



Technical Series Report

Methods for Counting High-Frequency Repeat Victimizations in the National Crime Victimization Survey

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Technical Series Report

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Executive Summary

As part of ongoing research efforts associated with the redesign of the National Crime Victimization Survey (NCVS), the Bureau of Justice Statistics (BJS) has investigated ways to include high-frequency repeat victimizations, or series victimizations, in estimates of criminal victimization. Including series victimizations would obtain a more accurate estimate of victimization. This report summarizes the research results and describes changes in BJS's enumeration practices regarding the treatment of series victimizations when estimating annual victimization rates.

The NCVS's primary purpose is to accurately estimate the number and type of criminal victimizations that occur each year in the United States. To enumerate and classify victimizations, the NCVS employs an interview procedure that asks respondents to recall specific types of criminal events that occurred over the previous 6 months. Repeatedly victimized persons have experiences that present considerable challenges for the accurate counting and description of criminal events. These experiences involve multiple crimes that are often indistinguishable to victims, making it difficult for them to separate the details of each event. Such experiences may include intimate partner violence or bullying by schoolmates. To handle these repeated victimizations, the NCVS employs a series victimization protocol. Currently, the NCVS records a series victimization when the respondent reported experiencing six or more similar crimes during the 6-month reference period and was unable to recall or describe each event in detail. If all of these conditions are met, the NCVS interviewer records the victim's report of the number of times this type of victimization occurred and collects detailed information only for the most recent victimization.

Although information about series victimizations is collected in the NCVS, BJS typically excludes series victimizations from annual estimates of crime. This enumeration practice resulted from concerns about the accuracy of the victimization count, whether each victimization in the series occurred within the reference period, and whether characteristics of the most recent victimization (such as whether an injury occurred) would apply to the other victimizations in the series.

To assess the strengths and weaknesses for enumerating and classifying series victimizations into national victimization estimates, this report examined the extent and the nature of

series victimization in the NCVS and reviewed the general patterns and statistical properties of victims' responses to being asked how many times the incident occurred. Series victimization analyses also examined how different treatments would affect conclusions about the victimization level and annual rate of change for various crime types and victimization characteristics.

Findings

- While violent series victimizations have declined in number and proportion over time, the characteristics of these victimizations have exhibited little change. Violent series victimizations primarily consist of domestic violence, school violence, and work-related violence.
- Many series victims had difficulty recalling exactly how many times violent victimizations occurred within a 6-month reference period. The observed patterns of response clustering indicate that many victims provided estimates of the number of times the incidents occurred. Victim responses tended to be consistent when asked for a second time about the frequency of such victimizations.
- Including series victimizations in national rates results in rather large increases in the level of violent victimization; however, trends in violence are generally similar regardless of whether series victimizations are included. The impact of including series victimizations may vary across years and crime types, in part reflecting the relative rarity of the offense type under consideration.
- The series victimization counting rule has limited statistical and substantive effects on the proportions and patterns of some victimization characteristics, such as the percentage reported to the police, the percentage involving weapon use, and the proportion resulting in injury. For other victimization characteristics, such as the proportions involving strangers or intimate partners, the treatment of series victimizations had a larger impact.

Given the findings from this research, BJS will enumerate series victimizations using the victim's estimates of the number of times the victimizations occurred over the past 6 months, capping the number of victimizations within each series at a maximum of 10. This strategy for counting series victimizations balances the desire to estimate national rates and account for the experiences of persons with repeated victimizations while noting that some estimation errors exist in the number of times these victimizations occurred.

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Methods for Counting High-Frequency Repeat Victimizations in the National Crime Victimization Survey

Janet L. Lauritsen, Jennifer Gatewood Owens, Michael Planty, Michael R. Rand, and Jennifer L. Truman

Introduction

The primary purpose of the Bureau of Justice Statistics' (BJS) National Crime Victimization Survey (NCVS) is to accurately measure the number and type of criminal victimizations that occur each year to persons ages 12 and older (Groves and Cork, 2008). To enumerate and classify criminal victimization, the NCVS employs an interview procedure that asks respondents to recall specific types of criminal events that occurred over the past 6 months. Criminal victimization is usually a relatively rare but salient event, and many victims can recall the details of a single victimization, such as an armed robbery or a home burglary. In addition, crimes that result in injury, large economic loss, and those involving the police are not easily forgotten.

For some types of victimization, however, it can be difficult for the victim to accurately enumerate and describe the details of their experiences. Persons who are repeatedly victimized present considerable measurement challenges for the NCVS.

Counting and classification

Measuring repeated or recurring victimization presents challenges for any survey designed to provide counts of criminal victimizations that occur each year. Providing a count of victimizations assumes that crime is a discrete event with an identifiable beginning and end. Many types of crime are well-suited to being counted as a discrete event that occurred within a given time period. For these types of victimizations, victims can readily identify whether such an incident occurred within the previous six months.

However, for some people, crime may be a continuous process or condition (Biderman, 1980; Skogan, 1981). For example, an abused woman may suffer periodic violence within an on-going pattern of abuse that extends over time. Victims of

bullying at school may suffer continuous threats and assaults by one or more offenders over the course of a school year. These situations may involve multiple crimes that run together in the victim's mind making it difficult, if not impossible, to distinguish the details of each victimization during the interview procedure (Dodge, 1984). Cognitive challenges and time burdens arise when respondents are asked to recall the number of victimizations and answer detailed questions about each incident. Yet these details are necessary for counting and classifying victimizations that occur each year.

History of counting high-frequency repeat victimization in the NCVS

The NCVS and its predecessor, the National Crime Survey (NCS), use a series victimization protocol to address the cognitive and time burdens on respondents who report a large number of repeated victimizations during the survey's reference period. In the earlier NCS, a series victimization occurred when a respondent reported experiencing three or more crimes similar in nature during the survey's 6-month reference period and could not recall the details of each victimization. When a victim reported these conditions, the interviewer recorded the number of times the victimizations occurred and collected detailed information for the last occurrence.

Analysis based on early NCS data showed that high-frequency repeat victimizations constituted an important component of victimization (Dodge, 1984a; 1984b; Dodge and Lentzner, 1980; Reiss, 1980; 1984). As part of the research that resulted in the later 1992 redesign of the NCS, BJS conducted a re-interview study to obtain additional information about the nature of series crimes (Dodge, 1987). This study found that most victims could recall the details of individual victimizations when the minimum number to count as a series was raised from three to six victimizations. The study also found that most victimizations within the

series were the same general type of crime. As a result, the redesigned NCVS raised the minimum number required to use the series protocol to six victimizations.

Currently, the NCVS records a series victimization when the respondent reported experiencing six or more similar crimes during the 6-month reference period and could not recall the details of each victimization. If these conditions are met, the interviewer uses the series victimization protocol, recording the number of victimizations that occurred and collecting detailed information for the last occurrence. Then, the NCVS interviewer asks the respondent the following questions about the series victimization: (1) “How many times did this kind of thing happen to you during the last 6 months?” (2) “Did all, some, or none of these incidents occur in the same place?” (3) “Were all, some, or none of these incidents done by the same person(s)?” (4) “Did the same thing happen each time?” and (5) “Is the trouble still going on?” Responses to these questions provide analysts with a better understanding of the nature of series victimization.

The series protocol addresses the recall and burden issues for the respondent, but at the cost of having less available information about these experiences in the data. Since details are only gathered for the most recent victimization, specific information to classify the crime type is unavailable for other victimizations in the series. Along with concerns about the accuracy of the victimization count and whether all the series victimizations occurred within the reference period, this lack of additional detail resulted in an early BJS decision to exclude series victimizations from annual crime estimates.

BJS has long recognized that excluding or counting series victimizations as one victimization, as has been the practice for various topical reports, lead to undercounts of victimization. Our practice has been to exclude series victimizations from crime estimates presented in the annual *Criminal Victimization* bulletins due to concerns about counting and classifying them. Some essential details about victimization are necessary to classify the crime during post-interview processing, therefore determining the counts and rates for a particular type of crime. For example, the involvement of a weapon or the occurrence of a serious injury determines whether a victimization is classified as

a simple assault or aggravated assault. If either occurred, then the victimization is classified as an aggravated assault. However, without these details it is unknown whether other assaults in the series should also be classified as aggravated assaults.

The issue of how to treat high-frequency repeat victimizations is not limited to the NCVS. Large-scale victimization surveys conducted in other countries also obtain information about the occurrence of repeated victimizations, though the manner of gathering victimization details varies. Most countries that use survey data to produce victimization rates implement a capping method that limits the maximum number of counted victimizations when a victim reports a series-type incident.

In the British Crime Survey (BCS), respondents who reported being victimized more than once are subsequently asked if they would identify the victimization as a series of crimes that were very similar, done under the same circumstances, and probably by the same people (Bolling, Grant, and Donovan, 2009). When estimating victimization rates, BCS publications typically limit the inclusion of series victimizations to a maximum of five. The national survey conducted for Mexico, the Encuestas Nacionales Sobre Seguridad (ENSI), also uses a cap of five incidents when estimating victimization rates.

The International Crime Victimization Survey (ICVS) and the European Union International Crime Survey (EUICS), which have been administered in a variety of countries, do not use open-ended responses to the question “How many times did this incident occur?” when estimating national victimization rates. These surveys typically present prevalence rates, which represent the proportion of the population that has experienced one or more crimes of a specific type, and such rates do not take into consideration how many times a person experienced a victimization (van Kesteren, Mayhew, and Nieuwbeerta, 2000; EUICS Consortium). Large national victimization surveys conducted around the world have handled the issue of series and repeat victimizations in different ways, and those that ask victims how many times an incident occurred typically cap or limit the contribution that these types of victimizations can have on national victimization rates.

Analysis of series victimization in the NCVS

We conducted multiple analyses using NCVS data to assess the strengths and weaknesses for incorporating series victimizations into national victimization estimates. These analyses were designed to build on prior methodological studies of series victimizations in the NCS, such as Biderman and Lynch (1991), Dodge (1984a, 1984b, 1987), Dodge and Lentzner (1980), Reiss (1980, 1984), and in the NCVS, such as Lynch, Berbaum, and Planty (1998) and Planty and Strom (2007).

The first set of analyses examined the extent and nature of series victimization by assessing the most common characteristics and recent trends in the proportion of all incidents reported as series victimizations. The second set of analyses assessed the general patterns and statistical properties of victims' responses to the question "How many times did this incident occur?" Because the interviewer asked this before and after the details of the last victimization were collected, the consistency of victims' responses to these two items could also be assessed. The results of the first two sets of analyses informed decisions about how BJS would count series victimizations in its reports.

The third set of analyses examined how different treatments of series victimizations affected conclusions about the level of and annual rate of change for various types of violent crime, including the types of crime most commonly found among series victimizations. The fourth set of analyses assessed how different treatments of series victimizations would affect conclusions about the prevalence of various victimization characteristics, such as the percentage of crimes reported to the police or involving intimate partners. The results of the latter two sets of analyses showed how changing the treatment of series victimizations might affect some key findings about trends in victimization characteristics.

Extent and nature of series victimization in the NCVS

Extent of series victimization

Beginning in 1993, BJS fully implemented the new NCVS methodology for measuring series victimization. In that year, respondents reported 6.7% of all violent victimizations and 1.3% of property crime as series victimizations. Over the next 17 years, the proportion of victimizations that were reported as series victimizations declined (table 1). Series victimizations in both violent and property crime constituted a smaller proportion of crime in recent years compared to the past.

When considering specific types of violent crime, series victimizations were slightly more common for rape and

sexual assault and simple assault victimizations compared to incidents involving robbery and aggravated assault, and this pattern existed during both the 1993 to 1999 and 2000 to 2009 periods (table 2). The NCVS data show that the proportion of violent victimizations reported as series victimizations declined over time for each category of violent crime. Among property crimes, series victimizations were slightly more common for burglaries than for other types of thefts, though series victimizations for property crime were less common than for violent crime. As was the case for violent crime, the proportion of property crimes that were reported as series victimizations declined over time.

TABLE 1
Percent of victimizations reported as series victimizations, 1993–2009

Year	Violent	Property and personal larceny
1993	6.7%	1.3%
1994	6.2	1.2
1995	5.7	1.1
1996	6.0	1.1
1997	6.3	1.0
1998	5.5	1.1
1999	4.9	0.8
2000	3.9	0.9
2001	3.6	0.8
2002	4.4	0.8
2003	4.8	0.8
2004	3.6	0.5
2005	4.1	0.5
2006*	4.4	0.7
2007	3.4	0.8
2008	3.7	0.7
2009	3.3	0.5

Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

TABLE 2
Percent of victimizations reported as series victimizations, by type of crime, 1993–1999 and 2000–2009

	1993–1999	2000–2009
Rape/sexual assault	6.3%	5.7%
Robbery	2.9	2.5
Aggravated assault	4.6	3.1
Simple assault	6.9	4.3
Personal larceny	0.3!	0.7!
Burglary	1.4	1.0
Motor vehicle theft	0.3	0.2!
Theft	1.1	0.7

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: National Crime Victimization Survey, 1993–2009.

Nature of violent series victimizations

Prior research by Lynch, Berbaum, and Planty (1998), Planty and Strom (2007), and Dodge (1984a; 1984b; 1987) examined the characteristics of violent series victimizations in detail. These studies found that typical violent series victimizations primarily consisted of three categories of assaults: those that occurred in the home and involved intimate partners or other family members; those that occurred at school and often involved persons known to one another; and those associated with certain occupations, typically involving offenders who were strangers to the victim. Victims in the third category were often police officers or other types of security officers, as well as medical workers.

We conducted a general replication of this past research using NCVS data from 2000 to 2009 to determine whether the characteristics of recent violent series victimizations remained similar. When a victim reported a series victimization, the interviewer obtained details about the most recent victimization. Assuming that the most recent victimization was similar to others in the series allowed for a description of the typical series victimization. The validity of this assumption could be examined because victims were also asked several questions about the similarities of the last victimization to others in the series. Analyses of the 2000 to 2009 NCVS data showed that the primary types of violent series victimization have changed little over time.

Victims reported that the most recent series victimization typically took place at work, at home, or at school, as was generally the case during the early 1990s (table 3). Because school- and work-related victimizations were primarily youth- and adult-related phenomenon, we further disaggregated the series victimizations by the victim's age. Males and females were considered separately because intimate partner violence was predominantly experienced by females. Examination of series victimizations disaggregated by the victim's age found that youth age 12 to 17 accounted

for 19% of series victimization reports, and adults age 18 or older accounted for 81% (table 4). As persons ages 12 to 17 composed approximately 10% of the population age 12 and older during 2000 to 2009, the data suggested that youth experienced series victimizations disproportionately compared to adults. Persons age 12 to 17 also accounted for a disproportionate share (22%) of non-series victimizations; therefore, youth were more likely than adults to report experiencing violent series and nonseries victimizations.

TABLE 3
Activity at time of most recent violent series victimization, 1992–1995 and 2000–2009

Location	1992–1995*	2000–2009
Total	100%	100%
Work	42.7	37.2
School	12.1	13.9
Leisure	16.4	7.9
Home	23.0	33.0
Other	5.2	6.6
Don't know	0.6	1.5!

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

*Lynch, J.P., Berbaum, M.L., & Planty, M. (1998). *Investigating repeated victimization with the NCVS*. Final report for National Institute of Justice Grant 97-IJ-CX-0027. Washington, D.C.: U.S. Department of Justice.

Source: National Crime Victimization Survey, 1992–1995 and 2000–2009.

TABLE 4
Distribution of violent series victimizations, by age and sex, 2000–2009

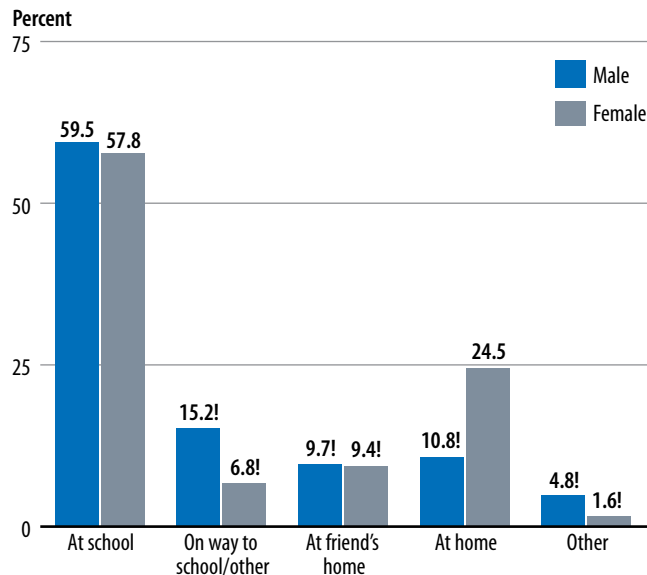
Age	Percent	Number of victimizations	Percent of total
Total		2,202,550	100%
12 to 17			
Total	100%	410,740	18.6%
Male	51.0	209,620	9.5
Female	49.0	201,120	9.1
18 or older			
Total	100%	1,791,810	81.4%
Male	48.2	862,910	39.2
Female	51.8	928,900	42.2

Source: National Crime Victimization Survey, 2000–2009.

Among youth, males and females reported comparable numbers of series victimizations. With regard to the activity at the time of the most recent victimization, the proportion of series victimizations that occurred at school was similar for male and female youth (figure 1). Adult males and females also reported similar numbers of series victimizations during 2000 to 2009. However, greater differences in the victim's sex were found among adults than among youth regarding their activity during the most recent series victimization (figure 2). Adult male victims most often reported that the series victimization took place while at work or on duty, while adult females most often reported that series victimizations occurred at home. Both male and female adults reported roughly similar proportions of victimizations occurring on the way to work or elsewhere and at the home of their friends.

For adult males, 65% of the series victimizations that took place at work or on duty involved victims who worked in law enforcement and security occupations (table 5). For adult females in series victimizations, 31% involved health occupations, 13% involved law enforcement and security occupations, 9% involved community and social work, and 7% involved teaching occupations. In previous research,

FIGURE 1
Activity during most recent incident in series victimization for male and female youth ages 12 to 17, 2000–2009

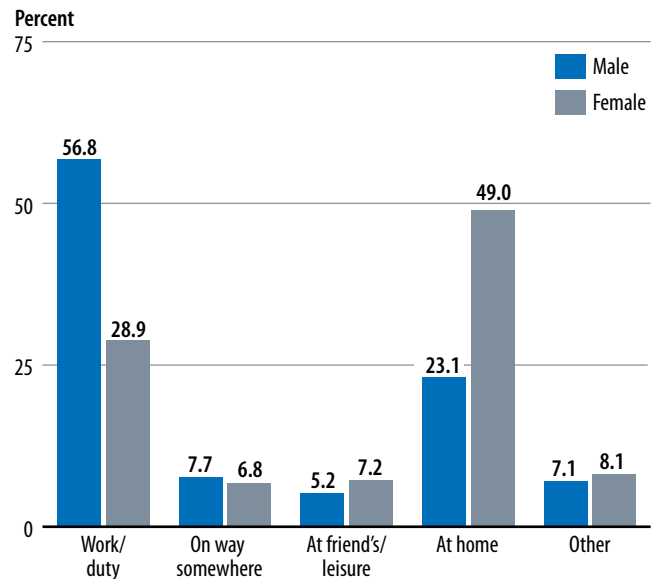


! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: National Crime Victimization Survey, 2000–2009.

the types of occupations found to be most associated with repeated victimizations were law enforcement, health-related, and teaching. The same general pattern occurred during 2000 to 2009, though the relatively low numbers of such cases in the data limit the ability to draw firm conclusions about the differences in occupations across men and women.

FIGURE 2
Activity during most recent incident in series victimization for male and female adults age 18 or older, 2000–2009



Source: National Crime Victimization Survey, 2000–2009.

TABLE 5
Violent series victimizations at work or on duty, by sex and occupation, age 18 or older, 2001–2009*

	Male	Female	Total
Total	100%	100%	100%
Medical	5.3!	30.6	14.3
Policing/security	64.6	13.2!	46.2
Social work	6.3!	9.3!	7.4
Education	--!	6.7!	2.4!
Business	7.2!	19.2	11.5
Service	9.8	11.6!	10.5
Transportation	3.1!	2.8!	3.0!
Other	3.8!	6.6!	4.8!
Number of incidents	369,890	206,160	576,040

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

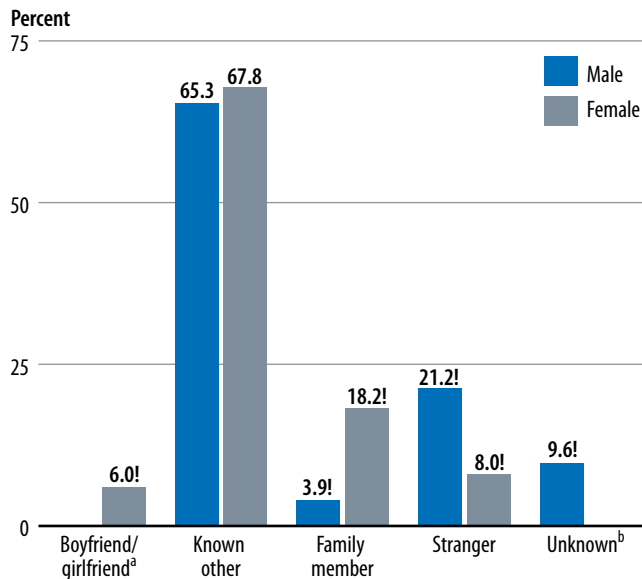
--Less than 0.5%.

*Occupation data not available prior to the third quarter of 2001.

Source: National Crime Victimization Survey, 2001–2009.

The victim-offender relationship reported in the most recent series also varied according to age and sex. For male and female youth, the victim most often reported that they knew the offender (figure 3). Greater sex differences occurred among adults in the victim-offender relationship in series victimizations (figure 4). Adult females most often reported that the offender was an intimate partner, and least often reported that the offender was a stranger. In comparison, among adult males, series victimizations were most likely to involve an offender who was a stranger and least likely to involve an offender who was an intimate partner.

FIGURE 3
Victim-offender relationship in most recent incident in series victimization for male and female youth ages 12 to 17, 2000–2009



! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

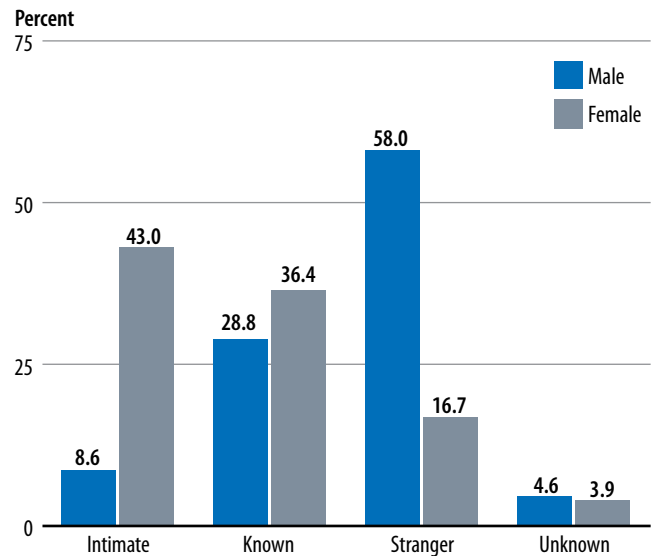
^aNot shown for male because the percentage is less than 0.5%.

^bNot shown for female because the percentage is less than 0.5%.

Source: National Crime Victimization Survey, 2000–2009.

To understand the possible similarities between the most recent victimization and others in the series, BJS examined the extent to which victims responded that the series victimizations involved the same offenders and whether they occurred in the same place. Victims were also asked whether the same thing happened each time and if the trouble was ongoing. Among both youth and adults, males and females most often reported that the victimizations occurred in the same place and that the same thing happened each time (table 6). However, females experienced more repeated violent victimizations at the hands of the same person than did males.

FIGURE 4
Victim-offender relationship in most recent incident in series victimization for male and female adults age 18 or older, 2000–2009



Source: National Crime Victimization Survey, 2000–2009.

Summary

The first set of analyses showed that series victimization reports have declined over time, as series incidents constitute a smaller proportion of all victimizations in more recent years when compared to the past. Victims were more likely to report a violent incident as a series victimization than theft as a series victimization. While violent series victimizations have declined in number and proportion over time, little has changed in the general nature of these victimizations. Similar to the findings from past research, analyses showed that violent series victimizations primarily consisted of domestic, school, and work-related violence. Overall, approximately

18% of series victimizations involved female intimate partner victims, 11% involved youth victims at school, and 36% involved adult victims at work. These three types of victimizations accounted for approximately two-thirds of all series victimizations reported from 1993 to 2009.

Among both youth and adults, males and females reported series victimizations at similar levels. However, adult females experienced more repeated incidents of violence at the hands of the same person, particularly intimate partners, and adult males experienced more repeated victimizations at the hands of strangers.

TABLE 6
Characteristics of most recent series victimization compared to other victimizations in the series, by age and sex, 2000–2009

Series incident	Youth ages 12 to 17		Adults age 18 or older	
	Male	Female	Male	Female
Done by the same person?				
Total	100%	100%	100%	100%
All by the same person	49.0	69.6	27.3	70.2
Some by the same person	31.9	26.4	15.4	11.7
None by the same person	9.9!	2.0	47.9	10.0
Missing	9.3!	2.0	9.3!	8.1
Occur in the same place?				
Total	100%	100%	100%	100%
All in the same place	59.9	65.6	55.6	66.2
Some in the same place	28.7	28.0	18.1	20.8
None in the same place	5.3!	4.4!	19.8	5.1
Missing	6.1!	2.0!	6.5	7.8
Same thing happen each time?				
Total	100%	100%	100%	100%
Yes	79.2	85.9	85.2	78.3
No	13.1!	12.1!	8.7	14.6
Missing	7.7!	2.0!	6.1	7.1
Is trouble still going on?				
Total	100%	100%	100%	100%
Yes	45.2	28.8	63.1	43.7
No	47.1	69.1	30.6	46.9
Missing	7.7!	2.0!	6.4	9.4
Number of incidents	209,620	201,120	862,910	928,900

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: National Crime Victimization Survey, 2000–2009.

Victim responses to “How many times did this type of incident happen?”

For victims of repeated violence, one of the reporting challenges is to recall exactly how many times the various victimizations occurred within a specific time period. Prior research shows that victims of repeated violence provide estimates of the number of times the incident occurred rather than counting directly from memory (Rand and Rennison, 2005; Planty and Strom, 2007). For some research purposes, estimations of the number of times an event occurred are sufficient, because the victims’ responses can be treated as ordinal in scale to distinguish higher-rate victims from lower-rate victims.

If the purpose is to provide a count of victimizations in order to calculate a national rate of victimization, the precision of the victim’s response is very important. This is especially true when the event being measured is statistically rare. Under this condition, the inclusion of a small number of high-rate victims can result in national rates that vary widely. The challenges that victims of repeated crimes have in recounting the number of times an event occurred are not unique to surveys designed to estimate victimization. Instead, they are common to all survey research in which respondents are asked to recount events that they experience frequently (e.g., Sudman et al, 1996; Groves et al, 2004).

When victims report that a high number of incidents have occurred, the issue of respondent burden is also a concern. Prior research shows that when survey questions impose greater demands on respondents, some respondents will either refuse to answer the questions or state that they do not know the answer. Most survey developers are aware of this problem, and they design questionnaires to obtain the maximum amount of information from as few questions as possible. Depending on experience, the interviewer may also prompt and encourage high-rate victims to provide details on each victimization, thus determining whether a series or nonseries strategy is used to gather the victimization information (Dodge, 1984a).

We analyzed victims’ responses to being asked how many times the victimization occurred to assess two issues: (1) the degree to which respondents appeared to estimate the frequency of the victimizations rather than directly counting from their memories of the experiences, and (2) the extent to which interviewers decided to use the series victimization

reporting strategy to reduce respondent burden. The first issue was assessed by comparing the observed distribution of the number of times series victims said they were victimized during the 6-month reference period to a theoretical distribution of expected responses. We also examined the consistency of victims’ responses, as series victims were asked this question twice within a single interview for the NCVS: once before they answered questions about the most recent victimization, and once after those characteristics were ascertained. Comparing answers to the same question asked twice during an interview constituted a test-retest reliability assessment that provided information about the consistency of victims’ responses.

The second issue investigated the interviewers’ use of series victimization reporting to reduce respondent burden. We assessed this issue by examining the distribution of the number of times all respondents said they were violently victimized during the 6-month reference period, and comparing the observed distribution of these counts against a theoretical distribution of expected responses to see if significantly fewer responses than expected occurred in the range of values leading up to 6 responses (i.e., fewer responses of 4 or 5 than of 6). If so, this would suggest that interviewers were engaging with respondents to decide how their repeated victimizations should be handled during the interview. If there were fewer than expected responses for values 4 or 5, then interviewers may have encouraged victims to report at least six victimizations so that the victim needed to only provide the details for the most recent victimization.

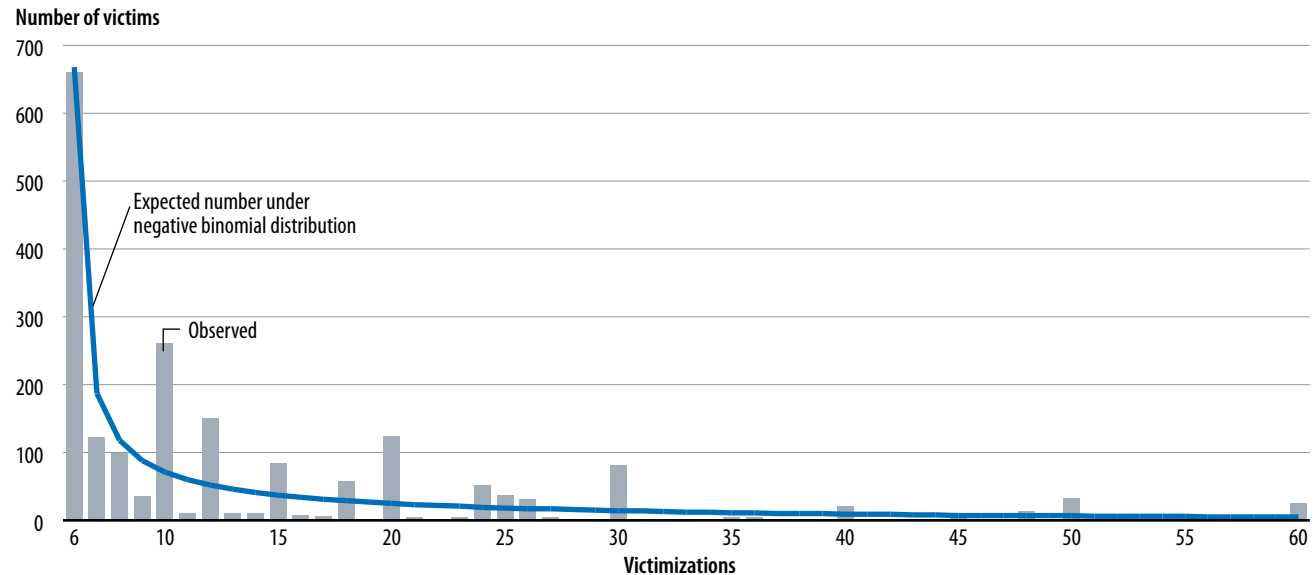
NCVS protocol asks victims who report five victimizations or fewer to report the details of each victimization. If the average length of time to administer the victimization form was 10 minutes, then victims who reported five victimizations may have spent 50 minutes discussing their experiences, while those who reported six incidents as a series victimization would have instead spent 10 minutes discussing the same experiences. Interviewers who sensed that the victim was unwilling or unable to provide the details for each victimization may have recorded 6 victimizations in response to the question “How many times did this type of incident happen?” so that only one victimization report was taken. If this occurred, incidents for such victims may have been overestimated and may not indicate the true number of victimizations.

Distribution of series victim responses

We examined the distribution of series victims' responses to being asked "How many times did this type of incident happen?" using data from the full NCVS period from 1993 to 2009 (figure 5). The data indicated that 6 was the most common answer to this question, and responses tended to cluster at values such as 10, 12, 15, 20, 24, and 30. These clusters of responses tended to be either multiples of 5, 6, or

10, suggesting that victims provided estimates of the number of times the incident occurred rather than counting directly from memory. Answers that are multiples of 5 or 10 are common in survey research (Blair and Burton, 1987; Burton and Blair, 1991; Belli et al, 2000). Answers that are multiples of 6 suggest that victims estimated the number of times the incident occurred each month and then multiplied it by 6 (the number months in the recall period).

FIGURE 5
Responses to "How many times did this type of incident happen?" for all violent series victimizations, 1993–2009



Note: The minimum number of victimizations required for the use of the series protocol is six victimizations. Unweighted violent series victimizations only. Responses greater than 60 not shown to facilitate display of response patterns.

Source: National Crime Victimization Survey, 1993–2009.

Six was determined to be the modal response to how many times the incident occurred in all years of the NCVS, which was the minimum number required for invoking the series incident protocol. The median value was 10 in nearly all of the years (table 7). However, the mean number of incidents per series victimization varied considerably over the years due to some victims' reports of very high values, such as 480 or 750 times during a 6-month period. Also, the mean number of victimizations declined over time because of reductions in the number of very high estimates from series victims. From 2007 to 2009, 30 was the maximum value for the number of times the victimizations occurred. Further investigation of this pattern revealed that this value reflected a programming decision to change from paper and pencil personal interviewing (PAPI) to a fully computerized administration of the NCVS interview (CAPI) in 2006. Since then, information about the number of times the victimizations occurred has been truncated to a maximum of 30.

Responses to “How many times did this type of incident happen?” constituted count data, and we conducted a series of dispersion tests using the generalized linear models (GLM) commands in Stata statistical software to determine which distribution best fit series victims' responses

(StataCorp, 2007). The negative binomial distribution was found to be the best fit for these responses, because the reporting patterns were highly skewed—or overdispersed—as the variance exceeded the mean. The observed response distribution was subsequently compared to those predicted by the negative binomial distribution parameters, and a Chi-square goodness of fit test was used to assess the deviation of series victims' responses from the predicted distribution. This test indicated that significantly more responses occurred than expected for values such as 10, 12, 15, and 20, as well as a larger number of multiples of 5 and 6 ($p < .001$). It also indicated that victims reported fewer cases than expected for the values in between these cluster points (e.g., 7, 8, 9, and 11).

This statistical test supported the interpretation that the responses were not clustered randomly, but systematically. Series victims have some difficulty recounting precisely how many times violent victimizations occur within a 6-month period. Victims also approximate the number of times the victimizations happened by either selecting numbers that are multiples of 5, or by estimating the number of times the victimization occurred each month and then multiplying that number by 6.

TABLE 7
Responses to “How many times did this type of incident happen?” for all violent victimizations, 1993–2009

Year	Descriptive statistics of responses							Number of cases
	Max	Mean	Low ^a	High ^a	Median	Skewness	Kurtosis	
1993	372	22.2	16.9	27.5	10	5.5	36.5	246
1994	480	22.9	18.0	27.7	10	6.1	52.9	291
1995	260	23.3	19.0	27.6	10	3.6	15.7	239
1996	750	29.3	21.3	38.6	10	7.2	71.7	218
1997	500	25.6	18.6	32.6	10	5.8	43.7	205
1998	240	24.7	18.9	30.5	10	3.2	12.0	152
1999	300	20.3	14.5	26.1	10	6.1	46.7	123
2000	200	22.2	14.4	29.9	10	3.5	13.0	85
2001	100	14.2	10.4	17.9	10	3.6	16.0	66
2002	100	14.4	10.2	18.6	10	4.1	17.6	69
2003	160	19.4	13.3	25.4	10	3.8	16.2	78
2004	120	14.3	9.6	19.0	9	4.2	20.8	59
2005	360	22.5	9.6	35.4	10	6.1	41.1	58
2006 ^b	100	14.3	11.2	17.4	10	3.9	19.9	81
2007	30	16.9	14.4	19.5	12	0.3	-1.6	55
2008	30	12.8	10.5	15.1	10	1.1	-0.2	50
2009	30	13.9	11.4	16.4	10	0.9	-0.5	42

^aBounding value for 95% confidence interval.

^bDue to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

Consistency of responses

After series victims finished answering questions about the most recent victimization in the series, they were asked “How many times did this kind of thing happen to you during the last 6 months?” This allowed BJS to test the reliability of the respondent’s answers across similar questions asked at different times during the same interview. Approximately 22% of the data were missing for this question, so a comparison of these two items could only be done for 78% of violent series crime victims. The bivariate correlation between series victims’ response to this question and the first question was high ($r = .87, p < .001$), and 89% of the responses overall were the same for both questions (figure 6).

The percentage of consistent responses varied depending on how many incidents the victims reported when first asked the question. For the majority of series victims who initially reported experiencing 6 to 10 victimizations, 93% reported the same number when subsequently asked. For those who initially reported 11 or more victimizations, 84% reported the same number when asked again. The relationship between the number of victimizations initially reported (6 to 10 compared to 11 or more) and the consistency of responses (yes or no) was statistically significant (Chi-square = 36.93, $df=1, p < .001$).

We also assessed whether victims who did not report the same count in both questions provided higher or lower estimates to the later question. The distribution of the discrepant answers balanced somewhat evenly with roughly 7% responding with a higher number to the later question and 4% responding with a lower number (table 8). Even though a small proportion of series victims provided different answers to the two questions, the magnitude of the discrepancies was often quite large. For victims who provided higher estimates to the later question, the mean change was 35.1 (standard deviation=61.5) victimizations. For victims who provided lower estimates to the later question, the mean change was 25.1 (standard deviation=41.3) victimizations. Additional analyses revealed that the magnitude of the discrepancy increased as the

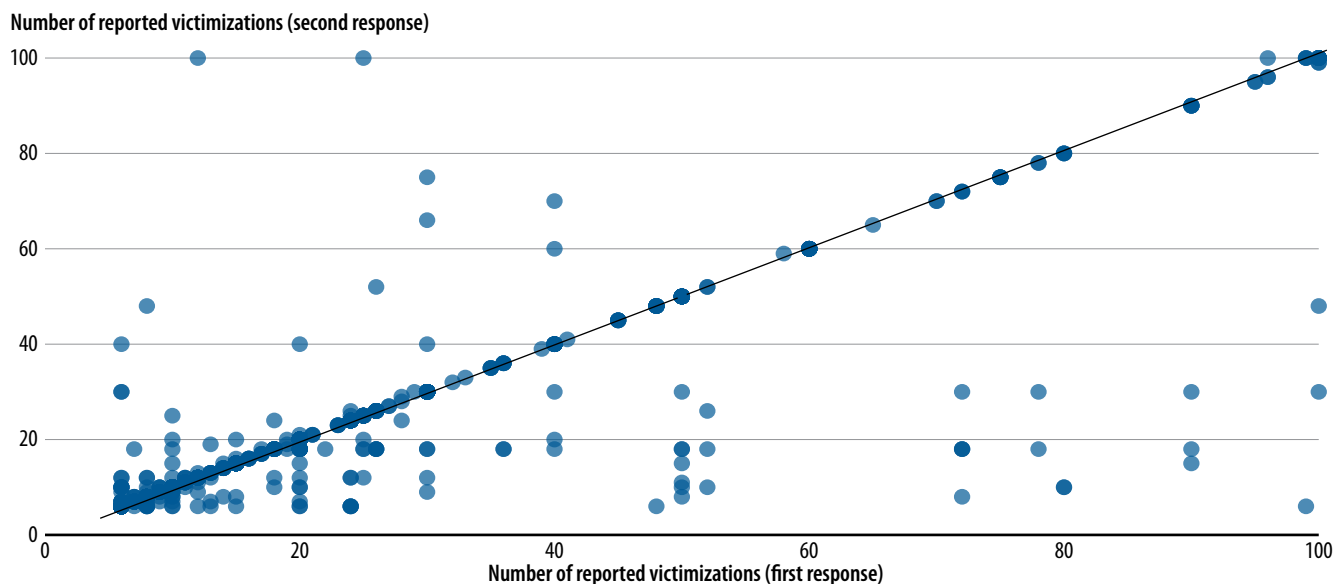
TABLE 8
Consistency of first and second responses to "How many times did this type of incident happen?", 1993–2009

	Number of victimizations
All violent series incidents	6,305,530
Answers for both questions	4,926,080
Same responses	4,390,940
Different responses	535,140
Higher value to first question	207,540
Higher value to second question	327,600

Source: National Crime Victimization Survey, 1993–2009.

FIGURE 6

Series victims' first and second responses to "How many times did this type of incident happen?", 1993–2009



Note: The minimum number of victimizations required for the use of the series protocol is six victimizations. Unweighted violent series victimizations only. Cases along diagonal line represent consistent responses. Values greater than 100 on either first or second question were excluded to facilitate the display of responses.

Source: National Crime Victimization Survey, 1993–2009.

victims' responses to the initial question increased. For example, the mean discrepancy between the two estimates for victims who initially reported 10 or more incidents was 5.5 victimizations (figure 7). For those who initially reported 18 or more victimizations, the mean discrepancy was 8.4 victimizations. For those who initially reported 60 or more victimizations, the average discrepancy was 15.2 victimizations.

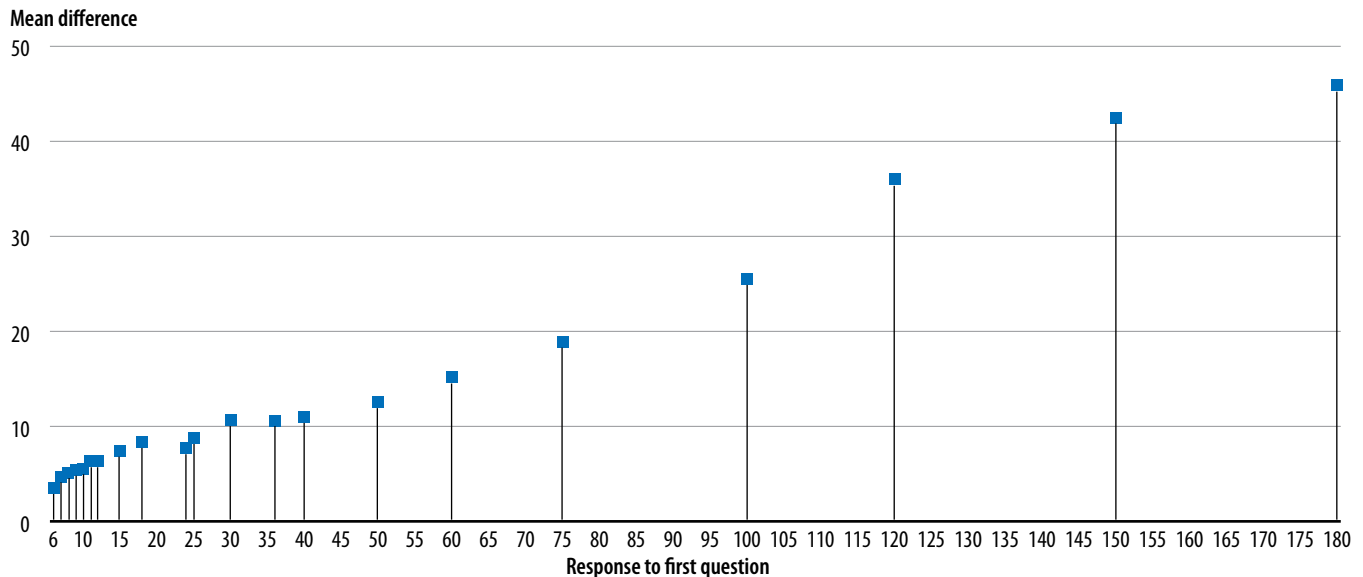
Distribution of responses by all victims of violence

To examine the possibility that interviewers recorded violent crime victims with fewer than six victimizations as having more than six victimizations and used the victim series protocol, we analyzed the distribution of all violent crime victims' responses to being asked "How many times did this

type of incident happen?" Both the mode and the median answer to this question was one, indicating that the vast majority of violent crime victims reported one victimization over the 6-month recall period.

The negative binomial distribution was the best fitting distribution for the responses of all violent crime victims because the values were highly skewed (figure 8). A comparison between the observed distribution of responses to those predicted by the negative binomial distribution revealed that significantly fewer responses were reported than expected for values 4 and 5, and significantly more responses were reported than expected for 6. This pattern of responses suggested that interviewers may have decided to use the series victimization reporting protocol to reduce respondent burden.

FIGURE 7
Mean difference between the first and second responses to "How many times did this type of incident happen?" for all violent series victimizations, 1993–2009

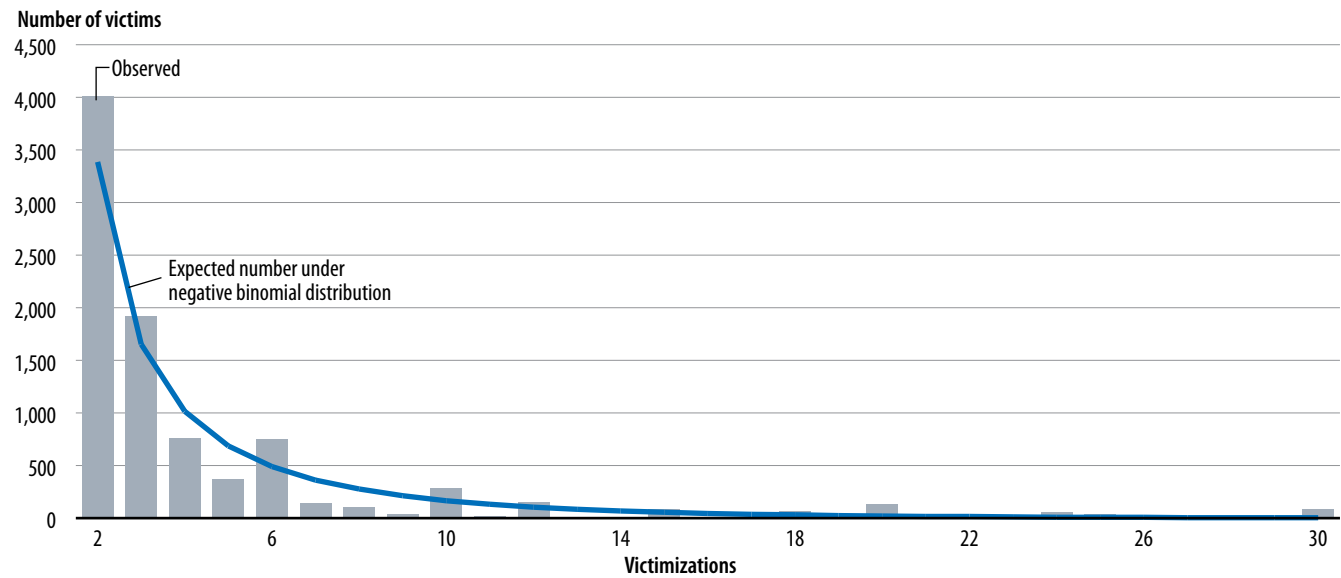


Note: The minimum number of victimizations required for the use of the series protocol is six victimizations. Mean difference represents the absolute value of the difference between the answers to the first and second questions, at various cut-off points.

Source: National Crime Victimization Survey, 1993–2009.

FIGURE 8

Responses to "How many times did this type of incident happen?" for all violent victimizations, 1993–2009



Note: Unweighted counts. Responses of 1 and greater than 30 not shown to facilitate the display of response patterns.
Source: National Crime Victimization Survey, 1993–2009.

Summary

Our assessment of series victims' responses to being asked "How many times did this type of incident happen?" confirmed past research findings suggesting that many series victims have difficulty recalling exactly how many times violent victimizations occurred within a 6-month reference period. The observed patterns of response clustering indicated that many victims provided estimates of the number of times the victimizations occurred rather than counting directly from memory.

Comparisons of the counts from the two different questions suggested that even though series victims may have approximated the number of times the events happened, a

large majority did so consistently. Those discrepancies that did occur were often large in magnitude, especially when the initial response to the question suggested higher counts of violent victimization.

In addition, when we examined the responses to the question using data from all victims of violence, evidence suggested that interviewers classified some victims who may have had four or five victimizations as series victims, perhaps because the interviewer decided that it was important to use the series victimization protocol to reduce respondent burden. For these cases, a count of 6 victimizations was likely to be an overestimate of the number of victimizations that occurred.

Counting series victimizations

Prior research findings and our analyses suggest using a capping method when counting series victimizations for national victimization rates to limit the influence of higher and less consistent reports. Using a capping strategy made it necessary to determine at what level the cap should be set. Other countries that provide victimization rates (rather than prevalence rates) used a cap of five for victimizations similar in nature (using a 1-year recall period). A comparable cap of five for the NCVS would be illogical, as series victimizations must include at least six victimizations according to the definitions used in the NCVS. Although the modal response category by series victims is six victimizations for all NCVS years, a cap of six would be too low, as it would not capture the relative frequency of victimizations for the majority of series victims.

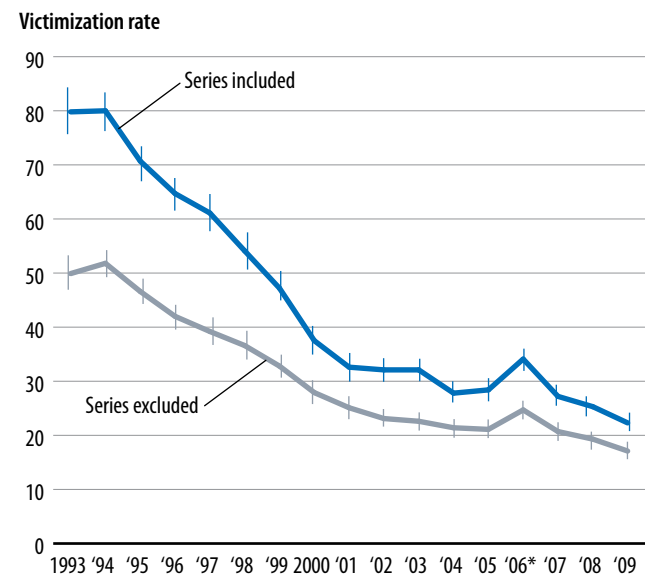
The median response count for series victims of violence was 10 victimizations per the 6-month recall period across nearly all NCVS years. The decision was made to use a value of 10 as the cap on series victimizations because it was found to be stable over time and included the count provided directly from the victim for the majority of series victimization cases. The cap of 10 was also selected because the consistency of responses began to decline at that point, and the magnitude of the discrepancies began to increase.

Now when the NCVS national victimization rates are estimated to include series victimizations, the experiences of all series victims will be taken into consideration. When series victims state that the number of times the victimization occurred is 10 or fewer, those experiences will be counted at their stated value using the victim's response provided when first asked to report this count. Series victims who provide responses that are greater than 10 will have their experiences counted as 10 victimizations so that the overall impact on the victimization rates of the higher and less consistent estimates will be reduced. Series victims who are unable to provide a count of the number of times the victimization occurred, but who report that it occurred at least six times, will be counted as having experienced 6 victimizations (the modal response category).

This new series counting decision balances the concerns of wanting victimization rates to include the experiences of high-rate victims while understanding that multiple sources of error exist in estimates of the number of victimizations that occurred. These sources of error include less consistency when the counts are higher, a greater magnitude in the discrepancies when the counts are higher, and possible overestimation of some victimization counts in instances where victims report four or five victimizations, but interviewers then use the series protocol requiring a minimum of six victimizations to reduce respondent burden.

Beginning with NCVS data for 2010, the annual BJS report *Criminal Victimization* included estimates of violent victimization that took series incidents into account by using a cap of 10 victimizations per series report (figure 9). (For more information, see *Criminal Victimization, 2010*, NCJ 234408, September 2011.) To assess the impact of the new series counting, the rates of violent victimization were compared without the inclusion of series victimizations to the rates that included series victimizations from 1993 to 2009.

FIGURE 9
Violent victimization rates with series victimizations included and excluded, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

Impact of including series victimizations on national estimates of violence

Including series victimizations in the rate estimation procedure required subsequent analyses to determine how the new counting procedure affected conclusions about the levels and trends in rates for specific types of crime, such as those most typically found in series incident reports. These analyses examined whether incorporating series victimizations would produce different conclusions about the trends in the violent crime. While the level of the rates would be higher, it was unknown whether the trends from 1993 to 2009 would differ depending on the treatment of series victimizations. The research extended the earlier analyses of series victimization by Planty and Strom (2007) that covered the period from 1993 to 2000 by including data from the subsequent decade.

From 1993 to 2009, the victimization rates ranged from 23% to 37% lower than the rates obtained when series victimizations were included. Differences between the two estimates were statistically significant in each year ($p < .05$). However, the introduction of series victimizations in these estimates did not affect the general trends in the violent victimization rate. Both trends showed a similar pattern of decline from 1993 to 2009. The decline from 1993 to 2009 was 70% when violent victimization rates excluded series victimizations, and the decline was 76% when series incidents were included. Similarly, the declines ranged from about 30% to 52% from 2001 to 2009. The average change estimate from 2008 to 2009 showed a 6% decline with the inclusion of series victimizations and an 11% decline without the inclusion of series victimizations. Due to the declines in the proportions of violent victimization reported as series incidents, BJS expects a greater similarity over time in the levels of violent victimization under the two counting schemes.

When attempting to compare specific crime types including and excluding series victimizations, conceptual issues arose because victimization details were gathered only for the most recent incident in the series victimization. They were the only details available for the purpose of classifying the victimizations into specific types of crime, and the new series counting procedure treated all other victimizations in the series as the same. It seemed reasonable to assume that if the most recent victimization was violent, then the other victimizations in the series were also violent. Also, when a victim reported that the victimizations were of the same type and that the most recent victimization was sexual violence, one may assume that the other victimizations in the series were similar because sexual aspects of assaults are highly memorable.

However, it was less clear whether victims thought about specific aspects of the victimization necessary for classification, such as a theft in an attempted or completed robbery, when asked if the incidents were similar to each other in detail. If the objective was detailed classification of victimization, the assumption of incident homogeneity across series victimizations for some types of crime was less likely to be supported. For example, in the case of repeated bullying among youth at school, the most recent victimization may have involved the attempted or completed taking of property by force; however, the majority of the other victimizations experienced by the victim may not have included this specific element, which distinguishes an assault from a robbery.

The counting of series aggravated assaults and simple assaults raised similar concerns about incident homogeneity. The main difference between a simple assault and an aggravated assault was whether a serious injury resulted from the victimization or whether a weapon was used during the assault. Victims may not have been making such distinctions when asked whether a series of victimizations were similar to each other in detail. It was also possible that victims recalled and focused on other aspects of the victimization, such as the context in which the victimization occurred (e.g., at school, home, or work) or whether it involved the same offender (e.g., intimate partner violence). In addition, when victims reported about the most recent victimization, they may have been instead reporting the details of the most salient of recent victimizations, which was likely the more serious type of assault in the series. Without further questioning, it was difficult to know exactly what victims were thinking about when asked if the series of victimizations were similar to each other in detail. This issue about the nature and degree of similarity across series victimizations became more important as the level of detail in the crime classification scheme increased.

To gain further information about violent series and nonseries victimization characteristics, we examined whether series victimizations appeared to be significantly different in their details compared to nonseries victimizations. If the detailed characteristics of series and nonseries victimizations did not statistically differ from each other, it would have suggested that victims reported about the most recent victimization when asked to do so rather than reporting about the most serious victimization in the series.

A comparison of the distribution of specific characteristics for series and nonseries victimizations suggested that the two types of victimization reports were significantly different (Chi-square=180.2, df=19, $p < .001$) (table 9). In other words, series victimization reports differed in at least some characteristics from nonseries victimization reports of violence. However, the magnitude of the differences between series and nonseries victimizations was relatively small ($V=.07$). (See *Methodology* for more information about the standard error computations.)

The specific victimization characteristic that accounted for much of this observed difference was whether the victimization was primarily a verbal threat of assault. A verbal threat of assault was the most common type of violent victimization but had somewhat more prevalence among series victimizations. Verbal threats of assault constituted 27% of violent victimizations in nonseries and 36% of violent victimizations in series reports. These patterns suggested that the characteristics of series victimizations were only slightly different in nature from nonseries victimizations, and that victims were likely to report about the most recent victimization in the series instead of the most serious victimization in the series. This helped confirm that the inclusion of series victimizations in the victimization rate will have had a slightly greater effect on simple assault rates than on rates of more serious forms of violence, because verbal threats are generally categorized as simple assaults in BJS reports.

The degree to which the inclusion of series victimizations would affect crime-specific rates depended on the relative rarity and the proportion of series victimizations for that type of crime. Annual estimates of rape and sexual assault varied more from year to year depending on the inclusion of series victimizations, because this type of crime occurred less often than nonsexual assaults. Rape and sexual assaults contained a higher proportion of series victimizations compared to robbery and aggravated assault. When annual estimates were sensitive to the inclusion of series victimizations, percentage change estimates across selected years were more likely to vary.

Prior research by Planty and Strom (2007) found that the degree to which the inclusion of series victimizations affected the annual victimization rates varied by crime type. Using data from the NCVS from 1993 to 2000, they found that estimates of rape and sexual assault were most sensitive to the inclusion of series victimizations, as were simple assaults. Our research suggested similar conclusions to those reported by Planty and Strom (2007).

TABLE 9
Characteristics of violent incidents for nonseries and series victimizations, 1993–2009

Type of Incident	Nonseries	Series
Total	100%	100%
Completed rape	1.4	1.9
Attempted rape	0.8	0.5
Sexual attack with serious assault	0.2	0.4
Sexual attack with minor assault	0.2	0.3
Sexual assault without injury	0.6	0.4
Unwanted sexual contact without force	0.3	0.5
Verbal threat of rape	0.3	0.5
Verbal threat of sexual assault	0.2	0.5
Completed robbery with injury from serious assault	1.3	0.8
Completed robbery with injury from minor assault	1.3	0.8
Completed robbery without injury	4.7	2.5
Attempted robbery with injury from serious assault	0.4	0.2
Attempted robbery with injury from minor assault	0.6	0.5
Attempted robbery without injury	2.9	1.4
Completed aggravated assault with injury	6.1	5.8
Attempted aggravated assault with weapon	6.2	5.1
Threatened assault with weapon	8.2	5.1
Simple assault completed with minor injury	14.2	11.9
Simple assault without injury or weapon	23.1	24.9
Verbal threat of assault	26.8	36.0
Number of incidents (unweighted)	38,785	2,186

Note: Chi-square statistic=180.2, $p < .001$; Cramer's $V=.07$.

Source: National Crime Victimization Survey, 1993–2009.

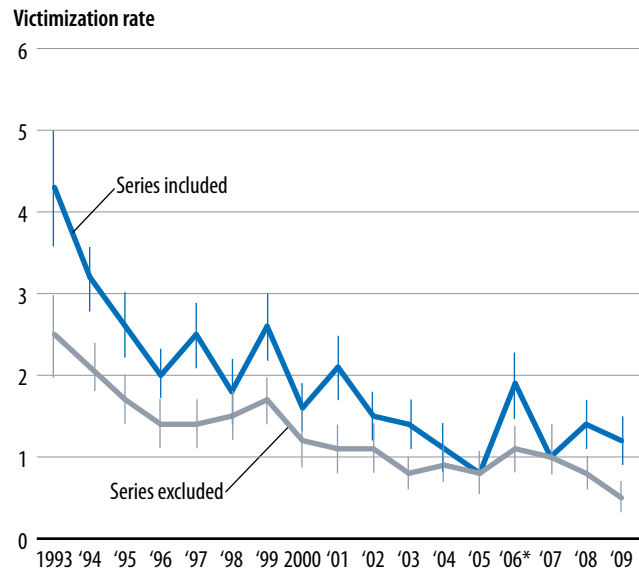
Impact of including series victimizations on major crime categories

Rape and sexual assault rates

For rape and sexual assault, the rates excluding series victimizations ranged from 0% to 48% lower than the rates obtained when series victimizations were included (figure 10). In 1998, 2004, 2005, and 2007, the differences between the two estimates were not statistically significant ($p < .05$), primarily because victims reported very few series victimizations of these types. In each of these years, the total unweighted number of series rape and sexual assault victimizations reported was three or fewer. The inclusion of series victimizations in the estimates generally did not affect the long-term trends in rape and sexual assault, although the estimate of the magnitude of change over time varied depending on the years selected for comparison.

While both trends showed a similar pattern of decline from 1993 to 2009, more annual variation occurred in the rates that included series victimizations. From 1993 to 2009, rape and sexual assault rates declined 80% when excluding series victimizations and declined 72% when including series victimizations (table 10). When estimating the change from 2001 to 2009, the rates declined 54% when excluding series victimizations and 42% when including series victimizations. The most recent annual change in this series (i.e., from 2008 to 2009) was estimated to be a 39% decline excluding series victimizations and a 13% decline including series victimizations. Since BJS reports included tests for whether each percentage change estimate was statistically significant, the same general conclusion would have been made about the changes in rape and sexual assault from 2008 to 2009 regardless of whether series victimizations were included. In this instance, neither change estimate was significant.

FIGURE 10
Rape and sexual assault victimization rates with series victimizations included and excluded, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

TABLE 10

Percent change in victimization rates with series victimizations included and excluded, by type of crime

Years	Total violence		Rape/sexual assault		Robbery		Aggravated assault		Simple assault	
	Included	Excluded	Included	Excluded	Included	Excluded	Included	Excluded	Included	Excluded
1993–2009	-72%	-66%	-72%	-80%	-70%	-65%	-75%	-57%	-71%	-62%
2001–2009	-30	-32	-42	-54	-14	-24	-33	-39	-33	-29
2008–2009	-6	-11	-13	-39	-7	-4	5	-3	-16	-13

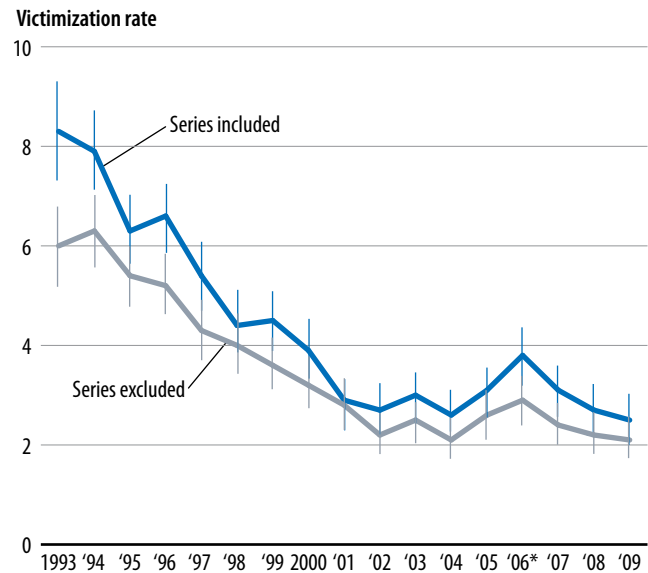
Source: National Crime Victimization Survey, 1993–2009.

Robbery rates

Robbery rates that excluded series victimizations ranged from about 5% to 28% lower than rates that included series victimizations (figure 11). In several years (1998, 2001 to 2005, 2008, and 2009), the differences between the two estimates were not statistically significant ($p < .05$) because very few victims reported series victimizations of robbery. In each of these years, the total annual number of unweighted series robbery victimization reports was five or fewer. The long-term trends in robbery tended to not be sensitive to the inclusion of series victimizations, but the estimates of the magnitude of change also varied depending on the years selected for comparison.

Both trends showed similar rates of declines from 1993 to 2009. The rate declined 65% when excluding series victimizations and declined 70% when including series victimizations. From 2001 to 2009, the rate declined 24% excluding series victimizations and 14% including series victimizations. From 2008 to 2009, the rate declined 4% excluding series victimizations and 7% including series victimizations. Even when the differences in the change estimates appeared to be somewhat large in magnitude (e.g., down 24% compared to down 14%), the same general conclusion might have been drawn. In this instance, both estimates revealed a significant decline; however, what remains unclear is which estimate BJS should use to indicate the size of the decline.

FIGURE 11
Robbery victimization rates with series victimizations included and excluded, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

Aggravated assault rates

Aggravated assault rates that excluded series victimizations ranged from about 12% to 35% lower than rates that included series victimizations, and the differences in the annual rates were statistically significant in all of the years except 2001 and 2008 ($p < .05$) (figure 12). There were 9 unweighted series aggravated assault victimization reports in 2001 and 4 in 2008. The long-term trends in aggravated assault were generally similar with and without series victimizations, but the estimates of the magnitude of change varied depending on the years selected for comparison.

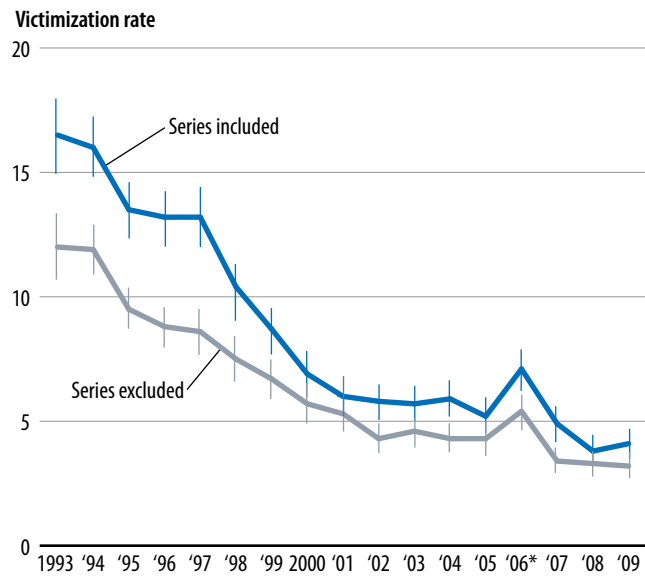
Both trends show declines from 1993 to 2009, but the decline was 57% when series victimizations were excluded and 75% when series victimizations were included. From 2001 to 2009, the rate declined 39% excluding series victimizations and declined 33% including series victimizations. However, estimates comparing 2008 to 2009 appeared to suggest different short-term trends depending on how series victimizations were treated. When series victimizations were excluded, the aggravated assault rate appeared to decline 3% from 2008 to 2009. When series victimizations were included, the rate of aggravated assaults appeared to increase 5% during the same time period. Neither of the more recent changes (2008 to 2009) in aggravated assault were statistically significant, so the general conclusion that no significant change occurred in this type of victimization from 2008 to 2009 held regardless of which series counting procedure was used.

Simple assault rates

Simple assault rates with and without the inclusion of series victimizations exhibited generally similar long-term trends (figure 13). The rates that excluded series victimizations ranged from about 23% to 42% lower than those that included series simple assaults. These level differences were statistically significant ($p < .05$) in all years, primarily because the proportion of simple assaults reported as series victimizations was relatively high compared to other types of violence.

The fewest unweighted number of series simple assault reports was 28 in 2009. The trends showed roughly similar rates of declines from 1993 to 2009, with a 62% decline when series victimizations were excluded and 71% decline when series victimizations were included. The declines from 2001 to 2009 were also comparable, with a 29% decline when series victimizations were excluded and a 33% decline when series victimizations were included. The percentage change from 2008 to 2009 also suggested similar rates of decline. During this time period, the simple assault rate declined 13% when excluding series victimizations and 16% when including series victimizations.

FIGURE 12
Aggravated assault victimization rates with series victimizations included and excluded, 1993–2009

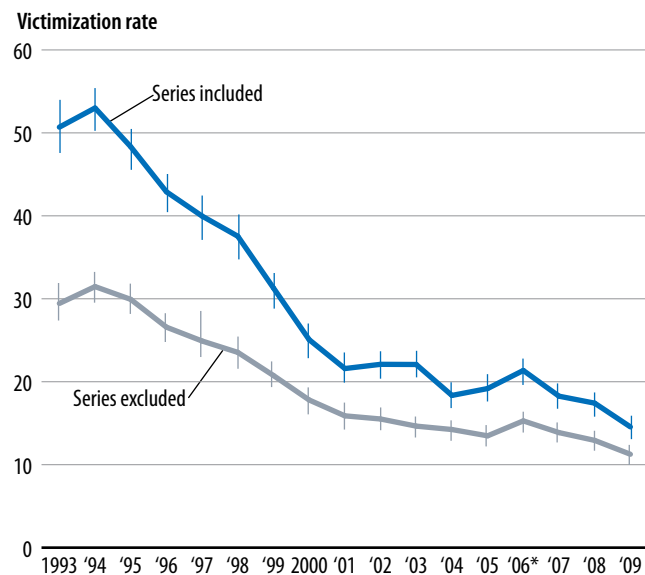


Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

FIGURE 13
Simple assault victimization rates with series victimizations included and excluded, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

Impact of including series victimizations on violence rates for types often reported as series

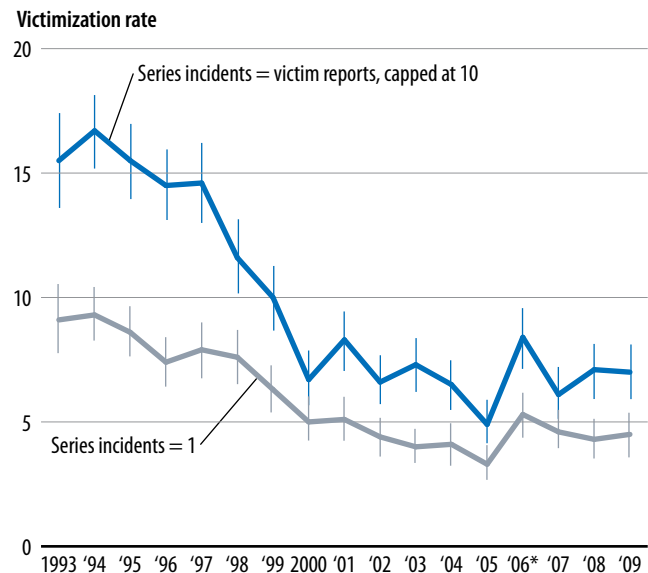
Female intimate partner violence

Among the most typical types of series victimizations, intimate partner violence was the most consistent in its characteristics across all victimizations in the series. For example, from 1993 to 2009, female intimate partner series victimizations were reported to have been committed by the same offender in 99% of the series reports, and in 86% of the series reports the victim said that the same thing happened each time. Unlike the annual *Criminal Victimization* bulletin, BJS special topic publications about female intimate partner violence have included series victimizations by counting the series victimization as one.

BJS practice has been to count series victimizations as one victimization in the intimate partner violence reports, rather than as the number of victimizations that the victim reported for the series (with or without a cap), due to concerns about whether the characteristics of the most recent victimization were the same for other victimizations in the series. Counting a series victimization as one victimization has both advantages and drawbacks. The advantage is that the details the victim provided are known for at least one victimization (that is, the last victimization in the series), and no assumptions are made about the last victimization's similarities to other victimizations in the series. The drawback is that at least six victimizations must be reported to qualify for the series incident protocol; therefore, the rates are clearly underestimated by counting the victimization as one. However, counting a series victimization as the number of victimizations that the victim reported (with a cap of 10) produces the same uncertainties because the degree of similarity in characteristics across the victimizations in the series is unknown.

To assess how the treatment of series victimizations affects the levels and trends in intimate partner violence, we estimated female victimization rates by counting series intimate partner violence as one, then compared those rates to the estimates of the number of times the victim said the victimizations happened, using a cap of 10 (figure 14). The definition of intimate partner violence used here was a summary measure including all forms of violence (i.e., rape and sexual assault, robbery, and aggravated and simple assault). Female rates of intimate partner violence that included series victimizations counted as one range from about 25% to 49% lower than those that included series victimizations using the alternative counting strategy. The level differences in the annual rates were statistically significant in each year ($p < .05$).

FIGURE 14
Rates of female intimate partner violence including series victimizations counted as 1, and counted using victim reports for females age 12 and older, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.

*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

While the differences in the levels were apparent, the overall trends showed roughly similar patterns across the period from 1993 to 2009. During this time, annual rates of female intimate partner violence declined 51% when series victimizations were counted as one and declined an estimated 55% when series victimizations were counted using the victim reports (table 11). The percentage change from 2001 to 2009 also differed only slightly. When series victimizations were counted as one, the rates indicated a 12% decline from 2001 to 2009. When the victimizations were counted using the victim reports, the rates suggested a 15% decline. From 2008 to 2009, counting series victimizations as one suggested a 6% increase in intimate partner violence, while counting them using the victim reports resulted in a 1% decline. However, neither of the 2008 to 2009 change estimates was significant, generally concluding that no significant change in female intimate partner violence occurred from 2008 to 2009. Even though the actual percentage change estimates were somewhat sensitive to the years under consideration, these differences in the percentage change estimates were not statistically significant.

Youth violence at school

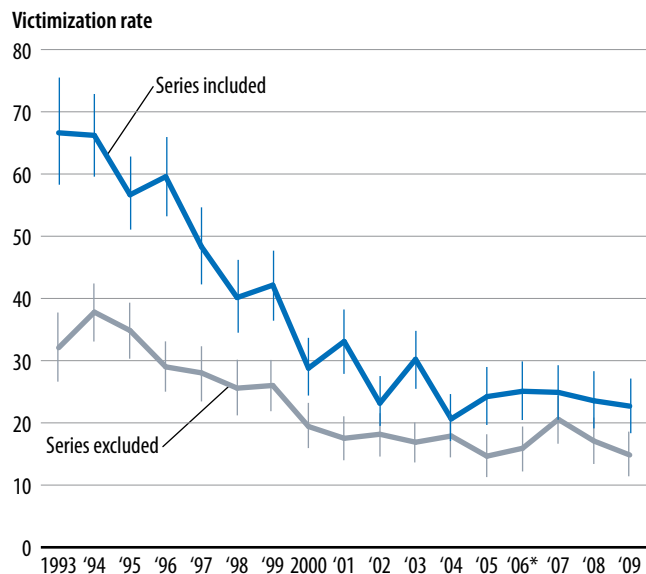
A notable proportion of series victimizations involved victims ages 12 to 17 who reported that the last victimization in the series occurred at school. To assess how estimates of youth violence at school were affected by the inclusion of series victimizations, BJS compared the victimization rates with both series victimizations included and excluded using the victim's report capped at 10.

From 1993 to 2009, youth reported that the same thing happened each time in 84% of the series reports. Unlike intimate partner violence, these victimizations were not overwhelmingly committed by the same person. Victims responded that the victimizations at school were committed by the same offender in 54% of the reports, that some of the victimizations involved the same offender in 34% of the reports, and that none of the victimizations involved the same offender in 7% of the reports. While the nature of the victimizations may have been similar from the victim's perspective, the same offenders may not have been involved

in a large proportion of these series victimizations. Based on this analysis, if the purpose is to estimate the characteristics of offenders in youth violence victimizations, it cannot be assumed that the characteristics of the offenders in the most recent victimization are indicative of others in series. However, if the purpose is to estimate rates of violent youth victimization at school, then the inclusion of series victimizations would appear to be reasonable.

Victimization rates of youth violence at school that excluded series victimizations ranged from about 13% to 52% lower than rates that include series victimizations using the victim's report capped at 10 (figure 15). The level differences in the annual rates were statistically significant ($p < .05$) in each of the years except 2002, 2004, and 2007.

FIGURE 15
Rates of violent victimization at school with series victimizations included and excluded for youth ages 12 to 17, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

TABLE 11
Percent change in victimization rates with series victimizations included and excluded, by type of victimization

Years	Female intimate partner violence		Youth violence at school		Adult violence at work	
	Included	Series included as 1*	Included	Excluded	Included	Excluded
1993–2009	-55%	-51%	-66%	-54%	-82%	-75%
2001–2009	-15	-12	-31	-15	-43	-48
2008–2009	-1	6	-4	-13	-18	-23

*Unlike other types of crime, percentage change comparisons for female intimate partner violence are provided for including series victimizations as 1 victimization. See *Methodology*.

Source: National Crime Victimization Survey, 1993–2009.

While the differences in the levels in some of the years were considerable, the two trends showed roughly similar rates of declines from 1993 to 2009. The rate of youth violence at school declined 54% when excluding series victimizations. When series victimizations were included and counted using the victim reports, the decline was somewhat larger at 66%. The magnitudes of the declines from 2001 to 2009 differed more depending on the treatment of series victimizations. Between 2001 and 2009, the rates suggested a 15% decline when series victimizations were excluded. However, when the series victimizations were counted using the victim reports, the rates suggested a 31% decrease which was twice as large. Between 2008 and 2009, the rates for youth violence at school suggested a 13% decrease when excluding series victimizations, while the rates including series victimizations showed a 4% decrease. Long-term trends in youth violence at school suggested somewhat similar declines under both treatments of series victimizations. However, the percentage change estimates were sensitive in some instances to the treatment of series victimization and the years selected for consideration.

Adult violence at work or on duty

The largest proportion of series victimizations were those that the victim reported to have occurred at work or on duty. In 80% of these series victimizations, the victim said that the same thing happened each time, which was slightly lower than those for female intimate partner violence and youth violence at school. Victims reported that the victimizations involved all the same offender in only 12% of the series reports for violence at work. In the case of work-related violence, it is not reasonable to assume that the offender characteristics found in the series report were the same as those for the other victimizations in the series.

We estimated rates of violence at work or on duty that included and excluded series victimizations for persons ages 18 or older, because adults overwhelmingly reported work-related series victimizations rather than youth. Rates of work-related victimization that excluded series victimizations ranged from about 33% to 57% lower than the rates that included series victimizations using the alternative counting strategy (figure 16). The level differences in the annual rates were statistically significant in each of the years ($p < .05$). The two trends showed roughly similar rates of declines from 1993 to 2009. The rate of violence at work or on duty declined 75% when excluding series victimizations. When series victimizations were included and counted using the victim reports, the decline was slightly larger at 82%. In fact, rates of adult violence at work have declined somewhat faster than rates of intimate partner violence and youth violence at school.

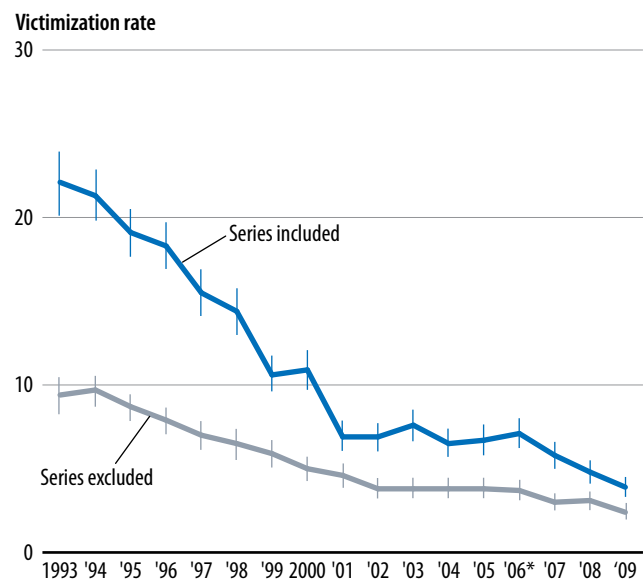
The estimated magnitudes of the declines from 2001 to 2009 differed a bit more. When series victimizations were excluded, the decline was 48%. However, when counted using the victim reports, the decline was 43%. The percentage change in work-related violence from 2008 to 2009 was also similar. The rates that excluded series victimizations suggested a 23% decrease, while the rates that include series victimization indicated an 18% decrease.

Summary

Including series victimizations to estimate the rates of specific forms of violence increased the levels substantially. The magnitude of the impact of including series victimizations varied across years and crime types, in part reflecting the relative rarity of a particular type of offense. This was not unexpected given the findings from previous research on this issue (e.g., Planty and Strom, 2007).

The apparently random component of year-to-year variation among some crime types suggested that caution be used when estimating the magnitude of change for specific forms of violence between any two years. Using both methods of counting series victimizations would be the most comprehensive approach for assessing change in specific

FIGURE 16
Rates of violent victimization at work or on duty with series victimizations included and excluded for adults age 18 or older, 1993–2009



Note: Each estimated rate includes 95% confidence intervals.
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

forms of violence, as well as viewing temporal changes over comparatively long periods of time. Counting series victimizations using both methods would provide a more complete understanding of change in violent victimization by giving context to the difference between the two rates and their change estimates.

Impact of series counting decisions on selected victimization characteristics

The final set of analyses assessed how different treatments of series victimizations affected conclusions about the prevalence of various victimization characteristics, such as the percentages of violent victimizations reported to the police, resulting in injury, involving a weapon, or involving strangers and intimate partners. We selected these specific victimization characteristics because they were routinely reported in the *Criminal Victimization* bulletins.

Victimization characteristics were assessed for total violent victimization and not for any specific type of violence, because the findings showed that the crime-specific rates could be sensitive to annual fluctuations even without further disaggregation by victimization characteristics. Also, many cases had an insufficient number of victimizations per crime type in any given year to support such analyses. In many BJS reports, analyses included series victimization characteristics that were counted as one victimization, as victims provided details on only the last incident in the series. The results from this series counting strategy were compared to those that resulted from counting series victimizations using the victim report and a cap of 10 victimizations per series.

Percentage of violent victimization reported to police

When the two series counting strategies were used to estimate the percentage of violent crimes reported to the police, the data showed very similar levels and trends (figure 17). For any given year, the difference in the two estimates was less than two percentage points. Because the differences in the percentage of violent crimes reported to police were

minimal, descriptions of the overall trends in reporting were also very similar. Furthermore, estimates of changes in police reporting rates for total violence were not sensitive to the years selected for comparison. The similarities in these rates suggested that the average proportion of nonseries violent victimizations reported to the police was roughly equal to the average proportion reported to the police in the series report about the last victimization. The lack of notable differences in the two reporting trends did not prove that the various series victimizations were identical. Instead, we found that the rate of violence reported to the police for the last victimization in the series was similar to the rate for nonseries reports of violent victimization.

FIGURE 17
Percent of violent victimization reported to police with series victimizations counted as 1 and counted using victim reports, 1993–2009



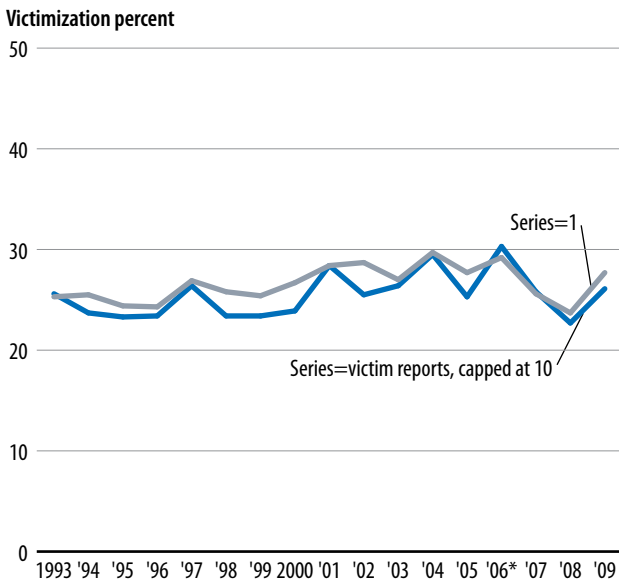
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

Percentage of violent victimization resulting in injury

When using the two counting strategies for series victimization to estimate the percentage of violent crimes resulting in injury, the data suggested similar levels and trends (figure 18). For each year, the difference in the two estimates was less than three percentage points. For the majority of years, counting series victimizations as one victimization resulted in a slightly higher estimate of the proportion injured. Because the differences in the percentage of violent crimes resulting in injury were minimal across the two series counting strategies, descriptions of the overall trends were similar, and specific change estimates would not be sensitive to the years selected for comparison.

The similarities in the proportions injured indicated that the average proportion of nonseries violent victimizations resulting in injury roughly equaled the average proportion found for the last victimization in the series. The proportion injured was slightly higher when series victimizations were counted as one due to the slightly greater proportion of simple assaults that were reported as series victimizations, and injury is a key characteristic that distinguishes simple assaults from aggravated assaults.

FIGURE 18
Percent of violent victimizations resulting in injury with series victimizations counted as 1 and counted using victim reports, 1993–2009



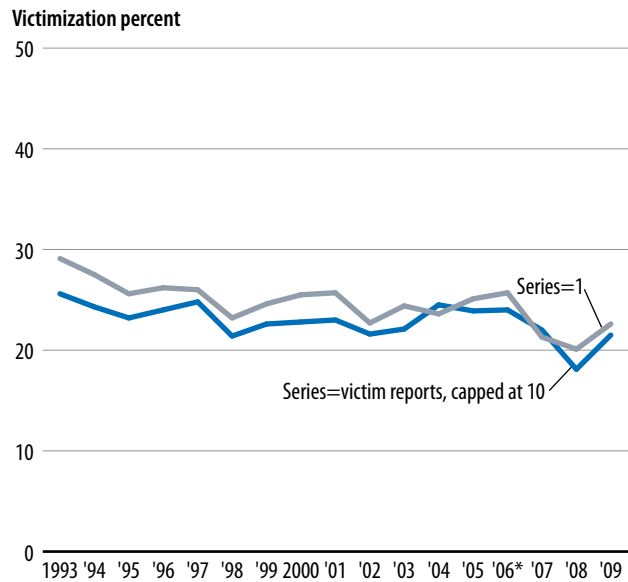
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

Percentage of violent victimization involving weapon use

The series counting strategy had limited influence on the levels or trends in the percentage of violent victimizations involving weapons use (figure 19). The difference in the two estimates was less than four percentage points for each year, and descriptions of the overall trends were similar regardless of the series counting strategy.

In most years, counting series victimizations as one produced a slightly higher estimate of the proportion of violent victimizations involving weapons. As with injury rates, this small difference indicated that the average proportion of nonseries violent victimizations involving a weapon was similar to the average proportion in the last victimization of the series. The proportion tended to be slightly higher when counted as one because victims reported a somewhat greater proportion of simple assaults as series victimizations compared to aggravated assaults and robbery, which most often involved the use of a weapon. Counting series victimizations using the victim reports capped at 10 is unlikely to change conclusions about the proportion or trends of violent victimizations that involved a weapon.

FIGURE 19
Percent of violent victimizations involving weapon use with series victimizations counted as 1 and counted using victim reports, 1993–2009



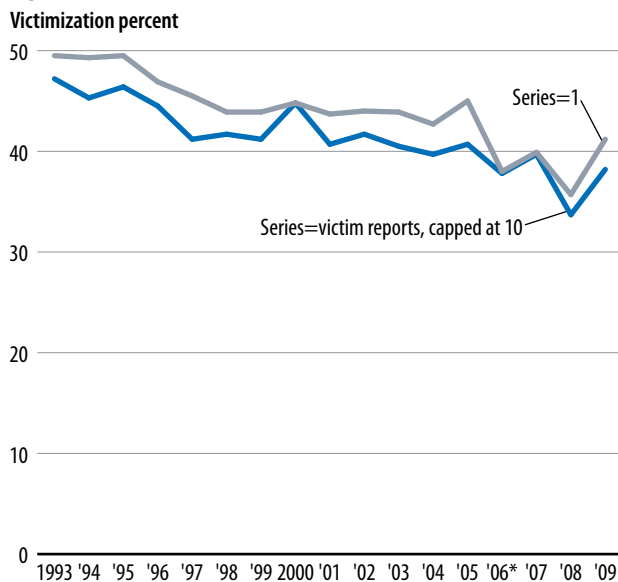
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

Percentage of violent victimization involving strangers

The series counting strategy had some influence on the percentage levels of violent victimizations involving strangers; however, the counting strategy did not influence the overall trends in this proportion (figure 20). The difference in the two estimates was less than four percentage points in each year, and descriptions of the overall trends were similar regardless of the series counting strategy.

In most years, counting series victimizations as one produced a slightly higher estimate of the proportion of violent victimizations involving strangers, indicating that the average proportion of nonseries violent victimizations involving strangers was slightly higher than the average proportion found in the last victimization of the series. This pattern was expected because intimate partner violence was more likely to be reported as a series victimization than was stranger violence. Counting series victimizations using the victim reports capped at 10 likely would have a limited effect on conclusions drawn about the proportion of violent victimizations involving strangers in any given year.

FIGURE 20
Percent of violent victimizations involving strangers with series victimizations counted as 1 and counted using victim reports, 1993–2009



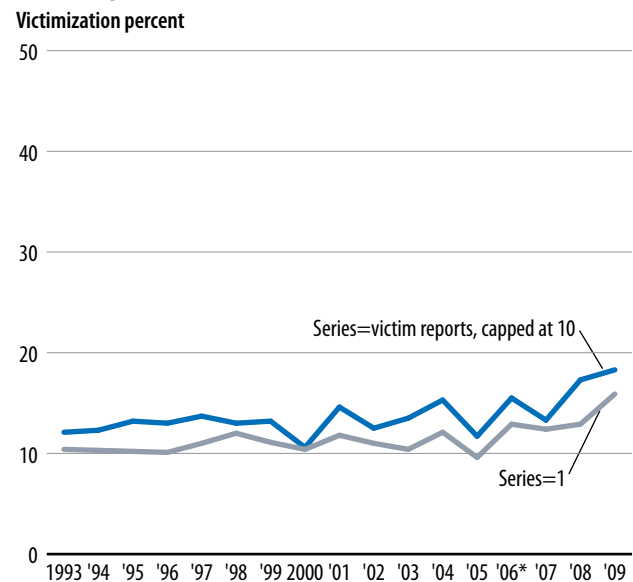
*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

Percentage of violent victimization involving intimate partners

Compared to stranger violence, the series counting strategy had a proportionately greater influence on the levels and trends of violent victimizations involving intimate partners (figure 21). The difference in the two estimates was less than four percentage points for each year; however, when compared to the lower overall base percentage, the effect of including series victimizations was proportionately larger.

Unlike other victimization characteristics considered, counting series victimizations as one produced a lower estimate of the proportion of violent victimizations involving intimate partners, because victims were more likely to report this form of violence as a series victimization than violence involving other types of victim-offender relationships.

FIGURE 21
Percent of violent victimizations involving intimate partners with series victimizations counted as 1 and counted using victim reports, 1993–2009

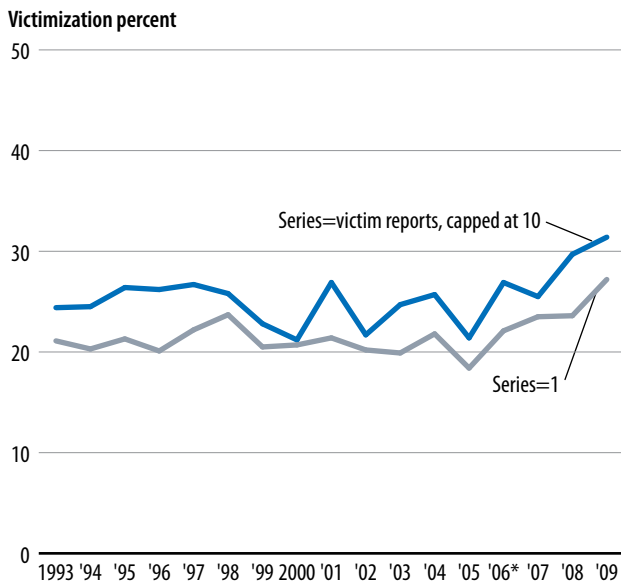


*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.
Source: National Crime Victimization Survey, 1993–2009.

Since intimate partner victimization involved primarily female victims, we examined how the series counting strategy affected the estimates for female victims only (figure 22). Among female victims, the difference in the two estimates was less than about six percentage points for each year. In 2008, for example, counting series victimizations as one suggested that the percentage of female violent victimizations involving intimate partners was 24%, while counting series victimizations using the victim reports capped at 10 suggested it was 30%—a percentage more similar to that found in studies of female homicide victims from 1976 to 2005. (See the BJS website for more information on homicide trends in the U.S. by sex.)

Even though the series counting strategy had an effect on the estimated proportion of female victimizations involving intimate partners, the long-term trends based on either counting strategy were generally similar. Both estimates suggested that the proportion of female victimization involving intimate partners was relatively stable from 1993 to 2005, and then appeared to increase some from 2006 to 2009. However, the rate of female intimate partner violence exhibited no clear upward trend during the later years in the series. The trends suggest that declines in female victimization in more recent years were greater for types of violence that did not involve intimate partners.

FIGURE 22
Percent of violent victimizations involving intimate partners with series victimizations counted as 1 and counted using victim reports for females age 12 and older, 1993–2009



*Due to methodological changes in the 2006 NCVS, use caution when comparing 2006 criminal victimization estimates to other years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Source: National Crime Victimization Survey, 1993–2009.

Summary

For the purpose of estimating selected victimization characteristics, the way in which series victimizations are counted will have limited, but mixed effects. For characteristics such as the percentage reported to the police, the proportion resulting in injury, and the proportion involving weapon use, few differences occurred in either overall proportions or the general trends in those proportions. The similarity in the levels for reporting to the police, injury, and weapon use suggested that the average proportions of these characteristics in nonseries victimizations were very similar to the average proportions found in the series report.

Conversely, when the victimization characteristic was the victim-offender relationship, the treatment of series victimizations had somewhat different effects on the proportions of violence involving strangers or intimate partners. The percentage point differences under the two series counting strategies were slightly larger, but the trends in these proportions were minimally affected.

Intimate partner violence continues to emerge as one of the main types of series victimization; therefore, the counting strategy mattered more for assessing victim-offender relationships. Since these selected victimization proportions appear to have been minimally affected, conclusions based on either series counting strategy were generally similar. However, for the purpose of assessing victim-offender relationships, relying primarily on the series counting strategy that uses the victim report with a cap of 10 may be more useful. The information from these types of victimization-level analysis should always be considered in conjunction with changes in actual rates of stranger, intimate partner, and other forms of violence.

Conclusions

These analyses assessed the strengths and weaknesses of various options for incorporating series victimizations into national estimates. The findings must be considered in order to make decisions about how series victimizations should be incorporated into annual reports about criminal victimization. Building on prior research that examined the nature of series victimizations, these analyses showed that series victimizations constituted a smaller proportion of victimization reports over time. While the proportion of series victimizations declined over time, the nature of these series victimizations is similar to those reported nearly two decades ago. These high-rate violent victimizations tended to involve either adult violence at work, female intimate partner violence, or youth violence at school.

To incorporate these experiences in national victimization rates, the analyses also assessed the statistical properties and consistencies in victims' responses to being asked "How many times did this type of incident occur?" These results suggested that many victims provided estimates of the number of times the victimizations occurred rather than directly counting such victimizations from memory. Some consistency was found in victims' estimates; however, the reports that involved higher counts when victims were first asked the question were somewhat less consistent, and the discrepancies that did occur in the higher counts were often large in magnitude. In addition, an assessment of all victims' responses to the question suggested that some victims who may have had fewer than six victimizations were classified as series victims and counted as having six victimizations, perhaps to reduce respondent burden.

Using the results from the full set of analyses, BJS will count series victimization using the victims' estimates of the number of times the victimizations occurred over the past 6 months, but will cap the number of victimizations reported at 10. Capping strategies are common in victimization surveys around the world. Other surveys either use a lower cap or do not produce estimates of the numbers or rate of

victimizations, choosing instead to produce estimates of the number of victims, which eliminates the need to make victimization counting decisions. This BJS strategy for counting series victimizations balances the desire to account for the experiences of high-rate victims when estimating national rates with indications that various sources of error exist in series victims' estimates about the number of times these victimizations occurred.

Not unexpectedly, the inclusion of series victimizations in national rates results in rather large increases in the level of victimization especially during 1990s. For the most part, conclusions about victimization trends are generally similar regardless of which series victimization counting strategy is used.

When the focus of the analysis switched from estimating trends in victimization rates to estimating trends in the proportion of victimizations that exhibited various victimization characteristics (e.g., the percentage reported to police or involving a weapon) the counting strategy used for series victimizations had little impact. BJS found greater differences in the levels—but not the trends—in the proportion of victimizations involving intimate partners, primarily because intimate partner violence is a major form of series victimization.

Though the ways of counting series victimizations and incorporating them in national victimization rates affects the level of victimization, previous reports do not appear to have mischaracterized the overall trends by excluding series victimizations from the national estimates. For the most part, reports about victimization characteristics do not appear to be very sensitive to the series counting strategy. The victim-offender relationship is an important exception, as counting series using the victim report capped at 10 produced some increases in the proportion of female victimization involving intimate partners. Even though the increase occurred, the trends in these proportions remained the same.

The National Crime Victimization Survey (NCVS) is an annual data collection conducted by the U.S. Census Bureau for the Bureau of Justice Statistics (BJS). The NCVS collects information on nonfatal victimizations, reported and not reported to the police, against persons age 12 or older from a nationally representative sample of U.S. households.

Violent crimes measured by the NCVS include rape or sexual assault, robbery, aggravated assault, and simple assault. Property crimes include household burglary, motor vehicle theft, and theft. Victimization that occurred outside of the U.S. are excluded from this report.

The survey results presented in this report are based on data gathered from residents living throughout the United States, including persons living in group quarters, such as dormitories, rooming houses, and religious group dwellings. Armed Forces personnel living in military barracks and institutionalized persons, such as correctional facility inmates, were not included in the scope of this survey.

Each housing unit selected for the NCVS remains in the sample for 3 years, with each of seven interviews taking place at 6-month intervals. An NCVS field representative's first contact with a household selected for the survey is in person. The field representative may conduct subsequent interviews by telephone.

Methodological changes to the NCVS in 2006

Methodological changes implemented in 2006 may have affected the estimates for that year to an extent that some estimates were not considered comparable to those of previous years. Evaluation of 2007 and later data from the NCVS conducted by BJS and the Census Bureau have found a high degree of confidence that estimates for these years are consistent with and comparable to those for 2005 and previous years. See *Criminal Victimization, 2007*, BJS Web, NCJ 224390, December 2008, for more information.

Series victimizations in intimate partner violence

Unlike other types of crime in this report, estimates for intimate partner violence include series victimizations as one victimization. BJS practice has been to count series victimizations as one victimization in the intimate partner violence reports, rather than as the number of victimizations that the victim reported for the series, due to concerns about whether the characteristics of the most recent victimization were the same for other victimizations in the series.

Standard error computations

Any time national estimates are derived from a sample rather than the entire population, as is the case with the NCVS, it is important to be cautious when drawing conclusions about the size of one population estimate in comparison to another or about whether a time series of population estimates is changing. Although one estimate may be larger than another, estimates based on responses from a sample of the population each have some degree of sampling error. The sampling error of an estimate depends on several factors, including the amount of variation in the responses, the size and representativeness of the sample, and the size of the subgroup for which the estimate is computed.

One measure of the sampling error associated with an estimate is the standard error. In general, an estimate with a smaller standard error provides a more reliable approximation of the true value than an estimate with a higher standard error. Estimates with relatively large standard errors are associated with less precision and reliability and should be interpreted with caution.

A statistical test is used to determine whether differences in means or percentages are statistically significant once sampling error is taken into account. Most comparisons made in the text were tested for statistical significance using t-tests for significance at the $p < .05$ level to ensure that the differences were larger than might be expected due to sampling variation. Significance testing calculations were conducted at BJS using a generalized variance function (GVF), a statistical program developed specifically for the NCVS by the U.S. Census Bureau. These GVFs take into consideration aspects of the complex NCVS sample design when calculating estimates.

In other instances, differences were examined using the Chi-square test. The Chi-square is a statistical test that evaluates whether the distributions of frequencies observed in the data differ significantly from those that would be expected under hypothetical distributions. Chi-square goodness of fit tests are used to compare the observed frequencies of one variable against a theoretical distribution, and Chi-square tests of independence are used to assess whether paired observations on two variables are independent of each other. The Cramer's V statistic is a measure ranging from 0 to 1 indicating the strength of the association between two categorical variables. A value of 0 indicates that there is no association between the variables, while a value of 1 indicates that the two variables are perfectly associated.

Definitions

Incident—A specific criminal act involving one or more victims and offenders. For example, if two people are robbed at the same time and place, this is classified as two robbery victimizations but only one robbery incident.

Prevalence rate—A measure of the proportion of the population that has experienced one or more crimes. This rate does not take into consideration how many times a person experienced victimization. For personal crimes, this is based on the number of victims per number of residents age 12 or older.

Victimization—A victimization refers to a single victim or household that experienced a criminal incident. Criminal incidents or crimes are distinguished from victimizations in that one criminal incident may have multiple victims or victimizations. For violent crimes (rape or sexual assault, robbery, aggravated assault, and simple assault) and for personal larceny, the count of victimizations is the number of individuals who experienced a violent crime. For crimes against households (burglary, theft, and motor vehicle theft), each household affected by a crime is counted as a single victimization.

Victimization rate—A measure of the occurrence of victimizations among a specified population group. For violent crimes, this is based on the number of victimizations per 1,000 residents age 12 or older.

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APPENDIX TABLE 1**Standard errors for table 1: Percent of victimizations reported as series victimizations, 1993–2009**

Year	Violent	Property and personal larceny
1993	0.6%	0.1%
1994	0.4	0.1
1995	0.4	0.1
1996	0.5	0.1
1997	0.5	0.1
1998	0.5	0.1
1999	0.5	0.1
2000	0.5	0.1
2001	0.5	0.1
2002	0.5	0.1
2003	0.6	0.1
2004	0.5	0.1
2005	0.6	0.1
2006	0.6	0.1
2007	0.5	0.1
2008	0.6	0.1
2009	0.6	0.1

APPENDIX TABLE 2**Standard errors for table 2: Percent of victimizations reported as series victimizations, by type of crime, 1993–1999 and 2000–2009**

	1993–1999	2000–2009
Rape/sexual assault	0.8%	0.9%
Robbery	0.3	0.4
Aggravated assault	0.4	0.4
Simple assault	0.3	0.3
Personal larceny	0.2	0.4
Burglary	0.1	0.1
Motor vehicle theft	0.1	0.1
Theft	0.1	0.0

APPENDIX TABLE 3**Standard errors for table 4: Distribution of violent series victimizations, by age and sex, 2000–2009**

Age	Percent	Number of victimizations	Percent of total
Total		130,210	~%
12 to 17			
Total	~%	51,620	2.1%
Male	6.0	36,101	1.5
Female	6.0	35,322	1.5
18 and older			
Total	~%	115,870	2.1%
Male	3.0	77,202	2.6
Female	3.0	80,392	2.7

~Not applicable.

APPENDIX TABLE 4**Standard errors for figure 1: Activity during most recent incident in series victimization for male and female youth ages 12 to 17, 2000–2009**

Location	Male	Female
At school	8.2%	8.4%
On way to school/other	5.9	4.2
At friend's home	4.9	4.9
At home	5.1	7.3
Other	3.5	2.1

APPENDIX TABLE 5**Standard errors for figure 2: Activity during most recent incident in series victimization for male and female adults age 18 or older, 2000–2009**

	Male	Female
Work/duty	4.2%	3.7%
On way somewhere	2.2	2.0
At friend's/leisure	1.8	2.0
At home	3.5	4.1
Other	2.1	2.2

APPENDIX TABLE 6**Standard errors for table 5: Violent series victimizations at work or on duty, by sex and occupation, age 18 or older, 2001–2009**

	Male	Female	Total
Total	~%	~%	~%
Medical	2.8	7.8	3.6
Policing/security	6.1	5.7	5.1
Social work	3.0	4.9	2.6
Education	~	4.2	1.5
Business	3.2	6.6	3.2
Service	3.7	5.4	3.1
Transportation	2.1	2.7	1.7
Other	2.4	4.2	2.1
Number of incidents	49,224	36,074	62,503

~Not applicable.

APPENDIX TABLE 7**Standard errors for figure 3: Victim-offender relationship in most recent incident in series victimization for male and female youth ages 12 to 17, 2000–2009**

Relationship	Male	Female
Boyfriend/girlfriend	~%	4.0%
Known other	7.9	8.0
Family member	3.2	6.5
Stranger	6.8	4.6
Unknown	4.8	~

~Not applicable.

APPENDIX TABLE 8

Standard errors for figure 4: Victim-offender relationship in most recent incident in series victimization for male and female adults age 18 or older, 2000–2009

Relationship	Male	Female
Intimate	2.3%	4.0%
Known	3.8	3.9
Stranger	4.2	3.0
Unknown	1.7	1.5

APPENDIX TABLE 9

Standard errors for table 6: Characteristics of most recent series victimization compared to other victimizations in the series, by age and sex, 2000–2009

	Youth ages 12 to 17		Adults age 18 or older	
	Male	Female	Male	Female
Done by the same person?				
All by the same person	8.3%	7.8%	3.7%	3.7%
Some by the same person	7.7	7.5	3.0	2.6
None by the same person	4.9	2.3	4.2	2.4
Missing	4.8	2.4	2.4	2.2
Occur in the same place?				
All in the same place	8.2%	8.1%	4.2%	3.9%
Some in the same place	7.5	7.6	3.2	3.3
None in the same place	3.7	3.4	3.3	1.7
Missing	3.9	2.4	2.0	2.1
Same thing happen each time?				
Yes	6.8%	5.9%	3.0%	3.4%
No	5.6	5.5	2.3	2.8
Missing	4.4	2.4	2.0	2.0
Is trouble still going on?				
Yes	8.3%	7.7%	4.1%	4.0%
No	8.3	7.9	3.9	4.1
Missing	4.4	2.4	2.0	2.3
Number of incidents	36,101	35,322	77,202	80,392

~Not applicable.

APPENDIX TABLE 10

Standard errors for figure 17: Percent of violent victimizations reported to police with series victimizations counted as 1 and counted using victim reports, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	1.3%	1.1%
1994	1.0	0.9
1995	1.0	0.9
1996	1.1	0.9
1997	1.2	1.0
1998	1.4	1.2
1999	1.3	1.2
2000	1.5	1.3
2001	1.5	1.4
2002	1.6	1.4
2003	1.6	1.4
2004	1.6	1.5
2005	1.8	1.6
2006	1.7	1.5
2007	1.7	1.6
2008	1.8	1.6
2009	1.9	1.7

APPENDIX TABLE 11

Standard errors for figure 18: Percent of violent victimizations resulting in injury with series victimizations counted as 1 and counted using victim reports, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	1.1%	0.9%
1994	0.8	0.7
1995	0.9	0.7
1996	0.9	0.8
1997	1.0	0.9
1998	1.2	1.0
1999	1.1	1.0
2000	1.3	1.1
2001	1.3	1.2
2002	1.4	1.2
2003	1.4	1.2
2004	1.4	1.3
2005	1.6	1.4
2006	1.5	1.3
2007	1.5	1.3
2008	1.5	1.3
2009	1.7	1.5

APPENDIX TABLE 12

Standard errors for figure 19: Percent of violent victimizations involving weapon use with series victimizations counted as 1 and counted using victim reports, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	1.1%	0.9%
1994	0.9	0.7
1995	0.9	0.7
1996	0.9	0.8
1997	1.0	0.9
1998	1.1	0.9
1999	1.1	1.0
2000	1.2	1.1
2001	1.3	1.1
2002	1.2	1.1
2003	1.3	1.1
2004	1.3	1.2
2005	1.5	1.3
2006	1.4	1.2
2007	1.3	1.2
2008	1.4	1.2
2009	1.5	1.4

APPENDIX TABLE 13

Standard errors for figure 20: Percent of violent victimizations involving strangers with series victimizations counted as 1 and counted using victim reports, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	1.3%	1.1%
1994	1.0	0.9
1995	1.1	0.9
1996	1.1	1.0
1997	1.2	1.0
1998	1.4	1.2
1999	1.3	1.2
2000	1.5	1.3
2001	1.5	1.4
2002	1.5	1.4
2003	1.6	1.4
2004	1.6	1.4
2005	1.8	1.6
2006	1.6	1.4
2007	1.7	1.5
2008	1.7	1.5
2009	1.9	1.7

APPENDIX TABLE 14

Standard errors for figure 21: Percent of violent victimizations involving intimate partners with series victimizations counted as 1 and counted using victim reports, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	0.7%	0.7%
1994	0.5	0.5
1995	0.6	0.6
1996	0.6	0.6
1997	0.7	0.7
1998	0.8	0.7
1999	0.8	0.7
2000	0.8	0.7
2001	0.9	0.9
2002	0.9	0.8
2003	0.9	0.9
2004	1.0	1.0
2005	1.0	1.0
2006	1.0	1.0
2007	1.0	1.0
2008	1.1	1.2
2009	1.3	1.3

APPENDIX TABLE 15

Standard errors for figure 22: Percent of violent victimizations involving intimate partners with series incidents counted as 1 and counted using victim reports for females age 12 and older, 1993–2009

	Series=1	Series=victim reports, capped at 10
1993	1.4%	1.3%
1994	1.1	1.0
1995	1.1	1.1
1996	1.2	1.1
1997	1.3	1.2
1998	1.5	1.4
1999	1.4	1.3
2000	1.6	1.4
2001	1.6	1.6
2002	1.6	1.4
2003	1.7	1.6
2004	1.8	1.7
2005	1.9	1.8
2006	1.8	1.7
2007	1.9	1.8
2008	2.1	2.0
2009	2.2	2.1



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