older crowd. This suggests an age graded approach to crime prevention may increase the effectiveness of any strategy employed especially when activity- and place-specific programs are used.

Preventing Violence Against Older Americans on Public Transportation

The results of this dissertation indicate the risk of violence in America declines with age for every activity and type of place except public transportation. This means vehicles such as subways, buses and trains actually become more dangerous for Americans as they age. As noted above, public transportation is a unique type of place that forces individuals to spend time in close proximity to strangers. The demographic makeup of these strangers is varied as public transportation caters to the masses, not a specific class,

race or age. This is different than a bar or restaurant where Americans have more options available to them. College students can seek out college bars while businessmen can seek out a more professional setting. To make public transportation safer for older persons, something must be done to either (a) increase guardianship or (b) reduce the age heterogeneity of public transportation vehicles. Increasing guardianship on public transportation with police or private security would be very costly due to the large number of vehicles. Instead one of the most straightforward ways to increase guardianship is to increase ridership so that passengers can act as guardians for one another. Of course this also suggests there may be more potential offenders in the mix so this may not be the best way to reduce the risk of violence on public transportation.

An alternate option for making older Americans safer is to reduce the age heterogeneity of public transit vehicles so that older persons are not exposed to younger persons or that this exposure occurs in a setting with adequate guardianship. For example, the first car of every train could be reserved for persons aged 50 or older. A similar approach has been taken in Japan and Brazil to prevent sexual harassment and groping on crowded subways; in these nations, single sex subway cars are available to women (Fairchild and Rudman, 2008). Alternatively, publicity campaigns could be run to encourage the elderly to ride in train cars with a conductor. Of course any public transportation system will need to analyze their local problem first before making radical adjustments. For instance, local data may show that the elderly are most prone during specific hours of the day which indicates age-specific cars may only be needed during these hours. Likewise, it may be found that young persons are more at risk during certain hours of the day meaning they

too may need a special carriage or one with increased guardianship. One example of this

may be the commute to and from school where the risk of violence is very high. In either

case, the data indicate the risk of violence on public transportation vehicles is related to

age meaning public transit systems need to consider this demographic when preparing

crime prevention strategies. Later in this chapter, micro-level applications of the risk

assessment methodology employed here are discussed with an emphasis on public transit

systems. With the current data, it can only be said that on a national level public

transportation becomes more dangerous with age and crime prevention strategies in this

realm should account for this.

Police Staffing and Deployment Decisions: Transient Populations, Transient Police

A final crime prevention implication this work has relates to police staffing and

deployment decisions. The current study has shown that: (a) the American population is

transient in time and space, (b) the risk of violence varies greatly between different

activities and types of place, and (c) the risk of violence is higher for young Americans in

every activity and type of place except public transportation. The first finding indicates

police staffing decisions should account for population fluctuations within a city. For

example, during business hours the visitor population of a shopping center will be much

higher than it is after the stores close. If the number of officers on duty corresponds with

the number of people in a location or beat, police departments could use local time use

information for staffing and deployment decisions. When attempting to reduce violence,

the second finding of this dissertation suggests departments should identify how high risk

activities and types of place are distributed within their city. Getting more specific, the

third finding suggests targeting high risk locations catering to persons under 30 is also

important. For example, bars were found to be the second most dangerous type of place

in America. The findings of this research suggest police staffing and deployment

decisions would benefit from knowing where these high risk locations exist within a city

or beat. However, knowing which bars are frequented by persons under 30 years of age

would be even more helpful as this population has a higher risk of victimization. Age

graded policing may be an effective way to reduce violence and ensure the proper

deployment of personnel. Even if officers cannot stop a fight from happening, patrolling

areas where violence is expected may reduce the response time of units. In summary,

police deployment and staffing decisions would benefit from a local level risk assessment

that describes the distribution of violence risk in different activities and types of place.

Implications for Urban Planning

The results of this study indicate the risk of violence varies greatly between different

activities and types of place. For urban planners, this information can be used when

designing the layout of new developments, remodeling old business districts or during

gentrification efforts. Knowing which types of place expose Americans to a high risk of

violence helps planners decide where to build these establishments. For example,

planners may decide to surround bars with low risk types of place that attract persons

who are not participating in leisure activity. Shoppers are a good example of persons

who can provide natural surveillance while participating in a legitimate activity;

remember that shopping is the safest away from home activity in America. A limitation

of this approach lies in the reality that retail store hours and bar operating hours do not

overlap entirely. In essence, bars are open much later than shops meaning after 9 or 10pm urban planners cannot rely on shoppers to act as eyes on the street. This suggests more police or security officers may be needed after stores close to offset the absence of shoppers who act as guardians during the day. Another approach that could be used to prevent violence would be to place high risk locations in close proximity to one another. While this may increase the number of contacts between Americans engaged in dangerous activities, it also decreases the amount of area police patrol. By building a leisure zone within a city, urban planners can concentrate high risk activities and types of place which may make them easier to manage. Using crime prevention through environmental design (Zahm, 2007) to reduce the number of criminal opportunities in these high risk activity zones, urban planners may make it easier for place managers, patrons and the police to reduce violence. In short, urban planners can use the relative risk of violence in different activities and types of place to inform the design of cities, business districts and during gentrification efforts.

Implications for Public Policy

The majority of implications discussed thus far have been geared towards academic researchers, law enforcement officers and urban planners. The purpose of this subsection is to outline how public policy makers can use the findings of this study to make funding decisions, assess program effectiveness, and engage the public to help America make dangerous activities safer. The most important implication this work has for public policy makers relates to funding decisions. As previously noted, this dissertation suggests activity- and place-specific risk assessments that utilize time-based rates are

helpful for deciding where the risk of violence is highest and who should be given money to combat this social ailment. To review, the relativity of these assessments was discussed earlier; the results indicated policy makers should request and use time-based rates when determining the relative risk of different activities and types of place. With this information, policy makers can make important decisions using data that accounts for the transient nature of Americans in time and space. This would ensure funding is not distributed using information that neglects the routine activity patterns of a population. As noted before, a typical victimization rate ignores time use variations within a population. If this metric of risk is used for funding decisions, policy makers overlook the fact that the risk of violence varies more across activities and types of place than it does across demographic variables. In summary, a major policy implication of this research indicates legislators can use time-based rates to identify which activities and types of place are in the greatest need of funding for crime prevention programs.

Going a step further, the results of this dissertation also suggest time-based rates could be used to assess policy effectiveness. For example, the effectiveness of an activity-specific crime prevention program could be measured by monitoring how the time-based rate of violence changes pre- and post-intervention. This is similar to using Uniform Crime Report data or crimes reported to police to calculate general violence rates; these rates can be used to determine if levels of violence are increasing or decreasing. To be deemed successful, crime prevention programs need to lower the time-based rate of violence in whichever activity or type of place is targeted. By including evaluation in the structuring

of any prevention effort, legislators can ascertain (a) if the program is working and (b) if the program should receive additional funding once the initial allotment has run out.

AVENUES FOR FUTURE RESEARCH

The final topic to be discussed in this dissertation is avenues for future research. This chapter began by outlining major findings of the current study and discussing the implications these have for risk assessment methodology, public policy and crime prevention. Throughout the dissertation references have been made to the limitations of the current analysis and suggestions for future research have been discussed briefly. The purpose of this section is to summarize these suggestions and offer even more possibilities for future research. For an easier read, the discussion is broken into two parts: (1) avenues for future research that utilize NCVS and ATUS data and (2) avenues for future research that utilize different sources to quantify time use and victimization. As noted before, this dissertation provides a methodological framework for assessing the risk of violence at the national level but could be adapted to suit local needs. In this section, micro- and macro-level studies are discussed to show the breadth of research that can be done to determine the link between exposure to risk and victimization.

Avenues for Future Research that Use ATUS and NCVS Data

The findings of this dissertation indicate combining NCVS and ATUS data to determine activity- and place-specific risks of violence helps elucidate the link between exposure to risk and victimization. The current analysis disaggregated risk by activities, types of place and a limited number of demographic variables. In this subsection three avenues

for future research are discussed. The first involves adding more variables to the current

analysis as well as additional years of data. The second discusses the possibility of

performing domain-specific research with NCVS and ATUS data. The third avenue

outlines how the datasets and methodological approach could be used to study non-

violent crime. In short, there is a great deal of information in these two datasets that

could be used in future research to take activity- and place-specific risk assessments to a

new level of precision.

Adding More Variables and Years to the Current Analysis

The most basic avenue for future research would involve replicating the current study

using additional years of data. Remember that the ATUS did not begin collecting and

distributing data until 2003 so it is not possible to calculate time-based rates of violence

before this year. On the other hand, it is possible to combine ATUS and NCVS data for

the years 2003-2009. Thus there are four years of time use and victimization data

available that have not been used in the current analysis. Before adding extra variables it

might be better to replicate the study using additional years of data to determine if

activity- and place-specific rates of violence have changed during this time period. In

essence, the ATUS recoding procedure used in this dissertation can easily be applied to

the years 2006-2009. The NCVS activity and place categories have not changed during

this period meaning a longitudinal analysis of violence risk is possible and would likely

provide researchers and practitioners with even better information about the distribution

of violence. Having a more current risk assessment is another benefit of calculating time-

based violence rates the years 2006-2009; the data used in this dissertation at least 5 years

old at this point in time. This is not necessarily a limitation of the dissertation as the rates presented provide a baseline for comparison when additional years of data are added. In summary, the first suggestion for future research would be to replicate the current risk assessment for the years 2006-2009.

Beyond adding years of data to the analysis, the NCVS has a number of variables that could be used to obtain a more complete picture of the distribution of risk in activities and types of place. To analyze the temporal distribution of crime, the NCVS variable V4021B collects information as to when the victimization occurred. This variable could be trichotomized as during the day, at night, or don't know. By adding this information to the analysis, it would be possible to determine if certain activities and types of place are more dangerous during the day or at night. If it was found that an activity is much more dangerous at night, this would suggest crime prevention measures need to account for this. In addition to adding information about the timing of offenses, the NCVS also collects offender information when possible. One offender information variable that would be useful to operationalize in future analyses is V4241 which describes the offender's relationship to the victim. This variable could be used to determine the risk of stranger and non-stranger violence in different settings. Knowing this is useful as it may be found that the relative danger of an activity depends upon the social makeup of fellow participants. In other words, dangerous activities may be safer when they are performed with non-strangers. Another offender variable collected by the NCVS is V4240 which provides information concerning levels of intoxication. In essence, victims are asked if their offender was under the influence of drugs, alcohol or both during the attack; it is

also possible that the victim could not tell if the offender was intoxicated. The addition of this variable allows criminologists to better describe the relative risk of an activity based on the presence of intoxicated persons. For example, it may be found that the risk of violence during leisure activity is much higher at the hands of intoxicated people. This would suggest that violence prevention efforts aimed at making leisure activity safer should focus on locations that attract or generate intoxicated persons. In summary, the three variables described in this paragraph would allow a risk assessment such as this one to better describe how the risk of violence in activities and types of place varies with regard to the time of day, presence of strangers and presence of intoxicated persons.

Finally, there are additional variables available in the ATUS and NCVS that would allow more concepts of the theoretical framework to be operationalized. Guardianship and proximity to crime are two concepts of the routine activity approach that were not operationalized in this analysis; the focus of this study was on the exposure to risk concept. Using information already available in these datasets, the risk of violence could be disaggregated further to describe how guardianship and proximity to crime affect the likelihood of victimization. One way to operationalize these concepts is to look at the number of household members (guardianship) and the place of residence (proximity to crime) (Miethe and Meier, 1994). Theory suggests single occupant homes are more dangerous because they lack guardianship. It also suggests persons who live in urban areas are exposed to higher levels of risk because they are in close proximity to a larger pool of offenders. Because the ATUS and NCVS both contain information about household size and the urban status of respondents, it is possible to create risk estimates

for: (a) single person households vs. multiple person households and (b) urban households vs. non-urban households. By operationalizing these concepts and adding them to the current study, it is possible to test basic hypothesis of the routine activity approach related to guardianship and proximity to crime. In summary, there are a number of variables found in the ATUS and NCVS that could be added to future activity- and place-specific risk assessments. These variables would provide a more precise description of risk in America that accounts for the timing of offenses, offender characteristics, levels of guardianship and proximity to crime.

Domain-Specific Research: Analyzing Activity and Place Simultaneously

Throughout this dissertation, activities and types of place have been considered distinct entities that can be analyzed separately or together. In this analysis, the two categories have been kept separate. Thus a major avenue for future research would be to analyze these two categories simultaneously using a domain-specific risk assessment. Domain-specific risk assessments were first suggested by Lynch (1987) as a way to reduce the internal heterogeneity of victimization studies. In other words, disaggregating victimization by the activity victims were participating in *and* the type of place they were visiting it is possible to get a more accurate view of how routine activity patterns affect an individual's exposure to risk. For example, an analysis such as this might show that the risk of violence during leisure activity depends on the location where the activity takes place; leisure at a friend's home may be much less dangerous than leisure at a bar. While the place-specific analysis used in this dissertation has shown that bars are more dangerous than a friend's home, the rates presented neglect the activity of victims.

Knowing how the risk of violence varies by the types of place people visit and the

activities they participate in while they are there will aide the development of

criminological theory and crime prevention programs.

Applying the Current Risk Assessment Methodology to the Study of Non-Violent Crime

This dissertation quantifies the risk of violence for different activities and types of place

in America. As Chapter 3 mentioned, the NCVS collects information on violent and non-

violent crime. This means the activity- and place-specific risk assessment employed here

could easily be applied to the study of non-violent crime. In short, it would be possible to

determine which activity or type of place is the most dangerous hour-for-hour with regard

to non-violent crime. This represents a major avenue for future research as the vast

majority of victimization captured by the NCVS is non-violent (see Chapter 3);

approximately 80% of the victimizations recorded are non-violent. Thus it would be

interesting and useful to determine how the risk of a non-violent victimization varies with

respect to the routine activities of Americans.

Avenues for Future Research: Time Use and Victimization Data from Alternate Sources

As the implications section of this chapter has shown, the risk assessment methodology

employed in this dissertation could easily be applied to other macro- and micro-level

analyses of violence. At the macro-level, future research could determine if nations other

than the United States are collecting victimization and time use information in a way that

these two sources might be combined. For example, to perform activity- and place-

specific risk assessments routine activity information must be collected with

victimization data. An analysis similar to this dissertation is not possible if researchers do not know the activity victims were engaged in at the time of the incident. Thus a good deal of research into the availability and content of time use and victimization data in other countries is needed to determine if time-based rates of violence can be calculated for nations outside of the United States. If this is possible, it represents an interesting way to make international comparisons between the risk of violence in everyday activities.

At the micro-level, time use and victimization data can be collected in a number of ways to study the risk of violence. For example, public transportation systems might want to know how safe their train or bus system is compared to those in other places. By dividing the number of victimizations reported on a transit system by the amount of time riders spent in the vehicles, time-based rates of violence could be used to describe the distribution of risk between systems or to monitor levels of violence within a single system. These rates can also be used as a performance measure to assess the effectiveness of crime prevention programs and monitor temporal changes in risk between hours of the day or over a longer time period. This is more accurate than looking at the incidence of violence which can be misleading because it neglects the transient nature of humans. Similar studies could be performed using micro-level data collection to determine the risk of violence for a number of settings such as:

- Prisons
  - Which activities and locations are the most dangerous for inmates hour-for-hour?
- Tourist destinations
  - Tourists vs. residents: hour-for-hour which group is exposed to the most risk?

- Sporting events
  - Hour-for-hour what is the most dangerous type of sport to watch?
- Schools
  - Hour-for-hour which locations on school property are the most dangerous?

Micro-level analyses will ultimately produce a better picture of risk at the local than this dissertation can. Because national survey data was used here it is not possible to say that every bar in America has the same violence rate. However if data was collected at the local level it would be much easier to describe the relative risk of bars and focus on those with the highest rates of violence. Without having time-based rates of violence for local establishments, the data presented in this dissertation could still be used to help predict the location of violence within a city. Knowing that some activities and types of place are much more risky than others, this information could be used at the local level to determine which areas host dangerous activities and harbor dangerous places. With this type of data, it may be possible to use risk terrain modeling (RTM) to predict violence. Risk terrain modeling was found to be a good predictor of shootings in Irvington, NJ (Caplan, Kennedy and Miller, 2010). Because RTM relies on the availability of criminal opportunities at a given location, the results of this dissertation enable researchers interested in RTM to go a step further by showing the relative risk of different activities and types of place. In other words, some activities and types of place are much more risky than others meaning RTM may be even more helpful if the relative danger of these locations was accounted for. This is especially true if RTM was used to show how opportunities for violence in a city are distributed over the course of a day. The temporal patterning of business operating hours or activities such as the school commute could be added to a RTM analysis to enhance the predictive power of this methodology. In summary, RTM represents a unique way to apply macro-level time-based rates of

violence to the micro-level. Of course this methodology would be even better if local time-based rates of violence were available. Without such information, using the national-level data presented in this dissertation represents an inexpensive and timely way to create layers that account for the relative risk of violence between activities and types of place. In conclusion, micro-level applications of the risk assessment methodology employed in this dissertation are an excellent avenue for future research and may increase the predictive power of attempts to model and predict crime at the local level.

SUMMARY

The purpose of this dissertation was to quantify the risk of violence in different activities and types of place. Determining the risk of violence for an activity or type of place poses a distinct challenge because the routine activity patterns of individuals vary. In other words, different people do different things; they also visit different places. More importantly however is the reality that people do not spend equal amounts of time in different activities. This means activity- and place-specific risk assessments should account for the transient nature of humans in time and space. To overcome this obstacle, the ATUS was used in this dissertation to create time use profiles for the American public as a whole and for demographic subgroups within it. These described how civilians aged 15 and older budget their time between different activities and types of place. The profiles indicate time use varies greatly between activities and types of place meaning it is imprecise to use the incidence of violence as an activity- or place-specific measure of risk. To increase the reliability of risk measurement, time-based rates were calculated to describe the relative risk of violence in these settings. By dividing the number of

victimizations reported in an activity or type of place by the total amount of time Americans spent in that setting it is possible to determine which activity is the most dangerous hour-for-hour. These rates can also be used to describe the relative risk of one activity or type of place to another. For example, it is possible to quantify how much more dangerous the street is compared to an individuals home. These rates can also be used to describe the relative risk of violence demographic subgroups face while they participate in the same activity or visit the same place. In essence, this dissertation provides a descriptive analysis of how the risk of violence varies depending upon the routine activities of Americans.

The results of this analysis indicate the risk of violence Americans face at home is substantially lower than anywhere else. Going a step further, the data also indicate that while at home an individual's risk of violence is dependent upon what they are doing. For example, sleeping is the safest activity in America followed by other activities at home. However, the risk of violence during other activities at home is 12 times higher than it is for sleeping. This suggests being awake puts Americans at an increased risk of violence even when they are in a relatively safe environment. These findings support the theoretical framework of this dissertation which argues the risk of violence should be lower at home than anywhere else. While away from home, the findings of this work indicate the risk of violence varies greatly between activities and types of place. This too supports the theoretical framework which argues the risk of violence will not be uniform while away from home because different activities and types of place create different opportunity structures for crime. The time-based rates indicate the most dangerous away

from home activity in America is the commute to and from school; shopping or running errands is the safest. With respect to the types of place Americans visit while away from home, the street was found to be the most dangerous hour-for-hour. The risk of violence on the street is 50 times higher than it is at home. In summation, the results of this dissertation show that an American's risk of violence depends on the things they do and the places they go.

When violence rates were calculated for demographic subgroups of the American population the results indicate the differences in risk between activities and types of place are usually larger than the difference between demographic subgroups. For example, while men may have a higher rate of violence in nearly every activity and type of place examined, men who stay at home are exposed to less risk than women who work. Thus a major finding of this dissertation is that it is not who you are but what you do that determines the level of risk you are exposed to. Age was the only demographic variable examined that was found to have a large impact on the risk of violence. The results suggest that with the exception of public transportation, every type of place and activity becomes safer with age. This suggests age graded crime prevention programs may be more successful as the elderly have an extremely low risk of violence compared to their youthful counterpart. In short, having information about the lifestyles of individuals improves the accuracy of risk assessments and helps researchers identify and target high risk groups who may benefit from a violence prevention program more than others.

The implications of this work extend well beyond the disciplines of criminology and

criminal justice. Activity- and place-specific risk assessments can be used to study a

variety of adverse outcomes including injury, disease and death. The results of the

current study suggest time-based rates are the best way to quantify risk for activities and

types of place because they account for the transient nature of humans in time and space.

Because traditional victimization rates assume the risk of violence is equal among all

members of a subgroup no matter their routine activity pattern, the findings of this

dissertation reject that assumption. In reality, the risk of violence is likely to vary greatly

within subgroups based on what individuals do and where they go. This implies public

policy, crime prevention programs, theory development, urban planning and police

deployment can be made more efficient and effective if an activity- or place-specific

approach to understanding the problem is used.

To conclude, this study provides a methodological framework that could be applied to

future risk assessments performed at the macro- or micro-level. At the macro-level,

additional years of ATUS and NCVS data are available and could be used to monitor

long-term trends in risk. At the same time, more research is needed to check the

feasibility of performing a similar analysis in other countries around the world. Micro-

level applications of this methodological framework include comparing the relative risk

of different public transportation systems, calculating time-based rates of violence at the

local level and using time-based rates to assess the effectiveness of crime prevention

strategies. In general, the results of this study suggest having information about the

movements and activities of a population will enable a researcher or practitioner to better

predict and prevent violence. Put simply, ignoring the fluidity of a population in time and space is tantamount to ignoring the population.

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APPENDICES
Appendix A

Glossary of NCVS Terminology	
Term	*Definition*
Aggravated Assault	…an attack or attempted attack with a weapon, regardless of whether or not an injury occurred, and attack without a weapon when serious injury results. Serious injury includes broken bones, loss of teeth, internal injuries, loss of consciousness, and any injury requiring tow or more days of hospitalization.
Assault	…an unlawful physical attack, whether aggravated or simple upon a person. It includes attempted assaults with or without a weapon, but excludes rape, attempted rape, and sexual assaults (these are categorized separately).
Attack	Some form of actual physical contact between the victim and the offender. If something was thrown at the victim but did not hit him/her or if s/he was shot at but not stuck by the bullet, s/he is not considered to have been attacked but threatened.
Cluster	A group of four housing units. Clustering is done so that selected sample units are in relatively close geographical proximity in order for interviews to be carried out in an efficient manner. Because of this clustering, the variance estimates are slightly larger than they would be if the sample design used a simple random sample selection scheme within the sample PSUs.
Incident	A specific criminal act involving one or more victims and offenders. In the NCVS, victims may be persons 12 years of age or older or households. An incident is technically distinct from a victimization; in criminal acts against persons, the number of victimizations is determined by the number of victims. Hence, one incident may comprise several victimizations.
Minor Assault	This definition is equivalent to that for completed simple assault, except that a completed simple assault is classified when other, more serious forms of victimization are not present during the same incident.
Multi-Stage Sampling	A process used to select sample units. The NCVS sample selected using two stages. In the first stage, Primary Sampling Units (PSUs) were selected. In the second stage, a sample of addresses was selected within the sample PSUs.
Personal Victimization	A specific criminal act as it affects on victimized person. The NCVS defines crimes against persons as rape, sexual assault, robbery, simple or aggravated assault, and purse-snatching/pocket-picking. Estimates of the number of personal victimizations are determined by the number of victims of such acts as reported by the survey respondent. Ordinarily, the number of victimizations is somewhat higher than the number of incidents because more than one person may be victimized during certain incidents, and because

	details of personal crimes occurring during the course of a commercial crime, as related to the victimized person, are reflected in these estimates.
Rape	Forced sexual intercourse and includes both psychological coercion as well as physical force. Forced sexual intercourse means vaginal, anal, or oral penetration by the offender(s). This category also includes incidents where the penetration is from a foreign object such as a bottle.
Robbery	…completed or attempted theft, directly from a person, of property or cash by force or threat of force, with or without a weapon.
Serious Assault	This definition is equivalent to a that for an aggravated assault, except that an aggravated assault is classified when other forms of victimization, such as theft of property or sexual attack, are not present during the same incident.
Sexual Assault	A wide range of victimizations, separate from rape or attempted rape. These crimes include attacks or attempted attacks generally involving (unwanted) sexual contact between victim and offender. Sexual assaults may or may not involve force, such as grabbing or fondling, for example and may also include verbal threats.
Simple Assault	…an attack without a weapon resulting either in minor injury (e.g. bruises, black eyes, cuts, scratches, swelling) or in undetermined injury requiring less than two days of hospitalization. It also includes attempted assault without a weapon and verbal threats of assault.
Strata	Groups of Non-self-representing (NSR) PSUs which have specific characteristics in common. The process of making these groupings is called stratification. NSR PSUs were stratified by combining PSUs with similar population characteristics which include: 1) Crime rate (based on Uniform Crime Report data from the Federal Bureau of investigation. 2) Percent urban 3) Average value of owned housing units 4) Average rent of rented housing units
Threat	A threatening situation is one in which there was no physical contact between the offender and victim but the victim felt that physical harm could have occurred. This includes nonverbal threats, e.g., brandishing a weapon, and verbal threats of physical harm which are made in person. Threats made over the telephone or threatening letters are not included.
Victimization	A specific criminal act as it affects a single victim. In criminal acts against persons, the number of victimizations is determined by the number of victims of such acts.
Source: U.S Dept. of Justice, NCVS Codebook Glossary, 2003, pgs. 407-451	

Appendix B

2003 ATUS Activity File: Download Procedure

Step 1
Download the ATUS 2003 Activity File (.zip) from:
http://www.bls.gov/tus/datafiles_2003.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:
Activity2003_info.txt   atusact8_2003.sps
atusact_2003.sps   atusact_2003.do
atusact_2003.dat   atusact_2003.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atusact_2003 (DAT File) with SPSS.

Follow the instructions of the text import wizard.

Click next on the first screen.

On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"

Click next.

Click next 3 more times until you reach step 6 of 6.

Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2003 ATUS AF UNEDITED

2003 ATUS Activity Summary File: Download Procedure

Step 1
Download the ATUS 2003 Activity Summary File (.zip) from:
http://www.bls.gov/tus/datafiles_2003.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:

Sum2003_info.txt	atussum8_2003.sps
atussum_2003.sps	atussum_2003.do
atussum_2003.dat	atussum_2003.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atussum_2003.dat with SPSS.

Follow the instructions of the text import wizard.

Click next on the first screen.

On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"

Click next.

Click next 3 more times until you reach step 6 of 6.

Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2003 ATUS ASF UNEDITED

2003 ATUS Activity Summary File: Merge File Preparation

Step 1
Open 2003 ATUS ASF UNEDITED.

Step 2
Save the file under the new name, 2003 ATUS ASF MERGE.

Step 3
In the variable view, delete variables 25-430. These variables refer to the time each respondent spent in a specific activity; the name of each variable begins with a "t" and is followed by a 6 digit code. The remaining variables contain demographic information about each respondent or household.

Step 4
Save these changes to the file.

2003 ATUS Activity File: Merge File Preparation

Step 1
Open 2003 ATUS AF UNEDITED.

Step 2
Save the file under the new name, 2003 ATUS AF MERGE.

Step 3
The data needs to be transposed before a merge can take place.
Use the "Data" dropdown menu to open the Restructure Data Wizard.
        Data>>>Restructure
Select "Restructure selected cases into variables." Click next.
Choose "TUCASEID" as the identifier variable. Click next.
Click finish on the next screen.
Click OK on the screen the next screen that appears.

Step 4
Save these changes to the file.

2003 ATUS Activity File and Activity Summary File: Merge Procedure

Step 1
Open 2003 ATUS AF MERGE.

Step 2
Open 2003 ATUS ASF MERGE.

Step 3
In the 2003 ATUS AF MERGE window, begin the merge using the data dropdown menu.
    Data>>>Merge Files>>>Add Variables

Step 4
Select 2003 ATUS ASF MERGE as the dataset where the new variables will come from.
Click continue.

Step 5
Check the box labeled "Match cases on key variables in sorted files."
Highlight TUCASEID in the "Excluded Variables" box and add it to the "Key Variables" box.
Click OK.
Click OK on the next screen that appears.

Step 6
Confirm in the variable or data view that the 23 variables from the activity summary file are now in the activity file.

Step 7
Save this new file as 2003 ATUS AF_ASF MERGE.

2003 Activity File and Activity Summary File: Merged Data Restructure Procedure

Step 1
Open 2003 ATUS AF_ASF MERGE.

Step 2
Use the Data dropdown menu to open the "Restructure Data Wizard".
        Data>>>Restructure

Step 3
Select "Restructure selected variables into cases." Click next.
Select "More than one (for example, w1, w2, w3 and h1, h2, h3, etc.)".
Enter 16 in the box that asks "How Many?"
Click next.

Step 4
Select TUCASEID as the "Fixed Variable."
In the variables to be transposed box, a transposition must be performed for each of the original variables in the Activity File. For example, the first transposition is for the variable TUACTDUR24; all 71 of the TUACTDUR24 variables must be entered into the transposition. The chart below describes the transpositions. Click next when finished.

Transposition #	Variable	Transposition #	Variable
1	TUACTDUR24	9	TUSTOPTIME
2	TRTCC_LN	10	TUACTDUR
3	TRTCOC_LN	11	TUCC8
4	TUACTIVITY_N	12	TUCUMDUR
5	TUTIER1CODE	13	TEWHERE
6	TUTIER2CODE	14	TXWHERE
7	TUTIER3CODE	15	TR_03CC57
8	TUSTARTTIM	16	TUCUMDUR24

Step 5
Select "One" when asked how many index variables you would like to create. Click next.
Select "Sequential numbers" when asked what kind of index variables. Click next.
Select "Keep and treat as fixed variables" when asked how to handle variables not selected.
Select "Discard the data" for system missing or blank values in transposed variables.
Click next.
Select "Paste the syntax generated by the wizard into a syntax window."
Click finish.
Click OK on the next screen that appears.

Step 6

In the syntax window that opens use the Run dropdown menu to complete the transposition.

      Run>>>All

Save this syntax as 2003 ATUS AF_ASF MERGE.

Step 7

In the variable view, rename the transposition variables (1-16) using their original labels indicated in the chart above.

Delete the index variable that was created.

Step 8

Save this file as 2003 ATUS AF WITH DEMOGRAPHICS.

2003 ATUS Activity File: At Home vs. Away From Home Recode Procedure

Step 1
Open 2003 ATUS AF WITH DEMOGRAPHICS.

Step 2
Save the file as 2003 ATUS AT_HOME RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
        Transform>>>Recode into Different Variables

Step 3
Select TEWHERE as the variable to be recoded.
Rename the output variable as "HOME".
Change the old and new values as indicated below. Check the box labeled "output variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
-1 and 1	AT_HOME
All other values	NOT_AT_HOME

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2003 ATUS AT_HOME ACTIVITIES
Delete all of the NOT_AT_HOME activities from the file.
Save the changes made.

Step 6
Open 2003 ATUS AT_HOME RECODE.

Step 7
Re-save the file as 2003 ATUS NOT_AT_HOME ACTIVITIES.
Delete all of the AT_HOME activities from the file.
Save the changes made.

2003 ATUS Activity File: In-Transit vs. Away From Home Recode Procedure

Step 1
Open 2003 ATUS AWAY_FROM_HOME ACTIVITIES.

Step 2
Save the file as 2003 ATUS IN_TRANSIT RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
        Transform>>>Recode into Different Variables

Step 3
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "IN_TRANSIT".
Change the old and new values as indicated below. Check the box labeled "output variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
17	IN_TRANSIT
All other values	NOT_IN_TRANSIT

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2003 ATUS IN_TRANSIT ACTIVITIES
Delete all of the NOT_IN_TRANSIT activities from the file.
Save the changes made.

Step 6
Open 2003 ATUS IN_TRANSIT RECODE.

Step 7
Re-save the file as 2003 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES.
Delete all of the IN_TRANSIT activities from the file.
Save the changes made.

2003 ATUS Activity File: Sleeping and Other at Home Activities Recode Procedure

Step 1
Open 2003 ATUS AT_HOME ACTIVITIES.
Save the file as 2003 ATUS SLEEPING RECODE.

Step 2
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "SLEEP1".

Select TUTIER2CODE as the other variable to be recoded.
Rename the output variable as "SLEEP2".
Change the old and new values as indicated below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
1	1	1	1
All other values	0	All other values	0

Step 3
Add SLEEP1 to SLEEP2 to obtain variable SLEEP3.

Step 4
Recode SLEEP3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	SLEEPING
All other values	OTHER_AT_HOME

Step 5
Save the changes to the file.

Step 6
Re-save the file as 2003 ATUS SLEEPING.
Delete all of the OTHER_AT_HOME activities from the file.
Save these changes.

Step 7
Reopen the 2003 ATUS SLEEPING RECODE file.
Re-save the file as 2003 ATUS OTHER_AT_HOME.
Delete all of the SLEEPING activities from this file.
Save these changes.

2003 ATUS Activity File: To/From School, Work, Other Recode

Step 1
Open 2003 ATUS IN_TRANSIT ACTIVITIES.
Save the file as 2003 ATUS TF RECODE.

Step 2
Select TUTIER2CODE as the variable to be recoded.
Rename the output variable as "TF1".

Select TUTIER3CODE as the other variable to be recoded.
Rename the output variable as "TF2".
Change the old and new values as indicated below.

TIER2 OLD VALUE	TIER2 NEW VALUE	TIER3 OLD VALUE	TIER3 NEW VALUE
5	1	1	1
6	11	All other values	0
All other values	0		

Step 3
Add TF1 to TF2 to obtain variable TF3.
Recode TF3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	TF_WORK
12	TF_SCHOOL
All other values	TF_OTHER

Step 4
Save the changes to the file.

Step 5
Re-save the file as 2003 ATUS TF_OTHER.
Delete all of the TF_WORK and TF_SCHOOL activities from the file.
Save these changes.

Step 6
Reopen the 2003 ATUS TF RECODE file.
Re-save the file as 2003 ATUS TF_WORK.
Delete all of the TF_SCHOOL and TF_OTHER activities from this file.
Save these changes.
Repeat this step to obtain the 2003 ATUS TF_SCHOOL file.
This time delete TF_WORK and TF_OTHER.

2003 ATUS Activity File: Attending School Recode

Step 1
Open the 2003 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUSCHENR into "SCH1" and TEWHERE into "SCH2" using the directions below.

TUSCHENR OLD VALUE	TUSCHENR NEW VALUE	TEWHERE OLD VALUE	TEWHERE NEW VALUE
1	1	8	1
All other values	0	All other values	0

Step 3
Add SCH1 and SCH2 to create "SCH3".
Recode SCH3 as follows using string output variables.

SCH3 OLD VALUE	SCH3 NEW VALUE
2	ATTENDING_SCHOOL
All other values	NOT_ATTENDING_SCHOOL

Step 4
Save these changes.
Re-save the file as 2003 ATUS ATTENDING_SCHOOL
Delete all of the NOT_ATTENDING_SCHOOL activities from the file.
Save the file after these deletions have been made.

2003 ATUS Activity File: Working Recode

Step 1
Open the 2003 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUTIER1CODE in "WORK1", TUTIER2CODE into "WORK2", and TEWHERE into "WORK3" using the directions below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
5	1	1	1
All other values	0	All other values	0

TEWHERE OLD VALUE	TEWHERE NEW VALUE
2	100
All other values	0

Step 3
Add WORK1, WORK2, and WORK3 together to create "WORK4".
Recode WORK4 into "WORKING" using the directions below.

WORK4 OLD VALUE	WORK4 NEW VALUE
2, 100, 101, 102	WORKING
All other values	NOT_WORKING

Step 4
Save these changes to the file.
Re-save the file as 2003 ATUS WORKING.
Delete all of the NOT_WORKING activities.
Save the file after these deletions have been made.

2004 ATUS Activity File Download Procedure

Step 1
Download the ATUS 2004 Activity File (.zip) from:
http://www.bls.gov/tus/datafiles_2004.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:

Activity2004_info.txt	atusact8_2004.sps
atusact_2004.sps	atusact_2004.do
atusact_2004.dat	atusact_2004.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atusact_2004.dat with SPSS.
Follow the instructions of the text import wizard.
Click next on the first screen.
On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"
Click next.
Click next 3 more times until you reach step 6 of 6.
Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2004 ATUS AF UNEDITED

2004 ATUS Activity Summary File Download Procedure

Step 1
Download the ATUS 2004 Activity Summary File (.zip) from:
http://www.bls.gov/tus/datafiles_2004.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:

Sum2004_info.txt	atussum8_2004.sps
atussum_2004.sps	atussum_2004.do
atussum_2004.dat	atussum_2004.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atussum_2004.dat with SPSS.

Follow the instructions of the text import wizard.

Click next on the first screen.

On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"

Click next.

Click next 3 more times until you reach step 6 of 6.

Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2004 ATUS ASF UNEDITED.

2004 ATUS Activity Summary File: Merge File Preparation

Step 1
Open 2004 ATUS ASF UNEDITED.

Step 2
Save the file under the new name, 2004 ATUS ASF MERGE.

Step 3
In the variable view, delete variables 23-417. These variables refer to the time each respondent spent in a specific activity; the name of each variable begins with a "t" and is followed by a 6 digit code. The remaining variables contain demographic information about each respondent or household.

Step 4
Save these changes to the file.

2004 ATUS Activity File: Merge File Preparation

Step 1
Open 2004 ATUS AF UNEDITED.

Step 2
Save the file under the new name, 2004 ATUS AF MERGE.

Step 3
The data needs to be transposed before a merge can take place.
Use the "Data" dropdown menu to open the Restructure Data Wizard.
        Data>>>Restructure
Select "Restructure selected cases into variables." Click next.
Choose "TUCASEID" as the identifier variable. Click next.
Click finish on the next screen.
Click OK on the screen the next screen that appears.

Step 4
Save these changes to the file.

2004 ATUS Activity File and Activity Summary File: Merge Procedure

Step 1
Open 2004 ATUS AF MERGE.

Step 2
Open 2004 ATUS ASF MERGE.

Step 3
In the 2004 ATUS AF MERGE window, begin the merge using the data dropdown menu.
    Data>>>Merge Files>>>Add Variables

Step 4
Select 2004 ATUS ASF MERGE as the dataset where the new variables will come from.
Click continue.

Step 5
Check the box labeled "Match cases on key variables in sorted files."
Highlight TUCASEID in the "Excluded Variables" box and add it to the "Key Variables" box.
Click OK.
Click OK on the next screen that appears.

Step 6
Confirm in the variable or data view that the 21 variables from the activity summary file are now in the activity file.

Step 7
Save this new file as 2004 ATUS AF_ASF MERGE.

2004 Activity File and Activity Summary File: Merged Data Restructure Procedure

Step 1
Open 2004 ATUS AF_ASF MERGE.

Step 2
Use the Data dropdown menu to open the "Restructure Data Wizard".
        Data>>>Restructure

Step 3
Select "Restructure selected variables into cases." Click next.
Select "More than one (for example, w1, w2, w3 and h1, h2, h3, etc.)".
Enter 24 in the box that asks "How Many?"
Click next.

Step 4
Select TUCASEID as the "Fixed Variable."
In the variables to be transposed box, a transposition must be performed for each of the
original variables in the Activity File. For example, the first transposition is for the
variable TUACTIVITY_N; all 74 of the TUACTIVITY_N variables must be entered into
the transposition. The chart below describes the transpositions. Click next when
finished.

Transposition #	Variable	Transposition #	Variable
1	TUACTIVITY_N	13	TXWHERE
2	TUTIER1CODE	14	TUCC5B
3	TUTIER2CODE	15	TUACTDUR24
4	TUTIER3CODE	16	TUCUMDUR24
5	TUSTARTTIM	17	TRTCC_LN
6	TUSTOPTIME	18	TRTCOC_LN
7	TUACTDUR	19	TRTOHH_LN
8	TUCUMDUR	20	TRTONHH_LN
9	TUCC5	21	TRTNOHH_LN
10	TUCC7	22	TRTO_LN
11	TUCC8	23	TRTHH_LN
12	TEWHERE	24	TRTCCTOT_LN

Step 5
Select "One" when asked how many index variables you would like to create. Click
next.
Select "Sequential numbers" when asked what kind of index variables. Click next.
Select "Keep and treat as fixed variables" when asked how to handle variables not
selected.
Select "Discard the data" for system missing or blank values in transposed variables.
Click next.
Select "Paste the syntax generated by the wizard into a syntax window."

Click finish.
Click OK on the next screen that appears.

Step 6
In the syntax window that opens use the Run dropdown menu to complete the
transposition.
    Run>>>All
Save this syntax as 2004 ATUS AF_ASF MERGE.

Step 7
In the variable view, rename the transposition variables (1-24) using their original labels
indicated in the chart above.
Delete the index variable that was created.

Step 8
Save this file as 2004 ATUS AF WITH DEMOGRAPHICS.

2004 ATUS Activity File: At Home vs. Away From Home Recode Procedure

Step 1
Open 2004 ATUS AF WITH DEMOGRAPHICS.

Step 2
Save the file as 2004 ATUS AT_HOME RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
　　　Transform>>>Recode into Different Variables

Step 3
Select TEWHERE as the variable to be recoded.
Rename the output variable as "HOME".
Change the old and new values as indicated below. Check the box labeled "output variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
-1 and 1	AT_HOME
All other values	NOT_AT_HOME

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2004 ATUS AT_HOME ACTIVITIES
Delete all of the NOT_AT_HOME activities from the file.
Save the changes made.

Step 6
Open 2004 ATUS AT_HOME RECODE.

Step 7
Re-save the file as 2004 ATUS NOT_AT_HOME ACTIVITIES.
Delete all of the AT_HOME activities from the file.
Save the changes made.

2004 ATUS Activity File: In-Transit vs. Away From Home Recode Procedure

Step 1
Open 2004 ATUS AWAY_FROM_HOME ACTIVITIES.

Step 2
Save the file as 2004 ATUS IN_TRANSIT RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
        Transform>>>Recode into Different Variables

Step 3
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "IN_TRANSIT".
Change the old and new values as indicated below. Check the box labeled "output
variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
17	IN_TRANSIT
All other values	NOT_IN_TRANSIT

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2004 ATUS IN_TRANSIT ACTIVITIES
Delete all of the NOT_IN_TRANSIT activities from the file.
Save the changes made.

Step 6
Open 2004 ATUS IN_TRANSIT RECODE.

Step 7
Re-save the file as 2004 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES.
Delete all of the IN_TRANSIT activities from the file.
Save the changes made.

2004 ATUS Activity File: Sleeping and Other at Home Activities Recode Procedure

Step 1
Open 2004 ATUS AT_HOME ACTIVITIES.
Save the file as 2004 ATUS SLEEPING RECODE.

Step 2
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "SLEEP1".

Select TUTIER2CODE as the other variable to be recoded.
Rename the output variable as "SLEEP2".
Change the old and new values as indicated below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
1	1	1	1
All other values	0	All other values	0

Step 3
Add SLEEP1 to SLEEP2 to obtain variable SLEEP3.

Step 4
Recode SLEEP3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	SLEEPING
All other values	OTHER_AT_HOME

Step 5
Save the changes to the file.

Step 6
Re-save the file as 2004 ATUS SLEEPING.
Delete all of the OTHER_AT_HOME activities from the file.
Save these changes.

Step 7
Reopen the 2004 ATUS SLEEPING RECODE file.
Re-save the file as 2004 ATUS OTHER_AT_HOME.
Delete all of the SLEEPING activities from this file.
Save these changes.

2004 ATUS Activity File: To/From School, Work, Other Recode

Step 1
Open 2004 ATUS IN_TRANSIT ACTIVITIES.
Save the file as 2004 ATUS TF RECODE.

Step 2
Select TUTIER2CODE as the variable to be recoded.
Rename the output variable as "TF1".

Select TUTIER3CODE as the other variable to be recoded.
Rename the output variable as "TF2".
Change the old and new values as indicated below.

TIER2 OLD VALUE	TIER2 NEW VALUE	TIER3 OLD VALUE	TIER3 NEW VALUE
5	1	1	1
6	11	All other values	0
All other values	0		

Step 3
Add TF1 to TF2 to obtain variable TF3.
Recode TF3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	TF_WORK
12	TF_SCHOOL
All other values	TF_OTHER

Step 4
Save the changes to the file.

Step 5
Re-save the file as 2004 ATUS TF_OTHER.
Delete all of the TF_WORK and TF_SCHOOL activities from the file.
Save these changes.

Step 6
Reopen the 2004 ATUS TF RECODE file.
Re-save the file as 2004 ATUS TF_WORK.
Delete all of the TF_SCHOOL and TF_OTHER activities from this file.
Save these changes.
Repeat this step to obtain the 2004 ATUS TF_SCHOOL file.
This time delete TF_WORK and TF_OTHER.

2004 ATUS Activity File: Attending School Recode

Step 1
Open the 2004 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUSCHENR into "SCH1" and TEWHERE into "SCH2" using the directions
below.

TUSCHENR OLD VALUE	TUSCHENR NEW VALUE	TEWHERE OLD VALUE	TEWHERE NEW VALUE
1	1	8	1
All other values	0	All other values	0

Step 3
Add SCH1 and SCH2 to create "SCH3".
Recode SCH3 as follows using string output variables.

SCH3 OLD VALUE	SCH3 NEW VALUE
2	ATTENDING_SCHOOL
All other values	NOT_ATTENDING_SCHOOL

Step 4
Save these changes.
Re-save the file as 2004 ATUS ATTENDING_SCHOOL
Delete all of the NOT_ATTENDING_SCHOOL activities from the file.
Save the file after these deletions have been made.

2004 ATUS Activity File: Working Recode

Step 1
Open the 2004 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUTIER1CODE in "WORK1", TUTIER2CODE into "WORK2", and TEWHERE into "WORK3" using the directions below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
5	1	1	1
All other values	0	All other values	0

TEWHERE OLD VALUE	TEWHERE NEW VALUE
2	100
All other values	0

Step 3
Add WORK1, WORK2, and WORK3 together to create "WORK4".
Recode WORK4 into "WORKING" using the directions below.

WORK4 OLD VALUE	WORK4 NEW VALUE
2, 100, 101, 102	WORKING
All other values	NOT_WORKING

Step 4
Save these changes to the file.
Re-save the file as 2004 ATUS WORKING.
Delete all of the NOT_WORKING activities.
Save the file after these deletions have been made.

2005 ATUS Activity File Download Procedure

Step 1
Download the ATUS 2005 Activity File (.zip) from:
http://www.bls.gov/tus/datafiles_2005.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:

Activity2005_info.txt	atusact8_2005.sps
atusact_2005.sps	atusact_2005.do
atusact_2005.dat	atusact_2005.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atusact_2005.dat with SPSS.
Follow the instructions of the text import wizard.
Click next on the first screen.
On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"
Click next.
Click next 3 more times until you reach step 6 of 6.
Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2005 ATUS AF UNEDITED

2005 ATUS Activity Summary File Download Procedure

Step 1
Download the ATUS 2005 Activity Summary File (.zip) from:
http://www.bls.gov/tus/datafiles_2005.htm

Step 2
Extract all files from the zip file. This should produce 6 separate files:

Sum2005_info.txt   atussum8_2005.sps
atussum_2005.sps   atussum_2005.do
atussum_2005.dat   atussum_2005.sas

Step 3
Start the SPSS processor by running the program.

Step 4
Open atussum_2005.dat with SPSS.

Follow the instructions of the text import wizard.

Click next on the first screen.

On the second screen click "Yes" when the wizard asks "Are variable names included at the top of your file?"

Click next.

Click next 3 more times until you reach step 6 of 6.

Once you have reached step 6 click finish.

Step 5
Save the SPSS data file as: 2005 ATUS ASF UNEDITED

2005 ATUS Activity Summary File: Merge File Preparation

Step 1
Open 2005 ATUS ASF UNEDITED.

Step 2
Save the file under the new name, 2005 ATUS ASF MERGE.

Step 3
In the variable view, delete variables 24-430. These variables refer to the time each respondent spent in a specific activity; the name of each variable begins with a "t" and is followed by a 6 digit code. The remaining variables contain demographic information about each respondent or household.

Step 4
Save these changes to the file.

2005 ATUS Activity File: Merge File Preparation

Step 1
Open 2005 ATUS AF UNEDITED.

Step 2
Save the file under the new name, 2005 ATUS AF MERGE.

Step 3
The data needs to be transposed before a merge can take place.
Use the "Data" dropdown menu to open the Restructure Data Wizard.
        Data>>>Restructure
Select "Restructure selected cases into variables." Click next.
Choose "TUCASEID" as the identifier variable. Click next.
Click finish on the next screen.
Click OK on the screen the next screen that appears.

Step 4
Save these changes to the file.

2005 ATUS Activity File and Activity Summary File: Merge Procedure

Step 1
Open 2005 ATUS AF MERGE.

Step 2
Open 2005 ATUS ASF MERGE.

Step 3
In the 2005 ATUS AF MERGE window, begin the merge using the data dropdown menu.
    Data>>>Merge Files>>>Add Variables

Step 4
Select 2005 ATUS ASF MERGE as the dataset where the new variables will come from.
Click continue.

Step 5
Check the box labeled "Match cases on key variables in sorted files."
Highlight TUCASEID in the "Excluded Variables" box and add it to the "Key Variables" box.
Click OK.
Click OK on the next screen that appears.

Step 6
Confirm in the variable or data view that the 22 variables from the activity summary file are now in the activity file.

Step 7
Save this new file as 2005 ATUS AF_ASF MERGE.

2005 Activity File and Activity Summary File: Merged Data Restructure Procedure

Step 1
Open 2005 ATUS AF_ASF MERGE.

Step 2
Use the Data dropdown menu to open the "Restructure Data Wizard".
      Data>>>Restructure

Step 3
Select "Restructure selected variables into cases." Click next.
Select "More than one (for example, w1, w2, w3 and h1, h2, h3, etc.)".
Enter 23 in the box that asks "How Many?"
Click next.

Step 4
Select TUCASEID as the "Fixed Variable."
In the variables to be transposed box, a transposition must be performed for each of the original variables in the Activity File. For example, the first transposition is for the variable TUACTIVITY_N; all 91 of the TUACTIVITY_N variables must be entered into the transposition. The chart below describes the transpositions. Click next when finished.

Transposition #	Variable	Transposition #	Variable
1	TUACTIVITY_N	13	TUCC5
2	TEWHERE	14	TUCC5B
3	TRTCCTOT_LN	15	TUCC7
4	TRTCC_LN	16	TUCC8
5	TRTCOC_LN	17	TUCUMDUR
6	TRTHH_LN	18	TUCUMDUR24
7	TRTNOHH_LN	19	TUSTARTTIM
8	TRTOHH_LN	20	TUSTOPTIME
9	TRTONHH_LN	21	TUTIER1CODE
10	TRTO_LN	22	TUTIER2CODE
11	TUACTDUR	23	TUTIER3CODE
12	TUACTDUR24	24	TXWHERE

Step 5
Select "One" when asked how many index variables you would like to create. Click next.
Select "Sequential numbers" when asked what kind of index variables. Click next.
Select "Keep and treat as fixed variables" when asked how to handle variables not selected.
Select "Discard the data" for system missing or blank values in transposed variables.
Click next.
Select "Paste the syntax generated by the wizard into a syntax window."

Click finish.
Click OK on the next screen that appears.

Step 6
In the syntax window that opens use the Run dropdown menu to complete the transposition.
      Run>>>All
Save this syntax as 2005 ATUS AF_ASF MERGE.

Step 7
In the variable view, rename the transposition variables (1-24) using their original labels indicated in the chart above.
Delete the index variable that was created.

Step 8
Save this file as 2005 ATUS AF WITH DEMOGRAPHICS.

2005 ATUS Activity File: At Home vs. Away From Home Recode Procedure

Step 1
Open 2005 ATUS AF WITH DEMOGRAPHICS.

Step 2
Save the file as 2005 ATUS AT_HOME RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
    Transform>>>Recode into Different Variables

Step 3
Select TEWHERE as the variable to be recoded.
Rename the output variable as "HOME".
Change the old and new values as indicated below. Check the box labeled "output variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
-1 and 1	AT_HOME
All other values	NOT_AT_HOME

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2005 ATUS AT_HOME ACTIVITIES
Delete all of the NOT_AT_HOME activities from the file.
Save the changes made.

Step 6
Open 2005 ATUS AT_HOME RECODE.

Step 7
Re-save the file as 2005 ATUS NOT_AT_HOME ACTIVITIES.
Delete all of the AT_HOME activities from the file.
Save the changes made.

2005 ATUS Activity File: In-Transit vs. Away From Home Recode Procedure

Step 1
Open 2005 ATUS AWAY_FROM_HOME ACTIVITIES.

Step 2
Save the file as 2005 ATUS IN_TRANSIT RECODE.

Step 2
Use the Transform dropdown menu to begin the recode procedure.
        Transform>>>Recode into Different Variables

Step 3
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "IN_TRANSIT".
Change the old and new values as indicated below. Check the box labeled "output variables are strings" and change the width to 20.

OLD VALUE	NEW VALUE
18	IN_TRANSIT
All other values	NOT_IN_TRANSIT

Step 4
Save the changes made to this file.

Step 5
Re-save the file as 2005 ATUS IN_TRANSIT ACTIVITIES
Delete all of the NOT_IN_TRANSIT activities from the file.
Save the changes made.

Step 6
Open 2005 ATUS IN_TRANSIT RECODE.

Step 7
Re-save the file as 2005 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES.
Delete all of the IN_TRANSIT activities from the file.
Save the changes made.

2005 ATUS Activity File: Sleeping and Other at Home Activities Recode Procedure

Step 1
Open 2005 ATUS AT_HOME ACTIVITIES.
Save the file as 2005 ATUS SLEEPING RECODE.

Step 2
Select TUTIER1CODE as the variable to be recoded.
Rename the output variable as "SLEEP1".

Select TUTIER2CODE as the other variable to be recoded.
Rename the output variable as "SLEEP2".
Change the old and new values as indicated below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
1	1	1	1
All other values	0	All other values	0

Step 3
Add SLEEP1 to SLEEP2 to obtain variable SLEEP3.

Step 4
Recode SLEEP3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	SLEEPING
All other values	OTHER_AT_HOME

Step 5
Save the changes to the file.

Step 6
Re-save the file as 2005 ATUS SLEEPING.
Delete all of the OTHER_AT_HOME activities from the file.
Save these changes.

Step 7
Reopen the 2005 ATUS SLEEPING RECODE file.
Re-save the file as 2005 ATUS OTHER_AT_HOME.
Delete all of the SLEEPING activities from this file.
Save these changes.

2005 ATUS Activity File: To/From School, Work, Other Recode

Step 1
Open 2005 ATUS IN_TRANSIT ACTIVITIES.
Save the file as 2005 ATUS TF RECODE.

Step 2
Select TUTIER2CODE as the variable to be recoded.
Rename the output variable as "TF1".

Select TUTIER3CODE as the other variable to be recoded.
Rename the output variable as "TF2".
Change the old and new values as indicated below.

TIER2 OLD VALUE	TIER2 NEW VALUE	TIER3 OLD VALUE	TIER3 NEW VALUE
5	1	1	1
6	11	All other values	0
All other values	0		

Step 3
Add TF1 to TF2 to obtain variable TF3.
Recode TF3 values as indicated below. Use string output variables.

OLD VALUE	NEW VALUE
2	TF_WORK
12	TF_SCHOOL
All other values	TF_OTHER

Step 4
Save the changes to the file.

Step 5
Re-save the file as 2005 ATUS TF_OTHER.
Delete all of the TF_WORK and TF_SCHOOL activities from the file.
Save these changes.

Step 6
Reopen the 2005 ATUS TF RECODE file.
Re-save the file as 2005 ATUS TF_WORK.
Delete all of the TF_SCHOOL and TF_OTHER activities from this file.
Save these changes.
Repeat this step to obtain the 2005 ATUS TF_SCHOOL file.
This time delete TF_WORK and TF_OTHER.

2005 ATUS Activity File: Attending School Recode

Step 1
Open the 2005 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUSCHENR into "SCH1" and TEWHERE into "SCH2" using the directions below.

TUSCHENR OLD VALUE	TUSCHENR NEW VALUE	TEWHERE OLD VALUE	TEWHERE NEW VALUE
1	1	8	1
All other values	0	All other values	0

Step 3
Add SCH1 and SCH2 to create "SCH3".
Recode SCH3 as follows using string output variables.

SCH3 OLD VALUE	SCH3 NEW VALUE
2	ATTENDING_SCHOOL
All other values	NOT_ATTENDING_SCHOOL

Step 4
Save these changes.
Re-save the file as 2005 ATUS ATTENDING_SCHOOL
Delete all of the NOT_ATTENDING_SCHOOL activities from the file.
Save the file after these deletions have been made.

2005 ATUS Activity File: Working Recode

Step 1
Open the 2005 ATUS AWAY_NOT_IN_TRANSIT ACTIVITIES file.

Step 2
Recode TUTIER1CODE in "WORK1", TUTIER2CODE into "WORK2", and
TEWHERE into "WORK3" using the directions below.

TIER1 OLD VALUE	TIER1 NEW VALUE	TIER2 OLD VALUE	TIER2 NEW VALUE
5	1	1	1
All other values	0	All other values	0

TEWHERE OLD VALUE	TEWHERE NEW VALUE
2	100
All other values	0

Step 3
Add WORK1, WORK2, and WORK3 together to create "WORK4".
Recode WORK4 into "WORKING" using the directions below.

WORK4 OLD VALUE	WORK4 NEW VALUE
2, 100, 101, 102	WORKING
All other values	NOT_WORKING

Step 4
Save these changes to the file.
Re-save the file as 2005 ATUS WORKING.
Delete all of the NOT_WORKING activities.
Save the file after these deletions have been made.

Appendix C

Matching NCVS and ATUS Variables by Type of Place		
Type of Place	**NCVS** **Place Variables Used***	**ATUS** **Place Variables Used****
Home	1-6	1
Friend's Home	8-10	3
Bar or Restaurant	12	4
Commercial Building	13,14 and 24-27	5-7 and 10
Public Transportation	22	15-16 and 18-20
Street	7,11 and 20-21	9,14 and 17
Excluded from the Analysis		
School	18-19	8
Work	Not coded	2
Unable to Match	15-17 and 23	11-13, 21, 89 and 99
*See Table 3-17 for NCVS coding rules for variable V4024. **See Table 3-21 for ATUS coding rules for variable TEWHERE.		

FUNDING FOR THE PROJECT

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<u>List of Publications</u>
Lemieux, AM, CJ Diehl, JA Sloniger, and EJ Henriksen. (2005) "Voluntary exercise training enhances glucose transport but not insulin signaling capacity in muscle of hypertensive TG(mREN2)27 rats." *J. Applied Physiology* 99: 357-62.

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