Effects of Neighborhood and Family Structure on
Violent Victimization and Violent Delinquency

A Report of the Denver Youth Survey
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Synopsis

This report examines the effect of neighborhood and family structure (one vs. two parents) and their interaction on violent victimization and violent offending. The report was motivated in part by a forthcoming OJJDP Bulletin by Janet Lauritsen who examined family structure and neighborhood effects on violent victimization that occurred in a national sample in the more immediate neighborhood surrounding a victim's home. Lauritsen found that youth living in single parent families experience significantly greater risks of violent victimization and that this risk was greatly magnified in disadvantaged neighborhoods.

This report uses data from two studies to examine neighborhood and family structure effects. The Denver Neighborhood Study (DNS), which is a cross-sectional study of the entire City of Denver and the Denver Youth Survey (DYS), which is a long-term longitudinal study of very high-risk neighborhoods of Denver. The inclusion of only very high-risk neighborhoods in the DYS, precludes its use to examine neighborhood effects. However, since the Bulletin reports that the effect of family structure was most important in such high risk neighborhoods, the use of the DYS for some purposes is germane to the overall set of findings.

This report also expands the content areas and risk factors for violent victimization considered. First, involvement in violent behavior is a fairly well known risk for violent victimization and so violent behavior is included in some of the statistical models examined. Second, given the overlap of violent offending and violent victimization, examination of the relationship of neighborhoods and family structure to violent offending is also considered.

There are several consistent findings or themes running through the various analyses conducted for this report.
     ● Findings related to the interaction between neighborhood and family structure as influences on violent victimization as reported in the OJJDP Bulletin are mixed. In general, these findings are not replicated by the analyses conducted for this report. Findings from the DNS indicated no significant neighborhood by family structure interaction nor an increase of the effect of living in a single parent family with increasing neighborhood disorganization and crime. On the other hand, consistent with the findings reported in the Bulletin and as would be predicted by the Bulletin findings (that the effect of family structure was largest in the very highly disadvantaged neighborhoods), findings from the very high-risk DYS sample indicate that living in single parent families is a risk for violent victimization in these high-risk neighborhoods.

There are several reasons why the findings from the DNS are different from those reported by Lauritsen that should be noted. First, the Lauritsen findings are based on a national sample while those from the DNS are based on the central city of a large metropolitan area. Thus, potential differences occurring in suburban and rural areas that are incorporated in the national data may influence the discrepant findings. Second, the Lauritsen Bulletin included only victimizations that occurred within one mile of a respondent's residence. Although this was appropriate for the purpose of looking at victimization that occurs in local neighborhoods, it excludes a good amount of victimization that is included the more general DNS and DYS measures used in this report. In this sense, the studies are examining different things, and differences in findings would be expected.

● One of the strongest contemporaneous risks for violent victimization is being a violent offender. Thus, it is unclear in the cross-sectional data presented here and in the OJJDP Bulletin whether potential risks such as neighborhoods and family structure affect victimization rates by increasing involvement in violent behavior which in turn affects victimization rates or whether these factors affect victimization directly. In this report it was found that restriction of the DNS sample to those who were <u>not both</u> victims and offenders did not affect the findings for males but reduced the effects of neighborhood and family structure to non-significant for females. In addition, the inclusion of violent offending in the regression models examining neighborhood and family structure for males indicated a significant neighborhood by violent offending interaction and changed the effect of neighborhood from non-significance to significant. For females, however, the addition of violent offending did not alter the basic significance of neighborhoods, family structure and their interaction that was found in models that did not include offending. (It should be noted, however, that for females, the nature of the neighborhood by family structure interaction is for two-parent families in "bad" neighborhoods to have higher risks of victimization. (A finding not consistent with the expectations from the Bulletin findings.)

● The highest rates of violent victimization and offending are <u>not</u> found in the most disorganized neighborhoods. This is consistent with other findings from the Denver Neighborhood Study (e.g., Huizinga, 2005; Elliott et al., forthcoming). Higher rates occur in moderately disorganized neighborhoods with moderate to high arrest rates. Explanations for this finding and whether this finding occurs in other localities remain to be empirically investigated.

● Findings about violent offending indicated, for the total sample and for males, that if living in a single parent family has an influence it is in the "good" neighborhoods and not in the "bad" neighborhoods. For females, however, only living in a "bad" neighborhood was a risk factor. Also given the focus of this report, in a set of expanded models including all of the potential risks considered in this report, the interaction of neighborhood by family structure was <u>not</u> a significant risk of violent offending in any of the models examined.

● Finally, there are several gender differences in the findings about the effects of neighborhood and family structure on violent victimization and violent delinquency. Further examination of these gender effects seems warranted, but they are beyond the scope of this report.

The interested reader can find further details and findings of interest in the main body of the report.

Effects of Neighborhood and Family Structure on
Violent Victimization and Violent Delinquency

This report examines the joint effects of family structure and neighborhood effects on violent victimization and violent delinquency. The report is motivated, in part, by a forthcoming OJJDP bulletin by Janet Lauritsen who examined family structure and neighborhood effects on violent victimization that occurred in a national sample in the more immediate neighborhood surrounding a victim's home. Lauritsen found that youth living in single parent families experience significantly greater risks of violent victimization and that this risk was greatly magnified in disadvantaged neighborhoods.

Given the reported relationship between involvement in violent delinquency and violent victimization (e.g., Huizinga et al., 2003, among others) it is also helpful to consider the influence of families and neighborhoods on violent delinquency, and to examine the joint relationship between families, neighborhoods and involvement in violent delinquency as influences on violent victimization.

The data used in this report are taken from two inter-related studies, the Denver Youth Survey, which is part of OJJDP's Program of Research on the Causes and Correlates of Delinquency and the Denver Neighborhood Study, funded by the John D. and Catherine T. MacArthur Foundation and OJJDP. The Denver Youth Survey (or DYS) is a long-term longitudinal study of the development of delinquency, and other problem behavior including drug use, mental health problems, and victimization that currently covers the age period of 7 to 26. The sample of the DYS was drawn through a probability household sample from high-risk neighborhoods of Denver. The Denver Neighborhood Study (or DNS) is a cross-sectional study of the city of Denver conducted in 1991. The DNS was also drawn from a probability household sample, but this sample covered the entire city. In both studies, the "randomly" sampled children and youth and their major parent or caretaker were interviewed. The Child and youth interviews used in the two studies are almost identical and the parent interviews are similar. However, the DNS parents complete a more extensive measurement about neighborhood social and environmental characteristics.

It is helpful for the purpose of this report to understand a bit more of the sampling strategy employed in these two studies. To identify the sample for the longitudinal DYS, an extensive social disorganization study was conducted. Using census data, the social and environmental characteristics of neighborhoods (census defined block groups[1]) were obtained. These included a wide range of 35 neighborhood (census) variables indicated by social disorganization theory[2] grouped into seven conceptual domains, and the variables in each domain were examined in a factor analysis to identify underlying dimensions of social structure. The seven conceptual areas included Family Structure, Ethnic/Racial Mix, Socioeconomic Status, Housing Characteristics, Mobility, Marital Status Prevalence, and Population Age Composition.

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[1] Some previous work indicated that the geographical unit that most closely matches the public's notion of a "neighborhood" is the area immediately around a person's home or within a 10-15 minute walk from the person's home. This notion of neighborhood is most closely matched to Census defined block groups and not to larger geographical units, such as census tracts (which are often employed in "neighborhood" studies employing census data). For this reason, block groups were used in examining the social ecology of Denver and were used as the primary sampling units for drawing the household samples.

[2] The variables that make up each domain are described in Huizinga, 1988; and in Esbensen and Huizinga, 1990.

This analysis identified 11major factors. Using these factor scores, the block groups were placed into groups of similar block groups or strata by a Kmeans cluster analysis. This process identified three strata (or groups of block groups) that varied on their level of social disorganization (low, medium, and high disorganization).

These geographic strata were then overlaid with arrest rates provided by the Denver Police Department. For the purpose of sampling, the arrest rates were divided into thirds and the combination of social disorganization and arrest rate provided nine strata that covered the city, as illustrated in Table 1. As might be anticipated, Stratum 3 (low disorganization but high crime rate) has a very small population. The sample for the DYS is drawn entirely from Stratum 9, so it is restricted to neighborhoods characterized as high-risk (high disorganization with high crime rates). The sample from the DNS covers the full set of nine strata and covers the whole city.

Table 1
Stratification of the City of Denver for Sampling in
the Denver Youth Survey and the Denver Neighborhood Study

Level of Crime (Arrest Rate) Level of Disorganization	Lowest 1/3	Middle 1/3	Upper 1/3
Low	Strata 1	Strata 2	Strata 3
Medium	Strata 4	Strata 5	Strata 6
High	Strata 7	Strata 8	Strata 9

Given these sampling descriptions, it is clear that the high-risk sample of the DYS would be inappropriate for use in a general study of neighborhoods or neighborhood effects, since it is restricted to only high-risk neighborhoods. However, as reported in the OJJDP bulletin, the effect of a family structure by neighborhood interaction was evidenced in those neighborhoods with very high disadvantage. As a result, by analogy, the DYS data is used to here look at such potential interactive effects for victimization and other problem outcomes, since it represents highly disadvantaged neighborhoods where, given the findings reported in the Bulletin, these effects might be anticipated. The longitudinal DYS also has the advantage of permitting the use of measures and experiences in the correct temporal order, a circumstance that can not be arranged with cross-sectional studies such as the DNS.

The victimization measure used in this report includes being a victim of an aggravated assault, a simple assault, a robbery, or a sexual assault. This measure is quite similar to the measure used in the OJJDP Bulletin by Lauritsen. Involvement in violent delinquency includes involvement in aggravated assault, simple assault, robbery, sexual assault, and gang fights. Gang fights are included because the majority of gang fights result in serious injuries to the "victims" of the fight.

The measure of family structure used in this report also follows the measure employed in the OJJDP Bulletin. It distinguishes two parent families from all other living arrangements[3]. In addition, a measure of the number of family transitions is used. Family transitions include changes in living or parental arrangements. This variable has previously been found to relate to delinquency, and thus may also relate to victimization (Thornberry et al., 1999).

The measure of neighborhood social disorganization is a dichotomous variable obtained by grouping strata 1 through 5 (above) into a set of lower problem neighborhoods and grouping strata 6 through 9 into a set of higher problem neighborhoods. This division, although arbitrary, groups neighborhoods that have higher levels of disorganization or higher crime rates (and usually both) into a "higher disorganization/crime" class. It should be noted that this is a substantially different and more complex measure of disorganization than the simple measure of disadvantage used in the OJJDP Bulletin. This observation is important because the use of only a single factor "disadvantage" based on economic indicators as the defining characteristic of neighborhoods fails to include variables that have been shown to be related to neighborhood factors of bonding, support, efficacy, and informal social control that, in turn, may (and to some extent have been shown) to effect victimization and offending (Elliott et al, 1996; Sampson, Raudenbush, and Earls, 1997).

Prevalence of Violent Victimization, Violent Offending, Arrest for Violence and Family and Neighborhood Characteristics by Gender.
The one year prevalence (proportion of persons in a group) of violent victimization, violent offending, and arrests for violence are provided in Table 2 for both the DYS and DNS samples. Estimates are provided for the total samples and by gender. Gender is included because, given previous research, it was initially anticipated that gender differences would exist in these experiences and behaviors.

Table 2
Prevalence of Violent Victimization, Violent Offending, Arrests and
Family and Neighborhood Characteristics

	City-wide Denver Neighborhood Study			Hi-risk Denver Youth Survey		
	Total (N=616)	Males (N=293)	Females (N=323)	Total (N=1100)	Male (N=572)	Females (N=528)
Violent Victimization	22.1%	29.0%	15.8% ***	10.6%	12.9%	8.0% *
Violent Offending	24.1%	34.2%	14.9% ***	19.6%	25.7%	12.7% ***
Total Delinquency	77.9%	80.8%	75.2% *	61.6%	64.8%	58.0%**
Arrest for Violence	2.1%	3.8%	0.6% **	2.8%	3.6%	2.0%
Arrest for Any Offense	11.9%	19.9%	4.7% ***	16.8%	20.3%	12.9%**
Two Parent Family	56.5%	58.2%	55.0%	41.2%	39.2%	41.2%
Family Transitions	n.a.	n.a.	n.a.	21.8%	21.8%	21.7%
Bad Neighborhood	36.6%	33.2%	39.6%	n.a.	n.a.	n.a.

Significance of Chi-square test of male vs. female prevalence   *** =.001 ** = .01   * = .05   n.a. – Not available

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[3] Although there is a rationale and evidence provided for this definition of family structure provided in the Bulletin, it should be noted that this groups some rather disparate living arrangements that might have different effects on victimization and on delinquency as well. For example, combining those youth living in court ordered foster or group homes with individuals living with relatives other than mom and/or dad may combine individuals with quite different life experiences related to victimization or offending.

At the inception of the high-risk DYS, it was presumed that youth living in the most disorganized and highest crime rate areas of the city would be at greatest risk for violent offending. Findings from this study have clearly demonstrated that, in fact, this group of youth is at very high risk for offending and deleterious outcomes. However, the later city-wide DNS study indicated that the highest risk for offending actually occurred in strata 5 and that the highest risk of victimization occurred in strata 6. In addition, strata 5-8 generally had offending rates and victimization rates that exceeded those of strata 9. Whether this finding for Denver is replicated in other cities is unknown, but it is conceivable that the highest rates of offending and perhaps victimization do not occur in the very most disadvantaged areas.

Because of this and as indicated in Table 2, the city-wide DNS has higher violent offending and violent victimization rates than does the high-risk "DYS." In both studies, however, the one-year offending rates (DNS 24%, DYS 19%) and victimization rates (DNS 22%, DYS 11%) are quite substantial. Although the DYS sample has the lower offending rate, it might be noted that it does have the higher arrest rate. As anticipated, there are substantial and statistically significant gender differences. In both studies, females have substantially lower rates of offending, victimization and arrest.

As would be expected, the prevalence of two parent families is higher in the city-wide DNS than in the high-risk DYS (57% vs. 39%, respectively), but there are no significant gender differences in the rate of two-parent families. Nor are there significant gender differences in the prevalence of living in a bad neighborhood (DNS) nor in the number of family transitions (DYS).

In the following sections of this report, the individual effects of neighborhood and family structure and their interaction on violent victimization and violent offending is examined. In addition, the effect of violent offending on victimization, and the effect of minority status on victimization and offending is investigated.

Prediction of Violent Victimization

Prediction of Violent Victimization by Single Predictors

The relationship of living in a bad (disorganized) neighborhood, having a two-parent family, having more than two family transitions, participating in violent delinquency, and minority status with violent victimization is illustrated in Table 3. A summary of the findings that are detailed in later sections of the table is presented first.

Type of neighborhood is not related to violent victimization for the total city-wide DNS sample or for males of the DNS. However, for females, living in a bad (disorganized) neighborhood is related to higher rates of victimization. The findings concerning two-parent families are mixed. For the total sample and for males of the DNS, living in a two-parent household is associated with higher rates of violent victimization, while for females the association is non-significant (although the trend is in the same direction). This is a rather unanticipated finding, for which we have no good explanation.[4] On the other hand, living with two parents was found to be associated with lower rates of victimization for the total sample and for males of the DYS, and rates for females were in this same direction although not quite statistically significant.

In general, family transitions and minority status were not related to violent victimization, although minority status was related to a higher rate of victimization among females of the city-wide DNS and multiple family transitions is significantly related to victimization among females of the high-risk-DYS.

Although the effect of living in a bad neighborhood was not significant for either the total sample or for males in the DNS, the interaction between type of neighborhood and two-parent family might still be of significance. This issue as well as the inclusion of other variables and interactions is considered in the next section.

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[4] We did examine if this finding might reflect either the criminality of parents or victimization within the home. These possible explanations were nullified by the empirical findings of this examination.

Table 3
Prediction of Violent Victimization by Single Predictors

Summary

Variable	City-wide DNS			High-risk DYS		
	Total	Males	Females	Total	Male	Female
Bad Nbhd	ns	ns	* Higher Vict.	--	--	--
Two-Parent Family	* Higher Vict.	* Higher Vict.	ns	* Lower Vict.	* Lower Vict.	ns
2+ Family Transitions	--	--	--	ns	ns	* Higher Vict.
Violent Delq.	* Higher Vict.	* Higher Vict.	* Higher Vict.	* Higher Vict.	* Higher Vict.	* Higher Vict.
Minority Status	ns	ns	* Higher Vict.	ns	ns	ns

Total Sample – City Wide Denver Neighborhood Study

		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	22.1%	.924
	Yes	22.2%	
Two Parent Family	No	18.7%	.085
	Yes	24.7%	
Violent Delinquency	No	16.7%	.000
	Yes	39.2%	
Minority Status	No	17.9%	.103
	Yes	24.0%	

* Significance from logistic regression: Victimization predicted by single predictors

Total Sample – High Risk Denver Youth Survey

		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	n.a.	
	Yes	n.a.	
Two Parent Family	No	12.8%	.008
	Yes	7.1%	
Two or More Family Transitions	No	9.6%	.084
	Yes	14.1%	
Violent Delinquency	No	5.8%	.000
	Yes	29.7%	
Minority Status	No	10.3%	.920
	Yes	10.6%	

* Significance from logistic regression: Victimization predicted by single predictors

Table 3 (Continued)
Prediction of Violent Victimization by Single Predictors

Males – City Wide Denver Neighborhood Study

		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	31.3%	.177
	Yes	27.7%	
Two Parent Family	No	19.7%	.004
	Yes	35.3%	
Violent Delinquency	No	22.9%	.003
	Yes	40.0%	
Minority Status	No	29.2%	.964
	Yes	29.1%	

* Significance from logistic regression: Victimization predicted by single predictors

Males – High Risk Denver Youth Survey

		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	n.a.	
	Yes	n.a.	
Two Parent Family	No	15.8%	.025
	Yes	8.5%	
Two or More Family Transitions	No	9.6%	.401
	Yes	14.1%	
Violent Delinquency	No	5.7%	.000
	Yes	33.9%	
Minority Status	No	10.8%	.574
	Yes	13.1%	

* Significance from logistic regression: Victimization predicted by single predictors

Females – City Wide Denver Neighborhood Study

		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	12.3%	.038
	Yes	21.1%	
Two Parent Family	No	17.9%	.359
	Yes	14.1%	
Violent Delinquency	No	12.0%	.000
	Yes	37.5%	
Minority Status	No	8.6%	.016
	Yes	19.4%	

* Significance from logistic regression: Victimization predicted by single predictors

Females – High Risk Denver Youth Survey

|		Prevalence of Victimization	Significance[*]
Bad (Disorganized) Neighborhood	No	n.a.	
	Yes	n.a.	
Two Parent Family	No	9.3%	.232
	Yes	6.3%	
Two or More Family Transitions	No	9.6%	.082
	Yes	14.1%	
Violent Delinquency	No	6.3%	.001
	Yes	21.2%	
Minority Status	No	9.8%	.472
	Yes	7.8%	

* Significance from logistic regression: Victimization predicted by single predictors

Joint Effects of Neighborhood and Family Structure on Violent Victimization

To examine the significance of an interaction between type of neighborhood and two parent families, a sequence of logistic regressions were conducted separately for the total sample and for each gender of the city-wide DNS. The first set of regressions examines type of neighborhood ("disorganized"=1 or not=0), family structure ("single" parent"=1, two parent=0), and their interaction. These analyses are designed to partially replicate those reported by Lauritsen. This model is followed by examination of an expanded model that includes involvement in violent delinquency. This sequence is followed for the total sample and both genders. Findings for the high-risk DYS are limited to the effect of the single family structure (and do not include neighborhood effects) because the DYS includes only disorganized neighborhoods.

The findings from these analyses are summarized in Table 4A and the more detailed findings are included in Table 4B. The neighborhood by family structure interaction could only be examined in the city-wide DNS. The interaction was not significant for either the total sample or for males. It was significant, however, for females. As can be seen in the following portion of Table 4A, the nature of this interaction is for those living in <u>non-disorganized</u> neighborhoods to have lower victimization if they are living in two-parent households. In contrast, among those living in disorganized neighborhoods, those living in two parent households have higher rates of violent victimization than those living in single parent households, although this difference is not statistically significant. This interaction is diagrammed in Figure 1.

Figure 1
Prevalence of Victimization Among Females by
Neighborhood Type and Family Structure
City-wide Denver Neighborhood Study
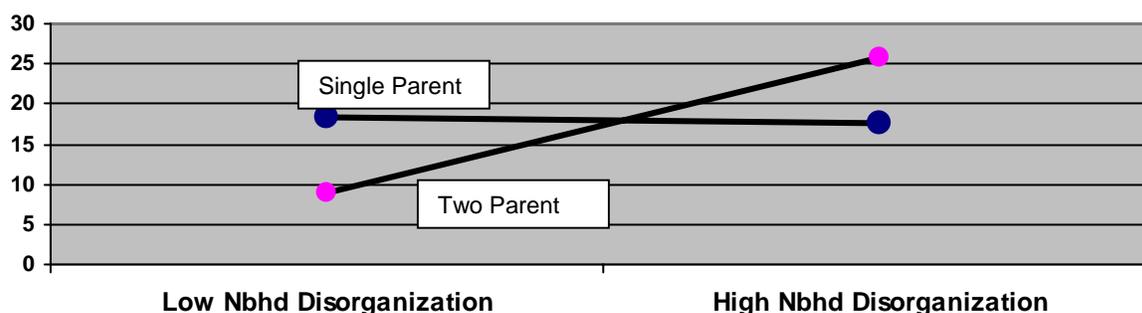
Although the interaction for males is not significant, it is interesting that that the reverse pattern from females is observed. That is, as can be seen in Table 4B, in non-disorganized neighborhoods, males living in two-parent households have the highest rates of violent victimization. And, this same general pattern holds for the total sample.

As noted earlier, given the findings of OJJDP Bulletin by Lauritsen, it was presumed that among the high-risk sample of the DYS, who live in only highly disorganized neighborhoods, those living in two-parent households would have lower victimization rates. As can be seen in the bottom of Table 4A, this expectation is borne out for the total sample, for males, and for females. Thus, although the interaction of interest could not be examined in the DYS, the findings are consistent with the findings described by Lauritsen.

The findings about the joint effects of neighborhoods and family structure on violent victimization are thus mixed. First, only for females was a significant interaction found, and this interaction was not in the anticipated direction. For females, two-parent families were a "protective factor" in neighborhoods with lower disorganization and a (non-significant) "risk" factor in neighborhoods with higher levels of disorganization. Quite obviously these findings do not replicate the findings reported by Lauritsen. In addition, as can be seen in Figure 2, the expected rise in victimization among youth living in single parent families in very highly disorganized neighborhoods that was observed in the Lauritsen Bulletin does not occur in the Denver data.

On the other hand, although the interaction could not be examined in the high-risk DYS, the neighborhoods of this study have the highest disorganization and crime rate, and in these neighborhoods, two-parent families consistently provided a "protective" factor against violent victimization, a finding somewhat consistent with the Lauritsen findings.

There are several reasons why the findings from the DNS are different from those reported by Lauritsen that should be noted. First, the Lauritsen findings are based on a national sample while those from the DNS are based on the central city of a large metropolitan area. Thus, potential differences occurring in suburban and rural areas that are incorporated in the national data may influence the discrepant findings. Second, the Lauritsen Bulletin included only victimizations that occurred within one mile of a respondent's residence. Although this was appropriate for the purpose of looking at victimization that occurs in local neighborhoods, it excludes a good amount of victimization that is included the more general DNS and DYS measures used in this report.[5] In this sense, the studies are examining different things, and differences in findings would be expected.

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[5] Although the Denver measures could be made similar to the Lauritsen measure of victimization, the full victimization measure is used to permit comparison of findings with the other OJJDP Causes and Correlates projects.

Table 4A
Summary

Variable	City-wide DNS			High-risk DYS		
	Total	Males	Females	Total	Male	Female
Bad Neighborhood	.439	.300	**.002 (Higher)**	--	--	--
Two-Parent Family	.306	**.010 (Higher)**	**.043 (Lower -- but see Interaction)**	**.002 (Lower)**	**.004 (Lower)**	**.108 (Lower)**
Nbhd.x2Parent Interaction	.557	.427	**.019 (2-Parent Sig. Higher In Bad Nbhd.**	--	--	--

City-wide DNS: Interaction of Neighborhood and Family Structure – Females
Prevalence of Violent Victimization

	Two Parent Family		Significance
Bad Neighborhood	No	Yes	Yes
No	18.3%	8.9%	.054
Yes	17.6%	25.9%	.252

Table 4B
Total Sample – City Wide Denver Neighborhood Study

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--------------------- Variables in the Equation ----------------------
Variable          B        S.E.     Wald    df      Sig        R    Exp(B)
BADNBHD         .2116     .2736    .5985     1     .4391    .0000   1.2357
SINGLPRNT      -.2695     .2634   1.0469     1     .3062    .0000    .7638
NBDXSPAR       -.2443     .4162    .3446     1     .5572    .0000    .7833
Constant      -1.1788     .1483  63.2031     1     .0000
```

Prevalence of Violent Victimization

Bad Neighborhood	Two Parent Family		Significance
	No	Yes	
No	19.0%	23.4%	.312
Yes	18.5%	27.4%	.112

Males – City Wide Denver Neighborhood Study

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--------------------- Variables in the Equation ----------------------
Variable          B        S.E.     Wald    df      Sig        R    Exp(B)
BADNBHD        -.4063     .3916   1.0766     1     .2995    .0000    .6661
SINGLPRNT      -.9281     .3618   6.5819     1     .0103   -.1141    .3953
NBDXSPAR        .4764     .6001    .6303     1     .4273    .0000   1.6103
Constant       -.5039     .1813   7.7240     1     .0054
```

Prevalence of Violent Victimization

Bad Neighborhood	Two Parent Family		Significance
	No	Yes	Yes
No	19.7%	37.7%	.019
Yes	21.1%	29.3%	.351

Table 4B (Continued)

Females – City Wide Denver Neighborhood Study

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--------------------- Variables in the Equation ----------------------
Variable          B        S.E.     Wald    df      Sig        R    Exp(B)
BADNBHD        1.3441     .4435   9.1849     1     .0024    .1596   3.8348
SINGLPRNT       .8915     .4407   4.0930     1     .0431    .0862   2.4388
NBDXSPAR      -1.4602     .6202   5.5426     1     .0186   -.1121    .2322
Constant      -2.3547     .3201  54.1087     1     .0000
```

Prevalence of Violent Victimization

Bad Neighborhood	Two Parent Family		Significance
	No	Yes	Yes
No	18.3%	8.9%	.054
Yes	17.6%	25.9%	.252

Figure 2
Prevalence of Victimization by Increasing Levels of Neighborhood Disorganization

Total Sample

Males

Females
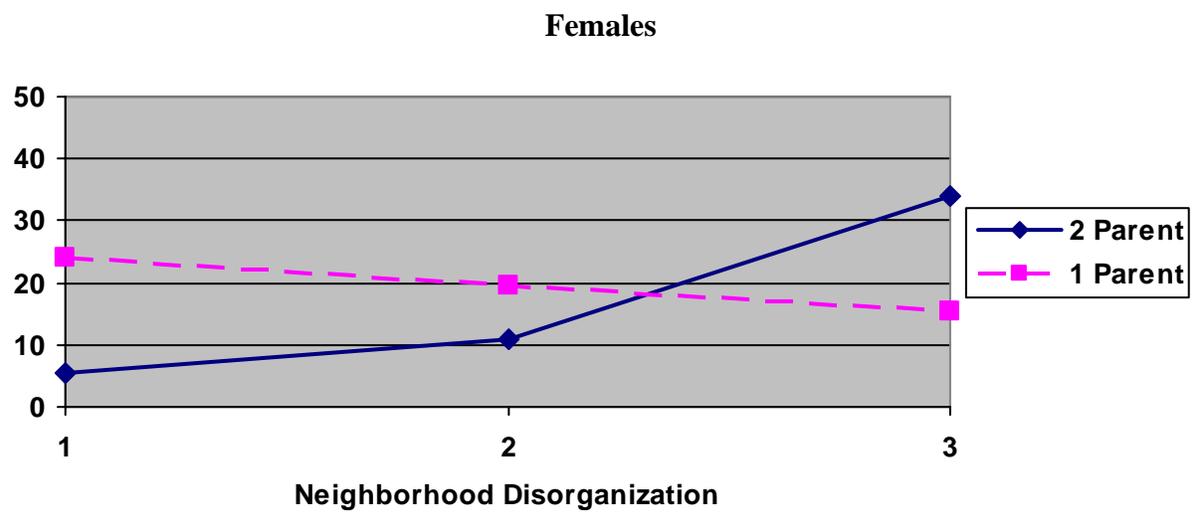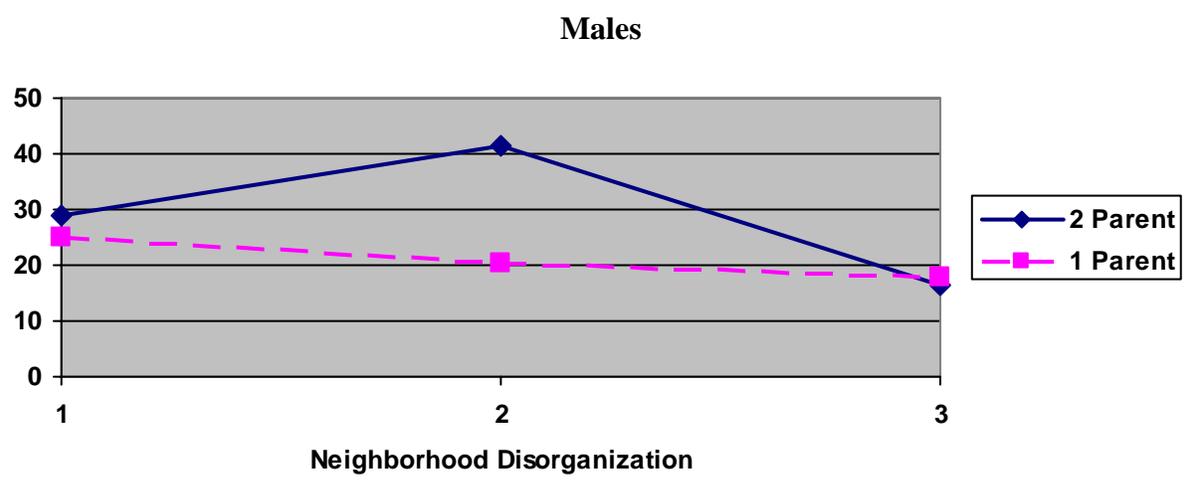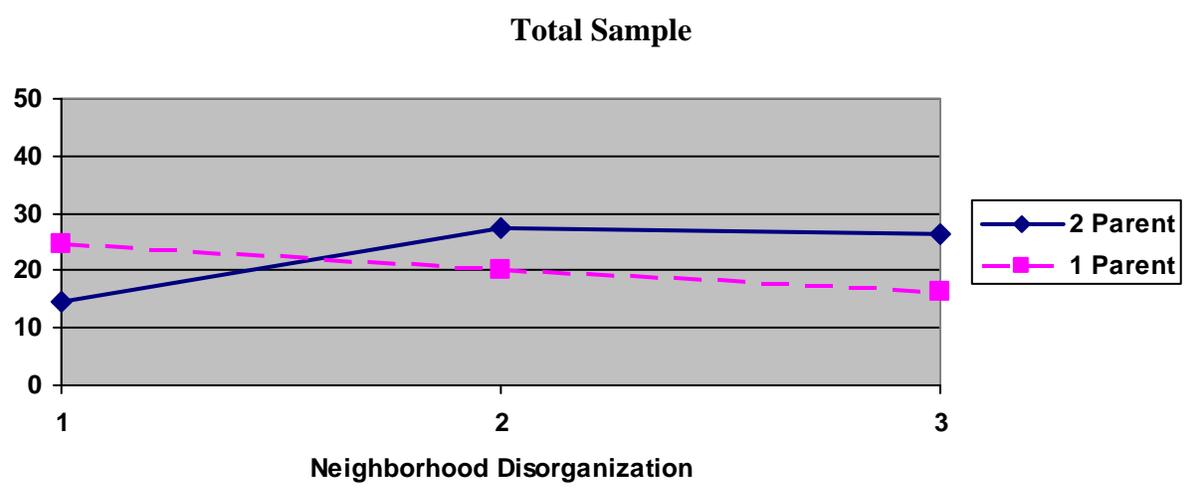
The Effect of Participation in Violence on Being a Victim of Violence and on Joint Neighborhood and Family Structure Effects

As noted earlier, there is a substantial overlap among youth who report involvement in violent offenses and youth who report involvement in violent victimization. Presumably, those who engage in violent acts are at risk for retribution or retaliation, in kind, and in a serious fight one may also get hurt – whether as the initiator or as the defender. Table 5 provides the cross-tabulation of violent offending and violent victimization for both the DNS and DYS samples. As can be seen for the DNS, roughly about 40% of the victims in the sample are also offenders – 48% of the males and 35% of the females. The overlap of offending and victimization is even higher in the high-risk DYS, where 51% of the sample, 67% of male and 33% of female victims are also offenders. Relatively large proportions of offenders are also victims. Roughly 40% (40% of male offenders; 38% of female offenders in the DNS) and 30% in the DYS (34% of male offenders; 21% of female offenders).

If it is assumed that one of the most proximal or strongest causes for violent victimization among violent offenders is their offending behavior, then the question arises whether being an offender alters the relationship between neighborhoods, family structure, and violent victimization. To examine this issue, two separate approaches were used. In the first, individuals who were both violent offenders and victims were removed from the sample used in analyses. In this way the influence of neighborhood and family structure on those whose victimization was not a result of their offending could be examined. In the second approach, violent offending was added to the regression models previously examined and the results of these models compared with the previous results. This modeling approach provides some statistical control of the influence of offending on victimization.

Examination of the regression tables for the reduced sample indicated that there were no substantive changes to the findings for the DNS total sample or for males. However, there was a substantial difference for females. Restricting the sample to those females who were not both offenders and victims resulted in changing the effects of neighborhood, family structure, and their interaction to non-significant. Thus, the effect of neighborhood and family structure variables (Table 4A) were eliminated for females when controls for violent offending are examined in this way.

Table 5
Cross-tabulation of Violent Offending and Violent Victimization

DNS – Total Sample

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	83.3%	16.7%
		Col	81.2%	57.4%
	Yes	Row	60.8%	39.2%
		Col	18.8%	42.6%

Sig. Chi-square: .000

DNS – Males

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	77.1%	22.9%
		Col	71.2%	52.4%
	Yes	Row	60.0%	40.0%
		Col	28.8%	47.6%

Sig. Chi-square: .002

DNS – Females

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	88.0%	12.0%
		Col	89.0%	64.7%
	Yes	Row	62.5%	37.5%
		Col	11.0%	35.3%

Sig. Chi-square: .000

DYS – Total Sample

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	94.2%	5.8%
		Col	84.7%	44.9%
	Yes	Row	70.3%	29.7%
		Col	14.7%	51.2%

Sig. Chi-square: .000

DYS – Males

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	94.3%	5.7%
		Col	80.6%	32.8%
	Yes	Row	66.1%	33.9%
		Col	19.4%	67.2%

Sig. Chi-square: .000

DYS – Females

			Violent Victimization	
			No	Yes
Violent Offender	No	Row	93.7%	6.3%
		Col	88.9%	66.7%
	Yes	Row	78.8%	21.2%
		Col	11.1%	33.3%

Sig. Chi-square: .000

As noted above, the influence of involvement in violence was also examined by adding a measure of violent delinquency to the full sample regression models employed earlier. In these analyses, a full model including all two-way interactions was estimated first and from the resulting estimates non-significant interactions followed by non-significant individual variables were removed one at a time to construct a reduced model. (Significance was determined by a likelihood ratio test of the difference in -2 log likelihood distributed as chi-square between models including and excluding a particular variable. Note that this is not the same as the significance of the estimated coefficient for that variable.) For brevity, only the reduced models are presented in a summary form in Table 6.

While some of the findings are consistent with earlier analyses that did not include violent offending, there are some substantial changes that result when violent offending is included in a model predicting violent victimization. Of importance, the effects of neighborhood and single parent families is modified in some analyses due to the existence of interactions between violent offending and these variables. For the total sample, there is an additional interaction of family structure and violent offending that adds significantly to the fit of the model. The nature of this interaction, indicated in Table 6, is for violent youth living in two-parent families to have substantially higher victimization rates. For males, two-parent families remain significant in the expanded model. However, Bad neighborhood and the Bad Neighborhood by Violent Offending interaction are significant. The nature of this interaction, as might be as anticipated and as indicated in Table 6, is for youth who live in bad neighborhoods and who are violent offenders to have very substantially higher rates of violent victimization. For females, the earlier findings remain unaltered, family structure, type of neighborhood, and the interaction of family structure with Bad Neighborhood are still significant.. The nature of this interaction is that youth living in good neighborhoods (low disorganization) with two-parent families have the lowest violent victimization rates.

Overall these findings demonstrate the importance of violent offending as a risk for violent victimization. They also indicate that the addition of violent offending to considerations of risks for victimization alters the understanding of the effects of neighborhoods and of family structure.

Table 6
Summary

Variable	City-wide DNS		
	Total	Males	Females
Violent Delinquency	P=.000 O.R. 4.454	P=.168 O.R. 1.567 (But see Interaction)	P=.000 O.R. 4.060
Two Parent Family	P=.396 O.R .805	P=.006 O.R. .436	P=.050 O.R. 2.419
Bad Neighborhood	--	P=.068 O.R. .468	P=.007 O.R. 3.392
Neighborhood x Two Parent Interaction	--	--	P=.014 O.R. .207
Neighborhood x Violent Delq. Interaction	--	P=.010 O.R. 5.081	--
Two Parent x Violent Delinq. Interaction	P=.129 O.R. .520	--	--

Two Parent x Violent Delinquency Interaction
Prevalence of Violent Victimization

	Two Parent Family		Significance
Violent Delinq.	No	Yes	
No	15.0%	17.9%	.405
Yes	28.8%	49.3%	.010

Males: Neighborhood x Violent Delinquency Interaction
Prevalence of Violent Victimization

	Involvement in Violent Delinquency		
Bad Neighborhood	No	Yes	Significance
No	29.2%	35.1%	.384
Yes	12.7%	53.8%	.000

Females: Neighborhood x Two Parent Family Interaction
Prevalence of Violent Victimization

	Two Parent Family		
Bad Neighborhood	No	Yes	Significance
No	18.3%	8.9%	.054
Yes	17.6%	25.9%	.252

Prediction of Violent Offending

Given the relationship between violent offending and violent victimization, this section examines the influence of family structure and type of neighborhood on violent offending. The effect of neighborhoods and families on violent offending is, of course, of interest in its own right. As in previous sections, two types of neighborhoods are considered (those with higher disorganization – or "Bad, and those lower disorganization – or "Good") together with the role of family structure (single vs. two parent families). Also included as a predictor is minority status that contrasts Caucasians with all other ethnicities. For the longitudinal high-risk DYS, a variable that has previously been found to correlate with subsequent delinquency, the number of family transitions (Thornberry et al, 1999), is included as a predictor of violent offending.[6]

Prediction of Violent Delinquency by Single Predictors

The relationship of individual predictors to violent delinquency is presented in Tables 7A and 7B for the total sample and each gender of the two Denver studies. For the total sample in the city-wide DNS, the prevalence of violent delinquency is virtually identical between "good"and "bad" neighborhoods. However, this results from different prevalence rates for males and females. For males, higher rates of violence are found in the "good" neighborhoods and for females higher rates of violence are found in the "bad" neighborhoods. This rather unanticipated finding for males is explained by the fact that for the DNS, the highest prevalence for violence for males is found in the medium disorganized/medium crime rate neighborhoods. For females, on the other hand, the highest rates are found in the more highly disorganized/higher crime rate neighborhoods. Thus, it appears that a "monolithic view" of social disorganization – that higher disorganization always implies higher delinquency and violence does not always hold.

For the remaining predictors - family structure, family transitions, violent victimization, minority status, and gender – outcomes that might be anticipated are generally (but not always) found in both studies and for both genders, and are often statistically significant. Two parent families act as a "protective" factor in the sense that youths in these families have lower prevalence rates of violence. However, single parent vs. two parent differences are not always statistically significant when males and females are considered separately. Similarly, having several changes in family structure over time is a non-significant "risk" factor for the Total DYS sample and for males of this sample, in the sense that such youths have higher prevalence rates of violence. However, this does not hold for females.

As observed in the previous victimization section, youth who are victims of violence are also fairly likely to also be violent offenders, and this holds for both genders in both studies. In the city-wide DNS, minorities of both genders have higher prevalence rates than do Caucasians. However, in the high risk DYS, where the majority of youth are minority, minorities have higher rates, but these are not statistically significant. Also, and (not surprisingly), males have higher violent offending rates than females in both studies.

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[6] Given the cross-sectional design of the City-wide DNS, this study does not have a prospective measure of the number of family transitions. Thus, family transitions can not be included in DNS analyses.

Table 7A
Summary of Individual Predictors of Violent Offending

	City-wide DNS			High-risk DYS		
Variable	Total	Males	Females	Total	Male	Female
Bad Nbhd	.942 ns	.044 Lower	.004 Higher	--	--	--
Two-Parent Family	.075 Lower	.135 Lower	.177 Lower	.001 Lower	.012 Lower	.074 Lower
2+ Family Transitions	--	--	--	.263 Higher	.201 Higher	.897 Approx.Equal
Violent Victimization	.000 Higher	.003 Higher	.000 Higher	.000 Higher	.000 Higher	.000 Higher
Minority Status	.002 Higher	.091 Higher	.005 Higher	.079 Higher	.670 Approx.Equal	.071 Higher
Gender (Male)	.000 Higher			.000 Higher		

Table 7B
Prediction of Violent Delinquency by Single Predictors

City Wide Denver Neighborhood Study
Prevalence of Violent Delinquency

		Total Sample	Sig.	Males	Sig.	Females	Sig.[*]
Bad (Disorganized) Neighborhood	No	24.1%	.942	38.3%	.044	10.3%	.004
	Yes	24.0%		26.5%		21.9%	
Two Parent Family	No	27.7%	.075	39.3%	.135	17.9%	.177
	Yes	21.3%		30.6%		12.4%	
Violent Victimization	No	18.8%	.000	28.8%	.003	11.0%	.000
	Yes	42.6%		47.6%		35.3%	
Minority Status	No	15.9%	.002	24.7%	.091	6.6%	.005
	Yes	27.4%		36.7%		18.9%	
Gender	Male	34.2%	.000				
	Female	14.9%					

* Significance from logistic regression: Violent delinquency predicted by single predictors

Table 7B (Continued)
Prediction of Violent Delinquency by Single Predictors

High-Risk Denver Youth Survey
Prevalence of Violent Delinquency

		Total Sample	Sig.	Males	Sig.	Females	Sig.*
Bad (Disorganized) Neighborhood	No	n.a.		n.a.		n.a.	
	Yes	n.a.		n.a.		n.a.	
Two Parent Family	No	23.4%	.001	30.1%	.012	15.2%	.074
	Yes	14.4%		19.4%		9.1%	
Two or More Family Transitions	No	18.8%	.263	24.5%	.201	12.4%	.897
	Yes	22.5%		30.9%		12.9%	
Violent Victimization	No	15.4%	.000	19.5%	.000	10.9%	.001
	Yes	55.7%		68.4%		32.3%	
Minority Status	No	11.8%	.079	22.9%	.670	2.4%	.071
	Yes	20.4%		26.1%		13.7%	
Gender	Male	25.9%	.000				
	Female	12.5%					

* Significance from logistic regression: Violent delinquency predicted by single predictors

Joint Effects of Neighborhood and Family Structure on Violent Offending

In keeping with the theme of this report on the joint influence of neighborhoods and family structure, the relationship between violent offending and these two predictors and their interaction was examined. As in the prediction of victimization, a sequence of logistic regressions was employed to identify significant factors and interactions. As noted before, the high-risk DYS is restricted to high-risk neighborhoods and is thus not appropriate for these analyses and the city-wide DNS is used.

The results of the regressions are presented in Table 8. As can be seen for the total sample, consistent with the examination of single predictors, single parent families are a risk factor for violent offending. However, neither type of neighborhood nor the interaction of neighborhoods and family structure are significant. Although the regression model does not indicate a significant interaction effect, it is interesting, as can be seen in the associated crosstabs, that if family structure has an influence it is in the "good" neighborhoods and not in the "bad" neighborhoods.

For males, single parents are a significant risk factor, type of neighborhood is not, but the interaction of neighborhood and single parent is significant predictor. The nature of this interaction is displayed in the related crosstabs, with the same finding as for the total sample. The effect of family structure (1 vs. 2 parents) occurs in the "good" neighborhoods, not in the "bad."

For females, a quite different picture arises. Only living in a "bad" neighborhood is a significant predictor of violent offending. Neither family structure nor the neighborhood by family structure interaction are significant (or even close to significant). This difference in prediction or risk of violent offending between genders seems worthy of further exploration, but is beyond the scope of this report.

Neighborhood and Family Structure Interactive Models

Table 8
Joint Effects of Neighborhood and Family Structure on Violent Offending

_____

Total Sample – City Wide Denver Neighborhood Study

```
--------------------- Variables in the Equation ----------------------
Variable          B       S.E.      Wald     df      Sig       R     Exp(B)
SINGLPRNT       .5677    .2416    5.5217      1    .0188    .0720    1.7642
BADNBHD         .2125    .2864     .5507      1    .4580    .0000    1.2368
NBDXSPAR       -.5770    .3979    2.1028      1    .1470   -.0123     .5616
Constant      -1.3604    .1560   76.0255      1    .0000
```

Prevalence of Violent Victimization

	Two Parent Family		Significance
Bad Neighborhood	No	Yes	
No	31.4%	20.6%	.017
Yes	23.8%	24.2%	.950

_____

Males – City Wide Denver Neighborhood Study

```
--------------------- Variables in the Equation ----------------------
Variable          B       S.E.      Wald     df      Sig       R     Exp(B)
SINGLPRNT       .9027    .3119    8.3792      1    .0038    .1303    2.4663
BADNBHD        -.0481    .3919     .0151      1    .9022    .0000     .9530
NBDXSPAR      -1.2238    .5589    4.7937      1    .0286   -.0862     .2941
Constant       -.8005    .1900   17.7581      1    .0000
```

Prevalence of Violent Offending

	Two Parent Family		Significance
Bad Neighborhood	No	Yes	
No	52.3%	31.0%	.004
Yes	23.2%	30.0%	.455

_____

Females – City Wide Denver Neighborhood Study

```
--------------------- Variables in the Equation ----------------------
Variable          B       S.E.      Wald     df      Sig       R     Exp(B)
SINGLPRNT       .2392    .4831     .2451      1    .6206    .0000    1.2702
BADNBHD         .8715    .4612    3.5698      1    .0588    .0761    2.3904
NBDXSPAR        .0191    .6516     .0009      1    .9766    .0000    1.0193
Constant      -2.2773    .3101   53.9277      1    .0000
```

Prevalence of Violent Offending

	Two Parent Family		Significance
Bad Neighborhood	No	Yes	Yes
No	11.3%	8.9%	.600
Yes	24.3%	20.0%	.561

Predicting Violent Offending from Larger Multivariate Models

Given interest in violent behavior, it is further interesting to examine the prediction of violence by models employing all of the predictors that have been previously considered. These include: Type of neighborhood, Family structure (1 vs. 2 parents), Number of family transitions, and Minority status. Also, given the observed relationship between victimization and offending, violent victimization, is included. Logistic regressions for each of the two samples, the DNS and the DYS, and for each gender within each study, were conducted. Beginning with a "full" or complete model that contained all of these predictors and their two-way interactions, a step-wise elimination procedure using likelihood ratio tests was employed to obtain the most parsimonious or reduced model. This was done because of the large number of statistically insignificant variables in the full list and to ascertain which factors were the most important (at least statistically) in predicting violent behavior. A summary of the reduced models outcomes is provided in Table 9A and the reduced models are provided in Table 9B.

As can be seen in Table 9A that indicates the statistical significance and direction of effect of those significant variables (at the .10 level) that remain in the reduced models, two factors appear to influence violent offending for both samples and, with one exception, both genders. These are Victimization and Minority Status. As observed earlier, involvement in violent offending is a significant risk for violent victimization. Here, the converse is also observed. Violent victimization is a significant risk for violent offending. It should be noted, however, that for males in the city-wide DNS, victimization interacts with type of neighborhood, so that it those living in "bad" neighborhoods and that are victims that have the highest rates of violent offending.

The second variable having wide-spread effects is minority status. For the city-wide DNS sample, the effect of minority status on violent offending is substantial and generally significant at the .01-.02 level for the total sample and for both genders. For the high risk DYS sample, the effects are not as large and, in fact, are not quite significant at the .05 level for the total sample and for females, and is non-significant for males. Thus, the effect of minority status on violent offending is quite reduced for the high-risk sample.

Quite interestingly, in the reduced model for males of the city-wide study, a significant neighborhood effect remains. Males residing in "good" neighborhoods have higher rates of involvement in violent offenses than do males residing in "bad" neighborhoods. This is consistent with the earlier finding for individual predictor variables, and this effect is of sufficient strength to remain in the reduced models. The only other predictor that remained in the models was two-parent families for the total sample of the high-risk DYS. As might be expected, youths from two parent families had lower rates of involvement in violent offenses, although this effect is not sufficiently strong to generalize to male and female subsamples.

Given the focus of this report on neighborhood by family structure interactions, it should be noted that this interaction of neighborhood by family structure is not a significant predictor in any of the reduced models for either sample or either gender.

Table 9A
Reduced Models for Violent Offending from Models Using All Predictors

Summary of Reduced Models – Violent Offending
Level of Significance & Direction of Effect*

	City-wide Denver Neighborhood Study			High Risk Denver Youth Survey		
	Total Sample	Males	Females	Total Sample	Males	Females
Bad Neighborhood		.001 Good Nbhds have higher rates of violent offending				
Two Parent Family				.018 + 2-Parent families have lower rates of violent offending		
2+ Family Transitions						
Minority	.004 Minorities have higher rates of violent offending	.010 Minorities have higher rates of violent offending	.016 Minorities have higher rates of violent offending	.059 Minorities have higher rates of violent offending		.052 Minorities have higher rates of violent offending
Victim of Violence	.000 Victims have higher rates of violent offending	** See Below Significant Interaction with Neighborhood	.000 Victims have higher rates of violent offending	.000 Victims have higher rates of violent offending	.000 Victims have higher rates of violent offending	.001 Victims have higher rates of violent offending
Neighborhood X 2 Parent						
Neighborhood X Minority						
Neighborhood X Victimization		.002 ** <u>Victims</u> living in bad neighborhoods have the highest rates of offending				
Two Parent Family X Minority						
Two Parent Family X Victim						
Victim X Minority						
Family Transitions X 2 Parent						
Family Transitions X Minority						
Family Transitions X Victim						

* Empty cells indicate that the variable or interaction was not significant at the .10 level.

** The significant interaction is   Bad Nbhd.& Victim – 61%, Good Nbhd.& Victim – 43%, Good Nbhd.& Not Victim – 36%, Bad Nbhd.&Not Victim- 16%. Thus, the highest rate occurs for victims living in bad neighborhoods, and the lowest rates occur for non-victims living in bad neighborhoods.

Table 9B
Reduced Models for Violent Offending from Models Using All Predictors

Total Sample – City Wide Denver Neighborhood Study
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
MNRTY        .6620     .2306   8.2398     1    .0041   .0965   1.9386
VIOVICTP    1.1784     .2120  30.9000     1    .0000   .2077   3.2490
Constant   -1.9685     .2112  86.8780     1    .0000
```

Males – City Wide Denver Neighborhood Study
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
BADNBHD     -1.2962    .3825  11.4858     1    .0007  -.1604    .2736
MNRTY        .7684     .2979   6.6536     1    .0099   .1123   2.1563
VIOVICTP     .2833     .3224    .7720     1    .3796   .0000   1.3275
VIOVXBNB    1.9259     .6296   9.3582     1    .0022   .1412   6.8613
Constant   -1.0939     .2639  17.1778     1    .0000
```

```
              Prevalence of Violent Offending
```

Bad Neighborhood	Violent Victimization		Significance
	No	Yes	
No	36.1%	42.6%	.384
Yes	16.2%	60.9%	.000

Females – City Wide Denver Neighborhood Study
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
MNRTY       1.0610     .4388   5.8459     1    .0156   .1190   2.8892
VIOVICTP    1.3320     .3569  13.9264     1    .0002   .2096   3.7886
Constant   -2.8570     .4061  49.4881     1    .0000
```

Total Sample – Denver Youth Survey
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
SINGLPRNT    .4591     .1944   5.5773     1    .0182   .0653   1.5826
MNRTY        .6615     .3882   2.9030     1    .0884   .0328   1.9376
VIOVICTP    1.9160     .2405  63.4512     1    .0000   .2706   6.7937
Constant   -2.6031     .3904  44.4680     1    .0000
```

Males – Denver Youth Survey
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
VIOVICTP    2.1883     .3120  49.1941     1    .0000   .3029   8.9196
Constant   -1.4151     .1270 124.0549     1    .0000
```

Females – Denver Youth Survey
```
-------------------- Variables in the Equation ----------------------
Variable        B       S.E.     Wald    df     Sig       R    Exp(B)
MNRTY       2.0125    1.0348   3.7822     1    .0518   .0769   7.4821
VIOVICTP    1.4764     .4311  11.7305     1    .0006   .1798   4.3771
Constant   -4.0186    1.0304  15.2112     1    .0001
```

* Note: Sample size would not permit correct inclusion of VIOVXSP in the model.
(Two parent family and a victim, N=11). So this interaction was not included in the total model.

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