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A preliminary examination of sexual and physical victimization six months after recent rape

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Abstract

One in four US women will experience a completed or attempted rape in their lifetime, and more than 50% of survivors will experience two or more rapes. Rape and physical violence also co-occur. Multiple experiences of sexual and physical violence are associated with elevated mental and physical health problems. This secondary analysis examined the prevalence and correlates of experiencing sexual or physical violence within 6 months of a sexual assault medical forensic exam (SAMFE). Between May 2009 and December 2013, 233 female rape survivors aged 15 and older were enrolled in a randomized controlled trial during a SAMFE in the emergency department (ED). Demographics, rape characteristics, distress at the ED, and pre-rape history of sexual or physical victimization were assessed. New sexual and physical victimization was assessed 6 months after the SAMFE via telephone interview. Six months after the exam, 21.7% reported a new sexual or physical victimization. Predictors of revictimization during follow-up included sexual or physical victimization prior to the index rape, making less than \$10,000 annually, remembering the rape well, life threat during the rape, and higher distress at the ED. In adjusted models, only pre-rape victimization and making less than \$10,000 annually were associated with revictimization. Factors assessed at the ED can inform subsequent victimization risk. More research is needed to prevent revictimization among recent rape victims. Policies to provide financial support to recent rape victims and/or targeted prevention for those with pre-rape victimization at the SAMFE could reduce revictimization risk.

Keywords: Recent rape, Revictimization, Sexual and physical assault, Medical forensic exam

Introduction

Approximately 26% of US women have experienced completed or attempted rape, defined as unwanted or nonconsensual vaginal, oral, or anal penetration (Basile et al. 2022). The physical and mental health consequences of rape are severe and wide-ranging (Martin et al. 2011), and the cost of rape is extensive, both to the individual and to society (Peterson et al. 2017). Trauma-informed approaches to sexual violence emphasize consideration of developmental processes, violence typology, and extent of repeated exposure (DePrince & Gagnon 2018). Epidemiologic data from the US indicate that, among adolescent girls, college women, and adult community women who have experienced at least one rape, more than 50% have experienced two or more rapes (Walsh et al. 2012b). Meta-analyses suggest that approximately 50% of individuals with child sexual abuse histories experience sexual revictimization in adulthood (Walker et al. 2019). Sexual

and physical violence often co-occur and are associated with poorer mental and physical health outcomes (Walsh et al. 2015).

Although data suggest that college women experience revictimization within relatively brief periods (Daigle et al. 2008; Walsh et al. 2020), little is known about how often women in the general community experience a new instance of sexual and physical victimization in close temporal proximity to a recent rape. In prospective longitudinal studies, ~ 33% of community women who reported sexual violence at baseline reported a new victimization each year of the study (Ullman 2016). However, "lifetime sexual violence" was measured at baseline, and follow-up assessments were a year apart; thus, the time that elapsed between baseline and follow-up violence was not calculated.

Numerous theories have been proposed to explain revictimization. Ecological systems theory is a comprehensive and well-established framework that proposes that individual, interpersonal, community, and societal factors all contribute to revictimization risk (Grauerholz 2000). Within this framework, women of color (Basile et al. 2022; Relyea & Ullman 2017), those with less education (Stermac et al. 2002), and those experiencing unemployment and living in poverty (Loya 2014) have a higher likelihood of experiencing violence and revictimization, possibly because limited resources increase precarity. Sexual violence also exacerbates poverty and economic inequality via negative impacts on employment and earnings (Loya 2014). Interpersonally, those who are married have a higher risk of revictimization (Arata & Lindman 2002), possibly due to greater exposure to victimization in the context of partner violence. Additionally, perceived threat of harm, which may reflect impairments in the ability to distinguish true and false threats or realistic concerns about danger for those living in adverse conditions, have been prospectively associated with increased risk for revictimization (Jaffe et al. 2019). Moreover, indicators of distress, such as posttraumatic stress disorder (PTSD) and alcohol and drug misuse, have been shown to mediate associations between early abuse and later sexual (Cusack et al. 2019; Ullman 2016; Walker & Wamser-Nanney 2022) and physical (Kuijpers et al. 2012) victimization. However, disorders like PTSD require some temporal distance from victimization for the diagnosis to be made. If factors assessed at the emergency department (ED), including demographic characteristics, prior exposure to violence,

or distress, indicate who might be at greater risk for acute exposure to physical or sexual revictimization, risk reduction programs could be tailored to these populations and delivered in the ED or shortly thereafter. Sexual assault-related ED visits increased more than 1533% between 2006 and 2019 (Vogt et al. 2022), suggesting increased opportunities to implement brief interventions to prevent future suffering among survivors.

This secondary analysis of existing data examined the prevalence of sexual or physical revictimization over a 6-month follow-up among recent rape victims who presented to the ED for a sexual assault medical forensic exam (SAMFE) and enrolled in a randomized controlled trial (RCT) to receive a brief video intervention, an active control mindfulness video, or treatment as usual (TAU). The Prevention of Post-Rape Stress (PPRS) video intervention has been shown to reduce substance use and PTSD symptoms compared to TAU (masked). Since PTSD has been associated with heightened risk for revictimization (e.g., Jaffe et al. 2019), we hypothesized that PPRS would be associated with reduced risk for revictimization compared to TAU. Because prior longitudinal research on the prevalence of revictimization focused on different samples and measured violence over longer periods (Jaffe et al. 2019; Ullman 2016), we did not formulate hypotheses about the prevalence of revictimization. We examined whether those who experienced revictimization during the follow-up could be distinguished from those who did not in terms of demographics, rape characteristics, history of victimization prior to the current rape, or ED distress. Based on prior research (Arata & Lindman 2002; Jaffe et al. 2019; Loya 2014; Relyea and Ullman 2017; Stermac, 2002; Walker et al. 2019), we hypothesized that being a woman of color, living in poverty, being married, having less education, experiencing unemployment, having a prior history of victimization, fearing for one's life during the rape, and experiencing higher distress at the ED would be associated with greater odds of physical or sexual or physical victimization during the 6-month follow-up. We also explored associations between revictimization and rape characteristics (whether drugs or alcohol were involved, memory for the rape) that could be ascertained at the ED.

Methods

Participants and procedures

All procedures were approved by the institutional review boards of two universities and two affiliated hospitals. Female survivors of rape or attempted rape who were 15 years or older ($N = 711$) and who participated in a SAMFE within 7 days of the assault at one of two medical centers in a Midwestern metropolitan area were eligible for inclusion and assessed by medical personnel. As described elsewhere (masked), 466 were excluded for the following reasons: 231 did not meet inclusion criteria, 209 declined to participate, and 26 experienced technical/logistical problems. Of the remaining 245 who provided written consent at the ED,¹ 233 completed the condition to which they were randomly assigned: PPRS ($n = 77$), Pleasant Imagery and Relaxation Instruction (PIRI; $n = 77$), and TAU ($n = 79$). Enrollment and follow-up data were collected from 2009 to 2013; this lengthy timeframe is consistent with other rigorous longitudinal studies recruiting recent sexual assault survivors from the ED (Short et al. 2021).

Oral consent was provided at the beginning of each 30-min structured telephone follow-up interview, which were conducted by eight trained counseling psychology doctoral students over the course of the study period. At the end of each interview, participants were asked for permission to be recontacted for the next interview and provided with \$25 compensation. Of the 233 participants, 154 (66%) completed Time 1 (T1) an average of 56.95 days ($SD = 24.87$) after the SAMFE; 58% ($n = 135$) completed Time 2 (T2) an average of 107.63 days ($SD = 25.17$) after the SAMFE; and 52% ($n = 121$) completed Time 3 (T3) an average of 195.20 days ($SD = 55.38$) after the SAMFE. Only constructs assessed at T1 and T3 were examined here. T1 and T3 completers did not differ from those enrolled at the ED on age, racial minority status, study condition, or pre-exam distress as measured at the ED, all $ps > 0.17$.

1. Parents provided informed consent and adolescents provided assent for those under 18 at the SAMFE.

Measures

Demographics

At the SAMFE, participants were asked age in years and race/ethnicity, which, due to small cell sizes, was dichotomized into racial/ethnic minority participants (1) and white participants (0). At T1, participants were asked marital status, which was collapsed into married (1) or divorced, separated, or widowed, single (0); highest level of education collapsed into high school or beyond (1) or less than high school (0); household income collapsed into \$10,000 or greater (1) or \$10,000 (0); and employment status collapsed into full-time/part-time/student (1) or unemployed/retired/disabled/other (0).

ED distress

Prior to the SAMFE, participants were asked their Subjective Units of Distress Scale (SUDS) on a scale from 0 to 100 (0 = no distress to 100 = extreme distress).

Assault characteristics

At the SAMFE, participants were asked whether their assault involved voluntary or coerced drug or alcohol use (i.e., drug- or alcohol-facilitated rape [DAFR]; 1) or not (0). Participants were asked how much of the assault they could remember; responses were collapsed into remembers well or very well (1) vs. does not remember well (0). Participants also were asked whether they feared for their life during the assault (1 = yes, 0 = no).

Prior history of physical or sexual assault

At T1, participants were asked whether they had experienced sexual assault (yes/no) or a physical assault (yes/no) prior to the current rape. Responses were combined into a single variable reflecting any prior history of physical or sexual assault (1) or not (0).

Sexual and physical victimization since the rape

At T3, participants were asked "Since the sexual assault that brought you to the hospital, has anyone made you have intercourse, or oral or anal sex against your will?" and "Since the sexual assault that brought you to the hospital, (1) has anyone choked, kicked, bit, or punched

you? (2) Has anyone slapped, pushed, grabbed, or shoved you? (3) Has anyone attacked you with a gun, knife or some other weapon? (4) Has anyone attacked you without a weapon, but with the intent to cause you physical injury?" Response options were yes or no. Due to low base rates, items were collapsed into a single variable reflecting any sexual or physical revictimization (1 = yes, 0 = no).

Study conditions

The three study conditions included (1) PPRS, a 9-min video intervention we designed to reduce psychopathology and substance misuse (masked); (2) Pleasant Imagery and Relaxation Instruction (PIRI), a 9-min "active comparison" video, edited for content and length from *Relax* ©, David Garrigus Productions; and (3) TAU, which involved completion of a SAMFE by a Sexual Assault Nurse Examiner. Mindfulness was selected as the active comparison condition because we could create a video similar in length to the PPRS that would engage participants and provide content that has been shown to have positive effects on substance use and mental health (Wielgosz et al. 2019).

Analytic plan

First, we estimated the frequency of sexual or physical revictimization over the 6-month follow-up. We then used logistic regression to estimate the unadjusted and adjusted odds of victimization during the follow-up period with demographics, study condition, rape characteristics, ED variables, and historical variables as predictors. Descriptive statistics were examined via SPSS version 27 and regression models were tested in Mplus version 8.7. We retained participants with missing data in analyses and used maximum likelihood estimation with robust standard errors to handle missingness.

Results

Sample characteristics

The sample was 27 years old on average, the majority (59.7%) identified as an ethnic or racial minority, and most (77.3%) had a high school education or more. Only 13.6% of the sample was married, less than half (48.1%) were employed outside the home or in school, and 59.1% reported an annual income of under \$10,000. Chi-square analyses revealed that treatment groups did not differ in age, minority status, marital status, education, household income, or employment status ($ps > 0.05$).

Prevalence of sexual or physical victimization within 6 months of index rape

Of the 121 women who provided T3 data, 21.7% ($n = 26$) reported physical and/or sexual revictimization over the 6-month follow-up; 2.5% ($n = 3$) reported only sexual revictimization, 15.7% ($n = 19$) reported only physical revictimization, and 3.3% ($n = 4$) reported both.

Assault characteristic, historical, and ED variables

Nearly half (43.5%) remembered their assault well or very well, 57.0% reported fearing for their life during the assault, and 51.9% reported that their assault involved alcohol or drug incapacitation (**Table 1**). Nearly three-quarters (74.7%) reported sexual or physical victimization prior to the index rape, and the mean SUDS rating before the exam was 70.5 (out of 100). Due to randomization, participants were evenly split across intervention conditions.

Unadjusted odds of physical or sexual victimization over follow-up

The unadjusted odds of physical or sexual victimization during the 6-month follow-up are presented in Table 1. Among the demographic characteristics, income was significantly associated with revictimization, such that those making more than \$10,000 were less likely

Table 1 Unadjusted and adjusted odds of physical or sexual victimization over follow-up by demographic, assault, and ED factors ($N = 233$)

	<i>Demographic or ED assessed characteristic M (SD)/% n</i>	<i>Unadjusted odds of physical or sexual victimization over follow-up</i>	<i>Adjusted odds of physical or sexual victimization over follow-up</i>
Age [^] (years)	$M = 27.43$ ($SD = 9.70$)	1.03 (0.98–1.07)	0.99 (0.94–1.05)
Racial/ethnic minority [^] (1)	59.7% ($n = 139$)	0.74 (0.31–1.77)	0.32 (0.09–1.10)
Married (1)	13.6% ($n = 21$)	1.01 (0.53–1.95)	0.88 (0.63–1.24)
Income (1 = 10 K +)	40.9% ($n = 56$)	0.34* (0.12–0.99)	0.18* (0.04–0.86)
Employed (1 = emp)	48.1% ($n = 74$)	0.73 (0.31–1.76)	1.73 (0.48–6.12)
Education (1 = HS +)	77.3% ($n = 119$)	0.78 (0.29–2.11)	0.67 (0.16–2.75)
Memory	43.5% ($n = 67$)	2.47** (1.01–6.01)	1.52 (0.40–5.74)
Life threat	57.1% ($n = 88$)	5.50** (1.76–17.19)	4.08 (0.94–17.79)
DAFR assault [^]	51.9% ($n = 121$)	0.29** (0.11–0.73)	0.62 (0.14–2.70)
Prior assault	74.7% ($n = 115$)	12.90** (1.67–29.62)	17.88** (1.77–38.35)
Pre-exam SUDS [^]	$M = 70.5$ ($SD = 28.0$)	1.02* (1.01–1.04)	1.02 (0.99–1.05)
PPRS vs TAU [^]	33.0% ($n = 77$) vs. 33.9% ($n = 79$)	1.03 (0.29–3.63)	0.60 (0.12–3.08)
PIRI vs TAU [^]	33.0% ($n = 77$) vs. 33.9% ($n = 79$)	0.57 (0.16–2.08)	0.49 (0.09–2.64)

[^] Assessed or assigned among 233 at the emergency department visit. All other variables assessed at T1.

DAFR, drug or alcohol facilitated rape; SUDs, subjective units of distress; PPRS, Prevention of Post-Rape Stress, PIRI, Pleasant Imagery and Relaxation Instruction; TAU, Treatment as Usual. Bolded values reflect significant effects.

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

to experience revictimization compared to those who made less than \$10,000 annually. Among rape characteristics, those with greater memory for the rape and those who feared for their life during the rape had 2.5 and 5.5 times the odds of revictimization over follow-up, respectively. Those whose rapes involved drug or alcohol facilitation were less likely to experience revictimization over follow-up. Those who reported greater distress at the ED had higher odds of physical and sexual victimization over follow-up. Specifically, each 1-point increase in SUDs was associated with a 2% increase in likelihood of revictimization.

The strongest unadjusted predictor of sexual or physical victimization over follow-up was a history of physical or sexual victimization prior to the current rape. Specifically, those with prior victimization were 13 times more likely than those without to be revictimized. No differences in sexual or physical victimization over follow-up emerged by intervention condition.

Adjusted odds of physical and sexual victimization over follow-up

In a model adjusting for all demographic, assault characteristic, prior history, and ED variables, only income and prior history of assault uniquely predicted increased risk of physical or sexual victimization over follow-up (Table 1).

Discussion

This secondary analysis examined prevalence and predictors of sexual or physical victimization over a 6-month period among women who presented to the ED for a rape-related medical exam and enrolled in larger randomized controlled trial. Slightly more than one in five participants reported exposure to at least one incident of sexual or physical victimization during the 6-month follow-up; however, the prevalence of revictimization likely represents an underestimate given the probability that more severely victimized participants may have been less likely to complete follow-ups (Walsh et al. 2012a). In unadjusted models, women who made less than \$10,000 annually and had greater memory for the rape, greater life threat during the rape, a prior history of assault, and greater distress at the ED were more likely to experience physical or sexual revictimization; women whose rape involved drug or alcohol facilitation were less likely to experience physical or sexual revictimization over follow-up. In adjusted models, only women making less than \$10,000 annually and those with a prior history of assault had elevated risk for physical or sexual revictimization over follow-up, potentially indicating a clear subset of survivors with whom to intervene.

In prior work, ~ 33% of women with lifetime sexual violence histories have reported a new assault within 1 year (Ullman 2016), but the current study suggests that more than one in five women with recent rape who present for a SAMFE had a new sexual or physical victimization within as little as 6 months. The high rate of revictimization within a relatively brief timeframe is concerning, particularly in light of the well-documented negative effects of repeated exposure to violence and victimization (Ullman & Peter-Hagene 2016; Walsh et

al. 2012b). The majority (88%) of these incidents involved physical victimization, consistent with previous findings on co-occurrence of these events and that physical victimization is more prevalent than sexual victimization (Smith et al. 2018; Walsh et al. 2015).

A history of sexual or physical assault prior to the recent rape was the strongest predictor of subsequent sexual or physical assault. In unadjusted models, women with histories of victimization were nearly 13 times more likely to experience subsequent sexual or physical assault compared to those without a prior history. In adjusted models, this estimate increased so that women with a prior history were nearly 18 times more likely to experience subsequent sexual or physical assault. We observed wide confidence intervals around both estimates, suggesting that these odds should be interpreted cautiously. Nonetheless, these findings fit with a large literature documenting a high prevalence of sexual and physical revictimization (Walker et al. 2019) and paint a concerning picture of repeated victimization for some survivors, potentially signifying the presence of dangerous environments, violent partners or both. That 75% of the women presenting to the ED had a prior history of victimization underscores a strong need to develop secondary prevention and intervention approaches for this group of survivors.

The finding that women who made less than \$10,000 annually were at higher risk for revictimization in unadjusted and adjusted models highlights financial resources as potentially critical intervention targets. Addressing poverty may be a central component of mitigating against violence (Loya 2014) and revictimization. Policies that offer material resources alongside support to survivors in the immediate aftermath of rape to support their well-being in moments when employment may be difficult (e.g., due to disabling anxiety or avoidance of rape-related cues) could create contexts that reduce revictimization risk.

In unadjusted models, greater memory for the rape, greater life threat, and higher levels of distress at the ED were associated with increased risk for revictimization over follow-up, although these rape characteristics did not remain significant after accounting for prior victimization and poverty. These findings fit with prospective work showing that perceived threat of harm mediates association between past and subsequent physical or sexual victimization in the following year (Jaffe et al. 2019) and suggest that greater memory for the rape

and fear during the rape may increase distress that can be observed at the ED. In turn, heightened distress may predict risk for new victimization, although prior assault and poverty appear to be the strongest predictors of revictimization in this sample.

Contrary to hypotheses, RCT study conditions did not have a detectable effect on subsequent physical or sexual victimization, but this may have been due to low power or because the study conditions did not directly target revictimization. Revictimization prevalence ranged from 17.1 to 26.2% depending on treatment condition, with TAU having the highest rates and PIRI having the lowest. However, these were not statistically significant differences, and future studies with larger samples are needed.

Limitations of the current study should be acknowledged. Although this is a unique and difficult-to-recruit sample, the number reporting revictimization was small, and we were consequently unable to explore subsequent sexual and physical victimization separately in primary analyses. Only 66% of those enrolled at the ED completed the T1 assessment and only 78% of T1 participants completed the T3 assessment. Although missingness was not associated with any measured variables, those with more severe victimization experiences are less likely to be retained in longitudinal research (Walsh et al. 2012a); thus, it is possible that those who did not participate in follow-up interviews had greater exposure to revictimization over time. The questions used to assess revictimization were only given at the third follow-up and lacked important details on the contexts in which the subsequent victimization experiences occurred, including relationship to perpetrator, whether substance use was involved and whether injury occurred. Survivors who are most likely to experience revictimization within a brief timeframe may be those who are victimized in the context of ongoing intimate partner violence. Data on the timing of first exposure to violence also may be important for understanding revictimization risk. Different prevention approaches may be needed depending on the risk context. Due to small sample sizes for analyses, we also collapsed several demographic variables such as race and marital status that are important to examine in larger samples. Some important demographics such as sexual orientation and gender identity were not assessed but should be included in future work. Data collection finished in 2013; thus, associations may look different in more recent samples.

Despite these limitations, this secondary analysis highlights a concerning rate of physical and sexual revictimization among recent rape victims and suggests the value of screening at the ED for prior history of assault, current assault-related factors, distress at the ED, and annual income to provide secondary prevention programming to reduce revictimization risk. Reducing posttraumatic distress through treatment has been shown to reduce risk for interpersonal revictimization (Iverson et al. 2011). Thus, preventing rape-related mental health sequelae after a SAMFE could similarly mitigate risk for revictimization. However, distress also may reflect valid concerns about ongoing safety given the high rates of revictimization in this sample, and policy and structural changes to ensure access to financial resources and safe environments also warrant consideration. Future research on the contexts of subsequent assaults and the medico-economic impacts of assault will be important to inform tailored prevention programming for women at highest risk for revictimization.

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Conflict of interest The authors declare no competing interest.

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