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Repeat and Multiple Victimizations: The Role of Individual and Contextual Factors*

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Repeat and Multiple Victimizations: The Role of Individual and Contextual Factors

ABSTRACT

The present research uses hierarchical modeling to examine the relative contributions of factors about the person, factors about the context, and, most importantly, the interaction of factors about the person and factors about the context in models of both repeat victimization (more than one of the same type of crime) and multiple victimization (two or more different types of crime). Using telephone survey data from a multi-stage sample of Seattle residents, we estimate separate hierarchical models for repeat property, repeat violent, and multiple victimization. Results indicate that repeat victimization of both types varies substantially by neighborhood, whereas multiple victimization seems more determined by individual-level factors. Implications for social disorganization theory, routine activity/lifestyle exposure theory, and future work on repeat victimization are discussed. ,

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Repeat and Multiple Victimizations: The Role of

Individual and Contextual Factors

Criminal victimizations raise attributional questions of causation, especially for crimes

involving strangers. Observers are likely to wonder why a particular individual was victimized:

Was the victim merely unlucky?; Was the area unsafe?; Was the victim negligent in failing to

avoid known risks? For any single victimization, observers are likely to be unsure about the

reason for the crime, because several factors about the person and the area are plausible causal

explanations. For repeated victimizations, however, this uncertainty is likely to be reduced, as

some factors can be eliminated if they do not covary across the victimizations (Kelley, 1972).

Thus, observers should be more confident about their causal attributions for repeat victims than

for individuals who suffered only one victimization.

A common lay explanation for repeated victimizations is bad luck. The problem with this

explanation, however, is that repeated victimization is not a random process, as would be

expected if only bad luck were involved (Hindelang, Gottfredson, & Garofalo, 1978). That is,

some individuals appear to be "victimization prone" (Hindelang et al., 1978, p. 130); they suffer

significantly more victimizations than would be expected by chance. But characterizing

individuals as victimization prone is merely the first step; it does not explain why they are

victimized repeatedly.

In contrast to prior research, which has investigated how person or contextual factors

relate to repeat victimization, the present research uses hierarchical modeling to examine the

relative contributions of factors about the person, factors about the context, and, most

importantly, the interaction of individual and contextual factors. Moreover, we use this

analytical framework to determine whether these main effects and interactions are the same for

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those who are particularly susceptible to a certain type of criminal victimization as they are for those who are susceptible to crime generally. That is, we draw a distinction between repeat victimizations (i.e., more than one of the same type of criminal victimization) and multiple victimizations (i.e., two or more different types of criminal victimizations) and test whether these two different patterns of victimization are affected in the same way by individual factors, contextual factors, and the interaction of individual and contextual factors. An understanding of how the relative contribution of these three groups of factors affect repeat and multiple victimizations has implications for research, theory, and policy.

Research on Repeat Victimization

Repeat victimizations tend to be clustered among a few individuals and among a few places. Over a one-year period, most individuals do not suffer a victimization, and most of those who are victimized are victimized only once. However, some individuals are victimized more than once, and this small percentage of people accounts for a disproportionately large number of criminal victimizations (Farrell, 1995; Pease & Laycock, 1996). For example, data from the National Youth Survey (NYS) indicate that about 6% of the sample accounted for 38% of the larceny victimizations, 5% accounted for 63% of the assault victimizations, and 3% accounted for 43% of the robbery victimizations (Lauritsen & Quinet, 1995). Similarly, data from the 1992 British Crime Survey indicate that 6% of the sample accounted for 63% of all property crimes and 3% of the sample accounted for 77% of all violent crimes (Ellingworth et al., 1995).

Although most work in the area of repeat victimization focuses on this clustering among individuals and places within types of crime (what we are calling repeat victimization), there is also evidence of clustering among individuals and places across types of crime (what we are calling multiple victimization). In their analysis of victimization data from 26 cities, Hindelang

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et al. (1978) found a positive relationship between personal and household crimes, such that individuals who lived in victimized households were significantly more likely to be victims of personal crime than were individuals who lived in nonvictimized households. Likewise, household victimization was significantly higher when a member of the household had been a victim of a personal crime than when no member had been a victim of a personal crime.

Knowing that both repeat and multiple victimizations tend to be clustered among a few individuals and in a few places does not address the larger question about why some individuals or households are at greater risk than others. In answer to this question, research and theory have focused on the characteristics of the places where these individuals are likely to be and on those individuals' demographic and lifestyle characteristics.

Characteristics of Places

That some areas have higher crime rates than others is well documented. Because of disruptions in families and in communities, some areas have weak formal and informal social control and therefore higher rates of deviance. In particular, according to social disorganization theory (Shaw & McKay, 1942), areas that are characterized by high population density, ethnic heterogeneity, and residential mobility are also likely to lack the resources to fight off crime and decay. Places characterized by such social disorganization lack community investment (Bursik & Grasmick, 1993) and are typified by higher levels of neighborhood incivilities and high proportions of single-parent families (Sampson & Groves, 1989), all of which increase criminal victimization rates. These same factors are also generally predictive of repeat victimization. Areas with high rates of unemployment and deprivation also have high rates of repeat burglary victimization (Johnson et al., 1997) and, more generally, areas with the highest rates of victimization also have the highest rates of repeat victimization (Trickett, Osborn, Seymour, &

Pease, 1992).

Characteristics of Persons

In addition to differences among places, there are differences among individuals in

victimization rates. Specifically, males, younger individuals, blacks, and the poor are generally

more likely than females, older individuals, whites, and the nonpoor to be victimized, especially

by violence (Hindelang et al., 1978). There is some evidence that the demographic

characteristics associated with victimization are particularly concentrated among repeat victims.

For example, in their analysis of victims of urban violence who were admitted to a hospital over

a four-year period, Buss and Abdu (1995) found that, compared to one-time victims, repeat

victims were even more likely to be poor, to be minorities, to have witnessed violent attacks, to

have been threatened during the prior year, and to generally carry a weapon. Although the

demographic correlates of property victimization are somewhat less straightforward, in that those

with higher incomes are often at greater risk (Rountree et al., 1994; Meithe et al., 1987), the

apparent concentration of particular characteristics among repeat victims requires additional

investigation.

Persons within Places

Aside from demographic factors, some theories have incorporated both individual-level

and situational-level explanations. Routine activity theory (Cohen & Felson, 1979) suggests that

the daily activities of individuals affect victimization risk: those who are more suitable targets

(e.g., because they have more valuable items) and lack adequate guardianship (e.g., leave their

homes unoccupied for long periods or do not take necessary precautions) are more likely to be

victimized. Similarly, the lifestyle-exposure approach (Hindelang, Gottfredson, & Garofalo,

1978) suggests that some places and times are more dangerous than others, and individuals

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whose activities through work, school, or leisure put them in these situations are more likely to be crime victims. These two theories are often considered complementary and are often tested together as one approach.

In general, individuals who spend more time in public places, who have more valuable consumer goods, and who take fewer safety precautions have a higher risk of personal and property victimization than do those who spend more time at home, have less valuable goods, and take more precautions. Some have suggested that these lifestyle differences are at the route of the demographic variations in victimization (Sampson and Lauritsen, 1990). Specifically, as a result of lifestyle differences, individuals are at higher risk of criminal victimization if they are male rather than female, younger rather than older, single rather than married, and poor rather than middle- or high-income.

Multi-level Approach to Repeat/Multiple Victimization

Rather than examine person-level factors, place-level factors, or both person- and place-level factors, some more recent theoretical approaches have suggested that a fuller understanding of victimization requires an understanding of how individual-level factors are conditioned by place-level factors (Miethe & McDowall, 1993). That is, rather than consider only the additive effects of individual- and place-level factors, it is necessary to determine how crime opportunity factors might operate differently depending on the particular neighborhood context.

For example, using a sample of residents from 300 Seattle neighborhoods, Rountree, Land, and Miethe (1994) found evidence that both individual routine activity/lifestyle factors and contextual social disorganization measures influenced burglary and violent victimization, as measured by dichotomous (victim/non-victim) indicators. In addition, they found that individual-level factors interacted with neighborhood-level factors for both burglary and violent

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crime. In cases of burglary, individuals in neighborhoods characterized by many incivilities were at significantly greater risk of victimization if they used fewer safety precautions, whereas for those in neighborhoods characterized by few incivilities, the difference in risk was not as dependent on the use of safety precautions. For violent crimes, individuals in ethnically homogeneous neighborhoods were at significantly greater risk of victimization if they were nonwhite than white, whereas in ethnically heterogeneous neighborhoods, the difference in risk was not as great between nonwhite and white residents.

The current study applies the multi-level approach and measures used by Rountree et al. (1994) to models for repeat and multiple victimization. We use the same victimization survey data from Seattle that Rountree et al. (1994) used because it is one of the few available data sets that has both a large sample size and contextual information. Other data sets with large sample sizes, contextual information, and possibly clearer information regarding repeat and multiple victimization (i.e., the NCVS) are currently restricted and contain little or no information relevant to the theoretically important factors that put people at higher or lower risk of victimization (e.g., routine activity measures).

Based on prior research showing that areas with high rates of victimization also have high rates of repeat victimization, we expected that both person-level factors and place-level factors would be significant predictors of repeat and multiple victimization (Trickett et al., 1992). We also had two specific hypotheses with regard to the different types of repeat victimization. First, we expected that repeat property victimizations, compared to multiple victimizations, would be more context dependent. In the data set we used, property crimes were tied to the victim's neighborhood, whereas violent crimes could occur either in the victim's neighborhood or somewhere else. Thus, for repeat property crimes, factors about the neighborhood would

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covary with the victimizations. In contrast, the only factor that covaries for certain with the multiple victims (i.e., victims of both a property crime and a violent crime) is the person. Thus, we expected that contextual factors would play a smaller role for multiple than for repeat victimizations.

In addition to these hypothesized main effects, we expected that there would be significant interactions of person-level and place-level factors. Generally, we expected that in low-risk neighborhoods, individuals at high risk of victimization would be significantly more likely to be repeat and multiple victims than would individuals at low risk of victimization, whereas in high-risk neighborhoods the difference between high-risk and low-risk individuals in terms of number of repeat and multiple victimizations would not be as great. That is, we expected person-level differences primarily in neighborhoods where the overall risk of victimization was low.

Aside from examining the role of person-level, place-level, and person-level by place-level factors in repeat and multiple victimizations for the entire sample (which included nonvictims), we also conducted more focused analyses in which we compared single victims to victims who have been victimized more than once. In the case of repeat property victimization, this comparison was between individuals who had been victims of one property crime in the prior two years and those who had been property victims two or more times in the prior two years. For multiple victimization, the comparison was between those who had been victims of either property or violent crime once in the prior two years and those who were victims of at least one property and one violent crime in the prior two years. These more focused comparisons of individuals who had been victimized at least once provide an additional test of the importance of person-level factors in repeat and multiple victimization. If the same factors that predicted repeat

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and multiple victimization when nonvictims were included in the models also predicted repeat and multiple victimization when nonvictims were excluded, we should have more confidence in our conclusions regarding the relationships between person-level factors and the risk of repeat and multiple victimization.

METHODS

Data

The data used in the present study are telephone survey data from 5,302 adults who lived on one of 600 city blocks contained in 100 of the 121 census tracts in the city of Seattle in 1990 (Miethe, 1997). The sampling procedure involved the selection of three pairs of city blocks from each of the selected census tracts. One of the blocks in each selected pair contained a street address at which there had been a burglary in 1989, and the other block bordered this first block. In the present study, respondents from each pair of blocks were aggregated, for a total of 300 local neighborhoods, distributed across the entire city of Seattle (Rountree et al., 1994). Housing units on each block were selected via a reverse telephone directory. Details of the telephone interview procedures and specific limitations of the sampling design are described in Miethe and McDowall (1993) and Rountree et al. (1994). This data set contains information on the number of several specific types of victimizations respondents had experienced in their lifetime as well as information regarding the recency of victimization. Further, the data include the rich detail, not available in most other data sets, that is needed to estimate multivariate models of individual-level risk factors and contextual variables on repeat and multiple victimization.

The total sample in the data set consisted of 5,302 adults, but because data for some observations were missing, the final sample size for the present analyses was 5,049 individuals.

Measures

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Dependent measures. The dependent variables for the present analyses include three measures of repeat victimization and two measures of multiple victimization. The primary measure of repeat victimization reflects the number of property victimizations (from 0 to 5) the respondent experienced in the two years prior to the interview. Specifically, the measure is a count of whether or not, in the prior two years, the respondent experienced each of five property victimizations (coded 1 if experienced and 0 if not): attempted burglary, completed burglary, vandalism, car theft, and stolen property. Thus, consistent with many studies of repeat victimization, the measure reflects victimizations over a two-year period. However, this data set is limited in that it undercounts victimization experiences of exactly the same type. For example, if a respondent had suffered two completed burglaries in the prior two years, the measure would indicate that the respondent had suffered only one burglary.

To further explore the individual and contextual variables related to repeat victimization, we also examined models using lifetime estimates of repeat property and repeat violent victimization. Lifetime property victimization reflects the number of property victimizations of all types respondents experienced, whereas lifetime violent victimization reflects the number of non-intimate violent victimizations the respondents had experienced. Violent crimes include being physically attacked or threatened and being robbed by force (mugging, pickpocketing), consistent with the procedures of Rountree et al. (1994). Although neither the measure of repeat property victimization in the prior two years nor the measures of lifetime property and violent victimizations are ideal, the use of all three measures provides a good test of the role of individual and contextual factors in repeat victimization.

The dependent variable for the analysis of multiple victimization is a dichotomous measure, with one indicating the respondent experienced at least one property crime and at least

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one violent crime in the prior two years, and zero otherwise. These models were also estimated with similarly constructed lifetime indices of multiple victimization.

Explanatory variables. The explanatory variables used here are the same as those used by Rountree et al. (1994): demographic measures, individual-level indicators from routine activity/lifestyle exposure theory, and neighborhood-level variables related to social disorganization theory. First, the respondents' sex , race, and age are included in each model. Second, there are individual-level indicators from routine activities/lifestyle exposure theory, including demographic and daily activity factors thought to influence victimization risk. Routine activity/lifestyle exposure theory (Cohen and Felson, 1979; Hindelang et al., 1978) suggests that victimization risk is a function of three factors: exposure to motivated offenders, being a suitable or attractive target, and lacking capable guardians. Exposure to motivated offenders refers to an individual's or dwelling's overall visibility and accessibility to crime. To reflect exposure to property crime, we used the number of evenings per week that the home was unoccupied. Exposure to violent crime was measured by an index of the number of dangerous activities respondents engaged in, including going to bars or nightclubs, visiting public places where teenagers hang out, and taking public transit (Rountree et al., 1994). In the models of multiple victimization, measures of exposure to both types of victimization were included.

Target attractiveness refers to the level of material or economic value of a potential target for offenders. Accordingly, the measures of target attractiveness for property and violent victimization were the same as those used by Rountree et al. (1994). For property victimization, they included a composite index reflecting the number of expensive consumer goods (i.e., color TV, VCR, home computer) the resident owned. For violent victimization, target attractiveness was assessed with an index called "carried valuables," which reflected the number of times in the

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last month respondents carried $50 or more in cash or wore jewelry worth more than $100 in a public place. Family income was used as an additional indicator of target attractiveness for both property and violent victimization.

Guardianship represents the ability of individuals or households to prevent crime. Following Rountree et al. (1994), we used an index reflecting the number of safety precautions the resident employed. These safety precautions included having door locks, leaving lights on, belonging to a crime prevention program, owning a burglar alarm, owning a dog, having neighbors watch the home, and owning a weapon. Additionally, the social dimension of guardianship was captured by whether the respondent lived alone or with other adults (Rountree et al., 1994). Both of these guardianship measures were used in the analyses of both property and violent victimizations.

Aside from the demographic measures and the individual-level indicators from routine activity/lifestyle exposure theory, the explanatory variables included neighborhood-level contextual variables. These variables consisted of three factors related to social disorganization theory: neighborhood incivilities, ethnic heterogeneity, and population density. To measure incivilities, using Rountree et al.'s (1994) method, we computed the number of neighborhood problems that existed within four blocks of the respondents' homes by averaging responses within each neighborhood. These problems included teenagers "hanging out" on the street, litter and garbage on the street, abandoned houses and buildings, poor street lighting, and vandalism. Higher scores on this variable indicate more disorder. The measure of ethnic heterogeneity was the product of the percentage of white residents and the number of nonwhite residents in each neighborhood. Maximum heterogeneity, therefore, is indicated by a score of .25 (50% white and 50% nonwhite). To measure neighborhood density, for each neighborhood we averaged the

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number of places available for public activity within three blocks of respondents' homes. Called

busy places by Rountree et al. (1994), such places included schools, convenience stores, bars, fast

food restaurants, office buildings, parks, shopping malls, hotels, and bus stops. Higher values on

this variable indicate greater density. Descriptive information for all individual level and

neighborhood level variables is provided in Table 1.

Table 1 about here

ANALYSIS: HIERARCHICAL MODELS

Our test for neighborhood effects on repeat victimization and on multiple victimization

proceeded in two general steps. First, we used random coefficient models to establish whether

the individual predictors of victimization varied by neighborhood, and, where significant

variation existed, to determine the degree of variation in the effects of individual characteristics

across neighborhood. Second, we extended our random coefficient models from the first step in

the analysis to include the measures of neighborhood context discussed above (incivilities, ethnic

heterogeneity, residential mobility, neighborhood income and population density) as predictors of

the individual-level coefficients. The results from the second step in our analysis provide

information on how individual characteristics interact with contextual characteristics to affect a

person's chances of being repeatedly or multiply victimized.

Because we measured repeat property victimization as the number of property

victimizations a person had experienced in the prior two years, we estimated a random

coefficient poisson regression model, which is the most appropriate technique for the analysis of

count data (see, e.g., Maddala, 1983; McCullagh and Nelder, 1989). Although count data are

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often overdispersed (i.e., the variance is greater than the mean), unless the overdispersion is severe, the consequences of overdispersion for the estimated parameters are slight (McCullagh and Nelder, 1989). In these data, however, initial results indicated a significant binomial error term, so the error term was included in all of the poisson models to reduce bias in the estimates. Bryk et al. (1996) have shown how the general poisson regression model can be extended to allow for random coefficients. The general form for this model is

$$\ln\lambda_{ij} = \beta_{0j} + \beta_{1j}(X_{1ij} - \overline{X}_{1.j}) + \beta_{2j}(X_{2ij} - \overline{X}_{2.j}) + \ldots + \beta_{kj}(X_{kij} - \overline{X}_{k.j}), \qquad (1).$$

In equation (1), $\ln\lambda_{ij}$ represents the natural log of the respondent's expected rate of victimization, the $(X_{kij} \, \mathcal{P} \, \overline{X}_{k.j})$ represent values of the independent variables for respondent $\underline{i}$ in neighborhood $\underline{j}$ centered on the neighborhood mean $(\overline{X}_{k.j})$, the β_{kj} represent the coefficient estimates for the effect of variable $\underline{k}$ on the dependent variable for each neighborhood $\underline{j}$ included in the analysis.

Multiple victimization is measured as a dichotomous variable (multiple victim vs. non-multiple victim) which required the use of a random coefficient logit model to estimate the effect of neighborhood variation on the odds of being a victim of both violent and property crimes. The general form for this model is

$$\text{logit (Multiple Victim)} = \beta_{0j} + \beta_{1j}(X_{1ij} - \overline{X}_{1.j}) + \beta_{2j}(X_{2ij} - \overline{X}_{2.j})$$
$$+ \ldots + \beta_{kj}(X_{kij} - \overline{X}_{k.j}) \qquad (2).$$

In equation (2), the coefficients and the measures of the independent variables are defined in the same way as in equation (1).

For both the poisson and the logit model, random coefficient models necessary to establish neighborhood variation in the effects of individual characteristics on number and on type of victimization are specified through the following constraints

$$\beta_{0j} = \gamma_{00} + u_{0j} \qquad (3),$$

$$\beta_{1j} = \gamma_{10} + u_{1j} \qquad (4),$$

$$\vdots$$

$$\beta_{kj} = \gamma_{k0} + u_{kj} \qquad (5).$$

Equations 3 through 5 specify each coefficient in the substantive model predicting number and type of victimization (the β_{kj}) as varying randomly around an average regression slope (the γ_{k0}) for all neighborhoods for independent variable $\underline{k}$. The u_{kj} represent the unique, random components for the effects of the variable $\underline{k}$ for neighborhood $\underline{j}$.

The hierarchical (contextual) model is a straightforward extension of the random coefficient model, and is specified by adding neighborhood-level indicators (e.g., incivilities, ethnic heterogeneity, and neighborhood population density) to equations 3 through 5 as predictors of the individual-level coefficients. For example, including incivilities (measured for each neighborhood j) as a predictor of the model intercept would be denoted as

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \text{ (Incivilities}\_j) + u_{0j}.$$

We use similar extensions to equations 3 through 5 to test for neighborhood-level effects for each of the individual-level predictors that vary across neighborhood.

RESULTS

The results consist of random coefficient regression models of both repeat victimization and multiple victimization. The models of both repeat victimization and multiple victimization use measures of victimization in the prior two years (with separate models including nonvictims and excluding nonvictims) and measures of lifetime victimization.

Repeat Victimization: Prior Two Years

Full Sample. We began our analyses of repeat victimization by estimating random coefficient models comparable to those used by Rountree et al. (1994). These models using the

entire sample estimate the extent to which residents of Seattle neighborhoods vary not only in their overall number of repeat victimizations, but in how the explanatory variables affect the number of victimizations. Table 2 presents the results for the random coefficient poisson model of the number of property victimizations experienced within the two years prior to the survey.

An examination of the variance components in the model indicated substantial neighborhood variation in the intercept and in the effects of age, sex, income, expensive goods, and safety precautions. The variance component for race also approached statistical significance ($p = .13$), suggesting that the effect of race may also vary by neighborhood. Substantively, these results indicate that the mean number of recent property victimizations experienced by residents varies across neighborhood, controlling for the effects of demographic and lifestyle factors. Further, the significant variance components for age, sex, income, expensive goods, safety precautions, and, to a lesser extent, race, indicate that the effects of these factors vary across neighborhood.

Table 2 about here

In addition, there are several significant individual-level effects on the number of property victimizations experienced. Specifically, the effects of age, race, home unoccupied, race, income, and expensive goods are all statistically significant. They indicate that those who are older, white, and away from home more often, and who have higher incomes and more expensive goods experienced more property victimizations in the previous two years than did their younger, minority, low-income counterparts who have fewer expensive goods and are more often at home.

The next step in the analyses was to examine what neighborhood characteristics may

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account for the neighborhood-level variation detected. Adding the relevant neighborhood characteristics into the model and retaining those that attained standard levels of significance individually produced several significant interactions between individual and neighborhood level factors (see Table 3).

First, the neighborhood differences in the mean number of property victimizations is largely attributable to neighborhood incivilities. In fact, once all three characteristics are entered simultaneously, incivilities is the only one that remains statistically significant. This effect indicates that those who live in neighborhoods with higher levels of incivilities experience more repeat property victimizations than do those who live in neighborhoods with lower levels of incivilities. This finding is consistent with Rountree et al.'s (1994) finding with regard to single victimization incidents.

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Table 3 about here

The effect of sex on property victimizations is also dependent on the level of neighborhood incivilities, although the interaction is not significant in the full model. The sex difference in the number of property victimizations experienced appears only in areas of low or medium incivilities, where males experience a larger number. In areas with high levels of incivilities, there is no substantive sex difference in the number of property victimizations experienced. This pattern is generally consistent with our expectation that person-level differences in repeat victimization would be strongest in neighborhoods where the overall risk was low.

There was also a significant interaction between race and neighborhood ethnic

heterogeneity. Specifically, nonwhites experience a larger number of property victimizations as the ethnic heterogeneity of an area increases. In areas with low heterogeneity, the effect of race is negligible. Further, once the neighborhood variation in ethnic heterogeneity is taken into account, there is no longer a significant individual effect of race. This effect, although somewhat stronger among repeat victims, is also consistent with the findings of Rountree et al. (1994).

Finally, there was also a significant interaction between the use of safety precautions and the number of busy places in the neighborhood. The best way, we think, to interpret this interaction is in terms of guardianship. That is, the highest numbers of property victimizations occur where there are the fewest spaces for public activity (i.e., more private residences, poorer lighting, fewer people out on the street to witness crime). In such places, the number of safety precautions used has a clear negative linear relationship to the number of property victimizations experienced. In areas with more busy places and therefore higher guardianship, the opportunity for property victimizations is lower. In such places, the additional benefit from multiple safety precautions becomes negligible. That is, the risk of property victimization in such places is rather low, so that the use of more than one or two safety precautions is relatively unnecessary.

Although the effects of income, expensive goods, and age also significantly varied by neighborhood context, none of the social disorganization variables in the present analysis attained statistical significance in the larger model. In the full model, however, the variance components for both age and expensive goods become nonsignificant, although the variance components still approach significance ($p = .09$ and $p = .11$, respectively). This pattern

indicates that although the effects of these factors are context dependent, the neighborhood-level variation is not the result of incivilities, ethnic heterogeneity, or the number of busy places.

Excluding nonvictims. In addition to modeling repeat property victimization within the prior two years for the full sample, we also modeled repeat property victimization within the prior two years for only those individuals who had been victims of at least one property crime. That is, we compared one-time property victims ($n = 1431$) to repeat property victims ($n = 672$) using random coefficient models comparable to those we used with the full sample (full results available from the authors). This direct comparison indicated that, consistent with the model for the full sample, those who had higher incomes and owned more expensive goods were especially likely to be repeat property victims. Both of these effects were significant. The effect of race also approached statistical significance ($p = .052$), suggesting that those who were white were more likely to be repeat property victims.

The effects for age and guardianship (home unoccupied), although not significant, were in the same direction as those in model with the full sample. The difference in the significance for these two variables across the two equations could indicate that age and the amount of time one spends away from home do not distinguish between single and repeat victims as well as they distinguish between victims and nonvictims. However, the lack of significance may also be at least partially attributable to the fact that the model excluding nonvictims had less statistical power to detect effects.

The lack of significant interactions in this model may also be attributable to lower statistical power. The size and direction of the coefficients for these effects were similar in the two models, suggesting that low power (only 64 of the neighborhoods had sufficient numbers)

was the explanation for the failure to find significant contextual effects in the model excluding nonvictims.

Repeat Victimization: Lifetime Measures

We also estimated models using lifetime measures of property and violent victimization in order to explore repeat victimization as it is usually understood—repeat incidents of the same type. These measures do not underestimate repeat victimization, as they include repeat incidents of the same kind (i.e., more than one burglary), but may overestimate repeat victimization by treating incidents that occurred years apart as part of a repeated pattern. Further, estimation of contextual forces affecting lifetime victimization could be flawed in that one's neighborhood context often changes over the life course. That is, respondents in this sample may not have lived at the same address at the time of the different victimizations. However, recent work examining residential mobility patterns suggests that people tend to stay in the same type of neighborhood for extended periods even if they change residences often (South and Crowder, 1997). That is, those who currently live in neighborhoods typified by ethnic diversity or poverty are quite likely to have lived in similar areas in the past. Further, given our limited understanding of the simultaneous effects of individual and contextual factors on repeat victimization, the insight gained by such an analysis remains useful.

The models estimated for lifetime property and violent victimization (full results available from the authors) revealed substantial neighborhood-level variation. In fact, both intercepts and all of the individual-level effects except those of sex on repeat property victimization and race on repeat violent victimization vary significantly by neighborhood. However, the social disorganization factors in the contextual model accounted for more variation in the model for lifetime violent victimization than in the corresponding model for lifetime

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property victimization. That is, although repeat property crime may be more dependent than repeat violent crime on context, the contextual effects on repeat violent crime are more understandable in terms of social disorganization theory. Specifically, the indicators of social disorganization used here (incivilities, busy places, and ethnic heterogeneity) were more useful in understanding the neighborhood-level variation in the effects of lifestyle factors on repeat violent victimization than they were with regard to repeat property victimization.

Although we had hypothesized that repeat victimization would be more context-dependent generally than would single victimization experiences, it was somewhat surprising that the extent of neighborhood variation was so similar for lifetime property and lifetime violent victimizations. The findings for lifetime property victimization make intuitive sense, in that the property victimization measures used here were almost entirely household-centered and, thus, context-dependent. In contrast, lifetime violent victimizations by strangers could happen anywhere, and it makes less sense that neighborhood-level factors should matter for them. What seems likely, based on our findings, is that most respondents' activities, and therefore most victimizations, take place within a short distance of respondents' homes. That is, repeat victims of violence may be disproportionately from 'bad' neighborhoods because such environments are conducive to violence and people tend to spend much of their time near home.

Overall, the results from the analyses using both the two-year bounded and the lifetime measures of repeat victimization suggest more widespread variation across neighborhoods than Rountree et al. (1994) found in their examination of single victimization incidents. Thus, it appears that neighborhood context has at least a moderate impact on the risk of being repeatedly victimized.

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Multiple Victimization: Prior Two Years

As with repeat property victimization within the prior two years, our analyses of multiple victimization within the prior two years tested both the entire sample (including nonvictims) and the subsample of those who had been victimized at least once. We also examined lifetime multiple victimization.

Full Sample. In contrast to our results for repeat victimization, the results for multiple victimization indicated no neighborhood-level variation (see Table 4). That is, the mean risk of multiple victimization and the factors that increase a person's risk of being a multiple victim are constant across neighborhood context.[1] While we find no evidence of neighborhood variation in multiple victimization, the analyses indicate important individual characteristics related to the individual risk of multiple victimization. Specifically, those most at risk of being a multiple victim are young people, generally males, who participate in a number of dangerous activities. In fact, the odds of being a multiple victim are 1.42 times greater for each additional dangerous activity in which respondents participated. In addition, for each unit increase in the age scale, the odds of being a multiple victim are .24 times lower. Although not quite significant, the results also indicated that the odds of a male being a multiple victim were 1.35 times higher than they were for a female.

Table 4 about here

Excluding nonvictims. In addition to modeling multiple victimization within the prior two years for the full sample, we also modeled multiple victimization within the prior two years for only those individuals who had been victims of at least one property crime or one violent crime. That is, we compared one-time victims ($n = 2041$) to victims of both a property and a

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violent crime ($n = 205$) using a random coefficient model comparable to that we used with the full sample (full results available from the authors). This direct comparison indicated, completely consistent with the model for the full sample, that those who were younger and those who participated in more dangerous activities were especially likely to be multiple victims. The direction of the coefficients for all other effects, which were nonsignificant in both models, were the same and the size of the comparable coefficients was very close in the two models. In the model with the full sample, none of the contextual effects was significant, and this absence of significant effects was also true for the sample excluding nonvictims.[2]

Multiple Victimization: Lifetime Measures

We also examined the full sample using lifetime measures of multiple victimization. The results of this analysis are completely consistent with the results from the full sample examination of multiple victimization within the prior two years. That is, it indicated that individuals who are young, male, and participate in more dangerous activities have a higher risk of being a multiple victim. It also provided no evidence that multiple victimizations are dependent on neighborhood context.

DISCUSSION

The results presented here suggest that single victimization, repeat victimization, and multiple victimization are distinct phenomena that must be modeled separately. Consistent with other findings (Reiss, 1980), repeat property victimization was more common than multiple victimization (more than three times as common in our sample). Thus, it seems important to distinguish repeat from multiple victims. Further, based on our findings, it seems clear that demographic and routine activity factors influence each of these phenomena in different ways and that each is differentially dependent on neighborhood context. Moreover, the performance of

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the social disorganization factors in the models of repeat victimization suggests that other neighborhood-level factors need to be considered. Finally, the findings reported here suggest that reducing repeat victimization may not be the key to crime reduction. We elaborate these points below.

First, our models of repeat victimization indicated that there are significant individual-level predictors for repeat property victimization. Whether analyzed with the full sample or only with those who had been victimized, being white, having higher incomes, and owning more expensive goods were associated with experiencing more victimizations. In other words, we can be fairly confident that repeat property victimizations are partially due to factors about individuals.

Second, the models estimated here indicate that there is substantial neighborhood-level variation in repeat property victimization and suggest that such variation is even more pronounced in the case of repeat victimization than is the case with individual victimization incidents. This large amount of neighborhood-level variation suggests that, although victimization is somewhat dependent on context, repeat victimization may be even more heavily dependent on neighborhood context.

Unfortunately, because of limitations in the data set, we were unable to test more precise models of repeat victimization of different types. Future research should seek to provide more carefully bounded estimates of repeated incidents of exactly the same type as well as potentially important details regarding the temporal proximity of repeat victimization experiences of the same and different types. Further, it is important to continue to refine our understanding of routine activities and lifestyle factors by collecting more detailed information about individuals' activities during the day and the types of individuals with whom they come into contact. Such

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information would help researchers describe how individuals spend their time (e.g., within their homes, outside their homes but within their neighborhoods, and outside their neighborhoods) and the type, density, and extent of social networks that are involved in each of these contexts. Presumably, these suspected mediating factors would help explain the neighborhood-level effects we found here.

Third, although we found significant neighborhood-level variation for repeat property victimization within the prior two years and for both lifetime property and lifetime violent victimization measures, the contextual measures used here generally accounted for only a small portion of the neighborhood variation detected. The remaining significant neighborhood-level variation among all of the variables suggests that there are unmeasured neighborhood-level factors affecting repeat victimizations. Both theory and research need to address what these unmeasured factors are and how they might be tested. Moreover, because both individual-level and neighborhood-level factors are likely to be changing over time, it is imperative that this research be longitudinal.

Fourth, in contrast to repeat victimization, we found no significant neighborhood-level variation in our models of multiple victimization. Rather, being victimized in multiple ways seems to be more a function of the lifestyles and routine activities of individuals, regardless of where they live. In particular, young males who take part in dangerous activities are far more likely than others to be multiply victimized. These findings clearly indicate that the attributional questions raised by more than one victimization have different answers for multiple victimizations than they do for repeat victimizations. Whereas repeat victimization seems to be due to factors about individuals, factors about the context, and the interactions of factors about the person and factors about the context, the risk of multiple victimization seems dependent only

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on individual lifestyle.

One of the primary reasons for the recent research focus on repeat victimizations is that, because repeat victimizations account for a disproportionate number of victimizations, preventing repeat victimizations should be an effective and efficient method of reducing crime. In contrast to the general assumption that a focus on individual victims could reduce crime (e.g., Farrell, 1995), our findings here suggest that repeat victimization is tied in part to neighborhood-level factors. Assuming these results are supported in future replications, the optimism of individually-centered policies may be overstated. That is, because part of the causation of repeat victimization lies in neighborhood-level factors, individually-centered policies alone are unlikely to be effective. That is, the prevention of repeat victimization would seem to require neighborhood-centered policies. However, because neighborhood-level interventions are difficult, time consuming, and expensive to implement, the problems of repeat victimization are not likely to be easily solved.

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TABLE 1: Sample Description

Variable/Coding	Mean/Percent	Range
Age (7-point scale)	4.36	1-7
1=17-19		
2=20-29		
3=30-39		
4=40-49		
5=50-59		
6=60-69		
7=70 and over		
Sex	50%	0-1
0=Female		
1=Male		
Race	15%	0-1
0=White		
1=Nonwhite		
Family income	3.36	1-7
1=under 10,000		
2=10,000-20,000		
3=20,000-30,000		
4=30.000-50,000		
5=50,000-75,000		
6=75,000-100,000		
7=over 100,000		
Carry Valuables	3.16	0-8
(mean number of times in the last month)		
0=0 times		
8=8 or more times		
Dangerous Activities	.88	0-3
(# of activities)		
Expensive Goods	2.50	0-5
(# of goods owned)		
Home unoccupied	1.79	0-7
(# of nights per wk)		
Safety Precautions	3.81	0-8
(# of precautions)		
Live alone	28%	0-1
1=Yes		
Number of Property Victimizations within prior 2 years	.60	0-5
Multiple victim within prior 2 years	4.1%	0-1
Victim (any type) in prior two years	44.4%	0-1
Repeat property victim in prior two years	13.3%	0-1
Lifetime property victimizations	2.43	0-38
Lifetime violent victimizations	.34	0-13
Incivilities	1.34	0-3.33
(mean # of indicators of disorder)		
Busy Places	3.45	.82-7.20
(mean # of busy places)		
Ethnic heterogeneity	.09	0-.25
(% white*%nonwhite)		

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TABLE 2: Random Coefficient Model for Number of Property Victimizations within 2 prior years

Fixed Effects	Coefficient	Standard Error	p-value
Neighborhood Mean Number of Victimizations	-.641	.028	.000
Age	-.150	.014	.000
Sex	.004	.043	.927
Race	-.190	.068	.005
Home Unoccupied	.029	.010	.005
Family Income	.065	.018	.001
Expensive Goods	.090	.016	.000
Safety Precautions	.001	.016	.933
Live Alone	-.040	.050	.425
Random Effects	**Variance Component**		**p-value**
Neighborhood Mean Number of Victimizations	.131		.000
Age	.008		.002
Sex	.132		.017
Race	.207		.130
Family Income	.022		.018
Expensive Goods	.013		.015
Safety Precautions	.016		.015
Level 1 Binomial Error	.852		

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TABLE 3: Number of Property Victimizations within prior 2 years: Full Model

Fixed Effects	Coefficient	Standard Error	p-value
Neighborhood Mean Number of Victimizations			
BASE	-.972	.072	.000
INCIVILITIES	.317	.040	.000
BUSY PLACES	-.018	.020	.384
ETHNIC HETERO	-.285	.322	.377
Age			
BASE	-.145	.015	.000
Sex			
BASE	-.121	.093	.197
INCIVILITIES	.090	.058	.120
Race			
BASE	.294	.182	.105
INCIVILITIES	-.085	.096	.378
ETHNIC HETERO	-2.241	.990	.023
Home Unoccupied	.024	.010	.016
Family Income			
BASE	.063	.018	.001
Expensive Goods			
BASE	.093	.016	.000
Safety Precautions			
BASE	-.123	.044	.006
BUSY PLACES	.036	.012	.003
Live Alone	-.029	.047	.541
Random Effects	**Variance Component**		**p-value**
Neighborhood Mean Number of Victimizations	.079		.000
Age	.009		.086
Sex	.122		.000
Race	.091		.044
Family Income	.020		.047
Expensive Goods	.009		.111
Safety Precautions	.013		.077
Level 1 Binomial Error	.902		

TABLE 4: Random Coefficient Model for Multiple Victimization within 2 prior years

Fixed Effects	Coefficient	Standard Error	p-value
Neighborhood Mean Risk of Multiple Victimization	-3.478	.092	.000
Age	-.268	.058	.000
Sex	.303	.164	.064
Race	-.382	.277	.168
Dangerous Activities	.351	.101	.001
Home Unoccupied	.060	.042	.155
Family Income	-.095	.074	.198
Expensive Goods	.073	.062	.241
Carry Valuables	.045	.031	.149
Safety Precautions	.091	.059	.122
Live Alone	.121	.195	.535

NOTES

[1] Ideally, this analysis would have used a hierarchical bivariate probit to capture both the effects of neighborhood on violent and property victimization and the relationship between the two types of victimization. However, there is no current statistical program than can estimate such a model. Instead, we did these analyses in two separate steps. First, the hierarchical logistic regression indicated that neighborhood factors did not significantly affect the risk of multiple victimization. Second, a bivariate probit analysis indicated that there was a small but significant correlation (.19) between violent and property victimizations. Together, these two analyses suggest that multiple victimization is a meaningful construct but that it does not vary by neighborhood.

[2] Because these analyses comparing one-time victims to multiple victims included only 21 neighborhoods in which there were sufficient numbers of both types of victims, there is clearly little statistical power to detect contextual effects.