

## EPIDEMIOLOGY AND CONSEQUENCES OF WOMEN'S REVICTIMIZATION

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This study uses Kraemer's approach for nonrandom comorbidity to identify the parameters of revictimization among women, using a diverse, population-based sample. Participants ( $n = 11,056$ ) are from the California Women's Health Survey. Women were asked about childhood and adult violence and current symptoms of posttraumatic stress disorder (PTSD), depression, and anxiety. Logistic regressions adjusted for age, ethnicity, education, and poverty indicate that women who experienced childhood physical or sexual abuse were 5.8 (95% confidence interval, 5.2–6.4) times more likely to experience adult physical or sexual victimization. Revictimization affected 12% of women, and these women were substantially more likely to report current symptoms of anxiety, depression, and PTSD than women exposed to violence only in childhood or only as an adult. Revictimization is a methodologically distinct concept and is a potent risk factor for adult mental health problems. Prevention should target women exposed to both physical and sexual assault.

Violence against women is prevalent and yields lasting negative mental and physical health consequences. The National Violence Against Women Survey (NVAWS) estimated that lifetime rates of women's physical assault reach 51.9%, with lifetime rates of sexual assault at 17.6% (Tjaden & Thonnes, 2000). These data also suggest that many women first experience violence during childhood; 40% of women reported childhood physical abuse and 9% reported childhood sexual abuse (Tjaden & Thonnes, 2000). Given the high prevalence of violence against women, it is not surprising that many women experience >1 episode of violence over their life span. The hypothesis that exposure to child abuse confers a specific risk for exposure to adult violence is referred to as *revictimization*. The majority of these studies have focused on child sexual abuse and the association with adult sexual or physical assault (Bender, Cook, & Kaslow, 2003; Casey & Nurius, 2005; Filipas & Ullman, 2006;

Gladstone et al., 2004; Jankowski, Leitenberg, Henning, & Coffey, 2002; Kogan, 2005; Miner, Flitter, & Robinson, 2006; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003; Orcutt, Cooper, & Garcia, 2005; Van Bruggen, Runtz, & Kadlec, 2006). Given the prevalence of child physical abuse among girls, the exclusion of child physical abuse in studies of revictimization could limit our understanding of the scope and mechanisms of this phenomenon. Studies that utilize clinical populations or community convenience samples cannot provide generalizable estimates of the prevalence of revictimization or key risk factors. An epidemiologic approach can quantify the general relationship of child violence to adult violence and address the specificity of relationships among child sexual or physical abuse to violence exposure as an adult. The current study uses Kraemer's methods for determining nonrandom comorbidity (Kraemer, 1995) with a diverse, population-based sample of women in order to delineate methodologically and conceptually distinct aspects of revictimization.

*Epidemiologic comorbidity* can be said to exist when the prevalence of 2 events in a population are not statistically independent. Epidemiologic comorbidity

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is identified by examining the prevalence of 2 conditions in a representative sample and accounting for nonspecific risk factors such as age, socioeconomic status, or education that may belie a spurious correlation between the occurrences of the 2 conditions (Kraemer, 1995). Such an approach is important to understanding the complex issues related to revictimization. Because violence against women is, unfortunately, relatively frequent, it is statistically likely that some women will be exposed to >1 episode of violence or >1 type of violence. Repeat victimizations could be accounted for by shared risk factors, specifically variables associated with social and economic deprivation, such as poverty or low educational attainment. For example, research indicates that women experience increased risk for victimization when their income is below poverty level, and conversely, victimization increases women's likelihood of unemployment and reduced income (Byrne, Resnick, Kilpatrick, Best, & Saunders, 1999). Studies of repeat victimization, however, suggest that exposure to violence early in life serves as a specific risk factor for violent victimization in adulthood. Research suggests that sequelae such as alterations in risk recognition, altered expectations of adult relationships, as well as symptoms of posttraumatic stress disorder (PTSD) and substance use have all been posited as mediators of this relationship (Arata, 2000; Brown, Messman-Moore, Miller, & Stasser, 2005; Messman-Moore & Long, 2003; Parillo, Freeman, & Young, 2003; Wyatt, Axelrod, Chin, Carmona, & Loeb, 2000).

Although the theories that have emerged from these data hold much promise for understanding revictimization, sampling issues and different ways of operationalizing revictimization complicate efforts to generalize. The majority of these studies were conducted with clinical populations, and relatively few with population-based samples. Population-based samples have the advantage of establishing prevalence estimates and quantifying the extent to which phenomena co-occur. To date, the only existing population-based data regarding revictimization are from the NVAWS, and examined revictimization associated with child physical abuse, child sexual abuse, and the co-occurrence of both physical and sexual abuse. The study found that each of these 3 variables were associated with an increased risk for adult sexual assault and for adult physical assault (Desai, Arias, Thompson, & Basile, 2002). These results suggest that child physical abuse should factor into conceptualizations of revictimization. Additional studies of revictimization conducted with representative samples can further elucidate the importance of exposure to childhood violence in understanding adult exposure to violence. We extend the conclusions drawn from the NVAWS by using a larger and more diverse sample drawn from the state of California; accounting directly for the

effects of poverty and quantifying the magnitude of both general and specific conceptualizations of revictimization. We also examine whether revictimized women are at significantly greater risk for depression, anxiety, and PTSD. Epidemiologic research with the broadest definition of revictimization allows us an accurate assessment of the prevalence of the revictimization phenomenon and to identify which populations of women may be most affected. These results can indicate groups that may be targeted for preventative interventions (Marx, Calhoun, Wilson, & Meyer, 2001) and important areas for future research.

## Methods

Data for the current study are from the 2002–2004 California Women's Health Survey (CWHS), a population-based, random-digit dial, annual probability survey of California women, sponsored by the California Department of Health services and designed in collaboration with several other state agencies and departments. California has the greatest racial/ethnic diversity in the United States, an advantage for population-based studies of the state. Interviews for the CWHS are conducted in English and Spanish and take approximately 30 minutes to complete. The response rates for the 2002 and 2003 surveys were 72%, and 74% in 2004, yielding a sample of 13,379 women aged  $\geq 18$ . The current study uses data from 11,056 women (82.6%) with complete data for all violence and mental health variables. Women with complete data were slightly younger ( $\chi^2[4] = 75.1, p < .001$ ), less likely to be Hispanic ( $\chi^2[4] = 108.7, p < .001$ ), and more likely to have a college level education or higher ( $\chi^2[3] = 187.5, p < .001$ ), but did not differ on the proportion of women who were at or below the federal poverty level.

Child physical and sexual abuse were defined as abuse experienced before the age of 18 and adult physical and sexual assault as experienced after the 18th birthday. Survey questions screening for child and adult victimization were abstracted from the Traumatic Stress Schedule, a validated self-report measure of traumatic events (Norris, 1990), and subjected to cognitive testing for use in a telephone survey. We also screened for current (past 30 days) PTSD symptoms using the PC-PTSD Screen (Prins et al., 2004). The PC-PTSD is composed of 4 items that tap the major empirically derived factors of PTSD symptoms (reexperiencing, avoidance, hyperarousal, numbing). As indicated by diagnostic studies of the PC-PTSD Screen, women who endorsed  $\geq 3$  items were coded positive for clinically significant PTSD symptoms (full or partial PTSD). Depression and anxiety were assessed using items from the "healthy days" measure used in the brief behavioral risk factor survey (Moriarty, Zack, & Kobau, 2003), where

women were also asked to report how many of the past 30 days that they felt worried, tense, or anxious and how many days they felt sad, blue, or depressed. Women who reported symptoms  $\geq 14$  days of the past month were coded positive for an anxiety or depression episode, respectively. Education was coded into the following 4 categories: less than a high school degree, a high school degree, some college or technical school, and a college graduate or higher level of education. Poverty was defined using the federal poverty guidelines (Federal Register, 2003).

#### Data Analysis

We used SPSS for Windows, version 13.0, to analyze data. Logistic regression equations were used to examine multivariate models and to obtain adjusted odds ratios (AOR); 95% confidence intervals (CI) were calculated for all odds ratios. All odds ratios were adjusted for the following demographic and shared risk factors: age, ethnicity, education, and poverty level. Although the sample closely approximates the population of California women in terms of age and ethnicity, we weighted data in analysis to reflect the age and ethnicity distributions of California women according to the 2000 census.

We first examined the magnitude of the general association between child violence and adult revictimization, and then examined specific associations by type of violence. To further explore the correlates of revictimization, we compared reports of anxiety, depression, and PTSD of never victimized women, child-only, adult-only, and revictimized women.

## Results

#### Overview

Sample descriptives are provided in Table 1. Table 2 displays the prevalence of victimization and mental health symptoms. Revictimization, or exposure to violence in both childhood and adulthood, was reported by 12.2% of women.

#### Child Victimization and Adult Victimization

The prevalence of any type of childhood violence was 24.3%, and 22.9% of women reported any adult violence. The prevalence of adult victimization among women exposed to any childhood violence was 50.2%, as compared with only 14.1% among women who did not report child violence. Even after adjusting for demographic characteristics, childhood violence was associated with a significantly increased risk for adult violence (AOR, 5.8; 95% CI, 5.2–6.4;  $p < .001$ ).

#### Specific Associations

As can be seen in Table 3, the experience of any childhood violence was strongly associated with risk

**Table 1.** Sample descriptives ( $n = 13,379$ )

	%	<i>n</i>
<b>Ethnicity</b>		
White	47.6	5266
African American	6.2	686
Hispanic	29.9	3305
Asian/Pacific Islander	13.0	1442
Other	3.2	357
<b>Age (yrs)</b>		
18–29	26.7	2956
30–39	20.5	2265
40–49	19.0	2098
50–59	14.2	1571
$\geq 60$	19.6	2165
At or below federal poverty level	17.9	1983
<b>Education</b>		
Less than high school	14.9	1645
High school graduate	23.5	2601
Some college/technical school	29.8	3299
College graduate or higher	31.8	3511

for physical assault (AOR, 5.6; 95% CI, 5.0–6.2), and adult sexual assault (AOR, 4.7; 95% CI, 4.2–5.4). Childhood physical abuse was a significantly stronger risk factor for adult physical assault than for adult sexual assault (95% CI, 4.1–5.2 versus 2.2–2.9). Similarly, childhood sexual abuse was a more potent risk factor for adult sexual assault, as compared with the association with adult physical assault (95% CI, 3.7–5.1 versus 2.3–3.1).

#### Revictimization and Mental Health

We examined the relative impact of never victimized, child-only victim, adult-only victim, and revictimization on current mental health. Results are described in Table 4. Women exposed to any degree of violence were more likely to report anxiety, depression, and clinically significant PTSD symptoms in the last 30 days; revictimized women were significantly more likely to report mental health symptoms than were women exposed to violence only in childhood or only as adults. Notably, revictimization posed an extremely potent risk for PTSD (AOR, 12.4; 95% CI, 10.0–15.4).

**Table 2.** Prevalence of victimization and mental health symptoms ( $n = 13,379$ )

	%	<i>n</i>
Child physical abuse	19.3	2133
Child sexual abuse	11.6	1288
Adult physical assault	19.8	2192
Adult sexual assault	10.6	1177
Revictimization	12.2	1347
PTSD symptoms	6.4	702
Anxiety episode	21.4	2371
Depression episode	13.4	1477

Abbreviation: PTSD, posttraumatic stress disorder.

**Table 3.** Types of childhood victimization predicting adult physical or sexual victimization

Predictors	Adult Physical Assault		Adult Sexual Assault	
	AOR*	95% CI	AOR*	95% CI
Child physical abuse	4.6 <sup>†</sup>	4.1–5.2	2.5 <sup>†</sup>	2.2–2.9
Child sexual abuse	2.7 <sup>†</sup>	2.3–3.1	4.3 <sup>†</sup>	3.7–5.1
Any childhood violence (physical or sexual)	5.6 <sup>†</sup>	5.0–6.2	4.7 <sup>†</sup>	4.2–5.4

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

\*Odds ratios adjusted for age, ethnicity, education, and poverty.

<sup>†</sup>Significant at the  $p < .001$  level.

## Discussion

The current study demonstrated that women exposed to violence during childhood are at a significantly increased risk for revictimization. This association was demonstrated using a large, diverse, population-based sample and adjusting for the relevant shared environmental risk factors for women's exposure to violence. Thus, the observed associations are unlikely due only to high rates of violence against women or spurious relationships of violence with variables such as poverty or low educational attainment. Our results suggest that exposure to sexual or physical violence in childhood is a strong general risk factor for exposure to violence as an adult. Revictimization affects approximately 12% of women. That is, childhood violence elevates a general risk of adult victimization, either physical or sexual assault. These findings suggest that revictimization warrants further study as a methodologically distinct concept, but is not limited to women exposed to childhood sexual abuse.

In addition to the general risk for adult revictimization conferred by childhood violence, we also documented specific risks associated with each type of childhood victimization. Although childhood sexual abuse was linked to increased risk for both adult physical and sexual assault, the association with adult sexual assault was significantly stronger than that for adult physical assault. Similarly, childhood physical abuse posed a stronger risk for adult physical assault than for adult sexual assault, although the risk for both events was elevated among women who reported childhood physical abuse. This pattern of results suggests that the experience of any type of violence is associated with a >5-fold risk for violence as an adult, but that investiga-

tions of the pathways between adult and childhood experiences of the same type of victimization (e.g., childhood sexual abuse to adult sexual assault) could have important prevention implications. Although prevention interventions are relevant to women exposed to both childhood physical and sexual abuse, some theories yielded from specific research with sexually abused women (e.g., Orcutt et al, 2005) may suggest important components of interventions that address individual trauma histories.

This study demonstrated that revictimization is associated with a pronounced risk for adult mental health problems. Revictimization was associated with a >3-fold risk for symptoms of depression and anxiety, and >12 times the risk for PTSD symptoms as compared with nonvictimized women. The magnitude of the link between revictimization and mental health problems was significantly greater than the relationships between child-only or adult-only victimization and mental health outcomes. The magnitude of these relationships underscores calls for prevention resources targeted toward children exposed to violence, in an effort to prevent the especially deleterious mental health consequences of revictimization (Arias, 2004).

Although using a large, epidemiologic sample allowed for a broader definition of revictimization, better accounting for shared environmental risk factors, and greater generalizability, there are some limitations to the current study. We utilized self-reported data, and recall bias may have inflated the associations we observed, to the extent that exposure to violence increases the likelihood of recalling or reporting other episodes of violence. In addition, this study estab-

**Table 4.** Victimization predicting mental health symptoms

Predictors	Anxiety		Depression		PTSD	
	AOR*	95% CI	AOR*	95% CI	AOR*	95% CI
Child violence only	1.8 <sup>†</sup>	1.6–2.1	2.0 <sup>†</sup>	1.7–2.3	4.7 <sup>†</sup>	3.7–6.0
Adult violence only	1.8 <sup>†</sup>	1.5–2.1	2.0 <sup>†</sup>	1.7–2.4	4.9 <sup>†</sup>	3.8–6.4
Revictimization	3.1 <sup>†</sup>	2.7–3.5	3.4 <sup>†</sup>	3.0–4.0	12.4 <sup>†</sup>	10.0–15.4

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

\*Odds ratios adjusted for age, ethnicity, education, and poverty.

<sup>†</sup>Significant at the  $p < .001$  level.

lished a generalizable, nonrandom association between childhood violence and adult violence, but this does not indicate a causal relationship between these 2 factors. Longitudinal studies that broadly assess childhood physical and sexual abuse would correct the limitations of our research and would confirm our results.

This study highlights the need for prevention strategies integrated with not only the health care system, but the legal system and social services as well. Early identification of abused children may be an important point of intervention, and increased education among medical providers, community workers, and social workers on the screening and assessment of childhood violence is fundamental. The high rates of revictimization revealed by our expanded definition suggest that the need for early intervention programs for violence exposed children may be greater than previously thought. Studies of sexual revictimization suggest early disclosure attenuates risk for adult victimization (Kogan, 2005); thus, intervention during childhood is a key component of preventing revictimization. Developmentally appropriate intervention programs may be able to prevent alterations in risk recognition (DePrince, 2005), or increase skills for emotional regulation (Gladstone et al., 2004; Noll et al., 2003; Orcutt et al., 2005), which are hypothesized as a mechanism in revictimization. Prevention interventions also appear promising for adolescent and college-aged women (Marx et al., 2001), where targeting social support (Bender et al., 2003), substance abuse (Messman-Moore & Long, 2002) or other maladaptive coping behaviors (Filipas & Ullman, 2006) can give women valuable psychosocial resources to prevent revictimization during a high-risk period for reexposure. Our data also suggest that women in treatment for depression, anxiety, or PTSD may have histories of multiple victimizations, and clinicians may want to be alert to opportunities for prevention.

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