Factors Associated with Repeat Incidents of Intimate Partner Violence: A Longitudinal Analysis

Marybeth J. Mattingly and Laura Dugan
University of Maryland

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Abstract

We examine the factors associated with an intimate partner violence victim's risk of subsequent assault. In addition to considering her victimization history, we consider a woman's own responses to previous intimate violence, including whether or not she acted in self-defense or sought police or medical help. We also address how marital and employment changes following previous assault influence the likelihood of later assault by an intimate. Recognizing exposure reduction and retaliation effects as competing predictions, we assess whether women who attempt to reduce their exposure to violence are more or less likely than other victims of partner violence to be re-victimized. We use the 1996-1999 longitudinally linked files of the National Crime Victimization Survey. Our results suggest that self-defense increases the risk of repeat assault while exiting the labor force is protective against repeat assault.

Violence against women by their male intimate partners has gone from acceptable practice to a hidden taboo, to a topic on which there is much public discourse, policy and concern. Yet, little is known about the risk factors associated with experiencing a subsequent assault. We know very little about the role played by intervening authorities or how a woman's own actions at the time of assault influence her risk of subsequent assault. This project makes a first step toward filling this void.

The Criminological and Societal Response to Intimate Partner Violence

America is characterized by persistent gender inequality and violence is but one means some men use to control women and maintain their dominance (see: Schecter 1982). For example, Van Natta (2001) views the normative gender system as a factor in all types of intimate violence since it sets the stage for inequitable power dynamics. She elaborates that ending domestic violence is linked to adjusting unequal power relationships: "As long as individuals are unable to obtain the means to live, some of us will be profoundly vulnerable to abuse, we will have few options to escape violence if we are victimized, and we will be more likely to be oppressed as human property." (Van Natta 2001:32) Empirically, Felson and Messner (2000) found that violent husbands are more likely to use threats to control their wives than are other perpetrators of violence--including female perpetrators of violence against their male partners. They suggest this as evidence of the husbands' attempts at controlling their wives.

While male violence against intimates represents one extreme of male control, it is both a result and indicator of a society that supports women's lesser status. This is echoed by Morse (1995), who found that women who had been abused were more likely than such men to live in fear of their partner.

Feminists typically see spousal violence as an expression of the inequality that exists between men and women. They believe that violence is used as an instrument of male control over women and that it will continue so long as women maintain a lower status within society (Kurz 1993: 253, 257-261).[1] Further, "feminist researchers point out that both historically and recently, major institutions have permitted and condoned the use of physical abuse by husbands to control wives" (Kurz 1993:259). There is abundant evidence that the state has often supported or overlooked spousal abuse. Sheffield's (Sheffield 1999:55) discussion of sentences imposed on male batterers illustrates how attitudes infringe upon judicial decisions:

> In 1981 a Kansas judge suspended the fine of a convicted assailant on the condition that he buy his wife a box of candy. In 1984 a Colorado judge sentenced a man to two years on work release for fatally shooting his wife five times in the face. Although the sentence was less than the minimum required by law, the judge found that the wife had "provoked" her husband by leaving him. In 1987 a Massachusetts trial judge scolded a battered woman for wasting his time with her request for a protective order. If she and her husband wanted to "gnaw" on each other, "fine," but they "shouldn't do it at taxpayers' expense." The husband later killed his wife, and taxpayers paid for a murder trial.

In the first two examples, the severity of a male's perpetrated violence against his wife is minimized by the justice system that is supposed to protect. In the last example, a judge dismisses a woman's concerns for her safety at home, implicitly supporting her husband's right to assault her. Ford's (1983) work on Marion County, Indiana suggests

[1] An alternative hypothesis is retaliation. There is some evidence that as women's status increases at the macro-level, so does the rate at which women are killed by their intimates (Dugan et al. 1999:205).

there were systematic problems within the criminal justice system including a lack of consistency in cases involving battered women. They could not rely upon the criminal justice system for protection.

While dramatic changes have since taken place within the criminal justice system, many women are still not receiving the help and support that they need, and women are still being revictimized by the men from whom they have sought protection. A severe recent example occurred in March of 2002, a woman in Maryland was killed by her partner "24 hours after second-degree assault and threatened arson charges against him were dropped when he promised in County District Court that he would stay away from his wife" (Family Violence Prevention Fund 2003). In this case, the offender had a history of domestic assault. Hence, feminists implicate a society that condones and accepts violence in the problems of spousal abuse.

While male violence against intimates represents one extreme of male control, it is both a result and indicator of a society that supports women's lesser status. Cultural factors implicitly (and sometimes explicitly) promote men's use of violence. For example, Crenshaw (1993) links the ways women of color are represented in the media to how they are often perceived: violent portrayals legitimize violence against women. There is also empirical evidence supporting the idea that violence in the media may increase men's acceptance of violence against women. Malamuth and Check (1981) showed that exposure to films showing positive consequences of violence against women increased men's acceptance of such violence.

Research suggests that the institutions battered women are likely to first encounter, the legal and medical systems, have typically been insufficient (or outright

neglectful). We seek to better understand whether seeking help through these channels reduces the likelihood of a subsequent assault.

Limitations of Prior Research

Little research has addressed the consequences of intimate partner violence experienced by women. Exceptions are studies of injury (see Brush 1990; Dobash, Dobash, Wilson, and Daly 1992; Morse 1995; Tjaden and Thoennes 2000; Zlotnick, Kohn, Peterson, and Pearlstein 1998), and the long-term effects of violence on mental health (Saunders 1994i.e.; Gleason 1993). Past research on injury has typically used injury as a dependent variable to show how men and women suffer differently from intimate partner violence. These studies firmly establish that women, more than men are likely to be hurt. While this research justifies analyzing women and men separately, it stops short of considering the consequences injuries have on women's lives. To our knowledge no current research investigates how sustaining an injury impacts the likelihood of being revictimized by one's partner.

Earlier research on help seeking behavior has examined the problematic nature of the medical and legal services encountered by victims. The medical system has historically treated women's injuries without intervening or identifying women experiencing intimate partner violence and the legal system does not always offer desired protection and intervention (see "; Dworkin, 1993; Martin, 1995; Warshaw, 1993Stark, Flitcraft, and Frazier 1979).

Competing Hypotheses: Exposure Reduction or Retaliation

This research expands upon a key premise of previously NIJ funded research that states that policies and resources designed to decrease exposure to violent partners will most effectively reduce the rate at which intimates kill their partners (Dugan, Nagin, and Rosenfeld 2003). If this "Exposure Reduction Hypothesis" were true, we would expect that women who seek help through the medical and police establishments to have reduced chances of subsequent assault. That is *if* these establishments responsibly responded to the victims (i.e. by inquiring about injuries, providing referral services, etc.).

Dugan, et. al. (2003) also raises the competing "Retaliation Hypothesis" which states that a victim's help-seeking behavior could actually entice her abuser to retaliate. They find empirical support that suggests that women who seek intervention may face retaliation, particularly if their exposure to violence is not entirely reduced. Further, several scholars have indicated that men intensify their violence when women attempt to exit relationships. (Browne 1987, Ellis 1992, and Mahoney 1991, see also Riger, Ahrens, and Blickenstaff 2000).

Employment Outcomes

Within the sociological literature, there is a large body of research on women's employment, the gendered nature of the labor market, and the effects of female employment on the family. Research efforts include examining the gender wage gap (see, for example: Blau and Kahn 1992) and considering the nature and extent of occupational sex segregation and the "glass ceiling" (see, for example: Cotter, DeFiore, Hermsen, Kowaleski, and Vanneman 1997; Jacobs 1989; Petersen and Morgan 1995). Others have

evaluated maternal labor force participation, including the wage penalty of motherhood (see, for example: Bianchi 2000; Budig and England 2001; Klerman and Leibowitz 1999); and studied the division of household labor as women's time is increasingly devoted to market work (see, for example: Bianchi, Milkie, Sayer, and Robinson 2000) (Brines 1994; Lennon and Rosenfield 1994; South and Spitze 1994). Some have examined the role of female labor force participation in expanding women's autonomy and power within the household (see, for example: Blumstein and Schwartz 1991). As Blau, Ferber and Winkler (1998), for example, recognize, economic dependency within marriage often means divorce is not a viable option for women. This research is most relevant to our current project. While we do not compare women's and men's labor force experiences, we consider how entrances or exits from the labor force influence the risk of subsequent assault.

Some scholars have linked violent victimization to negative employment outcomes. For example, Lloyd (1997) examined the effects of intimate partner violence on women's employment and found that rather than curtailing employment, women experience downward occupational mobility. Her work shows the importance of considering consequences beyond the short-term losses in days of work and pay after a violent incident. She concludes that intimate partner violence is associated with a higher likelihood of unemployment, more jobs (of shorter duration), and more health problems.

Lloyd (1997:157) also found evidence that violent partners often played a role in women's employment outcomes: "Some women detailed men's attempts to influence whether they worked, and recounted their partners' efforts to control and intimidate them."

Similarly, Riger, Ahrens, and Blickenstaff (2000) found that women whose partners attempted to prevent them from going to work were more likely to quit or lose their job. Also women whose partners interfered with their participation at work were more likely to miss workdays. Forty-six percent of the women in their sample were explicitly forbidden to work by the abuser (although the vast majority of these women did work). Eighty-five percent of the employed women missed work because of intimate partner violence or psychological abuse and 52% had to quit or were fired because of it (Riger et al. 2000:167).

Lloyd's (1997) sample was not nationally representative, but rather a random sample of mostly lower income women in the Chicago area. Thus, it is unclear whether the same effects can be generalized to women at higher income levels (who may have more resources to exit violent relationships). Her analysis is also limited to bivariate associations making it difficult to conclude that the abuse "caused" work displacement. The Riger, et al. (2000) study is similarly limited, as it focuses only on shelter residents in the Chicago area. It is likely that victims who are not in shelters have different experiences than those in the shelter population and there may be geographical variations.

Byrne, Resnick, Kilpatrick, Best, and Saunders (Byrne, Resnick, Kilpatrick, Best, and Saunders 1999) also found evidence that violent victimization may negatively influence a woman's career trajectory. They (1999:364) examined changes in women's employment status after a violent crime and found that "women who experienced a new assault were more likely to be unemployed than women who did not experience a new assault." This is suggestive of a link between victimization and exit from the labor force; however, their analysis only considers movement from being employed to unemployed

and does not examine other changes in labor force participation. It is also limited by the aggregation of violent crime by all offenders. Others research also suggests a linkage between violent intimate partner victimization and labor force participation. Using nationally representative data from Canada, Bowlus and Seitz (2002) found that women previously victimized by an intimate were less likely to be employed; yet, they do not find evidence of a direct link between employment and abuse and suggest the difference is because of other differences between victimized and nonvictimized women (i.e. nonvictimized women tend to be better educated).

Dugan et al's (1999) premise that female victims seek employment to finance the departure from violent relationships suggests an alternative hypothesis. This research supports the possibility that violent victimization could actually enhance a woman's commitment to the labor force. Victims may seek employment after the onset of violence, as a means to gain independence from an abusive partner. Suggestive evidence is provided by Rogers' (1999) analysis of nationally representative 1980 and 1988 longitudinal data which suggests that increased marital discord (measured through three items including marital instability, relationship problems and marital conflict) increases the likelihood that unemployed wives will enter the labor force. Even if abused women stay in the relationship, such resources could provide them with greater bargaining power. Indeed, Farmer and Tiefenthaler's (1997) findings suggest that increased income decreases violence experienced by women in abusive relationships.

Marital Dissolution

Research evidence suggests that across time and place, women have used divorce as a nonviolent means of ending threatening relationships (Erchak and Rosenfeld 1994;

Gillis 1996; Levinson 1996). Sievens (2003) found that women in violent marriages faced great obstacles in obtaining divorce in colonial America even as laws were changing to allow such marital dissolution at the woman's request. As divorce becomes more prevalent and socially acceptable, it is likely that this option becomes increasingly viable in the eyes of victims. Despite the increased availability and acceptance of divorce, many women today opt to stay in violent marriages, often because they are dependent upon their abuser.[2] Indeed, Bowlus and Seitz (2002) found that the likelihood of divorce was substantially higher in violent marriages than nonviolent marriages (74% of marriages with high severity abuse, 30% of marriages with low severity abuse and 14% of nonabusive marriage) ended in divorce. Further, they found that spouses in violent marriages have very different characteristics than those in nonviolent marriages and are much more likely to divorce. They also found that women with higher educational attainment and without children are both more likely to work and more likely to divorce, suggesting the importance of constraints and opportunities.

Sanchez and Gager (2000) also found that nonviolence is associated with lower odds of marital dissolution in their study of the National Survey of Families and Households. (see, also: DeMaris 2001) This suggests that violence is associated with divorce.

It is however, unclear whether exiting a violent relationship will lead to decreased intimate violence. While it may reduce exposure to the prime perpetrator, it could also incite retaliatory violence.

[2] It is important to note, as well, that exiting a violent marriage does not necessarily end the violence perpetrated by the husband (Browne 1995; see: Sev'er 1997).

Intervening Factors

We also explore the roles of injury, self-defensive actions at the time of assault and contact with the legal and medical systems immediately following assault. In fact, these outcomes may influence the risk of repeat intimate assault.

For instance, those with injuries may be more likely to restrict their activity and hence become more dependent upon their partners. Alternatively, the injury can serve as a "wake-up call" leading women to exit the relationship. Browne (1987) found that victims of intimate partner violence who killed their partners often did so after escalation in violence, to levels that had not been experienced before. Injuries may be one level of escalation that pushes some victims to leave their partners.

Prior research on self-defense was conducted within the context of who precipitated the violence. Scholars have found that women are more likely than men to assault their intimates in response to partner-precipitated violence (see Kurz 1993; Morse 1995). However, the extant research neglects to explore how a woman's self-defensive actions influence her risk of future assault.

Much research has examined victims' contact with police and medical establishments. Some have evaluated the ability of police and medical establishments to detect and intervene in intimate partner violence. For example, Stark, et al. (1979) discuss how the medical establishment 'fails' battered women. In their study of women at a large urban hospital, they found that the battered woman does not fit into the model of diagnosable diseases: "…the patient's persistence, the failure of the cure, and the incongruity between her problems and available medical explanations lead the provider to label the abused woman in ways that suggest she is personally responsible for her

victimization" (461). Indeed, the researchers found that many doctors do not even ask women how they were injured and whether they have injuries that are not obvious. Further, the treatment battered women received for their injuries was often inappropriate.

Such concerns were echoed in Warshaw's (1993) research at an urban emergency room in a training hospital. She reviewed female charts for a two-week period and searched for indications of abuse. The sample includes 52 cases where women were obviously purposefully injured. Warshaw found detection and intervention lacking and that personnel were not receptive to the special needs of battered women. For example, victim's clues often went ignored and doctors did not tend to elaborate on information collected by the nurses. Additionally, in most cases (78%), doctors did not ask about the relationship to the perpetrator. Stark et al. (1979) view the system as contributing to the problem. They see radical change as essential for advancing women in society and ending domestic abuse. Among their ideas are woman-centered networks that empower her in times of need.

Other scholars have considered how police intervention might affect women victimized by intimates. Some recognize inherent biases within the legal system. Ferraro (1993) explicitly points to race, class, and sexuality privileges inherent in the legal system, and challenges the demonization of individual men rather than considering the societal roots of domestic abuse. She critiques the ways in which legal services and protections are offered to victims and questions the ways inherent gender, class, sexuality, and racial biases may play into the treatment victims receive.

Another theme is that the legal system does not adequately consider the gendered nature of assault. Ferraro (1993) notes that gender-neutral language ignores the

differential context in which male and female violence tends to take place. She cites incidents where women who phoned police wound up being the ones arrested, since officers do not always see the gendered nature of family conflicts and notes: "When police arrest women for defending themselves against battering, the abusers are provided social support for initiating and justifying violence" (169).

Many express concern that individual victims' needs are not adequately considered. Bowman (1992) critiques making it mandatory for the police to arrest in domestic violence cases since there is no evidence that such policies deter future violence, or that it is necessarily the response that women want. Ferraro (1993:173) also questions the effectiveness of mandatory arrest and prosecution policies and emphasizes that "…women are the best experts on their own lives." She cites evidence that allowing victims to drop charges actually decreases recidivism.[3] Bowman emphasizes the importance of the entire response to domestic assault, beginning with a call to police and extending through prosecution and aid to victims. While she realizes some women may find it empowering to have their abusers arrested, others may not want this response, favoring a different response from police, and may be reluctant to call the police if they fear their spouse will be arrested. Bowman clearly indicates the need for more research that considers women's needs. She ultimately calls for a response that will prosecute offenders and provide support for their victims.

Researchers have specifically addressed the influence of arrest policies on intimate partner violence. The most notable are a series of arrest experiments beginning with one by Sherman and Berk (Sherman and Berk 1984) who examined spouse assaults

[3] It is, however, possible that dropping charges reduces the likelihood not of assault, but of reporting assault to the police.

in Minneapolis. Their findings suggest that arrest was more effective in decreasing the prevalence of assault than were either offering advice or ordering the perpetrator away for eight hours. This finding influenced policy-makers to institute mandatory arrest policies in many jurisdictions. Similarly, Berk and Newton (1985) examine the police records of a county in Southern California. Their results also suggest that arrests are associated with fewer new incidents of wife assaults, particularly among those most likely to be arrested. They cannot determine if this is because assaults go down or reporting declines. Further, evidence regarding the effectiveness of arrest is mixed and some replication studies found opposite results, particularly when looking at the unmarried and unemployed (see, for example: Berk, Campbell, Klap, and Western 1992; Pate and Hamilton 1992). However Dugan (2003), using the yearly (not longitudinally linked) files of the NCVS data finds evidence to suggest that laws may actually reduce the number of spousal violence assaults (and have little influence on assaults by boy/girlfriends).

Repeat Assault

Johnson's (1995) categorization of intimate partner violence indicates that severe male violence used to control women is linked to future assaults escalating in severity. It is important to examine the extent of repeat assault given the potential consequences (injury, death) and to identify the factors that increase or decrease risk. By linking NCVS respondents over time, we are able to detect subsequent assaults by an intimate.[4]

Previous research using 1978-1982 data from the National Crime Survey found a high rate of repeat assault within six months of the first (Langan and Innes 1986).

[4] While we are able to detect whether the respondent was once again violently victimized by an intimate,

Further, 37% of the married, divorced and separated victims who reported the incident to police cited concerns about future violence. Lower rates of repeat assault were found by Rand and Saltzman (2003) who analyzed recurrent intimate partner violence in the 1992-1999 NCVS. Most victims (72%) reported only 1 intimate partner victimization in the six months prior to interview.[5] Note, however, that both of these studies are limited because they ignore the repeated interviews of each woman. Thus, for example, if a woman reported being victimized during the first interview and then again during the third, their findings would report the content of those interviews as victimizations of two different women without repeated incidents. By using longitudinally linked files, we are able to link women over multiple interviews and capture recurrent victimization over a longer period of time.

Johnson (2003) analyzed data from a nationally representative sample of Canadian women. Her findings "suggest that a continuation of assaults on wives is predicted by the frequency of previous assaults, the youth of male perpetrators, living in a common-law relationship, the duration of the union [shorter unions imply greater risk], and higher education for female victims" (Johnson 2003:75). Further, she found that a male partner's attempts to limit the woman's access to family income and restrict access to social networks elevated the risk of later assault. This might suggest that if a male partner wants to limit a woman's access to income and thus forces her to leave the labor force, her risk of repeat assault may be elevated.

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we are unable to conclude whether it was the same perpetrator as the initial incident.

[5] Note that series victimizations were counted as only 1 victimization in the Rand and Saltzman study (2003). Thus, they inherently under count repeated incidents of violence.

METHODOLOGY

Data

The NCVS is the largest nationally representative data set on criminal victimization in the U.S. It is administered to a sample of households by the U.S. Census Bureau, and is sponsored by the Bureau of Justice Statistics. Its purpose is to gather information about criminal victimization directly from the victims. Thus, the data include incidents not reported to the police. The NCVS is a collection of individual interviews conducted with the residents of a sample of roughly 50,000 housing units that are interviewed every six months for three years. The first interview at the housing unit is conducted in person, while the follow-up interviews are generally done over the telephone. If a household moves, the new occupants of the housing unit are interviewed in subsequent waves. That is, the NCVS is a longitudinal sample of housing units rather than a longitudinal sample of individuals or households who are followed as they move.

Although data collection began in 1973, additional probes were added in 1992 to elicit responses about violence perpetrated within the family, thus making the survey better suited to study intimate partner violence. (For discussion of the redesign, see "Bachman and Taylor 1994) We use data collected from the second half of 1995 through the end of 1999 and linked longitudinally by Marshall DeBerry of the Bureau of Justice Statistics. Census Bureau changes in the survey design and sampling procedure preclude construction of a longitudinal file prior to this time (Bureau of Justice Statistics 2002) and longitudinally linked data are not available past 1999. The data include 50,115 women.

Because the NCVS provides information about the relationship of perpetrator to victim, and the circumstances following the event, it is possible to distinguish intimate

partner violence and to estimate how the victim's behaviors influence future consequences. Further, by linking the file over time, we are able to compare responses from earlier interviews with those in later interviews to determine how victimization shapes changes in women's lives.

The unit of analysis in the proposed study is the woman. We examine a woman's victimization pattern and the changes in her life for the period that she is followed in the survey (up to three years).

Variables

Following is an overview of the variables we use in our analyses. For further details on survey questions, variable construction, and handling of missing data please refer to Appendix A. For descriptive statistics, across woman-interviews, on each of the variables, see Appendix B.

Dependent Variable:

Subsequent Intimate Partner Violence is an indicator of whether or not a subsequent intimate partner assault occurred during the interview period. It is coded (1) for any interview period with more than 1 reported assault and for interviews with any reported assault after previously reported assault(s).

Primary Independent Variables:

We constructed an average of *intimate partner violence episodes to date*. This is the average number of intimate partner incidents reported prior to subsequent assault. It is constructed the same way as described above, except that if there are no previous intimate partner assaults, then we count the first current assault. For most models, we use the recent and previous measures of intimate partner assault described above. However,

we use this variable in the models predicting subsequent assault, as it includes information about the first assault reported at interview, if there are no previous assaults. Thus, it combines information about assault history and current assault.

Recent and previous victimizations capture all reported crime incidents during or prior to the current interview. For each interview period, we construct variables to tally the number of reported victimizations over the past six months for three types of offenses: 1) violence by a known offender, 2) violence by an unknown offender, and 3) nonviolent crime (see Appendix C). We construct two indicators for each crime type, recent and previous victimization. A recent victimization refers to the number of victimizations in the past 6 months reported in the current interview. Previous victimization is measured by the average number of victimizations reported for the 6 months before each interview prior to the current interview. Figure 1 provides an example of how each is constructed. The first line shows the actual number of reported victimizations. Note that our hypothetical woman was not interviewed during time 2. Thus, at time 3, recent number of victimizations is 1, and her average prior intimate partner victimization is 1 per six months (2/2) and this is the number assigned to the prior intimate partner victimization variable as shown in Figure 1.

[Insert Figure 1 About Here]

Sometimes multiple incidents are collected under one incident. These are termed series incidents and the NCVS collects information about them collectively. Such incidents represent a minimum of 6 incidents of similar type for which a respondent cannot recall sufficient information to report on them separately. To be conservative, we

assign series incidents a value of 6 in the tally of incidents, given the extreme range of reported series events.

Intervening Variables:

Self-Defense during the course of a crime incident is recorded through responses to two survey questions: "Did respondent use or threaten to use physical force against the offender?" and "Who was the first to use or threaten to use physical force - you, the offender, or someone else?" It is coded (1) if the respondent used or threatened physical force and the perpetrator was the first to do so during any crime incident prior to interview. For the subsequent assault models, this variable is coded (1) for any reported use of self-defense during an intimate partner assault prior to a current, subsequent assault. Thus, it is coded (1) in cases where self defense was used during an incident reported in a prior interview, or if there were no prior assaults, during the first assault reported at current interview.

Injury following violent crime is captured by responses to the survey question: "What were the injuries you suffered, if any? Anything else?" asked about all crime incidents reported. It is a binary variable coded (1) if a respondent experienced any injury as a result of violent victimization prior to interview. For the subsequent assault models, this variable is coded (1) for any reported injury during an intimate partner assault prior to a current, subsequent assault.

Seeking medical attention is a binary variable coded (1) if a woman injured during any violent incident reported to date and received medical attention for any of her injuries. Victims were asked: "Were you injured to the extent that you received any

medical care, including self treatment? Where did you receive this care? Care received at the scene of the incident or at home/neighbor's/ friend's is excluded so that this variable represents actually seeking help from a medical establishment. This variable is coded (1) for any reported medical attention for injuries incurred during an intimate partner assault prior to a current, subsequent assault for the subsequent assault models.

Victim notifying the police is an indicator variable coded (1) if a victim reports that she contacted the police following at least one victimization during or before the interview period. For the subsequent assault models, this variable is coded (1) if she notified the police after an intimate partner assault prior to a current, subsequent assault.

Changes Following (Earlier) Intimate Violence

Exiting the Relationship is captured through a series of variables. Divorce is measured as a transition from being married to being divorced or separated at the following interview. *Employment Consequences* are captured through several variables. If a woman was victimized between time t and time t+1, her status change is coded based upon whether or not she reported being employed at the time of the first crime incident reported at t+1 and comparing that to whether or not she was employed at time t+1. For those moving from being unemployed to being employed we assume entry into the labor force. For those employed and later reporting they are unemployed, we code an exit from the labor force. Both of these variables are included as predictors in a subsequent assault model. Those employed at first assault are coded (0) for the entering the labor force variable in these models, while those unemployed are coded (0) on leaving the labor

force. Missing values on each are coded (0) and missing indicators are also included in the model.

Control Variables:

We control for several *demographic characteristics*. *Age* is measured in years. We assign the age recorded at a woman's first interview for that interview and increment it by 0.5 year (six months) each following interview.

Race is coded into five indicator variables by examining responses to race and Hispanic origin questions on the survey. The five categories available are white, non-Hispanic; black, non-Hispanic; Hispanic; Asian, non-Hispanic; and Native American, non-Hispanic. Respondents are assigned the race reported during their first interview. Missing values are assigned to a separate category, race missing, which will be included in regression models. For some of the models with small sample sizes, we combine racial groups. White, non-Hispanic is the reference category in multivariate analyses.

Educational attainment is collected in years and recoded into three categories: less than 12 years, 12 years, and more than 12 years. Missing values are assigned the value at preceding interview if it matches the value at subsequent interview. Remaining missing cases are classified as zero for both education measures and dummy coded as *missing education* in the model. High school graduates with no college education are the reference group.

Low-income households include those that report a family income of less than $15,000 annually. The second captures the other tail of the distribution. *High-income* households are recorded as having family incomes of more than $75,000 annually.

Women who fail to report their family income during any given interview may have reported income in an earlier or later interview. In these cases we assign the average reported income across the prior and subsequent interview periods. Remaining missing cases are assigned a value of 0 for all of the income variables and recorded as a 1 for a dummy variable indicating *missing income*.

Marital status is measured by three indicator variables: married, divorced/separated, and single (never married or widowed). Those missing on marital status are assigned the value reported at the prior interview if that value matches the value at the subsequent interview and coded (1) on an imputation flag. This imputation is done after the divorce/separation variable is coded so that there is no imputation on that dependent variable. An indicator is included for those whose marital status is unknown and cannot be determined by the surrounding interviews.

Indicators are also included to capture whether or not a respondent was *employed* during the two weeks prior to interview. Missing values on employment status are assigned to (0), if a respondent reported that she had not worked at all in the past six months (a separate survey question). Otherwise, those missing information on employment status are assigned the value at prior interview if it matched the value at next interview. Note that the latter imputation is done after the employment change variables are constructed so that it does not affect the dependent variables. An indicator is included for those whose employment status is unknown and cannot be determined by the surrounding interviews.

Student status is an indicator variable coded (1) if a respondent reports that he/she was attending school at the time of interview. Missing values for student status are

assigned the value at prior interview if it matched the value at next interview. Remaining missing cases were assigned (0) and a missing flag was created.

Tenure is an indicator of the number of months a respondent reports having lived at the address. It is calculated by assigning the age recorded at a woman's first interview for that interview and incrementing it by six months each following interview. Missing values are assigned the mean value for the sample of all women and an imputation flag is created.

Home Ownership is coded (1) if a respondent reported that the household owned or was in the process of purchasing the home. Missing values are imputed to the value at prior interview if it matches the value at subsequent interview.

Respondents living in *multiple unit* dwellings during their first interview are coded (1) for all interviews. Those in *public* housing during the first interview are coded (1) for all interviews. Missing values on multiple unit and public housing residences are coded (0) and missing indicators are constructed. If a residence was considered *urban* at first interview, that value is assigned for all subsequent interviews.

Household composition is captured through three variables. *One adult* households contain only one person over age 12 in the home; *many adult* households are comprised of at least three adults; and *number of children* is a count of those under age 12.

We also control for three *interview characteristics*. First, we include the household's *interview period*, which indicates how long the address has been in the sample. Second, it is noted whether or not the interview was conducted by *proxy*, (i.e., someone other than the respondent). And finally, in models predicting subsequent assault, where telescoping bias is likely, we control for the first, *unbounded* interview.

Six incident characteristics are also included. *Police notification* is an indicator variable coded (1) if someone other than the victim contacted the police following any victimization prior to interview. *Arrest* is coded (1) if the respondent reports that she knows of any arrests or charges brought as a result of any crime incident prior to the current assault. *Weapon use* is coded (1) for affirmative responses to the question: "Did the offender have a weapon such as a gun or knife, or something to use as a weapon, such as a bottle or wrench?" for any incident occurring prior to current assault. A perpetrator is considered being *under the influence* if a victim says he was using drugs or alcohol at the time of any assault reported to date of the current assault. Finally, a *series* flag is created to indicate if any of the victim's recent or prior victimizations were part of a series incident. We also control for whether or not the *offender did this before*.

Methods

The statistical model is designed to assess how the victim characteristics, incident characteristics and consequences of intimate partner violence relate to the likelihood of repeated violence. We consider variations by race/ethnicity and social class and other demographic and interview characteristics.

The model predicting subsequent violence by an intimate are estimated for all women reporting at least one incident of intimate partner violence.[6] It is important to note here that the perpetrator of the subsequent attack may be different from the earlier offenders. Due to data limitations, in most cases, we are unable to verify whether the second partner is the same as the first. Thus, we estimate the probably that a victim was violently attacked by a partner during the current interview period, provided that the she

[6] This model includes victims of intimate partner violence from the interview they first report an assault

has already been assaulted by a partner (not necessarily the same one) while participating in the survey. A subsequent assault is also noted, by definition, if a woman reports multiple intimate partner violent victimizations during the survey period. Since details are reported for each incident (including the date), we are able to discern the characteristics that distinguish the initial victimization from the subsequent assault. However, this level of detail is missing if the incident is part of a series. Because 8.5 percent of the victims report at least one set of series events, we rely on the discreet time event history modeling to predict the likelihood that a victim of intimate partner violence was assault again by an intimate within the six months prior to interview. Our model includes divorce/separation and labor force status changes as independent variables to test whether these outcomes influence a victim's likelihood of being violently victimized again by an intimate. All analyses are weighted with the person weight provided by the Bureau of Justice Statistics. Also, due to competing predictions, all statistical tests are two-tailed.

Data Limitations

Left Censoring

Since we have very little information about women's lives prior to the first interview, the data is inherently left censored. Thus, women who were victimized only before to the survey period began will appear as non-victims in the data. Left censoring will *never* make non-victims appear as victims. Left censoring will likely have its greatest impact early in the survey period for women who were victimized just before entry.

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until they exit the sample.

Sample Constraints

Although the NCVS is a nationally representative sample of U.S. addresses, there are certain populations that are excluded from the survey. These include the homeless and institutionalized populations including incarcerated individuals and those living on military bases. Evidence suggests that incarcerated women have more violent histories with their intimate partners compared to women in general. For example, Dugan and Castro (Forthcoming) found that women incarcerated in Baltimore, MD (urban, mostly Black) had a substantially higher rate of violent victimization (47.08% for six months) than did women in the NCVS (1.40% for six months). Also, they found that the risk and protective factors are quite different for these two groups. For example, for women in general, intimate partner assaults are more common by husbands within the general population, yet incarcerated women are more often assaulted by a non-marital partner. Additionally, Richie (1996) studied a group of women incarcerated at Riker's Island and found that battered women often resorted to violence either directly or indirectly as a result of their assault. African American battered women's criminal activities "were seen by them as responses to violence or the threat of violence in their intimate relationships" (1996127). While Black women were often trapped in a cycle of criminal activity *and* in violent relationships, the white battered women in her sample often used criminal activity as a means of exiting a violent relationship. If intimate partner violence victimization is associated with criminal activity and increases the risk of incarceration, national surveys that exclude incarcerated populations *will* produce deflated estimates of the prevalence of such violence.

Without direct empirical evidence, some prior research strongly suggests that women living on military bases also have a higher risk of intimate partner violence (McCarroll, 1999; Brannen and Hamlin, 2000, Miller and Veltkamp, 1993). According to McCarroll et al. (1999:81), enhanced risk factors among this population include "separation from family, frequent moves, unexpected deployments, and the dangers of military life, including the possibility of service-connected death or injury through accidents, and other causes of morbidity and mortality." Hence, the unique stressors of military life likely increase the risk of domestic violence. In fact, Brannen and Hamlin (2000:169) indicate: "Several studies have suggested that military families experience higher levels of aggression than families in the civilian sector because the military either attracts aggressive men or that the culture and training promote aggression." Similarly, Miller and Veltkamp (1993:767) assert that both "the family and a multigenerational transfer of abuse experienced prior to service" and "the exposure to violence within the military" are risk factors among military personnel. Shupe, et al. (1987:67) describe "a heavy emphasis on the masculinity and aggressiveness that research on civilians has found to be an important component of male violence toward women ." They link the military culture, generating and reinforcing these ideals, to prior research, but fail to detail specific findings.

Other studies have directly measured the extent of intimate partner violence in the military. While the rates are not always directly comparable with those of other studies, tend to produce higher rates than those found for their civilian samples (Heyman and Neidig 1999; Murdoch and Nichol 1995; see also: Cronin 1995).[7] Heyman and Neidig

[7] Studies of the military are often limited to the current partner or only to spousal assault and not other contexts of intimate partner violence.

(1999) critique studies (i.e. Bohannon, Dosser, and Lindley 1995; Cronin 1995; Griffin and Morgan 1988) comparing military and civilian rates of spousal violence claiming that these studies are not always representative of the civilian and Army families, and do not typically control for demographic differences between the two populations. Their study is an attempt to remedy this. Heyman and Neidig focus exclusively on abuse perpetrated by husbands against their wives. In the early 1990s, the Conflict Tactics Scale was administered to a random sample of military personnel at 47 army posts. Heyman and Neidig compared prevalence rates in the sample of Army respondents to comparable civilians in the 1985 Family Violence Survey.[8] Controlling for age and race (factors demonstrated to affect the likelihood of abuse), they found insignificant differences in men's reports of moderate husband-to-wife assault, but significantly higher rates of severe husband-to-wife assault in the Army sample. Women in the Army sample reported higher rates of both moderate and severe assault victimization. When comparing the army sample to the general sample, the Army has consistently higher rates. The authors suggest this may be due to selectivity into the Army: those with risk factors for spousal abuse may be more likely to volunteer for service.

While the evidence is not definitive, there are convincing reasons to believe that those incarcerated or living on military bases have more experiences with intimate partner violence than the general population. Thus, while the NCVS claims to be a nationally representative survey, it omits at least two very important populations with above average victimization rates. Therefore, we can only generalize our findings to non-institutionalized U.S. population who live in addressed residences.

[8] Their sample varied across demographic variables from 30,426 to 31,157. The civilian sample they determined was comparable (they excluded unmarried and unemployed persons) was 3,044 respondents.

Patriarchal Terrorism or Common Couple Violence?

Johnson (1995) distinguishes two types of intimate partner violence: patriarchal terrorism and common couple violence. He notes that many feminists have identified a type of violence perpetrated by men to control women. This violence is frequent and escalates in severity and is almost exclusively perpetrated by men on women who typically do not fight back. He terms this type of violence against women "patriarchal terrorism." Johnson also explains that this terminology only describes a small subset of partner violence. Those working from the family violence perspective detail a dramatically different picture of intimate partner violence. Their work illustrates that in many relationships, the violence is as equally likely to be perpetrated by the female as the male. Unlike patriarchal terrorism, "common couple violence" does not tend to escalate over time. Johnson contends that national surveys are more likely to uncover the more frequent common couple violence while shelter and agency based studies are more likely to reveal the more rare patriarchal terrorism. The NCVS is designed to record all incidents of attack, regardless of how inconsequential it may seem to the respondent. In fact, the survey explicitly probes the respondent to recollect incidents committed by someone they know such as a relative or family member (Bureau of Justice Statistics 2002). Thus, the data used here is likely to include "common couple violence" that is unlikely to lead to changes in marital status, residence, or employment. Therefore, biases due to this issue, will be towards zero.

Underreporting

A large problem with any survey data is the respondents' failure to disclose specific incidents. This may be exacerbated here because terrorized women may be

likely to hide the assaults out of shame or fear. This is an issue in all studies that attempt to capture incident of partner violence. Schwabe and Kaslow (1984:128) explain:

> Even if we had a reliable objective definition and a consensus on how to measure violence, we still would face the problem of getting family members to report the incidents. No one likes to talk about unpleasant or embarrassing private events. There is also the fear that the identified abuser will retaliate with further assaults.

Further, some victims may hide their experiences out of fear of being blamed. Dworkin (1993:238) describes the experiences of some women: "If you try to say you have been hurt and by whom and you point to visible injuries and are treated as if you made it up or as if it doesn't matter or as if it is your fault or as if you are worthless, you become afraid to say anything."

While all surveys suffer from disclosure bias, other data sets produce much higher rates of intimate partner violence than those reported in the NCVS (see Table 1). These differences are likely due to the following reasons. First, the NCVS is a general crime survey that is collected in a formal, rapid manner by government officials. Thus specific probes encouraging respondents to disclose acts perpetrated by an intimate are likely to be lost in the barrage of questions. The context of discussion about crime more broadly may not trigger responses about acts that are seen as very personal in nature and may not be viewed as crimes (see, for example: Tjaden and Thoennes 2000). Second, while many studies of intimate partner violence ask about the history of violence over the life course, the NCVS refers only to a maximum of three and a half years. Thus, we would expect rates to be lower. Finally, the denominator or the intimate partner violence rate includes

all women regardless of whether they are intimately involved with a potential perpetrator—thus deflating the true rate. It is not possible to determine the number of women who were truly at risk (since the NCVS only has detailed information on marriage, but not dating relationships). However, the sample ranges in age from 12-90. While, the current study retains all women for analyses, it is likely that those in the younger and older years are not partnered.

Since the data will include women who were truly victimized but appear as non-victims, this type of measurement error will result in estimate biased toward zero.

Mobility

Since the NCVS samples addresses and not individuals or households over time, we are concerned that non-random residential mobility will affect the findings. For instance, violence may occur and be followed by a victim may move immediately after the incident and prior to the next interview. This would appear as if a non-victim moved, biasing our estimates towards zero. Further, mobility limits our ability to track subsequent assaults, censoring our data prematurely.

While each of these constraints place limits upon the generalizability of our results and tends to bias our estimates towards zero, this project is important. Very little is known about the risk factors for repeat intimate partner violence and this is the first opportunity to examine a nationally representative data set that follows victims over time. This work has the potential to yield indicative findings and is valuable in identifying important areas for further investigation. Additionally, we carefully interpret findings and information, in tandem with what has already been shown in the literature, to inform policy and research debates about how violence affects women's lives.

Small Proportion of Victims

Of the 50,115 women, 0.91 percent or 458 report at least one assault by an intimate partner. The small proportion of victims raises at least one concern. Any measurement error will have a magnified effect upon findings. For reasons given above, we are fairly certain that the nature of any bias will be towards zero, thus the magnitudes of significant findings will be conservative

RESULTS

Repeat Assault

Our model estimates how different intermediate behaviors and characteristics affect the likelihood that an intimate partner victim is re-victimized. Table 1 displays the distribution on the four primary intermediate variables: self-defense, injury, medical care, and police contact. Nearly a quarter of all victims reported at least one repeated assault. When we compare the distribution of characteristics for victims who only suffered from one assault with those who were re-victimized, we find little difference. The only distinguishing feature is that those with only one assault were more likely to have had contact with the police (50% versus 39%). This suggests that police notification may be associated with a lower likelihood of subsequent assault. Perhaps this relationship is direct where the police intervention stopped further assaults. However, this could also be a selection effect whereby those who respond against the violence (i.e. call the police) are also more likely to get themselves out of harm's way.

[Table 1 About Here]

The general distributions of the remaining characteristics are as follows. Relatively few victims, 11% and 14%, acted in self-defense during the first assault. Nearly half of the victims reported an injury following the first reported assault. Similarly, nearly half of those injured sought medical help. Also worth noting is that those who reported a subsequent intimate partner assault were significantly less likely to have left the labor force after their first assault [Data Not Shown]. This suggests that by leaving the labor force, the victims may effectively escape the violence. Perhaps by leaving the labor force a woman is forced into a more traditional role, no longer threatening her partner's sense of security reducing his need to resort to violence to control her. Alternatively, it could signify a short-term strategy to change her life so that she can better escape a violent relationship.

The NCVS also includes questions about whether the victim was previously victimized by the same offender. While this only discloses information about acts committed by the same person, the information can be used to indicate known victimizations before the respondent entered the survey period. By tabulating this variable we see that 42% of those we considered "one time" victims had actually been assaulted by the same partner before. This reinforces our concern that our findings are likely bias toward zero. We also find that 41% of those with subsequent victimizations were assaulted by the same assailant prior to the survey reference period. We control for an offense by the same offender in the below multivariate models.

Additionally, the findings in Table 1 compare victims regardless of when they first reported an assault. Since those who report their first assault in a later interview have relatively less time to be re-victimized compared to those who report one earlier,

one might expect higher rates of subsequent assault for those reporting a first assault earlier. Thus, our multivariate models also control for the interview period.

In Table 2, we present the odds ratios from the multivariate stacked logistic model predicting a subsequent assault within six months prior to interview. It includes all of the controls, incident characteristics, our labor force changes and marital dissolutions. This model surprisingly shows that a larger number of previous intimate partner assaults is associated with a *lower,* not higher, likelihood of reporting a subsequent assault. Specifically, each prior intimate partner assault is associated with having about a quarter the odds of repeat assault. However, women who were previously violent victimization by another known person or were recently a victim of property crime are at substantially higher risk of a repeat assault by an intimate. None of our intervening variables have significant effects upon the chances of repeat assault, with the exception of self-defense. Those who defend themselves from their perpetrator have an increased likelihood of subsequent assault. Although this is only marginally significant, it could indicate a retaliatory effect. Our other, non-findings for the intervening variables suggest that sustaining an injury and a victim's actions at the time of or immediately following assault have virtually no influence on whether or not she is assaulted again by an intimate. Thus, when the victim has contact with the medical system or calls to the police, she does not seem to be either increasing or decreasing her safety.

Turning to our employment and marital consequences of intimate partner violence, we find that by leaving the labor force, a victim decreases her odds of being re-assaulted. However, we also find that by entering the labor force a victim does not significantly alter her risk of being assaulted again by an intimate. As mentioned above,

exiting the labor force could either represent attempts to appease the abuser or signify the beginning stages of a strategy to exit the violent relationship. Another important null finding is that those victims who recently ended their marriage appeared to be no more (and no less) likely than other women to be re-assaulted.

Other interesting findings are that blacks are far less likely than whites to sustain a subsequent assault, while Hispanics are at far greater risk. Those victims living in public housing are more likely to be re-assaulted. Having more adults in the home increases risk, while children seem to protect victims from re-assault. Perhaps the presence of children makes women more safety-conscious so that the children are not exposed to violence. Also, as expected, those whose first assault was later in the survey period reported fewer repeat assaults, and those reporting during a bounding interview were more likely to report repeated assaults.

Finally, the findings for the incident control variables indicate that the victim is less likely to be subsequently assaulted if the offender used a weapon during an earlier assault. Perhaps the threat of a weapon motivated the victim to better protect herself from dangerous intimate. We also find in this set of results that the chances of re-assault are also reduced if the police were previously contacted by a third party following an earlier intimate partner assault. Re-assault is also less likely if the victim's perpetrator was arrested after an earlier assault. These latter two findings suggest that contact with the police can protect the victim. Yet, this raises an important question as to why the police seemed to have no effect when the victim calls the police herself. It suggests that calls by others are taken more seriously by the police.

If the perpetrator was under the influence of drugs or alcohol during an earlier incident, the woman is more than twice as likely to report at least one subsequent assault. This is consistent with literature that links alcohol and drug dependency with the perpetration of intimate partner violence (see: Crowell and Burgess 1996). Those who previously experienced intimate partner violence as a series of incidents had 174 times the odds of being assaulted again compared to those without a series assault. This is the least surprising finding since by definition, a series assault represents at least six incidents—thus the victim is by definition, a repeat victim. Having said that, the findings also show that those who reported that the perpetrator had done something similar in the past are at lower risk of repeat assault. This is an unexpected finding since those women are also, by definition, repeat victims (although they are not coded as such).

DISCUSSION

This project contributes substantially to our understanding of how intimate partner violence impacts women's lives. Our research was designed to determine whether exposure reduction leads to less or more violence. The results are mixed. It appears that if a victim acts in self-defense, she may be setting herself up for later attacks. While we cannot be certain that the latter attacks are from the same perpetrator, if they were, this would be strong evidence that he is retaliating against her self-defensive actions. We unexpectedly found evidence that some victims who *increase* their exposure to their partner could actually be *decreasing* their chances of further perpetration. It seems that those working women who leave the labor force after an attack are protected from further attacks. We clearly cannot draw strong conclusions about this method of protection without knowing the specific contexts of those women who leave their jobs. We have no

idea whether the victim is, indeed, spending more time with her perpetrator, or whether she is preparing to make a larger break from home. While we find no direct evidence that a victim's own exposure-reducing behavior affects on her chances of re-victimization, when others act to reduce her exposure, such as others' calls to police and arrests, her chances of re-victimization drops. This suggests that policies implemented to reduce a victim's exposure to the perpetrator may improve her safety.

In sum, our analyses offer more straightforward support for retaliation effects than for exposure reduction Our research represents an important contribution to the research literature. Future studies can improve on our work by integrating the explicit nature and entire history of intimate partner victimization for each woman. Studies should also continue to follow a nationally representative sample of women, even if they move. This way, we will learn more about the longer-term consequences of violence.

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Figure 1: Coding of Recent and Previous Assault

Example: Coding of Intimate Partner Victimization for a Hypothetical Victim

Number of IPV Incidents Reported

t0	t1	t2	t3	t4	t5	t6
2	0	.	1	0	1	0

Coding of Recent and Previous IPV

	t0	t1	t2	t3	t4	t5	t6
Recent:	2	0	.	1	0	1	0
Previous:	.	2	1	0.67	0.75	0.60	0.67

Table 1: Characteristics Associated with Intimate Partner Assault Report(s) (Weighted)

Table 1: Characteristics Associated with Intimate Partner Assault Report(s) (Weighted)	One Assault	First of Multiple Assaults
Number of Victims (Unweighted)	343	115
Percent of Victims	75.2%	24.9%
Self-defense	10.5%	14.4%
Injury	47.5%	50.1%
Injured and Sought Medical Attention for Injuries	9.3%	11.6%
Police Contact	50.3%	39.1% *

# $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two tailed tests

Table 2: Odds Ratios from Stacked Logitsic Regression Models Predicting Subsequent Intimate Partner Assault

Victimizations			
Previous Intimate Partner Violence		0.237 ***	0.253 ***
Recent Violence by Other Known Offender		1.127	1.063
Previous Violence by Other Known Offender		4.673 *	4.267 #
Recent Violence by a Stranger		1.825	1.618
Previous Violence by a Stranger		4.522	6.434
Recent Nonviolent Crime Victimization		1.678 ***	1.749 ***
Previous Nonviolent Crime Victimization		0.967	0.963
Intervening Variables			
Self-Defense		1.759	1.904 #
Injury		1.369	1.291
Injured and Sought Medical Attention for Injuries		1.582	1.641
Victim Notified the Police		1.194	1.142
Employment Consequences			
Entered the Labor Force		--	0.961
Entered the Labor Force Missing		--	N/A
Left the Labor Force		--	0.311 #
Left the Labor Force Missing		--	N/A
Marital Dissolution		--	1.557
Marital Dissolution Missing		--	N/A
Demographic Characteristics			
Age		0.955 **	0.956 **
Race			
White, non-Hispanic	(Reference/Omitted Category)	--	--
Black, non-Hispanic		0.379 *	0.402 *
Hispanic		2.339 *	2.405 *
Asian, non-Hispanic		N/A	N/A
Native American, non-Hispanic		0.867	0.917
Race Missing		N/A	N/A
Education			
Less than 12 Years		0.883	0.956
12 Years	(Reference/Omitted Category)	--	--
More than 12 Years		0.994	0.991
Education Missing		2.903 **	2.966 **
Household Income			
Low Income		0.801	0.766
High Income		0.539	0.564
Income Imputed		N/A	N/A
Income Missing		0.280 **	0.283 **
Marital Status			
Married		1.149	1.332
Divorced		1.707	1.651
Single		--	--
Marital Status Imputed		14.110 #	N/A
Marital Status Missing		N/A	N/A

Employed	0.960	0.807
Employed Imputed	0.238	N/A
Employed Missing	1.270	0.374
Attending School	1.468	1.412
Attending School Imputed	N/A	N/A
Attending School Missing	1.776	2.080
Tenure	1.002	1.002
Tenure Imputed	1.684	1.534
Home Ownership	0.899	0.732
Multiple Unit Dwelling	1.701	1.583
Multiple Unit Dwelling Missing	0.676	0.979
Public Housing	2.871 #	3.015 #
Public Housing Missing	2.118	2.414
Urbanicity	0.835	0.841
Household Composition		
Lone Adult	1.072	1.158
Many Adults	1.859 *	1.944 *
Number of Children	0.783 *	0.781 #
Interview Characteristics		
Interview Period	0.759 ***	0.773 **
Interview Conducted Via Proxy	N/A	N/A
Unbounded Interview	4.619 ***	4.719 ***
Prior IPV Incident Characteristics		
Police Notification by Someone Other than the Victim	0.459 #	0.480 #
Perpetrator Arrested	0.394 **	0.414 *
Weapon Use	0.406 **	0.426 *
Perpetrator Under Influence of Drugs/Alcohol	2.592 ***	2.647 ***
Series Incident	206.334 ***	173.827 ***
Offender Acted Before	0.215 ***	0.231 ***
Sample Size (Woman-Interviews)	1,118	1,118

N/A indicates that the cell size was too small to produce reliable estimates.

# P<0.10, *p<0.05, ** p<0.01, ***p<0.001

Appendix A: Independent and Intervening Variables

Theoretical Constructs	Survey Question(s)	Operationalization	Treatment of Missing Data
Independent Variables			
Victimizations[a]			
Recent Crime Variables	Reported Incident(s) of Intimate Partner Violence at t, Violence by Other Known Offender at t, Violence by a Stranger at t, and Nonviolent Crime Victimization at t.	Count for Each Type of Victimization Reported in t	
Previous Crime Variables	Reported Incident(s) of Intimate Partner Violence prior to t, Violence by Other Known Offender prior to t, Violence by a Stranger prior to t, and Nonviolent Crime Victimization prior to t.	Average for Each Type of Victimization Reported Prior to t.	
Intervening Variables			If no evidence, then assigned 0.
Self-Defensive Actions at the Time of Assault	Did respondent use or threaten to use physical force against the offender? Who was the first to use or threaten to use physical force - you, the offender, or someone else?	Self Defense: Yes/No	
Injury following Intimate Partner Violence	What were the injuries you suffered, If any? Anything else?	Indicator, Coded (1) if injuy sustainbed after any Intimate Partner Violence Incident reported in t, else (0).	
Injured and Sought Medical Attention for Injuries	Were you injured to the extent that you received any medical care, including self treatment? Where did you receive this care? Anywhere else?	Indicator, Coded (1) if medical attention sought for injuries resulting from intimate partner violence reported in t, else (0). Care received at the scene or at home.a friend's/ neighbor's is excluded since it does not represent seeking help via the medical establishment.	

Victim Notified the Police following Intimate Partner Violence	Were the police informed or did they find out about this incident in any way? How did the police find out about it?	Indicator, Coded (1) if the victim notified the police after an incident of Intimate Partner Violence reported in t, else (0).	
Demographic Characteristics			
Age	Age last Birthday (Allocated)	Age in years.	For all women, began at Woman's first interview. Incremented by 0.5 year at each subsequent interview.
Race			For all women, assigned race at all interviews the value reported at first interview. Category "missing" created for remaining missing cases.
White, non-Hispanic	Reported Race/Hispanic Origin at First Interview	Indicator, Coded (1) if reported race is white, else (0).	
Black, non-Hispanic	Reported Race/Hispanic Origin at First Interview	Indicator, Coded (1) if reported race is black, else (0).	
Hispanic	Reported Race/Hispanic Origin at First Interview	Indicator, Coded (1) if reported race is Asian, else (0).	
Asian, non-Hispanic	Reported Race/Hispanic Origin at First Interview	Indicator, Coded (1) if reported race is Native American, else (0).	
Native American, non-Hispanic	Reported Race/Hispanic Origin at First Interview	Indicator, Coded (1) if reported race is Hispanic, else (0).	
Education	What is the highest grade or year of regular school ... has ever attended?)		If missing at t and value at t-1=value at t+1 then value at t=value at t-. Only works for missing values t1-t5. Category "missing" created for remaining missing cases.
Less than 12 Years		Indicator, Coded (1) for less than 12 years of education, else (0).	

12 Years		Indicator, Coded (1) for 12 years of education, else (0).	
More than 12 Years		Indicator, Coded (1) for more than 12 years of education, else (0).	
Household Income	Household Income collected in 14 categories.		If missing at t and value at t-1=value at t+1 then mean of t-1 value and t+1 value. Only works for missing values t1-t5; imputation flag created. Category "missing" created for remaining missing cases.
Low Income		Indicator, Cided (1) if less than $15,000, else (0).	
High Income		Indicator, Cided (1) if greater than $75,000, else (0).	
Marital Status[b]	Marital status THIS survey period		If missing at t and value at t-1=value at t+1 then mean of t-1 value and t+1 value. Only works for missing values t1-t5; imputation flag created. Category "missing" created for remaining missing cases.
Married		Indicator, Coded (1) if married, else (0).	
Divorced		Indicator, Coded (1) if divorced/separated, else (0).	
Single		Indicator, Coded (1) if single, else (0).	
Employment Status[b]	Did you have a job or work at a business last week? Did you have a job or work at a business during the last 6 months?	Indicator, Coded (1) if employed at t, else (0).	If missing and status at t-1 was the same as at t+1, coded that value. Only works for missing values t1-t5; imputation flag created. Category "missing" created for remaining missing cases.

Student Status	Attending school	Indicator, Coded (1) if student at t, else (0).	If missing at t and value at t-1=value at t+1 then value at t=value at t-1. Only works for missing values t1-t5; imputation flag created. Category "missing" created for remaining missing cases.
Tenure	How long have you lived at this address? (months) How long have you lived at this address? (years)	Months at Address.	For all women, Converted Reports at Each time period to months by multiplying years by 12 and adding months. Beginning with first report, incremented by 6 months. Mean value assigned to misisng values and imputation flag created.
Home Ownership	Tenure (Allocated)	Indicator, Coded (1) if own home, else (0).	If missing at t and value at t-1=value at t+1 then value at t=value at t-1. Only works for missing values t1-t5.
Multiple Unit Dwelling	Number of Housing Units in Structure	Indicator, Coded (1) if multiple unit dwelling, else (0).	Assigned multiple unit dwelling status at all interviews the value reported at first interview.
Public Housing	Public Housing (Yes/No)	Indicator, Coded (1) if public housing, else (0).	Assigned public housing status at all interviews the value reported at first interview.
Urbanicity	Land Use	Indicator, Coded (1) if urban, else (0).	Assigned urbanicity at all interviews the value reported at first interview.
Household Composition			
Lone Adult Household	Indicator of only one household member 12 years of age and over	Indicator, Coded (1) if only one adult, else (0).	Imputation Not Necessary.
Many Adult Household	Indicator of more than two household members 12 years of age and over	Indicator, Coded (1) if more than two adults, else (0).	Imputation Not Necessary.
Number of Children	Number of household members under 12 years of age (0-9)	Count	Imputation Not Necessary.
Employment Stability			
Proportion of Previous Interviews not Employed			

Proportion of Previous Interviews Employed			
Interview Characteristics			
Interview Period	Created based upon year and quarter, panel and rotation group	Range is 1-6.	
Interview Conducted Via Proxy	Type of Interview	Indicator, Coded (1) if proxy interview, else 0.	
Unbounded Interview	First Interview with Woman	Indicator, Coded (1) if interview is the first with the respondent interview, else 0.	
Incident Characteristics			If no evidence, then assigned 0.
Police Notification by Someone Other than the Victim	Were the police informed or did they find out about this incident in any way? How did they find out about it?	Indicator, Coded (1) if someone other than the victim contacted police, else 0.	
Perpetrator Arrested	As far as you know, was anyone arrested or were charges brought against anyone in connection with this incident?	Indicator, Coded (1) if arrest/charges, else 0.	
Weapon Use	Did the offender have a weapon such as a gun or knife, or something to use as a weapon, such as a bottle or wrench?	Indicator, Coded (1) if weapon used, else (0).	
Perpetrator Under Influence of Drugs/Alcohol	Was the offender drinking or on drugs, or don't you know?	Indicator, Coded (1) if perpetrator was under the influence, else (0).	
Series Incident[a]	6 or more similar incidents about which the respondent cannot recall enough individual detail todistinguish.	Indicator Coded (1) to indicate at least one series incident, else (0).	
Intimate Partner Offender Did This Before	Was this the only time this offender committed a crime or made threats against you or your household? Were all, some, or none of these [series] incidents done by the same person(s)?	Indicator Coded (1) to indicate offender acted more than once, else (0).	

Source: Bureau of Justice Statistics (2000)

[a]Series incidents are counted as six incidents, the minimum number required to be considered a series.

[b]Employment and Marital Status were only imputede after constructing the dependent variables.

Appendix B: Weighted Descriptive Statistics on All Variables

Dependent Variables		Mean /Percent (Standard Deviation)
Exiting the Relationship		
Divorce		1.14%
Individual Residential Mobility		3.75%
Household Mobility		9.86%
Employment Consequences		
Entry into the Labor Force		5.52%
Exit From the Labor Force		7.09%
Subsequent Intimate Partner Assault		11.26%
Independent Variables		
Victimizations		
Recent Intimate Partner Violence		--
Previous Intimate Partner Violence		0.59
		(0.58)
Recent Violence by Other Known Offender		0.04
		(0.24)
Previous Violence by Other Known Offender		0.03
		(0.14)
Recent Violence by a Stranger		0.01
		(0.12)
Previous Violence by a Stranger		0.01
		(0.09)
Recent Nonviolent Crime Victimization		0.29
		(0.84)
Previous Nonviolent Crime Victimization		0.24
		(0.70)
Intervening Variables		
Self-Defense		12.82%
Injury		45.47%
Injured and Sought Medical Attention for Injuries		9.71%
Victim Notified the Police		49.04%
Demographic Characteristics		
Age		31.77
		(10.71)
Race		
White, non-Hispanic	(Reference/Omitted Category)	71.20%
Black, non-Hispanic		18.54%
Hispanic		6.89%
Asian, non-Hispanic		0.88%

Native American, non-Hispanic		2.42%
Race Missing		0.07%
Education		
Less than 12 Years		12.33%
12 Years	(Reference/Omitted Category)	23.17%
More than 12 Years		27.26%
Education Missing		37.24%
Household Income		
Low Income		34.46%
High Income		5.43%
Income Imputed		0.94%
Income Missing		10.36%
Marital Status		
Married		16.67%
Divorced		47.74%
Single		35.42%
Marital Status Imputed		0.40%
Marital Status Missing		0.17%
Employed		70.44%
Employed Imputed		1.69%
Employed Missing		2.19%
Attending School		12.05%
Attending School Imputed		0.91%
Attending School Missing		1.24%
Tenure		61.76
		(79.09)
Tenure Imputed		0.47%
Home Ownership		48.07%
Multiple Unit Dwelling		33.48%
Multiple Unit Dwelling Missing		0.21%
Public Housing		4.15%
Public Housing Missing		46.71%
Urbanicity		75.82%
Household Composition		
Lone Adult		36.41%
Many Adults		34.00%
Number of Children		1.01
		(1.13)
Proportion of Prior Interviews Employed		0.52
Proportion of Prior Interviews Not Employed		0.20
Proportion of Prior Interviews Married		0.19
Proportion of Prior Interviews Not Married		0.57
Interview Characteristics		
Interview Period		3.34
		(2.06)
Interview Conducted Via Proxy		1.11%
Unbounded Interview		24.21%
Incident Characteristics		

	Police Notification by Someone Other than the Victim	15.18%
	Perpetrator Arrested	26.09%
	Weapon Use	17.83%
	Perpetrator Under Influence of Drugs/Alcohol	42.21%
	Series Incident	7.14%
	IPV Offender Acted Before	40.01%
Sample Size	(Woman Interviews)	1,155

[a]Valid N refers to the number of woman interviews.

Violent Crimes

1 Completed Rape
2 Attempted Rape
3 Sexual Attack with Serious Assault
4 Sexual Attack with Minor Assault
5 Completed Robbery with Injury from Serious Assault
6 Completed Robbery with Injury from Minor Assault
7 Completed Robbery without Injury
8 Attempted Robbery with Injury from Serious Assault
9 Attempted Robbery with Injury from Minor Assault
10 Attempted Robbery without Injury
11 Completed Aggravated Assault with Injury
12 Attempted Aggravated Assault with Weapon
13 Threatened Assault with Weapon
14 Simple Assault Completed with Injury
15 Sexual Assault without Injury
16 Unwanted Sexual Contact without Force
17 Assault without Weapon without Injury
18 Verbal Threat of Rape
19 Verbal Threat of Sexual Assault
20 Verbal Threat of Assault

Intimate Partner Violence includes any violent crime incident (1-20) and burglaries/attempted forcible entries (31-33) perpetrated by a spouse, ex-spouse, boy/girlfriend or ex-boy/girlfriend.

Violent Victimization by another known offender includes any violent victimization (1-20) perpetrated by non-intimate relatives, friends/former friends, roommates/boarders, schoolmates, neighbors, or other nonrelated, identifiable individuals.

Violent Victimization by a stranger includes any violent victimization "(1-20) perpetrated by someone unknown to the victim.

Nonviolent Crime Victimization includes any other crimes (21-41) perpetrated by anyone *except* burglaries/attempted forcible entries (31-33) perpetrated by a spouse, ex-spouse, boy/girlfriend or ex-boy/girlfriend.

Other Crimes

Personal Theft

21 Completed Purse Snatching
22 Attempted Purse Snatching
23 Pocket Picking (completed only)
24 Completed Personal Larceny without Contact Less than $10
25 Completed Personal Larceny without Contact $10 to $49

	26	Completed Personal Larceny without Contact $50 to $249
	27	Completed Personal Larceny without Contact $250 or greater
	28	Completed Personal Larceny without Contact Value NA
	29	Attempted Personal Larceny without Contact
Household Crimes		
	31	Completed Burglary, Forcible Entry
	32	Completed Burglary, Unlawful Entry without Force
	33	Attempted Forcible Entry
	34	Completed Household Larceny Less than $10
	35	Completed Household Larceny $10 to $49
	36	Completed Household Larceny $50 to $249
	37	Completed Household Larceny $250 or Greater
	38	Completed Household Larceny Value NA
	39	Attempted Household Larceny
	40	Completed Motor Vehicle Theft
	41	Attempted Motor Vehicle Theft

Source: Bureau of Justice Statistics (2000)