Person or Place? A Contextual, Event History Analysis of Homicide Victimization Risk

Final Summary Overview

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Abstract

This research is a contextual event-history analysis of homicide victimization risk in the United States. It contributes to the literature by examining risk factors for homicide victimization at individual and neighborhood levels using data from the National Health Interview Survey (2004-2012), National Death Index, and American Community Survey (2005-2009, 2008-2012). Research questions include: "what are the effects of characteristics of the neighborhood on the risk of homicide victimization net of individual characteristics?" and "how do individual factors (such as age, sex, race, immigrant status, level of education, employment status, marital status, dependent children, military experience, health insurance, etc.) condition the effects of neighborhood-level factors (such as collective disadvantage, social structure, and race-specific urban composition) on the risk of homicide victimization?" The primary substantive contribution of this research is also to investigate whether the influence of the neighborhood environment or a person's own demographic and social characteristics, along with the type of lifestyle that persons with those characteristics may lead, plays a larger role in the risk that a person has of being a homicide victim. Results indicate that blacks with low income and blacks in socially disorganized neighborhoods experience increased risk for homicide victimization. Additionally, there is a clear problem with race-based income inequality in the United States as low income blacks are significantly more likely to be killed. Particular attention should also be paid to the southern and western regions of the United States, as risk of homicide is substantially higher in these regions. The findings from this research may be useful regarding the establishment of targeted community programs with the goal of prevention of homicide victimization. A main limitation of this study is the age of the data. Future research should examine more recent homicide data.

Purpose

The purpose of this research was to examine the influence of neighborhood social disorganization on the risk of homicide victimization focusing on how community effects change once individual-level characteristics are considered. Scholars understand how disadvantage functions at neighborhood- and individual-levels, but few studies have sought to understand how they interact to influence homicide risk. The majority of research on homicide deals with how neighborhood factors influence homicide rates. A much less studied aspect of homicide, however, deals with the influence of individual factors on homicide victimization. At the neighborhood-level, some researchers have focused on structural factors as the key covariates of homicide, while other scholars have focused on the relationship between individual-level characteristics and one's risk of being a homicide victim. This research integrated concepts from social disorganization theory, a neighborhood theory of criminal behavior, with concepts from lifestyle theory, an individual theory of criminal behavior, by examining the effects of both neighborhood-level predictors of disadvantage and individual attributes which may compel that person to behave in certain ways.

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with those characteristics may lead, plays a larger role in the risk that a person has of being a homicide victim. This answers the question, "is it the 'kind of person', the 'kind of place', or some combination of the two that has the largest influence on a person's risk of being the victim of a homicide?"

The specific hypotheses are as follows:

> H1: Predictors of social disorganization are positively related to individual risk of homicide victimization.
>
> H2: The positive relationships between predictors of social disorganization and individual homicide victimization risk are reduced or brought to statistical nonsignificance once characteristics of the individual are considered.

The data for this project are from the 2004-2012 National Center for Health Statistics' (NCHS) National Health Interview Survey (NHIS) linked National Death Index-Multiple Causes of Death (MCD) data, which provides individual-level data on homicide mortality. Neighborhood-level (block group) characteristics of disadvantage that exist within each respondent's place of residence from the 2005-2009 and 2008-2012 American Community Surveys (ACS) were integrated using restricted geographic identifiers from the NHIS. Data were examined using a contextual, event-history analysis of homicide victimization risk which considered the influence of neighborhoods. This included measures of resource deprivation, race-specific urban composition, and housing instability, and personal attributes, including both achieved characteristics (i.e. education, employment status, marital status, dependent children, health insurance, etc.) and ascribed characteristics (i.e. age, sex, race, etc.), alter the relationship between community disadvantage and homicide victimization concurrently.

This research fills an important omission in social science theories of crime and violence by examining the influence of both individual and neighborhood characteristics simultaneously.

No study to date has been able to address this issue in depth. The research not only accounts for individual attributes, it also considers the degree to which individual characteristics have an influence on the risk of homicide victimization and if a person's individual or neighborhood characteristics play a larger role in the likelihood that he/she will die by homicide.

Theoretical Framework

There has been a great deal of discussion among scholars regarding the influence of structural disadvantages and of neighborhood and institutional instability on the social fabric of urban society. Within the field of criminology, the preponderance of studies on homicide focus on how neighborhood context influences rates of homicide and consistently indicate that structural disadvantage affects a communities' rate of homicide victimization (Blau and Blau 1982; Messner 1982; Bailey 1984). Social disorganization theory posits that high delinquency and crime rates in inner cities are the result of structural disadvantages that developed due to the growth of cities. The theory states that societies (neighborhoods more specifically) rely on normative consensus of common goals in order to regulate behavior. This ecological perspective contends that certain disadvantaged neighborhoods are responsible for a disproportionate amount of crime because of the neighborhood's inability to maintain effective social control mechanisms over its residents. Sampson, Raudenbush, and Earls (1997) found that the association between concentrated disadvantage and rates of violence is not necessarily attributable solely to the aggregated demographic characteristics of individuals, but a major source of neighborhood variation in violence is the differing abilities that community residents have to "realize the common values and maintain effective social controls" (Sampson, Raudenbush, and Earls 1997: 918). They argue that "the alienation, exploitation, and dependency" produced by disadvantage works against the establishment of collective efficacy—a community's ability to establish

mechanisms of informal social control. Wilson (1996) argues that in areas that are characterized by concentrations of poverty, joblessness, female-headed households, and vacant housing units, residents are more likely to use violence as a means for survival.

Most research on risk of criminal victimization has focused on the influences that structural factors have on aggregates—such as neighborhoods, Metropolitan Statistical Areas, counties, states, or entire nations. Within the field of criminology, there has been comparatively less research on how individual characteristics may influence the risk that one has to be the victim of a crime. Lifestyle theory assumes that the daily activities (work, school, social activities) that a person is involved in may increase risk of criminal victimization (Hindelang, Gottfredson, & Garofalo, 1978). Variations in lifestyle can have a critical impact on a person's risk of being victimized or exposure to criminogenic situations, persons, and places. A person's ascribed characteristics, such as age, race and sex, as well as their achieved characteristics, such as education, occupation, and income, influence their behavior and the type of lifestyle that they lead, including the possibility of coming into contact with dangerous persons, places, or situations. Accounting for these individual characteristics in addition to characteristics of the neighborhood that a person lives in not only deals with the methodological implications of ignoring individual characteristics when analyzing the influence of social disorganization on the risk of homicide, it also demonstrates how the social environment influences the effects of individual characteristics and how individual characteristics influence the effects of the social environment.

Project Design and Methods

This study involves two distinct levels of analysis because explanatory variables are measured using both individual- and neighborhood-level data. The individual-level units of

analysis are individual respondents from the restricted-use 2004-2012 NHIS-MCD linked file. The neighborhood-level units of analysis are block groups representing neighborhoods using data from the 2005-2009 and 2008-2012 ACS.

Event-history, surveylogistic regression analyses were used to investigate the impact of neighborhood-level disadvantage on the risk of homicide mortality in block groups in the United States and to examine the effect of individual-level characteristics on the association between context and the probability of an individual being the victim of a homicide. SAS software was used to analyze the data. Due to variation in the number of years each respondent is at risk of homicide victimization, a separate observational record (or person-year) was created based on the respondent's NHIS interview year and the number of years the respondent is at risk for homicide victimization.

The surveylogistic procedure in SAS allows the sampling design of the NHIS to be considered, adjusting estimates based on sampling design information. Due to the complex NHIS sampling design, strata and cluster (primary sampling unit) identifiers were included in order to specify in which stratum or cluster each observations belongs. A weight variable was also included to adjust for potential bias due to variation in the number of individual observations associated with each respondent. The eligibility adjusted weight measure included in the NHIS-MCD linked file was adjusted for the pooled structure of the file by dividing the NHIS weight measure by the number years that are being pooled. Due to the redesign of these measures for the 2006-2009 survey years, the variance estimation measures (stratum and primary sampling unit) were converted for consistency across sampling designs. The data from the distinct sampling designs (2004-2005 and 2006-2009) were treated as statistically independent.

In this study, all living NHIS respondents were considered to be "at risk" of becoming homicide victims. The primary dependent variable for this study was a binary variable that indicates whether a respondent is still alive or dead by anything other than homicide (0) or the victim of a homicide (1). Firearm homicides are also examined independently. Homicide deaths are defined according to the NHIS linked Mortality file (UCOD_113). Respondents who were not identified as deceased at the end of a follow-up period were assumed to be alive.

This study includes individual-level variables from the NHIS dealing with the demographic, geographic, family and household, citizenship and nativity characteristics of respondents. Demographic variables include respondents' '***race/ethnicity***' (categorical variables indicating whether the respondent is non-Hispanic white, non-Hispanic black, other non-Hispanic, or Hispanic), '***age***' (the age of the respondent at the time of the interview), '***age categories'*** (18-34, 35-64, and 65 and older), '***sex***' (indicator variables indicating whether the respondent is male or female), and '***marital status***' (indicator variables indicating whether the respondent is married, divorced or separated, never married, or widowed), '***educational attainment***' (categorical variables indicating whether the respondent has less than high school education, is a high school graduate, or has more education than high school), '***employment status***' (categorical variables indicating if the respondent is employed, unemployed, or not a member of the labor force), and '***health insurance'*** (indicator variable of whether or not the respondent has health insurance). Geographic variables include '***urban/rural***' (indicator variable of living in an urban or rural area) and '***region***' (categorical variable of whether the respondent lives in the South, North, West, or Midwest). Home and family characteristics include '***family structure***' (categorical measure of whether the respondent lives alone, with only other adults, with more than one adult and children, or as the sole adult householder with children), an

additional measure of whether the respondent is a '***female householder with children***' is also examined, '***family income equivalence***' (calculated as: $W = \frac{I}{S^{.38}}$ where W is income equivalence, I is family income in units of $10,000, and S is family size measures of family size), and '***homeownership***' (indicator of whether the respondent is a homeowner). Measures of '***citizenship***' (indicator of whether the respondent is a United States citizen) and '***nativity***' (indicator of whether the respondent was born in the United States) are also examined.

At the neighborhood-level, primary indicators from the ACS examined include '***poverty***' (percentage of block-group residents that fall below the federally defined poverty line), '***female headed households with children***' (percentage of households with female householders with children under the age of 18 within each block group), '***less than high school educational attainment***' (percentage of residents in each block group aged 25 and older that have not graduated from high school), '***public assistance***' (percentage of block group residents on public assistance), '***racial/ethnic heterogeneity***' (percentage of non-Hispanic black block group residents), '***population size***' (natural log of the block group population), and '***population aged 15 to 24***'. Additional neighborhood-level measures examined in bivariate analyses include '***female headed households in poverty with children***' (percentage of households with children under 18 headed by females under the federally defined poverty line in each block group), '***grandparent headed households with children***' (percentage of households with children under 18 headed by grandparents with no parents present), '***never married***' (percentage of block group residents aged 25 and older that have never been married), '***born in the US***' (percentage of block group residents born in the United States), '***vacant housing units***' (percentage of unoccupied housing units in each block group), '***low value homeownership***' (percentage of owned homes in the lower value quartile in each block group), '***medium value homeownership***' (percentage of

owned homes at the median value in each block group), '***high value homeownership***' (percentage of owned homes in the upper value quartile in each block group), and '***population 15 to 24 no job, not in school or military***' (percentage of block group residents ages 15 to 24 that are unemployed, not in school, and not in the military).

Data Analysis

Table 1: Factor Scores from Orthogonally Rotated Principle Components Analysis of Neighborhood-Level Social Disorganization

Poverty	0.822
Female Headed Households with Children under 18	0.802
Less than High School Educational Attainment	0.699
Public Assistance[a]	0.652
Racial/Ethnic Heterogeneity[a]	0.528
Eigenvalue	2.512
% Variance Explained	0.502

Notes: all values are percentages within block groups,
[a] Natural log transformation, b Square root transformation

The following analyses were performed: descriptive analysis (not displayed in this summary report), factor scores and other values from principal components, bivariate analyses, and surveylogistic regressions. These results are based on pooled 2004-2012 NHIS-MCD data. Table 1 includes the factor scores, Eigenvalue, and variance explained by the social disorganization index used in the neighborhood- and multi-level models predicting homicide victimization. An obliquely rotated principal components analysis was performed to determine the best way to group the variables that typically represent social disorganization theory. Neighborhood-level measures the percent of each block group below the federally recognized poverty line, percent of female headed households with children under 18, percent of those 25 and older with less than a high school educational attainment, percent on public assistance unemployment, ethnic/racial heterogeneity (measured as percent black) loaded together as a single latent construct of social disorganization. The variables within this index had factor loadings greater than 0.50, indicating high levels of correlation between the components. The Eigenvalues of the factor is 2.512, which is well above the Kaiser criterion (Kaiser, 1960)

that suggests Eigenvalues greater than one, and indicates that the number of components in the factor is appropriate.

Findings

Tables 2 and 3 display bivariate analyses of the relationship of each predictor measure with all homicides and firearm homicides. Tables 4 and 6 display individual- and neighborhood-level Surveylogistic regression analyses. Table 6 displays surveylogistic regression analyses of both individual- and neighborhood-level predictors simultaneously.

Table 2: Bivariate Analyses of Individual-Level Predictors on Person-Year Homicide Victimization Risk

	Full Sample		Non-Hisp. White Subsample		Black Subsample		Hispanic Subsample	
	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.
Demographic Characteristics								
Race								
Non-Hispanic White	ref	ref						
Non-Hispanic Black	1.274	1.647						
Non-Hispanic Other	3.675 **	3.364 *						
Hispanic	2.970 *	3.171 *						
Age (continuous)	0.982 ***	0.979 ***	0.988	0.993	0.968 ***	0.968	0.995	0.996
Age Categories								
18-34	4.419 ***	3.234 ***	8.606 ***	11.198 **	3.619 ***	3.974 ***	2.171 †	1.984
35-64	1.480 ***	1.275	6.301 **	7.023 **	0.531	0.455	0.366	1.150
65+	ref	ref	ref	ref	ref	ref		
Sex (male=1)	3.327 ***	3.969 **	1.987	2.196	2.457	2.432	9.350 ***	27.397 **
Marital Status								
Married	ref	ref	ref	ref	ref	ref	ref	ref
Divorced/Separated	0.960	0.524	ref	ref	ref	ref	ref	ref
Never Married	4.936 ***	6.283 ***	3.083	4.817 **	5.841 ***	8.642 ***	4.973 ***	4.072 **
Widowed	0.372	(<5 in sample)	ref	ref	ref	ref	ref	ref
Educational Attainment								
Less than High School	1.288	1.405	2.115	1.598	2.733 †	3.038 †	0.647	0.580
High School Graduate	ref	ref	ref	ref	ref	ref	ref	ref
Greater than high School	0.702	0.495	3.160	4.027	0.432	0.301	0.561	0.224 †
Employment status								
Employed	ref	ref	ref	ref	ref	ref	ref	
Unemployed	3.607 ***	4.410 ***	0.777	0.902	3.788 *	4.369 **	1.394	2.041
Not in Labor Force	0.772	0.806	1.285	0.775	0.302	0.278	0.423	0.351
Health Insurance (no insurance=1)	2.050 ***	2.660 ***	1.433	1.940	2.232 *	2.698 *	2.673 *	3.828 **
Geographic Characteristics								
Urban/Rural (urban=1)	1.455	1.400	1.053	2.068	1.264	1.052	6.205 †	4.432
Region								
South	5.258 ***	4.676 ***	37.883 ***	28.990 **	2.877 *	3.155 *	9.776 *	7.865 *
North	ref	ref	ref	ref	ref	ref	ref	
West	3.410 **	1.889	11.894 *	7.556 †	0.838	0.545	6.397 †	3.678
Midwest	1.516	1.335	ref	ref	ref	ref	ref	
Home and Family Characteristics								
Family Structure								
Lives Alone	1.441	1.038	2.955	2.955	1.064	0.719	0.413	ref
Lives with other Adults	1.738	1.545	5.883 **	5.043 *	0.626	0.799	2.045	1.517
More than one adult with children	3.142 ***	3.238 **	4.152 †	1.195	3.752 *	4.782 *	1.312	1.339
Single parent household with children	ref	ref	ref		ref	ref	ref	ref
Female Headed Household with children					3.775 †	4.472 *		
Family Income Equivalence	0.778 **	0.778 **	0.812	0.847	0.546 ***	0.537 ***	0.809 †	
Homeownership	0.381 ***	0.323 ***	0.607	0.467	0.299 **	0.300 *	0.564	0.394 †
Citizenship and Nativity								
Citizenship Status (US cit=1)	0.395 **	0.529	0.727	0.687			0.780	0.543
Born in the US	0.562 *	0.761	0.534	0.462			0.956	0.711

Reported figures are odds ratios.
***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

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Bivariate Analyses

An examination of the bivariate correlations displayed in Tables 2 and 3 allows for an examination of directionality and significance of each variable independently. The correlations displayed in the first two columns of Table 2 suggest that being a race other than non-Hispanic Black or non-Hispanic White, younger, male, never married, unemployed, or residing in the southern or western regions of the United States increase one's odds of dying by homicide. Risk of being murdered with a firearm, on the other hand, is no more likely in the western region than the North or Midwest. Whites are at higher risk of being murdered when they are younger, never married (firearm homicide only), or reside in the South or West. Blacks are at higher risk when they are younger, never married, unemployed, have no health insurance, or live in the south. Hispanics are at higher risk when they are male, never married, have no health insurance, or live in the south.

Table 3: Bivariate Analyses of Neighborhood-Level Predictors on Person-Year Homicide Victimization Risk

	Full Sample		White Subsample		Black Subsample		Hispanic Subsample	
	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.
Primary Neighborhood-Level Measures (included in multivariate analyses)								
Social Disorganization Index	1.832 ***	1.944 ***	1.300	1.252	2.380 ***	2.543 ***	1.105	1.086
Poverty[a]	1.022 ***	1.025 ***	1.017	1.017	1.031 *	1.033 *	1.009	1.015
Famale Headed Households (FHH) with Children	1.048 ***	1.055 ***	1.010	1.000	1.074 ***	1.078 ***	0.998	0.997
Less than High School Educational Attainment	1.037 ***	1.035 ***	1.011	1.013	1.056 ***	1.059 ***	1.016 †	1.015
Public Assistance	1.459 ***	1.563 ***	1.143	1.035	1.875 ***	2.089 ***	0.877	0.830
Race-Specific Population Composition								
Black[o]	1.267 ***	1.314 ***	1.145	1.150	1.490 ***	1.586 ***	1.021	0.938
White[o]	0.760 ***	0.767 ***	0.834 *	0.832 *	0.713 ***	0.687 ***	0.874 †	0.935
Hispanic	1.014 ***	1.011 *	1.018 *	1.018 *	0.979	0.972	1.014 †	1.014
Population Size[a]	0.543 **	0.485 **	0.929	1.018	0.324 **	0.271 ***	0.899	0.649
Population Ages 15 to 24	1.265 *	0.318 **	1.296	1.376	1.438 ***	1.501 ***	1.122	1.060
Additional Neighborhood-Level Measures (not included in multivariate analyses)								
FHH in poverty with children[o]	1.268 ***	1.342 ***	1.093	1.069	1.569 ***	1.625 ***	0.963	0.983
Grandparent Headed Households with Children	1.105 ***	1.108 ***	0.979	0.941	1.154 ***	1.157 ***	1.018	(<5 in sample)
Never Married	1.033 ***	1.034 ***	1.006	1.007	1.046 ***	1.051 ***	0.993	0.972
Born in the US	0.985 †	0.998	0.974	0.973	1.028	1.026	0.987	0.998
Vacant Housing Units	1.603 *	2.078 **	0.849	1.039	2.437 *	3.256 **	1.273	1.592
Low Value Homeownership	0.998	0.996 **	1.001	1.001	0.994 **	0.993 ***	0.998	0.996 **
Medium Value Homeownership	0.998 †	0.996 **	1.001	1.000	0.994 **	0.993 ***	0.998	0.996 *
High Value Homeownership	1.000	1.000 *	1.000	1.000	1.000 *	1.000 *	1.000	1.000 *
Population 15-24 no job, not in school or military	1.565 *	1.927 **	1.730	1.730	1.834 ***	2.181 **	1.570	1.841

Reported figures are odds ratios.
***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

All primary neighborhood-level correlations (Table 3) have significant relationships with both all homicide and firearm homicide. The social disorganization index and all its individual components increase risk of homicide victimization. Individuals living in block groups with larger populations have lower risk of victimization. Those living in block groups with larger

populations between 15 and 25 have increased risk of death by homicide, but surprisingly lower risk of firearm homicide. Living in block groups with larger white populations leads to lower risk, while living in block groups with a large Hispanic population composition increases risk slightly. The race specific subsample analyses indicate, however, that the majority of these relationships (with the exception of those dealing with race-specific population composition) are being driven by black respondents. The additional neighborhood measures suggest that individuals living in block groups with larger populations of poor, female headed households with children, grandparent headed households with children, unmarried populations, vacant homes, and populations aged 15 to 24 with no job, not in school or military, have higher risk of both all homicide and firearm homicide. Again, these relationships appear to be almost completely driven by homicide risk among members of the black community. Additionally, risk of firearm homicide is reduced by high homeownership, regardless of the value of homes. For the black community, homeownership is protective for all homicides and firearm homicides. The measures of homeownership are the only significant neighborhood-level predictors in the Hispanic subsample and are protective from homicide victimization risk.

Multivariate Analyses

Examination of the multivariate analyses indicates that the individual relationships between several individual-level predictors (Table 4) are decreased to statistical nonsignificance when examined simultaneously. For the full sample, being male, never married, living in the south, and living alone increases risk of homicide while higher family income decreases risk. For whites, having never been married and living in the south only increases risk of firearm homicide. For blacks and Hispanics, having never been married and living in the south, and having lower income increases risk for blacks only.

Table 4: Multivariate SurveyLogistic Analyses of Individual-Level Predictors on Person-Year Homicide Victimization Risk

	Full Sample		White Subsample		Black Subsample		Hispanic Subsample	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.
Demographic Characteristics								
Race/Ethnicity								
Non-Hispanic White	ref	ref						
Non-Hispanic Black	1.106	1.338						
Non-Hispanic Other	1.867	1.492						
Hispanic	1.364	1.534						
Age (continuous)	0.998	1.001	1.011	1.005	0.990	0.996	1.011	1.012
Sex (male=1)	3.177 **	3.742 **	2.212	2.495	2.272	2.250	(<5 in sample)	
Never Married	4.634 **	6.652 ***	4.240	5.948 **	4.288 *	6.808 **	6.781 ***	4.999 **
Educational Attainment								
Less than High School	0.922	1.089	1.862	1.313	1.800	2.155	0.729	0.665
High School Graduate	ref	ref	ref	ref	ref	ref	ref	ref
Greater than high School	0.922	0.683	3.733	4.283	0.586	0.447	0.675	0.279
Health Insurance (no insurance=1)	0.753	1.011	0.628	0.844	1.053	1.241	1.669	2.141
Geographic Characteristics								
Urban/Rural (urban=1)	1.203	1.258	1.008	1.914	1.543	1.301	(<5 in sample)	
Region								
Midwest	1.484	1.277	ref	ref	1.571	1.208	ref	ref
South	4.766 **	4.196 **	39.149	31.101 **	3.934 *	3.505 †	11.013 *	8.643 *
West	2.711 *	1.377	9.910	5.347	1.120	0.464	6.648 †	3.514
North	ref	ref	ref	ref	ref	ref	ref	ref
Lives Alone	0.494 *	0.355 *	0.374	0.420	0.657	0.369	0.153 †	(<5 in sample)
Home and Family Characteristics								
Female Headed Household with children	0.610	0.701	(<5 in sample)		1.026	1.194	(<5 in sample)	
Family Income Equivalence	0.726 **	0.749 **	0.801	0.853	0.589 ***	0.594 ***	0.857	0.947
Homeownership	0.845	0.656	0.770	0.657	0.924	0.865	0.549	0.356 †
Citizenship and Nativity								
Citizenship Status (US cit=1)	0.802	1.176	3.179	4.409	(<5 in sample)		1.592	1.317
Born in the US	0.865	0.997	0.422	0.366			1.001	1.052
R-Square	0.0881	0.1058	0.0999	0.1254	0.1182	0.1454	0.0761	0.0827

Reported figures are odds ratios.
*****p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10**

Models in Table 5 suggest that living in block groups with high levels of social disorganization increases the risk of homicide for the full sample, but this relationship is again being completely driven by the black subsample. Additionally, larger block group populations pose lower risk to residents, while larger young (15 to 24) populations increase risk. None of the neighborhood-level measures are significant for the white and Hispanic subsamples.

Table 5: Multivariate SurveyLogistic Analyses of Neighborhood-Level Predictors on Person-Year Homicide Victimization Risk

	Full Sample		White Subsample		Black Subsample		Hispanic Subsample	
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.
Social Disorganization Index	1.685 ***	1.732 ***	1.232	1.174	2.024 ***	2.106 ***	1.077	1.035
Polulation Size	0.701	0.604	0.981	1.077	0.506 †	0.437 *	0.908	0.647
Population Ages 15 to 24	1.144	1.213	1.256	1.382	1.298 *	1.366 *	1.094	1.082
R-Square	0.0278	0.0366	0.0049	0.0069	0.0704	0.0890	0.0010	0.0042

Reported figures are odds ratios.
*****p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10**

The multi-level models in Table 6 suggest that being male, never married, living in the south, having low family income, and living in a socially disorganized neighborhood increased risk of death by homicide. Having never been married and living in the south increase risk for blacks, whites, and Hispanics, while low individual-level income and social disorganization only

increased risk for blacks. Additionally, blacks that live alone are at greater risk for all homicides and blacks living in block groups with large young populations (15-24) have greater risk of firearm homicide victimization.

Table 6: SurveyLogistic Analyses of Individual- and Neighborhood-Level Predictors on Person-Year Homicide Victimization Risk

	Full Sample		White Subsample		Black Subsample		Hispanic Subsample	
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.	All Hom.	Firearm Hom.
Individual-Level Predictors								
Demogrpahic Characteristics								
Race/Ethnicity								
Non-Hispanic White	ref	ref						
Non-Hispanic Black	1.578	1.594						
Non-Hispanic Other	1.806	1.075						
Hispanic	1.621	1.593						
Age	0.993	1.001	1.004	1.009	0.990	0.997	1.010	1.012
Sex (male=1)	3.431 **	4.431 **	2.295	4.140	2.749	2.634	(<5 in sample)	
Never Married	4.079 **	5.146 ***	3.446 *	4.500 *	3.930 *	5.822 **	6.452 ***	4.758 **
Educational Attainment								
Less than High School	0.845	1.148	1.120	1.583	1.675	2.121	0.720	0.677
High School Graduate	ref	ref	ref	ref	ref	ref	ref	ref
Greater than high School	0.954	0.658	2.534	3.104	0.480	0.350	0.615	0.208 †
Health Insurance (no insurance=1)	0.849	1.198	0.894	1.229	1.106	1.330	1.640	2.228
Geographic Characteristics								
Urban/Rural (urban=1)	1.265	1.036	1.276	1.456	0.955	0.690	(<5 in sample)	
Region								
Midwest	1.672	1.246	ref	ref	1.308	0.932	ref	ref
South	5.230 **	4.211 **	30.419 **	26.758 **	3.628 *	3.089 †	12.450 *	10.009 *
West	2.826 *	1.152	7.970 †	4.581	1.067	0.636	6.796 †	3.787
North	ref	ref	ref	ref	ref	ref	ref	ref
Lives Alone	0.552	0.387 †	0.609	0.662	0.394 **	0.200	0.158 †	
Home and Family Characteristics								
Female Headed Household with children	0.595	0.803	(<5 in sample)		0.886	1.108	(<5 in sample)	
Family Income Equivalence	0.783 **	0.807 *	0.937	0.916	0.626 ***	0.660 ***	0.863	0.962
Homeownership	0.891	0.767	0.764	0.871	1.091	1.167	0.533	0.359
Citizenship and Nativity								
Citizenship Status (US cit=1)	0.813	1.323	3.106	4.657	(<5 in sample)		1.615	1.382
Born in the US	0.713	0.768	0.265 *	0.263 †			0.946	0.973
Neighborhood-Level Predictors								
Social Disorganization Index	1.314 *	1.350 *	1.005	0.891	1.499 **	1.619 ***	0.962	(<5 in sample)
Polulation Size	0.703	0.614 †	0.864	0.956	0.555	0.462 †	0.845	0.604
Percent Ages 18 to 24	1.000	1.117	1.103	1.200	1.208	1.341 *	1.006	1.016
R-Square	0.099	0.121	0.090	0.114	0.163	0.201	0.078	0.093

Reported figures are odds ratios.
***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

Implications for Criminal Justice Policy and Practice in the United States

Violence is considered to be a public health problem in the United States, and public health professionals have suggested that changes in behavior may work to prevent violence, similar to how exercise and diet can reduce risk of heart disease, cancer, and stroke. This call for violence to be considered as a threat to public health led to the establishment of the Violence Epidemiology Branch of the CDC in 1983 and to the epidemiological research of violence, which then led to data collection, research, and legislation with the specific purpose of prevention of violent behavior (Dahlberg and Mercy 2009). Additionally, recent research suggests that homicide spreads in ways similar to that of infectious disease, that homicide

clusters in areas with higher proportions of residents living below the poverty line, and those individuals with certain lifestyle characteristics may have higher risk of homicide (Zeoli et al. 2012). This research examined the effects of specific risk factors at both the neighborhood- and individual-levels that may increase risk of victimization.

The findings from this research may be useful regarding the establishment of targeted community programs with the goal of prevention of homicide victimization. Particular attention should be paid to the southern and western regions of the United States, as the odds of dying by homicide is over five times greater in the South and nearly three times greater in the West relative to the northern region. This is particularly amplified for southern whites, who experience over 30 times greater odds of dying by homicide, and for southern blacks, who are over three times more likely to die by homicide relative to those living in any other region. Results also indicate that blacks with low income and blacks in socially disorganized neighborhoods experience increased risk for homicide victimization, thus, targeted community programs should be focused in these areas. Additionally, there is a clear problem with race-based income inequality in the United States.

One of the potential sources of this income inequality and resulting violence is the 'War on Drugs' that has plagued the black community for nearly 50 years leading to the skyrocketing rates of incarceration for nonviolent drug crimes in the United States (Alexander, 2012). The black community has disproportionately suffered from the deleterious effects of this endless 'war'. Although rates of crime declined throughout the 1990s and have since remained relatively stable, rates of incarceration continued to drastically increase in the United States (Beck and Blumstein, 2012). Arrests for drug offenses at this time, however, increased by over 36% from 1990 to 2012 and account for as much as 16% of state prisoners (Pfaff, 2017). The increases in

arrest coupled with determinate sentencing practices based on three strikes laws and mandatory minimum sentence laws were major contributors to the incarceration boom. Poor, urban areas of color have experienced the highest arrest and incarceration rate increases (Humes, Jones, and Ramirez, 2011). Because so many young black males are incarcerated for possession and low-level drug sales violations, many black mothers are left to raise their families alone (Wakefield and Wildeman, 2013). This single motherhood further perpetuates problems associated with poverty (Travis, Western, and Redburn, 2014), joblessness (Western, 2006), lack of male role models (Foster and Hagan, 2015), and young, black males living risky lifestyles (Foster and Hagan, 2013) that lead to higher risk of violence and homicide (Henry, Caspi, Moffitt, & Silva, 1996). Moreover, children of criminal parents are more likely to display serious criminal and delinquent behaviors (Farrington, Barnes, & Lambert, 1996; Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001). Decriminalizing drug possession, focusing more on addiction treatment programming, and eliminating or changing policies (i.e., mandatory minimum sentences) and harsh policing practices that the lead to disproportionate arrests and incarceration, would likely have a significant effect on the reduction of, not only homicide, but all violent crime rates nationwide.

This study, like all research, is not without limitations. First, the data are from 2004 to 2012, which is slightly dated. Future research should examine more contemporary data to determine if the nature of homicide has changed more recently. Second, an unexpected limitation is that there were too few cases for some predictors in the racial and ethnic subsamples (e.g., female headed households with children in white and Hispanic subsamples). Future research should examine a wider span of years to attempt to eliminate this limitation.

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