



Unpacking the Criminogenic Aspects of Stress Over the Life Course: The Joint Effects of Proximal Strain and Childhood Abuse on Violence and Substance Use in a High-Risk Sample of Women

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Abstract

Purpose: Drawing on concepts from strain, feminist, and life-course perspectives, we investigate the proximal effects of strain on violence and

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serious drug use along with the distal “carryover” effects of childhood abuse among women. *Methods:* Using 36 months of retrospective data collected from 778 incarcerated women, we estimate monthly within-person effects of four types of strain experienced in adulthood (i.e., negative life events and three forms of victimization) on respondent-initiated violence and serious drug use. Cross-level interactions assess the moderating “carryover” effects of childhood abuse and cumulative adversity. *Results:* Negative life events increased women’s initiation of violence and serious drug use. Having a near violent experience was positively associated with violence, while violent conflict increased drug use. Experiencing both childhood physical and sexual abuse accentuated the effect of predatory victimization on violence, and physical victimization amplified the positive relationship between near violence and drug use. Unexpectedly, women who experienced childhood sexual abuse were less likely to use drugs after experiencing strain. The accumulation of adversity among abused women could not account for these moderating effects. *Conclusion:* Findings suggest women’s recent life experiences can explain offending in the foreground, while childhood abuse can account for some within-sex heterogeneity in these relationships.

Keywords

Childhood abuse, General Strain Theory, victimization, carryover effects, life course

Research has consistently found that acute life events such as loss of a job, death of a loved one, and violent victimization, induce stress or strain, and in an effort to ameliorate this strain and accompanying negative emotions, people engage in a wide range of coping behaviors, including some that are illegal (e.g., violence, illegal drug use) (see Agnew 2006 for a review). However, not all types of strains are equally likely to result in offending, nor are all individuals likely to respond to strains in the same manner. As Rutter states “it is certainly striking how very differently people respond to what is apparently the same situation” (Rutter 1985:607).

In criminology, this kind of variability has largely been studied with respect to the type, magnitude, chronicity, or clustering of stressful life events (Agnew 1992; Slocum, Simpson, and Smith 2005), differences in personal traits (e.g., negative emotionality, self-control) (e.g., Agnew et al. 2002), and access to criminal and legal coping, such as social support (Agnew 2001, 2013; Thaxton and Agnew 2018). Yet, the broader

stress literature also indicates that *early* life experiences can shape the impact of strains experienced in adulthood (Pearlin et al. 1981; Rutter 1987; Thoits 2010). The notion of the past having a “carryover” effect also resonates with the life-course perspective, which views childhood and adult experiences as working both in concert and independently to shape the prevalence and temporal patterning of offending (Elder 1985).

One type of early experience that may be particularly salient for understanding differential responses to strain is childhood abuse that can include physical and sexual abuse as well as neglect. This type of trauma can hinder neurobiological, cognitive, psychological and behavioral development (Fishbein 2001; Margolin and Gordis 2000) and make individuals more vulnerable to obstacles in adulthood (Dannefer 2003; Nuytiens and Christiaens 2016; Rutter 1994; Simpson and Miller 2002). Although childhood abuse is related to both male and female offending (Afifi et al. 2012; Carlson, Shafer, and Duffee 2010; Milaniak and Widom 2015; Topitzes, Mersky, and Reynolds 2011), recent research highlights how childhood exposure to Adverse Childhood Experiences (ACEs) carries gendered consequences later in life, including involvement in violence and substance abuse (Pierce and Jones 2022). These processes are featured prominently in studies of female offending, including the feminist pathways literature, which often theorize women’s offending as the culmination of a state-dependent process in which early abuse generates a host of negative consequences, increasing the likelihood of adult violence and substance use (e.g., Daly 1992; Carbone-Lopez and Miller 2012; DeHart 2008).

The current study builds on prior work by examining a second, parallel process that gives primacy to proximal adult experiences, while recognizing that childhood abuse may shape how women experience and react to adversity in adulthood. Drawing on complementary and overlapping literatures rooted in the study of strain, the life course, and feminist perspectives (Agnew 1997; Carbone-Lopez and Miller 2012; Jones, Sharp, and Worthen 2018), we explore how childhood physical and sexual abuse interact with stressors in adulthood to shape the use of violence and drugs among a sample of incarcerated women. Also, we examine if this moderation effect can be accounted for by greater exposure to adversity in adulthood among abused women.

This study extends prior literature in three additional ways. First, there is evidence that the processes linking childhood abuse and adult offending are gendered, particularly for sexual abuse (e.g., Afifi et al. 2012; Carbone-Lopez and Miller 2012; Chesney-Lind 1997; Daly 1992; Pierce and Jones 2022; Topitzes, Mersky, and Reynolds 2011; Widom,

Marmorstein, and White 2006). Our focus on incarcerated women allows us to tease out potential within-sex heterogeneity in processes for a group with elevated risks of victimization and trauma (Harlow 1999; Wolff, Shi, and Siegel 2009) that is understudied relative to males (Broidy, Payne, and Piquero 2018; Fitzgerald et al. 2012).

Second, our examination foregrounds the criminogenic effects of multiple forms of adverse adult experiences, including negative life events and three distinct forms of victimization. This approach recognizes women are exposed to a variety of adversities as adults that may generate pressure to offend (Kruttschnitt, Joosen, Bijleveld 2019; Mersky, Janczewski and Nitkowski 2018), and these experiences may have differing effects. Furthermore, research has found children exposed to more ACEs have a greater likelihood of experiencing overlapping victimization and offending later in life (versus one or none of these experiences) (Beckley et al. 2018). Parsing out the short-term effects of different kinds of adult victimization on offending and assessing whether these relationships are conditioned by childhood abuse contributes to this work by exploring why some people, but not others, respond to specific forms of victimization with offending (Van Gelder et al. 2015).

Third, we examine violence and drug use as separate outcomes because research suggests both are linked to victimization experiences, but in different ways (Brown et al. 1999; Gebo et al. 2021; Miley et al. 2020; Ousey, Wilcox, Schreck 2015). For example, there is evidence physically abused children learn to use violence as a coping mechanism, increasing the likelihood they will respond to victimization and conflict in adulthood with aggression (Daly 1992; Dodge, Bates, and Pettit 1990; Fagan 2005; Widom 1989). In comparison, sexual abuse often spurs retreatist forms of coping, such as drug use, due to its association with anxiety and depression (Browne and Finkelhor 1986; Margolin and Gordis 2000). Looking at multiple outcomes is important for teasing out mechanisms linking victimization to offending (Gebo et al. 2021).

These issues are explored using self-reported retrospective, monthly data capturing women's experiences as adults and children, which allows us to conduct a methodologically rigorous within-person assessment of these relationships. Moreover, by using situation-level data to construct measures of victimization and violent offending, this research explicitly acknowledges the interactive and overlapping nature of victimization and the perpetration of violence (Daly 1992; Richards, Tillyer, Wright 2017). Such an approach enables a more in-depth examination of the link between various types of victimization experiences and offending. Cognizant that women engage in

violence for a wide range of reasons (Milaniak and Widom 2015; Kruttschnitt 2016), our measure of violent offending captures not only intimate partner violence—often a focus of research on women’s offending—but any attack initiated by the respondent. Although we do not explicitly engage in theory testing, this study contributes to work that examines the salience of both childhood (background) and adulthood (foreground) experiences for understanding offending by further specifying how early victimization conditions the relationship between strain and offending in adulthood.

Theoretical Backdrop

Using a wide variety of samples, study designs, and data, researchers have long documented the relationship between childhood abuse and negative behaviors, such as delinquency, violence, substance abuse, and criminal offending (e.g., Fagan 2001; Widom 1989, 2014; see Rebellon and Van Gundy 2005 for a review and critique). Studies often find that the effect of childhood abuse and neglect on adult offending, substance use, and associated risk factors is weakened when personal characteristics, family environment, and recent adverse life experiences are taken into account (e.g., Brown et al. 1999; Fagan 2005; Horwitz et al. 2001; Topitzes et al. 2011). In criminology, the feminist pathways literature focuses on the relationship between early abuse and neglect and adult offending by positing that these experiences generate negative consequences for individuals as they age that are gendered. In comparison, a strength of Agnew’s (1992) General Strain Theory (GST) is its ability to explain the proximal relationship between adversity and negative outcomes. The life-course perspective connects background foreground experiences by recognizing early life experiences may affect in adulthood the types and level of stressors individuals experience as well as their responses to these stressors (Hagan and McCarthy 1997; Wheaton 1996). These theoretical perspectives provide overlapping and compatible explanations for how childhood abuse and recent life stressors shape adult offending, but as we highlight below, each brings a unique emphasis.¹

The Background - Childhood Abuse and Offending among Women

Citing an exaggerated focus on male’s involvement in crime (Daly and Chesney-Lind 1988), the feminist pathways perspective was developed to understand how females’ lived experiences relate to their offending (e.g.,

Arnold 1990; Daly 1992). This perspective emphasizes the mechanisms connecting early life experiences, including childhood abuse and neglect, with adult outcomes. While researchers have identified high rates of childhood victimization for both males and females (e.g., Jordan et al. 2012; Leigey and Reed 2010), the consequences of childhood abuse and the processes that link it to adult offending may be gendered (e.g., Makarios 2007; McClellan et al. 1997; Payne et al. 2005; Topitzes et al. 2011).

Although there is some variability in the specific mechanisms, feminist pathways research describes processes through which abuse in childhood indirectly affects adult offending by generating a cascade of negative consequences. In one path, abused girls run away from their homes to escape their abusers and develop mental health problems, including depression, which they may cope with by using drugs (Daly 1992; Miller 1986). In adulthood, these women support themselves through petty offending, creating a cycle of arrest/jail, release, and more crime. This pathway corresponds to Daly's (1992) "street women," and Brennan's (2008) "abused/internalizing cluster." In a series of studies using a sample of incarcerated women, Jones and colleagues (2018a, 2018b, 2020) explore these ideas, linking ACEs, including abuse, to intimate partner violence and substance use via post-traumatic stress disorder and anger. Other studies of inmates also support this pathway, finding that compared to other women, abused women are more likely to have substance abuse disorders (Tripodi and Pettus-Davis 2013) and to cope with depression by self-medicating with drugs and alcohol (Broidy et al. 2018; DeHart et al. 2014; Simpson, Yahner, and Dugan 2008).

In another pathway, childhood victims offend as adults because they have difficulty controlling their emotions and behavior. These youth respond to abuse by acting out and engaging in delinquency. Over time, they develop an aggressive demeanor, which eventually leads to offending. These individuals are characterized by Daly (1992) as "harmed and harming", and Brennan (2008) refers to this group as low self-control serious delinquents. Women with these characteristics have been documented in studies of female inmates (Reisig, Holtfreter, and Morash 2006; Salisbury and Van Voorhis 2009; Simpson et al. 2008), but research suggests aggression and impulsivity are also related to male violence (e.g., Daly 1994; Jones et al. 2014).

More recent work on gendered pathways to crime moves beyond a focus on trauma response. This research has documented that childhood abuse leads to precocious adult development that is gendered in the form it takes (e.g., early household and childcare responsibilities, motherhood,

exit from school) and the negative consequences it generates (e.g., victimization and substance use) (e.g., Carbone-Lopez and Miller 2012; Kruttschnitt and Kang 2021; Topitzes et al. 2011; Whitbeck, Hoyt, and Yoder 1999).

Although a number of studies find support for the feminist pathways perspective, it is limited in several respects. Jones, Worthen, et al. (2018) note that it provides little information on what ties adverse experiences to offending in the foreground, and particularly why only some women respond to strain with offending. The feminist pathways perspective also emphasizes a limited set of strains—victimization—which narrows its scope and further limits the ability to explore within- and between-sex heterogeneity (Jones et al. 2014; Kruttschnitt 2016). GST and the life-course perspective can help to fill these gaps.

The Foreground - Proximal Relationship Between Strain and Offending

At the heart of GST is the idea that strains create pressure to offend (Agnew 1992). Offending provides a way to alleviate the negative emotions generated by strain. For example, people may use drugs to cope with depression or anger generated by adverse experiences, such as victimization (Carson et al. 2009; Sharp et al. 2012). Offending also may be a direct instrumental response to strain, which occurs when violence is used to resolve conflicts or prevent victimization (Agnew 2006; DeCoster and Kort-Butler 2006). Victimization and severe interpersonal conflict are particularly criminogenic strains because they are often perceived as unjust, are associated with low social control, and are more easily resolved using illicit means (Agnew 2001, 2006). This description of GST makes obvious that strain often has a relatively immediate impact on offending.² Indeed, this relationship is supported in studies examining the proximal link between strain and offending using retrospective longitudinal data (Felson et al. 2012; Slocum et al. 2005; Yule, Paré and Gartner 2015) and vignettes (Matthews 2011; Mazerolle, Piquero, and Capowich 2003; Scheuerman 2013).

While feminist pathway's focus on women assumes the mechanisms linking strain, trauma, and offending are gendered, GST allows for an exploration of the ways they are gendered (Broidy and Agnew 1997). Research has identified key gender differences in the nature of strains experienced as well as emotional and behavioral responses to strain (e.g., Broidy 2001; DeCoster and Zito 2010; Jang 2007; Kaufman 2009; Ngo and

Paternoster 2013). However, when approached from a life-course perspective, strain theory provides insight into not just between-sex differences, but also contributes to feminist pathways and the broader literature on gender and crime, which is concerned with heterogeneity among women. Specifically, the life-course perspective specifies the mechanisms through which child abuse can “carry over” to adulthood, leading to differential responses to strain (Cicchetti and Toth 2005; Turner and Lloyd 1995).

Linking Background and Foreground - Child Abuse, Offending, and Carryover Effects

Foreground and background experiences with strain and trauma converge with the life-course perspective (Elder 1985). Like the feminist pathways perspective, one line of research finds that early exposure to trauma, such as abuse, generates a multitude of negative consequences in adolescence, including depression, anxiety, disruptive behaviors, and relationship problems, which in turn, increase risk for adult victimization, adversity, and offending (e.g., Margolin and Gordis 2000; Mersky et al. 2018; Widom, Czaja, and Dutton 2008). A complementary line of research focuses on how childhood experiences influence people’s perceptions of and reactions to contemporary situations, in some cases, because of this elevated exposure to adversity (Sroufe and Rutter 1984). Two competing hypotheses have been put forth in this literature – accentuation and saturation.

Carryover Effects: Accentuation Versus Saturation

According to the *accentuation hypothesis*, child abuse should amplify the negative effects of proximal stressors by enhancing reactivity to strain (Caspi and Moffitt 1993; Rutter 1994). This explanation aligns with theory and research that ties severe or chronic stressors to the development of an angry temperament (Agnew 1992), as well as work that finds that children who experience trauma, including victimization, develop problems regulating their emotional and behavioral responses to frustration, making them more likely to react explosively to adversity (Brennan 2008; Daly 1992; Kim and Cicchetti 2010; Elder, George, and Shanahan 1996; Glaser et al. 2006; McLaughlin et al. 2010).

Research also finds that youth growing up in abusive environments develop a hypervigilance and learn to respond to conflict with violence (Dodge et al. 1990, 1995; Pollak et al. 2005) and that physical abuse can increase the likelihood of offending via social learning processes, such as

modeling, differential rewards, and information processing (Benda and Corwyn 2002; Iratzoqui 2018; Watts and McNulty 2013). In addition, individuals abused in childhood may be more vulnerable to strain in adulthood because they are exposed to higher levels of adversity; the accumulation of negative life experiences can overwhelm or limit access to prosocial coping mechanisms (Wheaton 1996) and lead individuals to perceive they have few options for handling adversity (Nuytiens and Christiaens 2016).

A second hypothesis, *saturation*, suggests that child abuse should dampen the negative effects of proximal stressors because individuals exposed to severe or chronic abuse in childhood have elevated likelihoods of experiencing adversity throughout the life course; thus, the effect of any one stressor at any one time pales in comparison to their accumulation of negative experiences and their current life struggles (e.g., Turner, Wheaton, and Lloyd 1995; Wright and Fagan 2013). Thus, the saturation hypothesis would predict that child abuse initiates a pathway of stress, disadvantage, and despair such that additional adversity has a more limited impact on offending. For women not abused as children, new stressful life events may be “less redundant with other forms of adversity” (Turanovic 2019:107), making these women more reactive to these strains and amplifying offending.³

Prior research has found evidence in favor of the saturation hypothesis, yet these studies tend to focus on only one type of stressor, violent victimization broadly conceptualized, and more general childhood adversities or risk factors rather than the more severe experience of child abuse. For example, Doherty et al. (2012) find that among a community cohort of African Americans, the link between adult victimization and substance use is weaker for individuals who grew up in impoverished households because they are more likely to face a multitude of adversities including depression, anxiety, poor performance in school, and high levels of mobility. The authors reason these individuals may have become more hardened to adversity and have lower expectations about their life chances. Similarly, using a sample from the general population, Turanovic (2019) finds that the relationship between adolescent victimization and early adult violence and victimization was weaker for those with more risk factors for victimization in adolescence (see also Ousey et al. 2015).

Current Study

It is an open question as to whether childhood abuse amplifies or dampens the relationship between stressors and offending in adulthood and the role

cumulative adversity plays in this process. Moreover, these interrelationships may depend on the form of childhood abuse, the type of stressor in adulthood, and/or the behavior being studied. In this study, we adopt a person-oriented approach (Bergman and Magnusson 2001) to explore the relationship among childhood physical and sexual abuse, a variety of adult strains, and two types of offending—violence and serious drug use. Drawing on research on strain and the life-course and feminist perspectives, we address the following questions using monthly longitudinal data collected retrospectively from a sample of incarcerated women.

(1) In adulthood, are monthly changes in exposure to stressors (negative life events, predatory victimization, violent conflict, and near violent conflict) associated with proximal changes in the likelihood of initiating violence and using drugs?

(2a) Does childhood abuse moderate the relationship between exposure to stressors and offending in adulthood? Two types of moderating effects have been proposed in the literature.

Accentuation. The proximal positive relationship between within-person changes in strain and offending is stronger for women who report childhood abuse versus those who do not.

Saturation. There exists a weaker or non-significant proximal positive relationship between within-person changes in strain and offending for women who report childhood abuse versus those who do not.

Cumulative adversity provides one potential explanation for why childhood abuse moderates the effect of strain – either overwhelming the individual (accentuation) or desensitizing them to adult strains (saturation).

2b) If childhood abuse does moderate the effect of adult strain, can this interaction be accounted for by cumulative adversity? The interpretation of this moderating relationship will depend, in part, on whether an accentuation or saturation relationship is found and whether the interaction between childhood abuse and strain remains significant. For example, if the moderating effect of childhood abuse can be explained by the tendency of women who were abused to experience higher levels of adversity in adulthood, we expect the interaction between childhood abuse and strain will be significant until the interaction between cumulative adversity and strain is added to the model. See Figure 1 for a visual depiction of potential relationships and their interpretation.

Data and Methods

These questions are addressed using data from the Women's Experiences with Violence (WEV) Project, which examines the personal, situational,

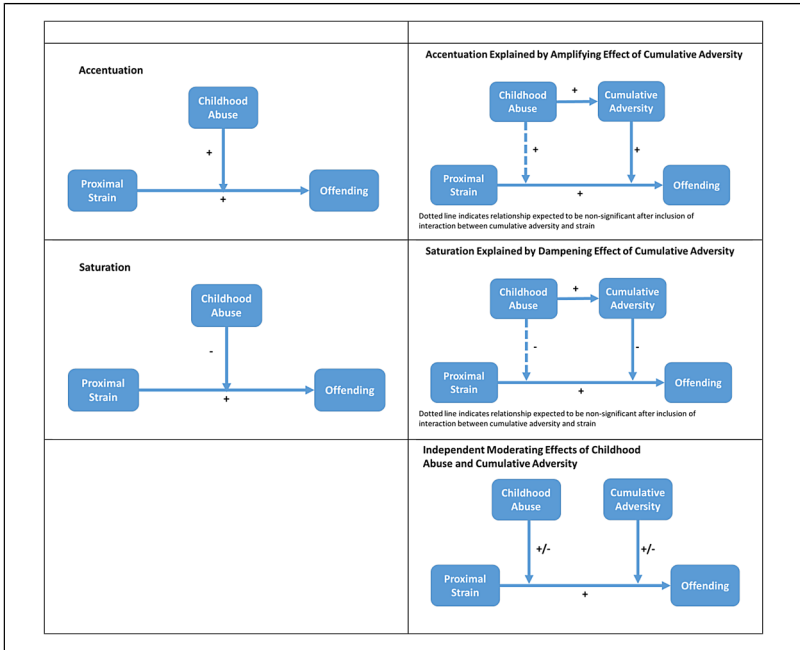


Figure 1. Potential direct and indirect moderating effects of childhood abuse and cumulative adversity.

and community factors associated with women’s violent offending and victimization. Data collection took place in carceral facilities in Baltimore, Minneapolis, and Ontario, Canada between 2001 and 2004. Researchers used a life events calendar (LEC) to collect retrospective, longitudinal data on the 36 months prior to each woman’s current incarceration. The 824 female participants were asked to provide monthly information about their exposure to negative life events and local life circumstances as well as drug use and experiences with violence. Background factors, including demographic information and childhood experiences of abuse were also collected. A strength of these data is that they enable us to examine short-term within-individual changes in proximal stressors and offending as well as the long-term effects of child abuse.⁴ However, there is limited information about the middle years of the women’s lives, which hinders our ability to examine differences in mediating processes that link childhood abuse and levels of adult offending.

Women were not asked if they had been a “victim” or “perpetrator” of violence. Instead, they answered a series of questions about the situational context of violent and near-violent incidents in which they had been involved. Asking the details of each violent incident (i.e., who did what and when) recognizes that there often is no clear “victim” or “perpetrator.” While this approach provides a more realistic assessment of the nature of violence and victimization, as we describe in the measures section, it complicates the measurement of these experiences.

The final sample consists of 778 women who collectively provided information on 22,944 months prior to their incarceration (i.e., street-months). The sample is racially diverse with just over half identifying as Black (51%), 37% as White, and 9% as Native American. Women were between the ages of 18 and 62, and the average age was 34 years. They had been charged with a variety of offenses, but the charges were predominantly related to drugs or alcohol. Although we cannot generalize our findings to all women, or even all incarcerated women, these rich data allow us to explore the interplay between child abuse, recent stressors, and offending among a sample of high-risk women. These issues are difficult to study with a general population sample due to low base rates of serious violence (Broidy et al. 2018).⁵

Measures

Descriptive statistics are presented in Table 1 for variables included in the analyses.

Dependent Variables

Two dichotomous dependent variables capture offending during the reference period. *Violence* measures whether the respondent reported that in that month, she had (1) committed a robbery, (2) committed a sexual assault, (3) physically attacked someone, but was not herself attacked, or (4) used violence and was herself attacked, but reported attacking first.⁶ Violence was relatively common; 46.5% of the women initiated violence at least once during the 3-year period, and women initiated violence in 9.1% of the study months. Regular *serious drug use* is scored one if the respondent reported using heroin, powder cocaine, or crack on at least a weekly basis during the month. A binary measure was chosen because most women reported either regular drug use or abstinence. Women

Table 1. Descriptive Statistics for Monthly Time-Varying and Person-Level Static Variables (n = 778 Persons; 22,944 Person-Months).

	Mean	Standard Deviation	Minimum	Maximum
Dependent Variables				
Violence (i.e., respondent-initiated attack)	0.09		0	1
Regular serious drug use	0.48		0	1
Time-Varying Strain Variables				
Negative life events	1.08	1.16	0	6
Predatory victimization	0.08		0	1
Opponent-initiated violence	0.07		0	1
Near-violent conflict	0.13		0	1
Child Victimization Experiences				
Sexual abuse	0.15		0	1
Physical abuse	0.18		0	1
Physical and sexual abuse	0.09		0	1
Time-Varying Control Variables				
Employed	0.36		0	1
Lives with husband	0.07		0	1
Lives with boyfriend	0.31		0	1
Lives with same-sex partner	0.03		0	1
Member of a group	0.25		0	1
On probation or parole	0.34		0	1
Re-entry: incarceration	0.03		0	1
Re-entry: treatment	0.01		0	1
Outpatient treatment	0.05		0	1
Receives \$250 or < in fiscal aid	0.10		0	1
Receives >\$250 in fiscal aid	0.24		0	1
Neighborhood safety	0.90	0.85	0	3
Month 36	0.03		0	1
Time-Stable Control Variables				
Baltimore	0.44		0	1
Minnesota	0.25		0	1
Toronto	0.31		0	1
Age	34.26	8.35	18	62
Black	0.51		0	1
White	0.37		0	1

(continued)

Table 1. (continued)

	Mean	Standard Deviation	Minimum	Maximum
Native American	0.09		0	1
Other race	0.04		0	1
Parental support for violence	0.22		0	1

engaged in regular serious drug use in 48.0% of months, and almost two-thirds (64.7%) reported regularly using serious drugs in at least one month.

Independent Variables

Adult stressors. To capture monthly exposure to stressors in the three years leading up to the respondent's current incarceration, time-varying independent variables were created using the LEC data. These variables were lagged by one month to ensure proper causal ordering. The first set captures exposure to victimization and serious conflict in each month, which are considered highly criminogenic strains (Agnew 2001). Given the ambiguity in identifying who is a victim, we distinguish between two types of violent victimization. *Predatory victimization* captures whether the respondent was robbed or sexually assaulted during that month or if she was attacked but did not attack back, even in self-defense (1 = predatory victimization, 0 = no predatory victimization). *Opponent-initiated violence* taps into violent conflict, with a score of 1 indicating the respondent reported she was involved in a violent incident in which both parties engaged in violence, but the opponent attacked first.⁷ We also include a measure, *near-violent conflict*, that captures whether the respondent was involved in an incident she thought was going to become violent but it did not (1 = near violence, 0 = no near violence).⁸ Similar to the two types of victimization, near-violent conflict is likely to generate negative emotions, such as anger or fear, that might lead to violent perpetration and/or drug use. Predatory violent victimization was reported by 50.5% of women and occurred in 7.6% of months. Opponent-initiated violence was less prevalent, occurring in 7.1% of months and reported by 36.6% of the sample. Near violent conflict was reported by 39.7% of women and occurred in 12.8% of months.

We capture non-victimization-related strain using a negative life event (NLE) scale. Respondents reported the months in which they experienced severe stress related to: (1) financial issues; (2) work or school; (3) death of

a significant person; (4) illness/injury; (5) partner problems; (6) their children; and (7) other stressors. Responses were summed to create a monthly index of NLEs. The mean number of NLEs experienced in a month was 1.08 (SD = 1.16). To accurately estimate and interpret within-person effects, person-level means for measures of strain and all time-varying monthly control variables are included in the models (Raudenbush and Bryk 2002).

Moderators

Childhood abuse. Physical abuse captures serious, repeated physical victimization as a child and was derived from the Conflict Tactic Scale (Straus 1979; Straus et al. 1996). Women were considered to have been physically abused if they reported that their caregiver sometimes, frequently, or most of the time did any of the following to them while they were growing up: punched, kicked, beat up, choked, burnt, slammed against a wall, or threatened or harmed with a knife or gun. Women whose abuse sometimes, frequently, or most of the time required them to visit a doctor or resulted in a sprain, bruise, or cut were also considered to have been physically abused. Women were also asked if they had a variety of sexual experiences before 6th grade, including having their genitals touched/fondled, fondling/touching another person's sex organs, and attempted or forced intercourse. Women were coded as sexually abused if they reported any of these experiences and considered the encounter abuse. Dual victimization may be particularly traumatic (Widom et al. 2007, 2008), so childhood abuse is captured with a nominal variable: (1) no abuse (reference group); (2) physical abuse only; (3) sexual abuse only; and (4) dual abuse. 18% of women reported physical abuse, 15% experienced sexual abuse, and 9% reported both.

Cumulative adversity. Cumulative adversity is included in the models as an additional moderator that taps into a woman's general propensity to experience adversity. This measure is captured by the person-specific mean of the monthly NLE measure described above and is computed by taking the mean monthly number of NLEs reported by the respondent for the 36-month reference period.⁹

Control Variables

To account for changes in local life circumstances that might be related to offending and strain, we include monthly time-varying control variables. Dichotomous indicators measure whether the respondent was employed and whether she received government assistance in the month totaling

\$250 or less, more than \$250, or no assistance (reference group). To capture access to social support, we include a binary indicator that measures whether the respondent was a member of a neighborhood church or organized social group during the month. Criminal justice system status is accounted for using binary measures indicating whether the respondent was on probation or parole during that month and whether she was reentering the community from prison or jail. Involvement in treatment is measured with binary variables that capture treatment status and whether the respondent reported she was reentering the community after a bout of inpatient treatment. Women's violence and victimization often involves a romantic partner, so we include dichotomous measures indicating whether the respondent lived with a husband, boyfriend, or same sex partner. We also control for perceptions of neighborhood safety with a mean scale ranging from 0 (safer) to 3 (less safe).

Personal characteristics were accounted for including age and race (with Black as the reference group). A two-item mean score scale captures parents' norms regarding the appropriate use of violence (i.e., if you had physically attacked a kid after being insulted, how would your father/mother have reacted, ranging from approved (1) to disapproved (3)). We control for the study site using Baltimore as the reference category.

To adjust for individual trends in offending, time is measured from 1 to 36 (month prior to incarcerations). Time-squared was included in models for drug use to account for non-linearity. We include a binary variable for month 36 to capture any pre-incarceration uptick in offending.

Analytic Plan

Testing our hypotheses necessitates estimating the effect of within-person changes in exposure to stressors on changes in the outcomes, as well as the interaction between adult strain and the two moderators: childhood victimization and cumulative adversity. This was done using a two-level hybrid model, also known as a "between-within" model (Allison 2009). Level 1 is the within-person component, and it takes the following general form for binary outcomes:

$$\text{Log}[\text{odds } (Y_{it} = 1)] = \pi_{0i} + \pi_{1i}(\text{centered time}_{it}) \\ + \pi_{2i}(\text{stressor}_{t-1i} - \overline{\text{stressor}_i}) + \pi_{3i}(X_{it} - \bar{X}_i)$$

The general equation for the level 2 component is

$$\pi_{0i} = \beta_{00} + \beta_{01}Phys_i + \beta_{02}Sex_i + \beta_{03}Both_i + \beta_{04}W_i + \beta_{05}(\overline{stressor}_i) + \beta_{06}(\bar{X}_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30}.$$

In this model, the log odds of offending is a function of a person-specific intercept (π_{0i}), the month centered on the mid-point of the 36-month reference period (π_{1i}), a person's level of strain in month t-1 centered on person i 's mean level of strain for the reference period (π_{2i}), and time-varying control variables that are centered on the person-specific mean (π_{3i}). The person-specific intercept, π_{0i} , is determined by the overall average likelihood of offending (β_{00}) when β_{01} through β_{06} are 0, childhood victimization experiences (β_{01} through β_{03}), time-stable control variables (β_{04}), and an individual's mean level of strain (β_{05}) and control variables (β_{06}) for the reference period. A random error (r_{0i}) controls for unobserved heterogeneity by allowing for random variation in an individual's average level of offending. Unit-specific estimates with robust standard errors were estimated to protect against violations of model assumptions.

To assess if childhood abuse moderates the effect of each of the contemporaneous strains, the base model was modified to include a cross-level interaction:

$$\pi_{2i} = \beta_{20} + \beta_{21}Phys_i + \beta_{22}Sex_i + \beta_{23}Both_i.$$

Similarly, the cross-level interaction between cumulative adversity and strain was estimated by adding the person-specific mean number of NLE to the equation predicting π_{2i} .

We begin by describing the bivariate relationships among childhood abuse, drug use and violence, and cumulative adversity using ANOVA. Next, to address the first research question, a model was estimated for each of the outcomes to isolate the relationship between monthly within-person changes in contemporaneous exposure to stressors and changes in offending. These models also enable us to examine the between-person relationship between childhood victimization and adult offending, controlling for personal characteristics and recent life experiences. Next, a series of models with cross-level interaction terms was estimated to assess if

childhood abuse moderates the effect of contemporaneous strain (research question 2a). Finally, to see if cumulative adversity accounted for any moderating effect of childhood abuse, a cross-level interaction between contemporaneous strain and cumulative adversity was added (research question 2b). Graphs of predicted probabilities are used to illustrate significant interaction effects.

Results

Bivariate Results

Results from ANOVA indicate that there is a significant bivariate relationship between experiencing abuse in childhood and initiating violence in adulthood ($F(3, 774) = 3.32, p < 0.05$) but not serious drug use ($F(3, 774) = .39, p > 0.05$). The bivariate relationship between abuse and cumulative adversity is also significant ($F(3, 774) = 4.40, p < 0.05$).¹⁰

Violence

Main Effects. Table 2 presents the results for violence. Findings from the main effects model (Model 1) indicate that changes in NLEs and experiencing a near-violent conflict are both positively related to the likelihood a woman will initiate violence in the following month. Each additional NLE increases the odds of engaging in violence by 35% (Odds Ratio [OR] = 1.35) and a near-violent conflict doubles these odds (OR = 2.05). By comparison, neither predatory victimization nor opponent-initiated violence is associated with initiating violence. In addition, the relationship between childhood abuse and adult violence is non-significant.

Interaction Effects. Results from models with cross-level interactions between childhood abuse and each of the adult stressors on violence are presented in Models 2 through 5 in Table 2. Only one of the interaction effects is statistically significant. For women who experienced dual abuse, there is a positive relationship between predatory victimization and violence that is significantly stronger than the association for women who were not abused. As shown in Figure 2, predatory victimization has a minimal effect on the predicted probability of initiating violence in the subsequent month for women who reported no childhood abuse.¹¹ By comparison, the likelihood of initiating an attack increased almost three-fold in months following a predatory victimization for women with dual childhood victimization. Physical abuse and, to a lesser extent, sexual abuse also appear to

Table 2. Main and Moderating Effects of Contemporaneous Strain and Childhood Victimization on Initiating Violence (n = 778 Persons; 22,944 Person-Months).

	Main Effects		Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence											
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10										
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.						
Intercept	-3.980	***	.102	***	-3.986	***	.103	***	-3.982	***	.102	***	-3.983	***	.103	***	-3.982	***	.102	***
Time-Varying Strain Variables																				
(Lagged)																				
Negative life events (NLE)	.304	***	.089		.321	***	.092		.300	***	.088		.307	***	.089		.307	***	.089	
NLE x Sexual victimization					-.342		.213													
NLE x Physical victimization					.124		.239													
NLE x Physical & sexual victimization					-.236		.311													
Predatory Victimization	.168		.198		.170		.198		-.022		.211		.179		.198		.171		.198	
Victimization x Sexual victimization									.531		.514									
Victimization x Physical victimization									.901		.475									
Victimization x Physical & sexual victimization									1.202	*	.561									
Opponent-initiated violence	.260		.247		.288		.247		.245		.249		.343		.233		.281		.240	
Opponent violence x Sexual victimization													-.468		.549					

(continued)

Table 2. (continued)

	Main Effects		Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5					
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.				
Opponent violence x Physical victimization														
Opponent violence x Physical & sexual victimization														
Near violence	.719	***	.202	.710	***	.203	.727	***	.203	.782	***			
Near violence x Sexual victimization										.642	.489			
Near violence x Physical victimization											.512			
Near violence x Physical & sexual victimization											.855	.817		
Child Victimization Experiences														
Sexual victimization	.290		.267	.340		.269	.288		.267		.299	.267	.314	.266
Physical victimization	.438		.269	.416		.270	.424		.270		.452	.270	.455	.268
Physical and sexual victimization	.599		.342	.631		.349	.567		.344		.604	.343	.616	.341
Time-Varying Control Variables														
Employed	-.060		.164	-.082		.165	-.051		.163		-.056	.163	-.053	.164
Lives with husband	1.411	*	.564	1.438	**	.550	1.417	*	.554	*	1.406	.564	1.436	.559

(continued)

Table 2. (continued)

	Main Effects			Negative Life Events			Predatory Victimization			Opponent-Initiated Violence			Near Violence		
	Model 1			Model 2			Model 3			Model 4			Model 5		
	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se
Lives with boyfriend	1.290	***	.253	1.290	***	.254	1.292	***	.252	1.291	***	.253	1.282	***	.250
Lives with same-sex partner	.962		.513	.976		.523	.923		.503	.954		.523	.937		.516
Member of a group	-.116		.353	-.112		.355	-.083		.347	-.116		.351	-.135		.351
On probation or parole	-.005		.169	.002		.169	-.009		.169	-.004		.169	-.006		.169
Re-entry: incarceration	-.153		.189	-.153		.188	-.149		.190	-.146		.189	-.159		.189
Re-entry: treatment	.134		.335	.147		.335	.104		.336	.136		.335	.123		.335
Outpatient treatment	-.062		.468	-.089		.468	-.087		.468	-.059		.468	-.033		.471
Receives \$250 or < in fiscal aid	.577		.370	.567		.369	.567		.370	.581		.369	.589		.368
Receives >\$250 in fiscal aid	-.067		.309	-.062		.306	-.057		.305	-.065		.310	-.068		.310
Neighborhood safety	.223		.151	.225		.149	.231		.151	.222		.151	.226		.149
Month 36	.562	**	.189	.566	**	.189	.559	**	.188	.559	**	.189	.552	**	.190
Time	.033	***	.006	.033	***	.006	.033	***	.006	.033	***	.006	.033	***	.006

Note: We report the unit-specific results with robust standard errors. Person-specific means for all time-varying variables and time stable controls are included in the model, but results not shown.

Abbreviations: coeff. = coefficient, sig. = significance, se = standard error.

* $p < .05$, ** $p < .01$, *** $p < .001$

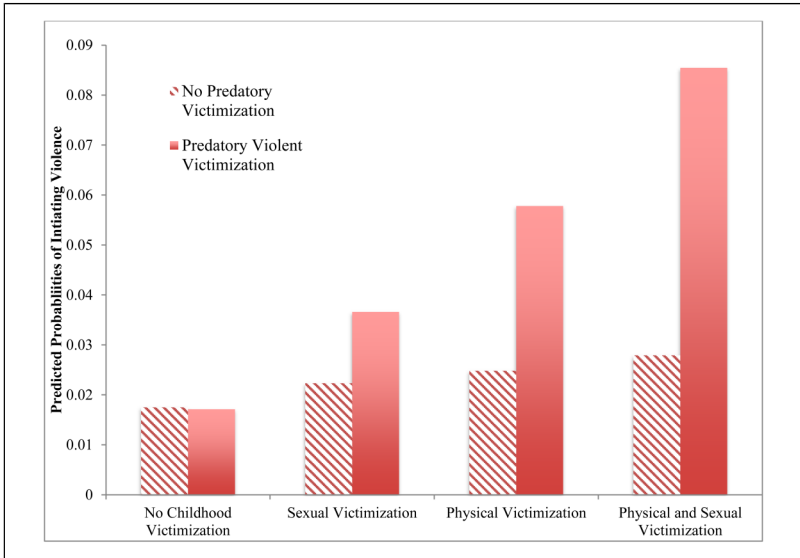


Figure 2. Effect of predatory victimization on the probability of initiating violence by childhood victimization experiences.

enhance the within-person relationship between predatory victimization and initiating violence, but these interactions are not statistically significant.

When the interaction between cumulative adversity and monthly strain was added to Model 3, we find this interaction is non-significant, and the coefficient capturing the interaction between childhood abuse and predatory victimization is substantively unchanged ($b = 1.192$, $SE = .554$) (Appendix A). These findings provide some support for the accentuation hypothesis but indicate accentuation cannot be explained by elevated levels of adversity among abused women.

Serious Drug Use

Main effects. Table 3 shows significant within-person effects of NLEs and opponent-initiated attacks on serious drug use (Model 1). Specifically, each additional NLE increases a woman's odds of using drugs in the following month by 46%, and when women have been involved in a violent incident initiated by someone else, the odds they use drugs in the following month almost doubles ($OR = 1.97$). Neither predatory victimization nor

Table 3. Main and Moderating Effects of Contemporaneous Strain and Childhood Victimization on Regular Serious Drug Use (n = 778 Persons; 22,944 Person-Months).

	Main Effects		Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence			
	Model 1	Model 2	Model 2	Model 2	Model 3	Model 3	Model 4	Model 4	Model 5	Model 5		
	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se
Intercept	-.150		.162	-.151		.163	-.148		.163	-.150		.163
Time-Varying Strain Variables (Lagged)												
Negative life events (NLE)	.380	**	.129	.413	***	.117	.389	**	.125	.384	**	.125
NLE x Sexual victimization				-.645	*	.283						
NLE x Physical victimization				.188		.348						
NLE x Physical & sexual victimization				-.297		.340						
Predatory Victimization	.132		.230	.147		.223	.130		.190	.112		.220
Victimization x Sexual victimization							-1.143	*	.517			
Victimization x Physical victimization							1.008		.568			
Victimization x Physical & sexual victimization							.096		.666			
Opponent-initiated violence	.681	*	.307	.730	*	.289	.655	*	.286	.758	*	.295
Opponent violence x Sexual victimization										-1.043		.748

(continued)

Table 3. (continued)

	Main Effects		Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Opponent violence x Physical victimization							.233		.890	
Opponent violence x Physical & sexual victimization							-.158		.663	
Near violence	.301		.317		.311		.299		.314	
Near violence x Sexual victimization							.311		.162	
Near violence x Physical victimization									-.1221	
Near violence x Physical & sexual victimization									1.968	**
									.635	
									.710	
									.918	
Child Victimization Experiences										
Sexual victimization	.611		.472		.652		.470		.651	
Physical victimization	-.661		.424		-.666		-.663		.425	
Physical and sexual victimization	.800		.545		.819		.803		.545	
									.790	
									.545	
									.472	
									.600	
									-.658	
									.811	
									.474	
									.429	
									.547	
Time-Varying Control Variables										
Employed	-.678	**	.240		-.671	**	.240		-.689	**
Lives with husband	.438		1.112		.586		1.071		1.073	
									.441	
									1.095	
									.588	
									.239	**
									.993	

(continued)

Table 3. (continued)

	Main Effects		Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Lives with boyfriend	-.108		.329		-.118		.328		-.141	
Lives with same-sex partner	-.144		.388		-.126		.372		-.085	
Member of a group	-.1342	**	.513	**	-.1346	**	.515	**	-.1319	*
On probation or parole	-.843	***	.232	***	-.843	***	.233	***	-.857	***
Re-entry: incarceration	-.126	***	.189	***	-.1139	***	.190	***	-.141	***
Re-entry: treatment	-.1397	***	.348	***	-.1410	***	.355	***	-.1401	***
Outpatient treatment	-.2877	***	.509	***	-.2894	***	.503	***	-.2911	***
Receives \$250 or < in fiscal aid	-.1057	*	.421	*	-.1059	*	.417	*	-.1092	**
Receives >\$250 in fiscal aid	-.429		.333		-.423		.330		-.430	
Neighborhood safety	.892	***	.218	***	.909	***	.219	***	.879	***
Month 36	-.109		.232		-.107		.232		-.099	
Time	.035	***	.001	***	.035	***	.008	***	.034	***
Time squared	.017	*	.008	*	.017	*	.008	*	.017	*

Note: We report the unit-specific results with robust standard errors. Person-specific means and time stable controls for all time-varying variables are included in the model, but results not shown.

Abbreviations: coeff. = coefficient, sig. = significance, se = standard error.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

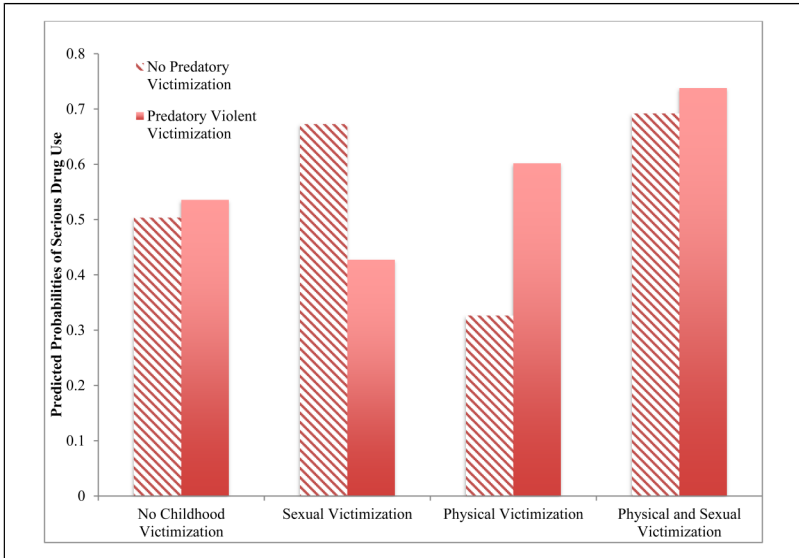


Figure 3. Effect of predatory victimization on the probability of serious drug use by childhood victimization experiences.

near-violent conflict is associated with serious drug use, but several local life circumstances are.

Interaction effects. Childhood abuse conditions the relationship between strain and serious drug use but in ways that are not wholly consistent with accentuation or saturation. As displayed in Table 3 (Model 3) and Figure 3, for sexually abused women, the relationship between predatory victimization and drug use is negative and significantly differs from the association observed for women with no early abuse experiences. In contrast to the large negative effect for those who experienced sexual abuse, the effect is positive and substantively large for women who were only physically abused; however, there is no significant difference in the relationship between this form of strain and serious drug use for women who reported physical or dual abuse versus those with no abuse. A similar pattern is observed for the interaction between NLEs and childhood victimization (Table 3, Model 2 and Figure 4).

Finally, among women who were sexually abused, exposure to near-violent conflict and serious drug use are again inversely related, but the magnitude of this relationship does not differ from the effect for women with no

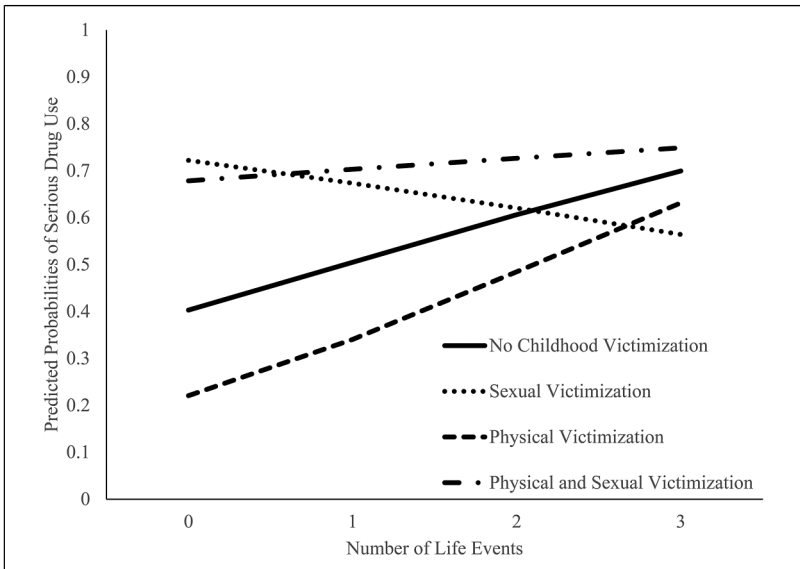


Figure 4. Effect of number of negative life events on the probability of serious drug use by childhood victimization experiences.

childhood abuse (see Table 3, Model 5). In contrast, as shown in Figure 5, the relationship between near-violent conflict and serious drug use is significantly stronger and positive for those with a history of childhood physical abuse relative to those with no childhood abuse, supporting the accentuation hypothesis.

When the interaction between cumulative adversity and strain was added to each of the models, the coefficients capturing the moderating effect of childhood abuse remain statistically significant (Appendix B). Only the interaction between NLE and sexual abuse is somewhat reduced in magnitude (from $-.645$ to $-.555$), although the substantive findings are unchanged (Appendix C).

Supplemental Results: Moderating Effect of Cumulative Adversity

Instead of accounting for the moderating effect of childhood abuse, for many forms of strain, cumulative adversity has an independent dampening effect on their relationship with offending. Specifically, cumulative adversity weakens the relationships between opponent-initiated victimization and

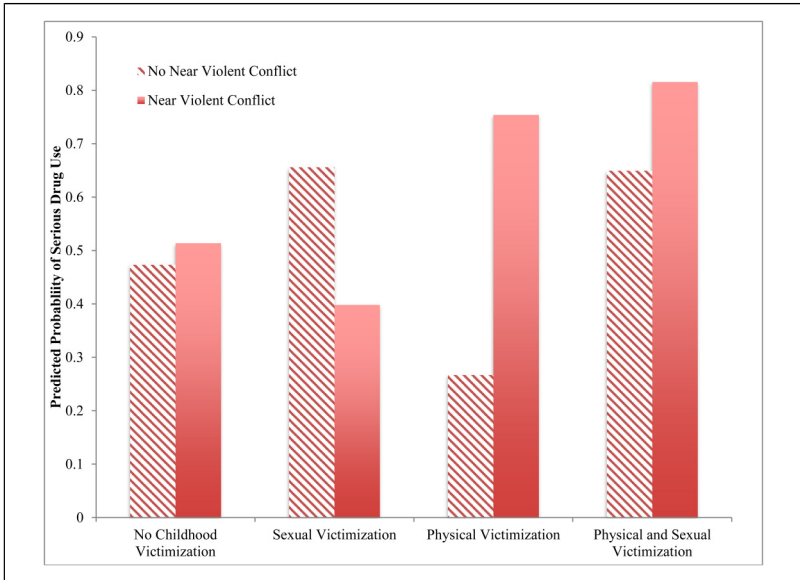


Figure 5. Effect of near violent conflict on the probability of serious drug use by childhood victimization experiences.

violent offending (Appendix A) as well as the association of opponent-initiated violence, near-violence, and NLE with substance use (Appendix B).

Supplementary Analysis

Our findings indicate no support for the saturation hypothesis and some support for the accentuation hypothesis for women who reported physical and dual abuse. There is no evidence to support the hypothesis that the conditioning effect of childhood abuse operates indirectly via exposure to cumulative adversity in adulthood. One consistent, but counterintuitive, pattern that emerged is that women who were sexually abused as children are less likely to regularly use serious drugs after experiencing some types of strain. To try to make sense of these findings, a series of post hoc supplemental analyses was conducted.

One potential explanation we explored is that sexually abused women are more likely to be using drugs when victimized. As a result, they may link

these experiences to their substance use, and this connection may serve as a catalyst for change (see Paternoster and Bushway 2009). Bivariate analyses indicate that sexually abused women were the group most likely to be using drugs during the victimization event (55% versus 48% for the no abuse group), but this difference was not statistically significant ($\chi^2(3) = 3.13, p > 0.05$).

A second explanation is that drug use declines for sexually abused women because they are more likely to access social support or seek drug treatment. There is some circumscribed support for this explanation: In months following a predatory victimization, sexually abused women were more likely to have social support (i.e., church/neighborhood group) ($b = 1.65, SE = .83, p < 0.05$), and this relationship was significantly stronger than that observed for women with dual abuse ($p < 0.05$) and those with physical abuse only ($p < 0.10$).¹² There is no evidence, however, that sexually abused women were more likely to seek treatment.^{13,14}

Discussion

In this research, we explored the ways in which one type of childhood experience—abuse—contributes to women’s offending in adulthood. While research has highlighted the effect of childhood abuse on adult violence and drug use via its accumulating negative consequences (e.g., English, Widom, and Brandford 2002; Mersky and Reynolds 2007), this study tested the hypothesis that its effects also “carry over” into adulthood by shaping how women react to strain. We also examined a potential mechanism to account for this moderating effect—greater exposure to cumulative adversity.

The preliminary finding that there is no relationship between childhood abuse and violence once local life circumstances and personal characteristics are taken into account aligns with a central tenet of the feminist pathways literature and life-course criminology: Early life experiences affect adult offending by setting individuals on a path of accumulating disadvantages (e.g., Daly 1992; Sampson and Laub 1997). Indeed, we found that abused women experienced more NLEs and near-violent conflict than their non-abused counterparts. In addition, childhood abuse was unrelated to adult substance use in this sample. Combined, these findings support Kruttschnitt et al.’s (2019) assertion that, “we should question feminists’ heavy reliance on women’s traumatic early life experiences as being determinative of their future trajectories. Pathways to crime and imprisonment are developmental” (p. 494).

Our first primary research question asked if women are more likely to initiate violence and serious drug use in months following exposure to strain. We find partial support for this central relationship outlined in GST. Women were more likely to engage in violence and use drugs when they experienced more NLEs in the prior month. The robust impact of NLEs supports Agnew's (1992) notion that offending is more likely to occur when strains are clustered closely in time, because they overwhelm available coping mechanisms. Moreover, adult adversities are interrelated (Mersky et al. 2018), and serious regular drug use itself confers negative consequences in other life domains (e.g., relationships, health, finances), leading adversity and drug use to become mutually reinforcing (Nuytiens and Christiaens 2016).¹⁵ NLE was also the only measure that contained multiple forms of strain, some of which are likely to trigger anger and violence (e.g., problems with partners), while others (e.g., death of a loved one) tend to generate inner-directed negative emotions, such as depression, and self-medication.

In addition, we found that near-violent conflict increased women's subsequent use of violence, while an attack initiated by someone else increased the likelihood of drug use. In discussing the role of near-violent incidents among adolescents, Wilkinson explains that youth often report being 'on guard' or 'on point' in the weeks following near violence (2009:157) and the lingering anger and anxiety elicited by this experience increase the probability they will engage in violence. Women in our sample may experience similar enduring emotions that lead them to initiate violence. In comparison, opponent-initiated victimization may elicit different emotions that are more likely to be managed with drugs. For example, Eriksson and Mazerolle (2013) assert that women's victimization within intimate relationships, which comprises almost three-quarters (74%) of opponent-initiated victimizations in our sample, often generates fear, which is more likely to elicit escapist behavior, such as drug use, than outer-directed criminal behavior. Additionally, opponent-initiated violence, particularly intimate partner violence, may be chronic and thus likely to trigger depression (e.g., Bogat et al. 2004) and drug use (Cafferky et al. 2016). The lack of data on emotional responses to strain constrained our ability to tease out these affective processes and provide a more complete examination of GST.

Our second research question asked if the relationship between strain and offending is moderated (either strengthened or weakened) by childhood abuse, and if so, whether this moderating effect could be accounted

for by elevated exposure to adversity in adulthood. We find some evidence that childhood abuse moderates the proximal relationship between strain and offending, but no support for the hypothesis that this effect operates via adult adversity. Consistent with accentuation, childhood dual abuse accentuated the effect of predatory victimization on violence, and physical abuse amplified the positive relationship between near violence and serious drug use, but both of these effects operated independently of cumulative adversity. These findings suggest that early victimization experiences substantially increase the probability of maladaptive coping in the wake of new stressors, but not because cumulative adversity overwhelms the coping mechanisms of women who were abused as children. Instead, other mechanisms, such as hypervigilance, learning, and changes in personal traits (e.g., biology, cognitive processing) may be at play (Fishbein 2001; Herts, McLaughlin, and Hatzenbuehler 2012; McLean and Link 1994; Petersen, Joseph, and Feit 2014).

The conditioning effect of sexual abuse on the relationship between strain and serious drug use was not consistent with accentuation or saturation. Instead, women who were sexually abused were *less* likely to use drugs in the month following an increase in NLEs or a predatory victimization, and this relationship was significantly different from the null or positive relationship that was observed for other women. Again, cumulative adversity had an independent dampening effect on the relationship between these forms of strain and substance use. At first glance these findings might point to resilience, but sexually abused women who experienced multiple NLEs and/or predatory victimization had the highest level of sustained drug use.

While it is not immediately clear why sexual abuse would lead some women to reduce their drug use after experiencing some forms of strain, supplemental post-hoc analyses suggest one potential explanation, at least for sexually abused women who were the victim of a predatory attack. Specifically, these women were more likely to be using drugs during the attack and more likely to be members of local groups and churches in months following their attack. In line with the stress paradigm, studies of incarcerated and drug-addicted women find that when faced with new strains, continued drug use is less likely when women have strong social support networks (Staton-Tindall, Royse, and Leukfeld 2007). Research has also found that women who have been sexually abused are more likely to attribute negative events to their own behavior (Briere and Elliott 1994), so it is possible that these attacks,

which were in many cases quite serious, pushed women to reevaluate their drug use and to take steps to try to change their lives.¹⁶ In addition, research has found that “Instead of child sexual abuse leading to a sense of helplessness...some women may be empowered by their abuse experiences to take concrete actions to protect themselves” (McMillen, Zuravin, and Rideout 1995:1042) or may initiate a process of transformation resulting in “post-traumatic growth” (see Tedeschi 1999 for a review). Additional research is needed to replicate and further probe these unanticipated findings.

While we found no evidence that childhood abuse dampened the effect of proximal strain on violence and substance use, women who were exposed to higher levels of adversity in adulthood, were less reactive to the strain they experienced in their daily lives. This finding provides general support for the concept of saturation, and it suggests the need to consider the broader life context in which recent events occur. Individuals for whom victimization and other negative life experiences are relatively uncommon may be an important group for service providers to reach because these events may be particularly criminogenic for them.

Our findings should be considered within the context of study limitations. First, an inability to account for emotional responses to proximal strain not only prevented us from providing a full exploration of GST, but also precluded us from assessing how information and emotion processing may vary for victims of childhood physical versus sexual abuse (Young and Widom 2014). Second, we rely on retrospective data. This can be problematic because there are notable issues with measuring child abuse retrospectively (Baldwin et al. 2019; Widom, Weiler, Cottler 1999) that could impact our findings. Moreover, the time that elapsed between childhood abuse and participation in the study differed across women, which raises questions about whether this gap conditioned the effects we observed.¹⁷ Similarly, LEC data may be compromised by memory decay if individuals reinterpret prior experiences through the veil of their current life circumstances and outlook. Innovative methods that allow for frequent collection of data on strain and emotional responses, perhaps using smart phones, are needed to quantitatively explore proximal within-person relationships among strain, emotions, and offending. Third, we only have data at three points in time, so we are unable to examine how the negative consequences of abuse accumulate over the full life course to affect offending. Relatedly, we also do not consider the manner in which violent offending

and substance use may contribute to adversity (e.g., loss of employment, relationship issues), further amplifying offending. Estimation of reciprocal effects is required to get a more complete understanding of the complex state-dependent processes that may sustain offending. Fourth, although our focus on women is appropriate for examining within-sex heterogeneity, the extent to which these processes are gendered is an open question.

Finally, while our use of situational data is a notable strength of the study because it allows us to tease out heterogeneity in the effects of victimization, it also raises methodological and theoretical questions about timing and ambiguity surrounding what constitutes a strain versus a response to strain. For example, there was no relationship between opponent-initiated victimization and women's initiation of violence in the subsequent month; however, the immediate violent response to an attack that is inherent in this measure of victimization could be considered supportive of GST since these counterattacks are often motivated by emotions, particularly anger and fear (Collins 2008; Katz 1988; Slocum, Rengifo, Carbone-Lopez 2012).

Conclusion

Findings from this research have several implications. First, we found some evidence that the effects of childhood abuse, particularly dual and physical abuse, can carry over into adulthood by amplifying the effects of select strains. Given incarcerated women's high level of exposure to childhood physical and sexual abuse and adult victimization, programs targeted at reducing recidivism should consider a trauma informed approach that helps women to cope with adversity experienced not only in childhood, but also later in life (see Pierce and Jones 2022). Because heightened reactivity to strain cannot be explained by the accumulation of negative life events, these programs should identify and target the cognitive, behavioral, and social factors that are exacerbating maladaptive strain responses.

Second, our findings point to the importance of adult adversity and victimization for understanding violence and substance use, although not all forms of strain contributed to both behaviors. Notably, the NLE index was the only strain to have a main effect on both outcomes. The robustness of this relationship underscores Kruttschnitt's (2016) argument that to understand women's offending, we must move beyond our focus on victimization and consider that women offend for a multitude of

reasons, including limited employment opportunities, financial strain, and interpersonal issues. Thus, reducing women's offending often requires addressing their current circumstances (Kruttschnitt et al. 2019). Community-based programs that encourage informal help-seeking for victims and assist with immediate needs may be useful in this respect.

Finally, victimization was not uniformly related to offending, with some forms mattering for substance use and others for violence. Moreover, some strain-offending relationships were accentuated by abuse but not others. The significant heterogeneity in victimization and its effects has potential implications for theory and practice. Research on the link between victimization and offending should consider that different forms of victimization may be more criminogenic than others or lead to different behavioral outcomes (Gebo et al. 2021). Childhood abuse may be one factor that helps to understand why some people are more likely to be victim-offenders than others. Practically, it suggests that programming to assist victims of violence may need to be tailored to individual experiences.

In short, this work contributes to a growing body of literature that highlights the synergism between the study of strain and the life-course and feminist perspectives. Examining within-sex heterogeneity, we address calls for researchers to move beyond the assumption that abuse in childhood and adulthood drive women's offending to specifying the conditions under which victimization and other adversity matters. To fully understand the consequences of these experiences, researchers must consider not only its immediate impact, but also how it structures women's later life experiences and future responses.

Appendix A. Violence Initiation - Interactions of Childhood Abuse and Cumulative Adversity with Contemporaneous Strain (n = 778 persons; 22,944 person-months).

	Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence		
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	
	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se
Intercept	-3.987	***	.103	-3.982	***	.102	-3.994	***	.103
Time-Varying Strain Variables (Lagged)									
Negative life events (NLE)	.334	***	.092	.300	***	.088	.313	***	.088
NLE x Sexual victimization	-.300		.212						
NLE x Physical victimization	.162		.244						
NLE x Physical & sexual victimization	-.207		.301						
NLE x Cumulative adversity	-.133		.093						
Predatory Victimization	.171		.198	.023		.215	.177		.199
Victimization x Sexual victimization				.530		.517			
Victimization x Physical victimization				.907		.474			
Victimization x Physical & sexual victimization				1.192	*	.554			
Victimization x Cumulative adversity				-.154		.170			
Opponent-initiated violence	.289		.246	.242		.250	.359		.220
Opponent violence x Sexual victimization							-.225		.487

(continued)

Appendix A. (continued)

	Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Opponent violence x Physical victimization			-.675		.597			
Opponent violence x Physical & sexual victimization			.400		.914			
Opponent violence x Cumulative adversity			-.843	***	.230			
Near violence	.711	***	.202		.199		.781	***
Near violence x Sexual victimization			.726	***	.199		-.633	.489
Near violence x Physical victimization							-.429	.505
Near violence x Physical & sexual victimization							-.832	.812
Near violence x Cumulative adversity							-.035	.182
Child Victimization Experiences								
Sexual victimization	.330		.269		.267		.306	.268
Physical victimization	.408		.271		.270		.449	.270
Physical and sexual victimization	.624		.349		.344		.591	.343
Cumulative Adversity	.085		.102		.101		.083	.102
Time-Varying Control Variables								
Employed	-.079		.165		-.049		.164	-.053
			.163					.164

(continued)

Appendix A. (continued)

	Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
	Model 1	Model 2	Model 2	Model 3	Model 3	Model 4	Model 4	
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Lives with husband	1.431	**	1.424	**	1.417	*	1.440	**
Lives with boyfriend	1.294	***	1.295	***	1.324	***	1.282	***
Lives with same-sex partner	1.010		.927		.999		.942	
Member of a group	-.104		-.086		-.125		-.134	
On probation or parole	-.002		-.012		-.020		-.005	
Re-entry: incarceration	-.157		-.145		-.125		-.159	
Re-entry: treatment	.145		.102		.147		.124	
Outpatient treatment	-.091		-.083		-.052		-.033	
Receives \$250 or < in fiscal aid	.570		.567		.579		.588	
Receives >\$250 in fiscal aid	-.058		-.057		-.073		-.069	
Neighborhood safety	.224		.230		.211		.226	
Month 36	.550	**	.555	**	.559	**	.552	**
Time squared	.033	***	.033	***	.033	***	.033	***
		se		se		se		se
		.555		.576		.576		.555
		.251		.251		.251		.251
		.517		.526		.526		.517
		.351		.351		.351		.351
		.168		.168		.168		.168
		.188		.189		.189		.188
		.335		.336		.336		.335
		.472		.469		.469		.472
		.369		.370		.370		.369
		.311		.311		.311		.311
		.149		.151		.151		.149
		.190		.188		.188		.190
		.006		.006		.006		.006

Note: We report the unit-specific results with robust standard errors. Person-specific means and time stable controls for all time-varying variables are included in the model, but results not shown.

Abbreviations: coeff. = coefficient, sig. = significance, se = standard error.
 * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Appendix B. Drug Use - Interactions of Childhood Abuse and Cumulative Adversity with Contemporaneous Strain (n = 778 persons; 22,944 person-months).

	Negative Life Events			Predatory Victimization			Opponent-Initiated Violence			Near Violence		
	Model 1			Model 2			Model 3			Model 4		
	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se	coeff.	sig.	se
Intercept	-.156		.163	-.148		.163	-.154		.163	-.151		.163
Time-Varying Strain Variables (Lagged)												
Negative life events (NLE)	.465	***	.118	.390	*	.125	.387	**	.125	.406	***	.122
NLE x Sexual victimization	-.555	*	.274									
NLE x Physical victimization	.243		.340									
NLE x Physical & sexual victimization	-.285		.342									
NLE x Cumulative adversity	-.300	**	.108									
Predatory Victimization	.161		.222	.165		.191	.112		.219	.144		.213
Victimization x Sexual victimization				-.1134	*	.508						
Victimization x Physical victimization				1.032		.570						
Victimization x Physical & sexual victimization				.128		.700						
Victimization x Cumulative adversity				-.119		.183						

(continued)

Appendix B. (continued)

	Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence		
	Model 1		Model 2		Model 3		Model 4		
	coeff.	sig. se	coeff.	sig. se	coeff.	sig. se	coeff.	sig. se	
Opponent-initiated violence	.700	**	.284		.285		.270	**	.277
Opponent violence x Sexual victimization					.652	*	.813	**	.270
Opponent violence x Physical victimization							-.954		.584
Opponent violence x Physical & sexual victimization							.633		.831
Opponent violence x Cumulative adversity							-.123		.663
Near violence	.332		.304		.297		-.883	***	.245
Near violence x Sexual victimization					.312		.370		.312
Near violence x Physical victimization									.224
Near violence x Physical & sexual victimization									-1.168
Near violence x Cumulative adversity									.695
									1.947
									**
									.639
									1.292
									.822
									-.624
									*
									.267

Child Victimization Experiences

(continued)

	Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
	Model 1		Model 2		Model 3		Model 4	
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Sexual victimization	.639	**	.471		.473		.472	
Physical victimization	-.676		.426		.425		.426	
Physical and sexual victimization	.808		.546		.545		.546	
Cumulative Adversity	.191		.159		.159		.159	
Time-Varying Control Variables								
Employed	-.668	**	.239	**	.239	**	.239	**
Lives with husband	.592		1.01		1.069		1.072	
Lives with boyfriend	-.155		.323		.327		.329	
Lives with same-sex partner	-.065		.390		.370		.416	
Member of a group	-1.333	**	.519	**	.515	**	.511	*
On probation or parole	-.857	**	.234	**	.233	**	.233	**
Re-entry: incarceration	-1.104	**	.192	**	.190	**	.190	**
Re-entry: treatment	-1.392	**	.348	**	.356	**	.350	**
Outpatient treatment	-2.866	**	.500	**	.502	**	.504	**
Receives \$250 or < in fiscal aid	-1.064	*	.424	**	.417	*	.408	**
Receives >\$250 in fiscal aid	-.405		.332		.330		.334	
Neighborhood safety	.921	**	.215	**	.219	**	.217	**
Month 36	-.099		.231		.232		.233	
Time	.034	**	.009	**	.008	**	.009	**

(continued)

Appendix B. (continued)

Negative Life Events		Predatory Victimization		Opponent-Initiated Violence		Near Violence	
Model 1		Model 2		Model 3		Model 4	
coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
.016	*	.017	*	.018	**	.017	*
	.008		.008		.008		.008
Time squared							

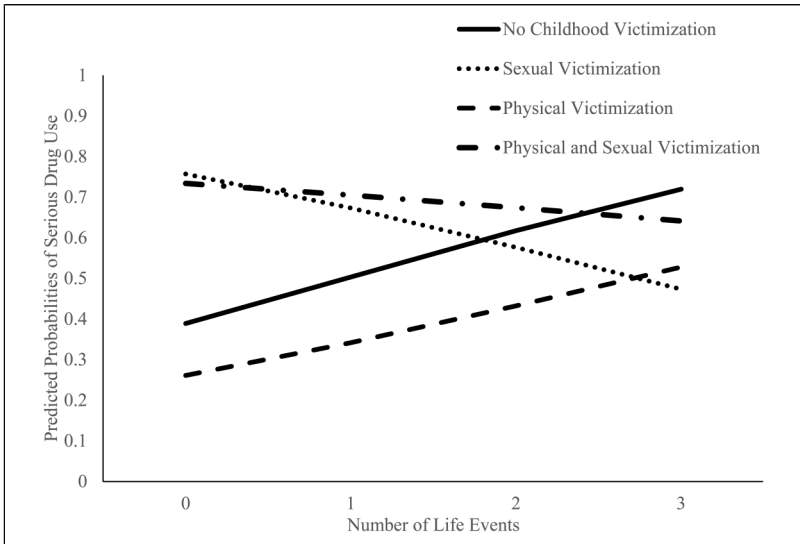
Note: We report the unit-specific results with robust standard errors. Person-specific means and time stable controls for all time-varying variables are included in the model, but results not shown.

Abbreviations: coeff. = coefficient, sig. = significance, se = standard error.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Appendix C. Effect of Number of Negative Life Events on the Probability of Serious Drug Use by Childhood Victimization Experiences, Accounting for Cumulative Adversity.

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Notes

1. The assumptions underlying these perspectives are inherently aligned, and in fact, Pearlin and Skaff (1996) argue that there is a synergism between the study of social stress and the life-course perspective, while the feminist pathways literature explicitly incorporates life-course principles.
2. Agnew does recognize the importance of early experiences as well. In his developmental extension of GST, which incorporates the life-course perspective (1997, 2006), strain and illicit behavior sustain one another in a cyclical manner over time.
3. Akin to the idea of saturation is resilience, which suggests childhood adversity provides learning opportunities and enhances coping abilities (Moen and Erickson 1995; Edge et al. 2009). Resilience is typically characterized as involving “success” across a range of domains (McGloin and Widom 2001), and it is generally associated with the mastering of mild-to-moderate stressors (see Southwick and Charney 2012). The concept of saturation is a more appropriate fit for this study given our focus on incarcerated women, who are unlikely to meet the traditional definition of resilience, and our interest in the effects of childhood abuse.
4. The LEC was designed to facilitate the collection of valid data on streams of experiences and event timing and sequencing. It does so by using time anchors and by recording data in a sequential manner in which recall of more specific events and behaviors (e.g., victimization, substance use) is nested with memories of salient extended life circumstances (e.g., living location) (see Belli 1998; Caspi et al. 1996). Researchers have concluded that for transient populations that are difficult to follow prospectively, LECs are a reasonable option for collecting longitudinal data on the timing of events (see Sutton et al. 2011). LECs have been found to elicit accurate data on the prevalence and frequency of events, such as arrests, even among incarcerated samples. Data on the precise timing of events is less reliable (e.g., Morris and Slocum 2010; Roberts and Wells 2010), but reliability and validity increase when short time buffers are allowed, leading van Gerwen Blokland, and Rijken (2019) to conclude that these timing errors are unlikely to substantively affect results for studies interested in states (e.g., using drugs) versus events. Moreover, researchers have found that retrospective self-reports of monthly substance use can be reliably collected from incarcerated individuals using LECs

(Bellair and Sutton 2018), and that LEC data on timing of events are more accurate than those collected using traditional methods (e.g., Belli, Shay, and Stafford 2001; Freedman et al. 1988; Furstenberg, Brooks-Gunn, and Morgan 1987).

5. Although studies using nationally representative data, such as the National Youth Survey, are vital for producing findings that can be generalized to the population, they often run into issues with power when studying child abuse and violence in adulthood (e.g., Fagan 2005).
6. This decision assumes that the first person to resort to violence is the aggressor, but it provides one way to determine who is a “victim” and who is an “offender” based on the situational data.
7. It is an empirical question as to whether these two types of victimizations are qualitatively different, and therefore might be differentially related to our outcomes, particularly violence.
8. See Kruttschnitt, Yule, Alper, and Klassen (2018) for a discussion of near violent conflict (i.e., avoided violence).
9. We considered using a measure of total strain that was an additive scale that included the NLE and victimization measures. At the person level, this measure was highly correlated with NLE ($r = .93$), and both could not be included within the same model. Because the person-level NLE measure must be included in the model to estimate within-person effects (see Raudenbush and Bryk 2002), the decision was made to use the measure of NLE and not total strain to capture cumulative adversity.
10. Women with dual abuse experienced the highest average levels of cumulative adversity ($M=1.31$, $SD = 1.11$), followed by physical ($M= 1.21$, $SD = 1.03$) and sexual ($M=1.20$, $SD = .98$) abuse. Women who were abused also experienced significantly more near violence ($F(3, 774) = 3.79$, $p < .05$), but not other forms of victimization.
11. When computing the predicted probabilities, all other variables in the models were set at their means.
12. To explore if sexually abused women were more likely than other women to have access to support in months following exposure to stressors, we estimated a series of fixed effects models that regressed monthly measures of social support (membership in neighborhood churches or social groups and treatment) and help seeking behavior on strain (predatory victimization and negative life events) and the interaction between these strains and child abuse.
13. We also assessed the extent to which these findings might be a byproduct of our focus on within-individual change. If most women who were sexually abused used drugs continuously, within-person estimates could be based on a small sample of individuals. Results from a chi-square test of

independence indicate some support for this explanation; 42.9% of sexually abused women who had been the victim of a predatory attack reported serious drug use in every month in the reference period, a significantly higher percentage than other groups ($\chi^2(7)=15.31, p < 0.05$). Similarly, women who were sexually abused in childhood and who experienced, on average, two or more NLEs per month during the reference period had the highest rates (51.9%) of continual drug use ($\chi^2(7)=22.63, p < 0.01$). Thus, women who were sexually abused and experienced these forms of strains were not “better off” or more resilient than their counterparts but instead had higher levels of sustained drug use.

14. We also explored whether this unexpected relationship was being driven by one of the study sites - it was not.
15. Although estimating full cross-lagged models is beyond the scope of this paper, prior research using WEV data found that engaging in an attack and serious substance use increases the number of NLEs a woman experiences (results available upon request). Also, Slocum, Simpson, and Smith (2005) found that serious drug use has an independent effect on predatory violence that did not mediate the effect of NLEs or victimization on this outcome, but drug use did mediate the relationship between NLE and non-violent crime.
16. Although speculative, there may have been something about the nature of their childhood abuse that differed from those with other abuse histories that motivated them to stop using drugs when strained. For example, their abusers may have been more likely to be using drugs.
17. We attempted to examine this by splitting the sample by age, but cell sizes for abuse became small and some models would not converge.

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