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Patterns of drug and alcohol use associated with lifetime sexual revictimization and current posttraumatic stress disorder among three national samples of adolescent, college, and household-residing women ☆

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HIGHLIGHTS

- We used three national female samples to measure rape, PTSD, and substance use.
- We documented heightened substance use among revictimized respondents.
- Patterns of substance use varied by respondent age.
- Current PTSD contributed to heightened risk for substance use.

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ABSTRACT

Sexual revictimization (experiencing 2 or more rapes) is prevalent and associated with increased risk for posttraumatic stress disorder (PTSD) and substance use. However, no national epidemiologic studies have established the prevalence or relative odds of a range of types of substance use as a function of sexual victimization history and PTSD status. Using three national female samples, the current study examined associations between sexual revictimization, PTSD, and past-year substance use. Participants were 1763 adolescent girls, 2000 college women, and 3001 household-residing women. Rape history, PTSD, and use of alcohol, marijuana, other illicit drugs, and non-medical prescription drugs were assessed via structured telephone interviews of U.S. households and colleges in 2005–2006. Chi-square and logistic regression were used to estimate the prevalence and odds of past-year substance use. Relative to single and non-victims: Revictimized adolescents and household-residing women reported more other illicit and non-medical prescription drug use; revictimized college women reported more other illicit drug use. Past 6-month PTSD was associated with increased odds of drug use for adolescents, non-medical prescription drug use for college women, and all substance use for household-residing women. Revictimization and PTSD were associated with more deviant substance use patterns across samples, which may reflect self-medication with substances. Findings also could be a function of high-risk environment or common underlying mechanisms. Screening and early intervention in pediatric, primary care, and college clinics may prevent subsequent rape, PTSD, and more severe substance use.

1. Introduction

Rape is a significant societal problem. Data from the World Health Organization indicate that sexual intimate partner violence is reported by 6.2–58.6% of women aged 15–49 worldwide (Garcia-Moreno, Guedes, & Knerr, 2010). Centers for Disease Control (CDC) data suggest that 18.3% of U.S. adult women report attempted or completed rape, including drug or alcohol facilitated/incapacitated rape, during their lifetimes (Black et al., 2011). Rape victims report higher prevalence of public health problems including drug and alcohol use, abuse, and dependence compared to non-victims (Burnam et al., 1988; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007; Kilpatrick et al., 2000; Kilpatrick et al., 2003). For example, in a national household sample of women, incapacitated rape (i.e., unable to consent/resist due to voluntary substance

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use) has been identified as a correlate of victims' past year binge drinking, marijuana, and illicit drug use while forcible and drug facilitated rape (i.e., perpetrator administered substances to impair victim's ability to consent/resist) have been identified as correlates of victims' past year marijuana and illicit drug use (McCauley, Ruggiero, Resnick, & Kilpatrick, 2010). Thus, different rape tactics (e.g., force, incapacitation) are associated with different substance use correlates.

Exposure to multiple rapes, often termed sexual revictimization, is one factor associated with different functioning patterns that has been understudied in the epidemiologic literature (e.g., Arata, 1999). CDC data indicate that 35.2% of women who reported a rape before the age of 18 also experienced revictimization as an adult (Black et al., 2011). In a previous study examining posttraumatic stress disorder (PTSD), more than 50% of adolescent, college, and household-residing female victims reported sexual revictimization (Walsh et al., 2012b); however, that study did not examine substance use patterns of revictimized women. National studies that have examined broader forms of victimization (e.g., neglect, physical abuse, partner violence) suggest that adults who have experienced two or more forms of victimization report higher prevalence of substance use disorders (Hughes, McCabe, Wilsnak, West, & Boyd, 2010). However, there is a dearth of epidemiologic information regarding whether sexual revictimization is associated with heightened substance use or different substance use patterns among girls and women at various ages and across different contexts (e.g., college versus household-residing). Given that risk for substance use initiation and sexual assault are both highest during adolescence and early adulthood (e.g., Humphrey & White, 2000; Johnston, O'Malley, Bachman, & Schulenberg, 2011), and substance use can be both a risk factor for and an outcome of sexual assault (Testa & Livingston, 2000), it is important to understand whether associations between sexual assault and types of substance use are circumscribed to a particular age range or context or whether these associations change systematically across developmental periods. Better understanding the progression of the substance use–sexual assault association across different age ranges may improve treatment and risk reduction programming.

If sexually revictimized women are more likely to report heightened substance use relative to single and non-victims, a logical next question concerns why these associations exist. The self-medication hypothesis suggests that trauma victims are more likely to engage in substance use to cope with distress (Khantzian, 1997). Several empirical studies have identified substance use as a coping motive for distress, particularly PTSD symptoms, associated with rape (Miranda, Meyerson, Long, Marx, & Simpson, 2002; Ullman, Filipas, Townsend, & Starsynski, 2005). Further, data from convenience samples indicate that sexual revictimization is associated with greater use of drugs and alcohol to cope with distress, including PTSD (Filipas & Ullman, 2006; White & Widom, 2008). However, associations between sexual revictimization and substance use have been largely unexplored in epidemiologic samples. Furthermore, although coping with increased distress associated with experiencing multiple rapes is one potential explanation for elevated substance use among revictimized women, and revictimized women report more distress such as PTSD relative to single and non-victims (Walsh et al., 2012b), it also is possible that heightened use among revictimized women reflects use prior to the most recent rape. Therefore, the current study will test whether distress in the form of PTSD fully accounts for the association between rape exposure and substance use or whether revictimization continues to have an association with substance use even after accounting for PTSD. Using three national female samples (adolescent girls, college women, and household-residing women), aims for the present study were to:1. Test the hypothesis that sexually revictimized respondents will report using different types of substances (i.e., alcohol, marijuana, other illicit drugs, and prescription drugs) relative to single victims and non-victims.2. Examine the relative odds of past-year substance use by lifetime rape (single versus revictimization) and past 6-month PTSD.

2. Method

2.1. Participants and procedures

Data were drawn from two national surveys encompassing three separate sampling frames: adolescent participants from the National Survey of Adolescents-Replication (NSA-R), and college and household-residing participants from the National Women's Study-Replication (NWS-R). All procedures were approved by the Institutional Review Board.

2.1.1. Adolescent participants

The NSA-R is a longitudinal, nationally representative study of adolescents aged 12–17 years ($n = 3614$ at wave 1) designed to assess risk factors and mental health consequences of traumatic event exposure. This random digit dial (RDD) telephone survey of households with children between the ages of 12 and 17 included an oversample of urban households. After obtaining parent informed consent and adolescent assent, trained interviewers administered a 43 minute survey; adolescents received $10. Of the 6694 parents interviewed, 5426 (81.1%) gave permission for adolescent contact, and 3921 (72.3%) of these adolescents were located during the field period; 188 refused to participate, 119 did not finish the interview, and 3614 (92.2%) completed the interview. Only the 1763 NSA-R female participants at wave 1 (collected in 2005) were included here. To correct for oversampling, the data were weighted for urbanicity as well as age and gender using the 2005 U.S. adolescent population. The mean age of participants at wave 1 was 14.5 years ($SD = 1.71$). Regarding race/ethnicity, 68.3% ($n = 1205$) were White, 13.5% ($n = 237$) Black, 10.5% ($n = 185$) Hispanic, 2.7% ($n = 47$) Native American, and 2% ($n = 36$) Asian. Demographic characteristics of the female-only sample did not differ significantly from the full sample.

2.1.2. College participants

The National Women's Study-Replication (NWS-R), conducted in 2006 is a telephone survey of rape prevalence and characteristics (Kilpatrick et al., 2007). Following informed consent, trained female interviewers administered a 20-minute structured phone survey. The participants were 2000 college women from the American Student List (ASL), which included 6 million students attending 1000 U.S. colleges and universities. The purchased sample contained 17,000 women from 253 colleges and 47 different states. Of the numbers contacted ($n = 3805$), 28.8% ($n = 1094$) were ineligible due to not having an English-speaking woman aged 18 or older who was enrolled at least half-time as an undergraduate student when the survey was conducted. Among eligible households ($n = 2,711$), the completion rate was 73.8%; 8.9% ($n = 240$) refused to participate and 17.7% ($n = 480$) did not complete the interview. The mean age was 20.1 ($SD = 1.7$) with a range from 18to 67. Approximately 75% ($n = 1500$) of the sample reported their race as White, 11.1% ($n = 221$) Black, 6% ($n = 120$) Hispanic, 1.1% ($n = 22$) Native American, and 6% ($n = 120$) Asian, and 0.4% ($n = 8$) did not report race.

2.1.3. Adult household-residing participants

A household probability sample of 3001 adult women also participated in the NWS-R phone survey. Whereas college NWS-R participants were selected using the ASL, household-residing NWS-R participants were sampled via RDD methods. Of the numbers contacted ($n = 15,982$), 76.2% ($n = 12,182$) were ineligible because they were not connected to a household (e.g., an office building) or did not contain an English-speaking woman aged 18 to 54. Among eligible women ($n = 3817$), 12.9% ($n = 492$) refused to participate and 8.5% ($n = 324$) did not complete the interview. The cooperation rate among eligible participants was 78.6%. Because most women in the general population sample were aged 18–34 (younger women were oversampled to assist comparisons to college women), weights were created using 2005 US Census estimates. The weighted mean age was 46.6 ($SD = 17.87$).