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Suicidal Ideation among Adults with a Recent Sexual Assault: Prescription Opioid Use and Prior Sexual Assault

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Abstract

Introduction: Sexual assault (SA) is common, and recent sexual assault is associated with suicidal ideation and prescription opioid (PO) use. PO use is also associated with increased risk of suicidal ideation. The current study examined suicidal ideation among adults seeking medical and psychological follow-up care after a SA medical forensic examination based on PO use and prior SA.

Methods: Adults ($n = 60$) who received a SA medical forensic exam at the emergency room within 120 hours of a SA were invited to receive medical and psychological follow-up care, which included a questionnaire about current mental health symptoms.

Results: Results from a linear regression model revealed that more acute stress symptoms were associated with higher suicidal ideation. Further, there was a significant association between PO use and suicidal ideation among those with a prior SA such that those with a prior SA and who used POs reported more severe suicidal ideation than those with a prior SA who did not use POs.

Conclusions: Routine screening at the emergency department for PO use and prior SA may help prevention efforts for suicide among adults who recently experienced SA.

Keywords

prescription opioid use; suicidal ideation; sexual assault

Sexual assault (SA) is a significant public health concern, with approximately 7% to 22% of women reporting lifetime SA (Hilden et al., 2004; Resnick et al., 2000; Tjaden & Thoennes, 2000; Elliott, Mok, & Briere, 2004). SA has been linked to significant mental health

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Conflict of Interest

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consequences, including suicidal ideation (Thompson, Kaslow, & Kingtree, 2002; Ullman & Brecklin, 2002). SA history increases risk of past-year suicide attempts fivefold (Tomasula, Anderson, Littleton, & Riley-Tillman, 2012). Suicidal ideation—thinking about, considering, or planning for suicide (Crosby, Ortega, & Melanson, 2011)—is an important, albeit imperfect predictor of subsequent suicidal behavior. In an international study, nearly one third of individuals with suicidal ideation went on to make a suicide plan and 72% of those with a plan went on to attempt suicide (Nock et al., 2008). Therefore, it is important to elucidate risk factors for suicidal ideation.

Prescription opioid (PO) use is associated with increased risk for suicide (Marchand et al., 2017), with the majority of overdoses involving POs (Rudd, Seth, David, & Scholl, 2016). SA is associated with higher risk of PO use (Walsh et al., 2015) and suicidal ideation (Balsam, Lehavot, & Beadnell, 2011). The current study examined the association between PO use, prior SA, and suicidal ideation among women who received a SA forensic medical examination (SAMFE) at the emergency department.

PO use, SA, and suicidal ideation

Traumatic event exposure, including SA, is associated with PO use and disorders (Sturza & Campbell, 2005; Walsh et al., 2015). Although those seeking opioid maintenance treatment report exposure to multiple traumas over the life course, SA is the most commonly reported “worst” trauma (Kjoesnes, Waal, Hauff, & Gossop, 2017).

PO use has been linked with suicidal ideation. In a nationally representative sample, 7% of former opioid users, 11% of persistent users, and 9% of recent-onset users reported suicidal ideation (Kuramoto, Chilcoat, Ko, & Martins, 2012). In a case-control study, 66% of opioid-dependent individuals reported lifetime suicidal ideation compared with 55% of non-opioid-dependent controls matched on age, sex, and employment status (Maloney, Degenhardt, Darke, Mattick, & Nelson, 2007). In a sample of long-term opioid-dependent individuals, 44% reported a lifetime history of suicidal ideation (Marchand et al., 2017). These findings suggest a strong association between PO use and suicidal ideation as well as between SA and PO use.

Re-victimization and suicidal ideation

Experiencing multiple SAs is common, as nearly half of all childhood SA survivors experience re-victimization in the form of adult SA (Walker, Freud, Ellis, Fraine, & Wilson, 2017). While any experience of SA can increase risk for suicidal ideation and attempts (Chang et al., 2017; Davidson, Hughes, George, & Blazer 1996; Stein et al., 2010), experiencing multiple assaults or traumas can further exacerbate this risk (Bryan et al., 2013; Cloitre et al., 1997; Stein et al., 2010). For example, Balsam, Lehavot, and Beadnell (2011) found that SA in *either* childhood or adulthood nearly doubled the odds of suicidal thoughts/attempts, whereas re-victimization increased the odds of suicidal thoughts/attempts nearly five-fold.

Re-victimization may increase risk for suicidal behaviors by contributing to an underlying vulnerability (Bryan et al., 2013; Rudd, 2006). Whereas a single SA may activate negative

cognitions about the self, the world, and others, a second SA may be interpreted as confirmation of these beliefs, exacerbating distress and perhaps a sense of hopelessness. There is a cumulative effect of trauma on distress (e.g., Nilsson, Dahlström, Priebe, & Svedin, 2015) and sexual re-victimization is associated with heightened distress (see Classen et al., 2005). Further, mental health symptoms including posttraumatic stress disorder and substance use contribute to suicidality among adults with SA histories (Gilmore et al., 2018).

Current Study

The current study examined suicidal ideation among adults seeking medical and psychological follow-up care after a SA medical forensic examination (SAMFE). It was hypothesized that a prior SA and PO use would be associated with more suicidal ideation (Chang et al., 2017; Marchand et al., 2017; Stein et al., 2010). It was also hypothesized that acute stress and depressive symptoms would be associated with more suicidal ideation. The current study extended previous findings by examining if prior SA moderated the association between PO use and suicidal ideation. It was hypothesized that the association between PO use and suicidal ideation would be stronger among those with a prior SA due to their increased risk of suicidal ideation. Further, drug use and alcohol misuse were included as control variables and it was hypothesized that similar to PO use, drug use and alcohol misuse would be associated with more suicidal ideation. Due to the high risk of suicide among those who use POs (Marchand et al., 2017), it is critical to identify those at highest risk of suicidal ideation, particularly among those who experienced a recent SA.

Methods

Participants and Procedures

Individuals who received a SAMFE at the local emergency room within 120 hours of a SA, and between October 2016 and March 2018, were invited to receive medical and psychological follow-up care from the local hospital. Individuals were included as a part of the study if they initiated follow-up care within 60 days of the SAMFE and if they completed the questions of interest for the current study ($n = 60$; 95% women). The majority of participants identified as White (70.5%), while the remaining participants identified as Black/African American (23.0%), Hispanic (1.6%), or multiracial (4.9%).

Measures

Demographics.—Participant age at the time of the assault and days since the SAMFE were determined using medical records.

Suicidal ideation.—Suicidal ideation was assessed using one item from the Patient Health Questionnaire-9 (Kroenke, Spitzer, & Williams, 2001): “Over the past 2 weeks, how often have you been bothered by thoughts that you would be better off dead or hurting yourself in some way.” Answer choices ranged from 0 (*Not at all*) to 3 (*Nearly every day*).

Substance use.—Opioid use was assessed using a single item “In the past year, have you used/taken opiates including those that you were prescribed (e.g., oxycontin, percocet, percodan, demerol, dilaudid, fentanyl, carfentanil, morphine, hydrocodone, methadone)?”

Lifetime drug use was assessed using a single item question “Have you ever used drugs other than those required for medical reasons?” Alcohol misuse was assessed using the AUDIT-C (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998) and included three items summed, with higher scores indicating more severe problematic alcohol use ($\alpha = .80$).

Prior SA.—Participants were asked if they had “experienced sexual violence/sexual assault/rape in the past.” Participants were categorized as either having a prior SA (=1) or no prior SA (=0).

Acute stress symptoms.—Posttraumatic stress symptoms were assessed using the Posttraumatic Stress Disorder Checklist for DSM-5 (Blevins et al., 2015). This assessment includes 20-items assessing symptoms of posttraumatic stress with answer choices ranging from 0 (*Not at all*) to 4 (*Extremely*). Items were summed with a suggested clinical cut off score of 33 (current sample $\alpha = .91$).

Depressive symptoms.—The Patient Health Questionnaire-9 (Kroenke, Spitzer, & Williams, 2001) minus the suicidal ideation question already described was used to assess depressive symptoms in the past two weeks using eight items. Answer choices ranged from 0 (*Not at all*) to 3 (*Nearly every day*) and were summed (current sample $\alpha = .82$).

Analysis Plan

A linear regression model was estimated in MPlus 8.0 using maximum likelihood with age, acute stress symptoms, depressive symptoms, prior SA, opioid use, drug use, and alcohol misuse as predictors. Acute stress symptoms and depressive symptoms were centered in the model.

Results

Descriptive Statistics

On average, participants were 28.71 years old ($SD = 9.79$) and completed the questionnaire 10.79 days ($SD = 12.68$) after their SAMFE (see Table 1). The average participant reported clinically significant levels of acute stress symptoms and depressive symptoms. A total of 68.4% indicated that they were intoxicated by alcohol or drugs at the time of the assault, 33.3% believed that their perpetrator drugged them, and 70.2% indicated that the perpetrator used force (or threats) during the assault. In 59.3% of the assaults, the perpetrator was a known individual rather than a stranger. Finally, 34.2% of the sample reported suicidal ideation at least several days, and this variable was within the acceptable limits of skewness (1.49) or kurtosis (1.19), therefore, a linear regression model was used.

Regression Model

Results from the linear regression model revealed that more acute stress symptoms were associated with higher suicidal ideation (see Table 2). There was a significant association between PO use and suicidal ideation, however, this finding should be interpreted with caution as there was a significant interaction between prior SA and opioid use on suicidal ideation. Tests of the simple slopes revealed that there was a significant association between

opioid use and suicidal ideation among those with a prior SA ($\beta = .91, p = .001$) such that those with a prior SA and who used opioids reported more severe suicidal ideation than those who did not use opioids with a prior SA. There was not a significant association between opioid use and suicidal ideation among those who reported no prior SA ($\beta = -.20, p = .48$).

Discussion

The current study examined opioid use and prior SA as predictors of suicidal ideation among adults who experienced a recent SA. Results partially supported study hypotheses. Acute stress was associated with greater suicidal ideation. Although there was a significant negative association between PO use and suicidal ideation, this finding should be interpreted with caution because there was a significant interaction between PO use and prior SA on suicidal ideation. Past year PO use was associated with greater suicidal ideation among individuals with a prior SA; however PO use was not associated with suicidal ideation among people without a prior SA. Previous researchers have reported that PO dependence and SA are associated with suicidal ideation (Balsam et al., 2011; Maloney et al., 2007). Sexual re-victimization may increase the likelihood of PO use (Sturza & Campbell, 2005; Walsh et al., 2015). The current synthesizes these separate findings among adults with recent SA by indicating that overall acute stress symptoms, as well as PO among those with a prior SA were indicators of risk for suicidal ideation among adults who receive SAMFEs.

It is essential to identify people in the greatest need of preventative services for suicide following a SAMFE because SA is strongly associated with suicide attempts (Baslam et al., 2011), yet less than half of patients engage in follow-up mental health care (Price et al., 2014). In the current sample, a 40% of individuals with a recent SA used PO in the past year, only slightly higher than estimates of PO use in national samples of adults (37.8%; Han et al., 2017). Further, 36.7% of individuals with a recent SA had a prior SA. It is essential to screen for PO use, prior SA, and suicidal ideation in the weeks following a SAMFE.

Several potential mechanisms may explain the association between past year PO use and suicidal ideation among adults with prior SA. For example, chronic pain is associated both with SA (Spiegel et al., 2016) and suicidal ideation (Hassett, Aquino, & Iigen, 2014). Another possible explanation relates to the hypothalamic-pituitary-adrenal (HPA) axis. It has been found that blunted cortisol response to a stress task is associated with suicide attempts (Melhem et al., 2016). Blunted cortisol response to a stress task is also found among individuals with posttraumatic stress disorder and traumatic event exposure (Carpenter et al., 2011; Wichmann et al., 2017). Further, there is preliminary evidence that women with PO use disorder have a blunted cortisol response to a stress task compared to men with PO use disorder (Gilmore et al., under review). Taken together, it may be that PO use combined with prior SA may compound blunted cortisol stress response, thus increasing risk of suicidal ideation and even potentially suicide attempts. In order to further inform preventive services for suicide, future research is needed to identify mechanisms, including blunted cortisol response to a stress task, that account for the association between PO use and suicidal ideation among people with recent SA.

It was surprising that drug use and alcohol misuse were not associated with suicidal ideation. It is possible that there was a ceiling effect in the current sample, as the mean alcohol misuse score was above the clinical cutoff and over half of the sample had used drugs in the past. Further, substance use was not mutually exclusive and it's possible that some individuals used POs, drugs, and misused alcohol. Future work should examine these associations among a larger sample of individuals with recent SA.

Strengths and Limitations

This study fills a significant research gap by investigating the link between prior SA, opioid use, and suicidal ideation among a high-risk population of adults seeking medical and psychological follow-up after a SAMFE. While the study provides insight for this population, several limitations should be noted. The measures of suicidal ideation, PO use, and SA each included one-item measures. Although this provided an opportunity to test for the associations between these constructs, future researchers should utilize more in-depth assessment to confirm these findings including amount of PO use and misuse, suicidal behavior and attempts, childhood sexual abuse and comprehensive adult sexual assault history, and characteristics of the assault including perceived life threat. Finally, results were cross-sectional, which limits longitudinal investigation of trends of these variables. An important next step may be to identify additional risk factors related to suicidal ideation and opioid use, such as length of time of opioid use, presence of dependence, and prescription versus non-prescription use.

Clinical Implications

The current study informs suicide prevention by suggesting that completing safety planning with people who have past year opioid use during SAMFE may be warranted, with consistent re-screening at follow-up visits. Further, due to the association between acute stress and suicidal ideation reported in the current sample, the onset of acute stress and subsequent PTSD symptoms following SA should be considered as an additional risk factor for suicidal ideation in follow-up screening.

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Highlights

- Sexual assault (SA) is associated with suicidal ideation and opioid use
- Recent SA and revictimization are associated with acute mental health problems
- Opioid use was associated with more suicidal ideation among recent SA survivors with a prior SA
- Routine screening in the emergency department for opioid use is needed for recent SA survivors

Table 1

Descriptive Statistics of Variables

	<i>M (SD)</i>	<i>% (n)</i>
Suicidal ideation	0.57 (0.95)	
Age	28.71 (9.79)	
Days since SAMFE	10.79 (12.68)	
Acute stress symptoms	47.70 (16.96)	
Depressive symptoms (without suicide item)	15.12 (5.66)	
Alcohol misuse	3.05 (2.64)	
Lifetime drug use		55.70% (27)
Prior sexual assault		36.70% (22)
Opioid use		40.00% (24)

Table 2

Predictors of Suicidal Ideation

Interaction Model	β (SE)	Est./S.E.
Age	.069 (.155)	0.652
Days since SAMFE	-.078 (.147)	2.884
Acute stress symptoms	.322 (.150) [*]	2.147
Depressive symptoms	.112 (.155)	0.726
Alcohol misuse	-.037 (.176)	-.211
Lifetime drug use	.159 (.129)	1.233
Prior sexual assault	-.100 (.141)	-0.309
Opioid use	-.240 (.118) [*]	-2.031
Prior sexual assault X Opioid use	.425 (.147) ^{**}	2.884

Note.

^{**}
 $p < .01$

^{*}
 $p < .05$.