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Predictors of Using Mental Health Services After Sexual Assault

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Abstract

Sexual assault increases the risk for psychopathology. Despite the availability of effective interventions, relatively few victims who need treatment receive care in the months following an assault. Prior work identified several factors associated with utilizing care, including ethnicity, insurance, and posttraumatic stress disorder (PTSD) symptoms. Few studies, however, have examined predictors of treatment utilization prospectively from the time of assault. The present study hypothesized that White racial status, younger age, being partnered, having health insurance, having previously received mental health treatment, and having more PTSD and depression symptoms would predict utilization of care in the 6 months postassault. This was examined in a sample of 266 female sexual assault victims with an average age of 26.2 years, of whom 62.0% were White and 38.0% were African American assessed at 1.5 and 6 months postassault. Available information on utilizing care varied across assessments (1.5 months, $n = 214$; 3 months, $n = 126$; 6 months, $n = 204$). Significant predictors included having previously received mental health treatment ($OR = 4.09$), 1 day depressive symptoms ($OR = 1.06$), and having private insurance ($OR = 2.24$) or Medicaid ($OR = 2.19$). Alcohol abuse and prior mental health care were associated with a substantial increase in treatment utilization ($OR = 4.07$). The findings highlight the need to help victims at risk obtain treatment after sexual assault.

Sexual assault is a highly traumatic event that increases distress and psychopathology relative to other traumas (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). Longitudinal studies indicate that distress decreases within the first months for many (Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992), yet a large proportion of victims develop chronic symptoms that result in poorer quality of life and functional impairment (Pacella, Hruska, & Delahanty, 2012; Suris, Lind, Kashner, & Borman, 2007). Although interventions can be beneficial shortly after the event (Kearns, Ressler, Zatzick, & Rothbaum, 2012), a small portion of victims (19%–39%) receive treatment (Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001; Kimerling & Calhoun,

1994; Ullman, 2007). Factors that motivate or prevent this vulnerable population from utilizing treatment soon after the assault are not well understood.

The behavioral model for access to medical care provides a framework to understand a patient's choice for utilizing mental health treatment (Andersen, 2008). Utilizing mental health treatment is defined here as attending psychological treatment for distress related to the assault. The first domain of the framework, predisposing factors, includes the social environment, demographic information, and cultural perspectives. For sexual assault victims, age, partnered status, and race have been associated with treatment utilization. Prior work has shown that African Americans were less likely to seek treatment in retrospective (Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2008; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011; Ullman & Brecklin, 2002) and prospective reports (Alvidrez, Shumway, Morazes, & Boccelli, 2011). Potential mechanisms for this association, however, have been unexplored in the sexual assault literature. Lack of resources to obtain services is one potential mechanism. For example, African Americans are less likely to have health insurance than Caucasians (Adams, Kirzinger, & Martinez, 2012), which has been identified as a cause of this disparity (Alvidrez et al., 2011). Victims who were partnered were less likely to receive treatment from formal sources (e.g., mental health professionals), potentially due to their use of informal sources of care (e.g., partners; Amstadter et al., 2008). Lastly, younger victims were more likely to utilize mental health services (Lewis et al., 2005; Shapiro et al., 1984).

The second component, enabling factors, includes the availability of resources to the individual as well as the financial means to obtain health care. Prior use of mental health care is posited as an enabling factor in that the individual knows where to receive care and has an existing relationship with a provider. Similarly, having access to affordable care through health insurance is another enabling resource. Private insurance significantly increases the likelihood of mental health care utilization in the general population ($OR = 1.20$; Wang et al., 2005) and in sexual assault samples ($OR = 1.53$, Ullman & Brecklin, 2002).

Next, evaluated need is an individual's need for health services based on objective criteria regarding their general health, functioning, and symptom severity. Higher posttraumatic stress disorder (PTSD) and depression symptoms are thought to increase the likelihood of utilizing care. This relationship, however, has not been consistently supported. A diagnosis of PTSD was unrelated to receiving treatment in data from the National Comorbidity Study (Ullman & Brecklin, 2002). Epidemiological studies that accounted for additional disorders in the model, including depression, identified significant associations between PTSD and treatment seeking and depression and treatment seeking (Amstadter et al., 2008; Lewis et al., 2005). Lastly, a cumulative increase in problems is hypothesized to increase perceived need and result in increased use. Indeed, multiple trauma exposures (Amstadter et al., 2008; Ullman & Brecklin, 2002) and the use of alcohol (Ullman & Brecklin, 2002) have been associated with increased treatment utilization in assault samples.

The majority of the studies reviewed have relied on retrospective reports of service use and trauma exposure, which makes it unclear if the treatment received was for symptoms caused

by a specific trauma (Amstadter et al., 2008; Lewis et al., 2005; Roberts et al., 2011; Ullman & Brecklin, 2002). Furthermore, it is unclear how quickly participants received treatment after the assault. Prospective designs are needed to overcome these limitations.

There have been few studies to examine predictors of treatment utilization prospectively. Alvidrez and colleagues (2011) offered case management, psychotherapy, and medications at no charge to victims within 3 weeks of their assault. Utilization was defined as having started services within a 1-year period after the assault as determined by medical records. Overall rates of utilization were high (85%), yet African American victims and those with a prior trauma history were less likely to utilize treatment. Kimerling and Calhoun (1994) demonstrated that victims were more likely to receive medical care (72.6%) than mental health treatment (19.06%) in the year following their assault. Furthermore, physical health symptoms, perceived health, and psychological symptoms were unrelated to obtaining mental health care.

The present study was a prospective examination of predictors associated with using mental health treatment in the 6 months after an assault. The following were hypothesized to increase the likelihood that a victim utilized care: (a) predisposing factors such as White racial status, younger age, and being unpartnered; (b) enabling resources such as having private health insurance, having government health insurance, and having previously received mental health services; and (c) evaluated need such as higher PTSD symptoms, higher depression symptoms, use of marijuana, abuse of alcohol, and presence of a trauma history. The moderating effect of time for each predictor was also examined. It was hypothesized that evaluated need would be moderated by time such that those with elevated symptoms over time would be more likely to seek care. Elevated symptoms after a traumatic event have been associated with increased disability and impairment (Bryant et al., 2010), which were hypothesized as mechanisms that would lead individuals to treatment.

Method

Participants and Procedures

The majority of the sample was unpartnered ($n = 240$, 90.2%), self-identified as either White ($n = 165$, 62.0%) or African American ($n = 101$, 38.0%), and employed ($n = 188$, 70.7%). Insurance status was classified as having private insurance ($n = 108$, 40.6%), Medicare/Medicaid ($n = 61$, 22.9%), or no insurance ($n = 97$, 36.5%). The average age was 26.15 years ($SD = 10.29$; Table 1). All participants were women.

A detailed description of the full sample and procedures are provided in Resnick, Acierno, Amstadter, and Self-Brown (2007). Four hundred forty-two women aged 15 years or older consented to participate in a randomized controlled trial of a brief video intervention designed to reduce distress after a rape. Participants were recruited within 72 hours of a sexual assault at a medical center and were randomly assigned to video intervention or standard services conditions. Four-hundred six women were randomized to the video intervention ($n = 247$) or standard care ($n = 159$). Participants were scheduled for a highly structured interview conducted by a bachelor's-level research assistant (blind to study condition) at 1.5, 3, and 6 months postassault. Interviews were conducted in person

(approximately 90.0%) or over the telephone (< 10.0%) in the event a participant could not attend an in-person interview. From the original sample, 268 (66.0%) returned for at least one follow-up assessment. Two cases were removed from the current sample because they identified their race as Other, reducing the sample to $N = 266$ recruited at baseline. Missing data occurred on the dependent variable (utilizing care) for 19.4% of cases at 1.5 months, 52.6% of cases at 3 months, and 23.9% of cases at 6 months. A full description of the proportion of the sample present at each assessment for the primary variables of interest is presented in Supplemental Table 1. The increased missing data at 3 months was due to the addition of this time point midway through the course of the study and was considered a missing at random process.

The intervention consisted of assignment to one of three brief videos that included modeling of coping strategies and education that focused on either: (a) medical exam preparation, (b) psychoeducation and instruction in coping, or (c) both videos. For the current study, these conditions were collapsed into a binary variable indicating the video condition or the treatment as usual condition. There were no differences among those with complete and incomplete data on continuous (PTSD Symptom Scale-Self-Report version [PSS-SR]; Foa, Riggs, Dancu, & Rothbaum, 1993; Beck Depression Inventory [BDI]; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; age) variables at all time points, $ps = .228$ to $.872$ (Table 2). Similarly, there were no differences among these groups on categorical variables (prior mental health care, Medicaid/Medicare insurance, private insurance, partnered status, prior assault exposure, alcohol abuse, and marijuana use) at all time points, $ps = .151$ to $.991$. Those who received a video intervention, however, were more likely to have missing data on care utilization at 6 months ($p = .055$), but not at 1.5 months ($p = .448$) or 3 months ($p = .154$). Receipt of the video intervention was retained in all subsequent analyses.

Measures

A structured clinical interview using items adapted from the National Women's Study interview was used to assess lifetime assault victimization history, recent substance use and abuse, and mental health treatment seeking at the 1.5-month assessment (Kilpatrick et al., 1997, 2000; Resnick et al., 1993). Prior sexual assault or physical assault was assessed through inquiries of vaginal, anal, or digital rape or physical attacks by someone who intended to seriously injure or kill the participant. Responses were dichotomized into meets criteria and does not meet criteria. Prior mental health treatment was assessed with the following question: "Have you ever received counseling for emotional or psychological problems?" Participants who had sought treatment were asked the age at which they first received treatment. Those who reported treatment seeking prior to age at entry into the study were considered to have a history of mental health services. *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) criteria were used to code alcohol abuse based on associated problems including problems with family or friends, with school, or employment; being high in dangerous situations (e.g., while driving); legal problems; and continued use despite problems related to use based on a structured interview that assessed functioning according to *DSM-IV-TR* criteria. Marijuana use was assessed at each interview for days of use in the

previous 2 weeks based on self-report via time line follow-back (Sobell & Sobell, 1978). Responses were dichotomized in current analyses to indicate use or no use.

A dichotomous variable assessing utilizing mental health services in the period between assessment interviews was used as the primary outcome variable. At each assessment interview, participants reported the date of their last treatment session. Participants who received treatment in the period since their last assessment were classified as having utilized mental health treatment within that period.

The PSS-SR (Foa et al., 1993) a 17-item scale that has undergone validation with victims of assault and contains continuous ratings of each of 17 PTSD symptoms. Participants completed the PSS-SR related to the index rape. Total scores range from 0 to 51. Coefficient α for the current study sample was .91 for all assessments. The BDI (Beck et al., 1961) is a 21-item self-report scale with total scores that range from 0 to 63. The BDI has high internal consistency (Beck & Steer, 1984). A modified time frame was used to assess symptoms of depression on that day, specified as “the way you feel today, that is, right now.” Coefficient α for the current study sample ranged from .91 to .92.

Data Analysis

A nested model trimming strategy with generalized estimating equations (GEE) was used to identify the most parsimonious model of treatment utilization (Singer & Willett, 2003). GEE is an extension of the general linear model and provides coefficients that correspond to log odds change in the dependent variable and a corresponding odds ratio (*OR*). The nested model trimming strategy fits a model that includes an intercept, time, all hypothesized predictors of utilization, and time by predictor interactions. A nested model that includes fewer predictors is then fitted to the data and fit is compared via the deviance statistic. If model fit does not change, then the variable is removed. If model fit is significantly reduced, then the variable is retained. Variables were removed in a manner consistent with the behavioral change model. Predisposing factors were evaluated first (age, unpartnered status, African American race), enabling resources second (Medicaid, private insurance, prior mental health care), and evaluated need third (prior history of assault, BDI, PSS, alcohol abuse, and marijuana use).

Several steps were taken to handle the missing data in the present study. A series of analyses of variance and chi-squares were conducted to determine differences among those with missing data and those with complete data at each time point using $\alpha = .10$. Missing data were handled in the primary analysis with full information maximum likelihood estimation. This strategy provides less biased estimates than listwise or pair-wise deletion (Schafer & Graham, 2002), although limitations with dichotomous outcomes have been identified (Graham, 2009).

Results

Across the 1.5, 3, and 6 month assessment periods, the rate of utilizing mental health care was 43.5%, 36.5%, and 31.4%, respectively. The deviance statistic for the full model was 504.96 ($df = 476$). Each fixed effect and its interaction with time was evaluated for removal.

The final model retained fixed effects for video condition, time, time by video condition interaction, African American race, Medicaid, private insurance, prior mental health care, BDI scores, alcohol abuse, and an interaction between alcohol abuse and prior mental health care. The fit of this model did not significantly differ from that of the full model and was retained, $\chi^2(15) = 14.38, p = .497$ (Table 3).

As hypothesized, prior mental health care—adjusted odds ratio (*AOR*) = 4.09, $p < .001$, 95% confidence interval (CI) [2.48, 6.75]—having private insurance—*AOR* = 2.24, $p = .015$, 95% CI [1.35, 3.73]—having medicaid or medicare—*AOR* = 2.19, $p = .014$, 95% CI [1.18, 4.07]—and elevated BDI—*AOR* = 1.06, $p < .001$, 95% CI [1.04, 1.08]—increased the likelihood of utilization. There was a significant alcohol abuse by prior mental health care interaction, *AOR* = 4.07, $p = .039$, 95% CI [1.07, 15.48], suggesting that those who met criteria for alcohol abuse and had a history of mental health care were significantly more likely to use treatment. Random assignment to the video condition did not have a significant effect on utilization initially, *AOR* = 0.74, $p = .345$, 95% CI [0.40, 1.38], or over time, *AOR* = 1.05, $p = .596$, 95% CI [0.88, 1.25].

Discussion

Approximately one third (43.5–31.4%) of the current sample used treatment within 6 months of their assault, which is lower than population based studies of sexual assault victims (54.0%; Amstadter et al., 2008; 44.7%; Ullman & Brecklin, 2002). A key difference between those studies and the current one is the use of a prospective design that linked treatment to a specific trauma. The present study focused on within group predictors for sexual assault victims whereas other prospective studies have compared this group to victims of other traumatic events (Kimerling & Calhoun, 1994). Use of treatment in the present study was obtained via self-report instead of from the medical record, which did not restrict the assessment to a specific clinic (Alvidrez et al., 2011). Similarly, no additional services or assistance was provided to patients to facilitate use of treatment, which may enhance ecological validity.

The following discussion should be considered within the current limitations of risk identification for psychopathology after a sexual assault. Despite extensive work on risk factors (DiGangi et al., 2013; Ozer, Best, Lipsey, & Weiss, 2003), there is no consensus on best practices for risk assessment shortly after a trauma. There have been recent evaluations of screening measures that can be deployed shortly after a traumatic injury (O'Donnell et al., 2008; Richmond et al., 2011), however, these tools have not been evaluated with sexual assault victims. Without such methods, it is difficult to determine who is most likely to benefit from early intervention and who will recover independently (Kliem & Kröger, 2013). Specific to this study, it is unclear which participants did not receive treatment because it was not warranted.

The strongest predictor of use of treatment was prior use of mental health services. These findings are consistent with work indicating that women who have not yet used mental health interventions are less likely to obtain treatment after assault (Ullman, 2007). Those with such a history may feel more comfortable returning to a provider with whom a

relationship has been established and have the resources necessary for care. This specific hypothesis, however, was not tested. Nevertheless, acute care providers should assess the service-use history and resources of victims shortly after the assault to guide recommendations.

The limited access to care among victims who have no prior experience with treatment is concerning given that a substantial proportion of rape victims have chronic difficulties including PTSD (Rothbaum et al., 1992) and/or substance abuse (Resnick et al., 2012). Strategies that begin at the first point of contact after the assault may be optimal to help all victims. Stepped-care approaches that begin with minimally invasive and effective interventions that gradually intensify have significant promise. Such approaches have shown considerable effectiveness with traumatic injury populations (Zatzick et al., 2013) and should be evaluated with sexual assault victims. The brief video intervention in the present study was designed to be implemented within the standard postrape medical care setting (Resnick, Acierno, Amstadter, et al., 2007; Resnick, Acierno, Waldrop, et al., 2007) and might comprise one facet of such a model. Additionally, technology-based approaches have considerable potential given the ease with which they can be widely disseminated (Price, Gros, McCauley, Gros, & Ruggiero, 2012; Price, Yuen, et al., 2013).

The findings suggested that 1 day depressive symptoms, as opposed to PTSD symptoms, were more predictive of use of treatment. This effect was observed despite overall elevated PTSD symptoms 1 month after the assault. Victims may interpret PTSD symptoms as helpful shortly after an assault in that avoidance of dangerous cues and hypervigilance for threat may be perceived as adaptive coping strategies (Christopher, 2004). This avoidance may result in a reduced utilization of mental health care. The low mood caused by depression, however, may be perceived as problematic and require intervention. Indeed, depression is associated with more global health concerns that may increase perceived need and thus result in treatment utilization (Amstadter et al., 2008).

Consistent with the hypothesis that certain symptoms may be interpreted as maladaptive and motivate use of treatment, those who met criteria for alcohol abuse and received prior care were 4 times more likely to seek treatment. This may indicate that those who increased their drinking after the assault and had a prior care history recognized their drinking was maladaptive and entered treatment. It also indicated that problematic drinking on its own was unrelated to use. There should be an emphasis on engaging those with problematic drinking without a history of prior treatment in care at the time of the assessment.

Provision of assessment, feedback, and referral to treatment as indicated would be consistent with screening, brief intervention, and referral to treatment (SBIRT) approaches used with other emergency services populations (Madras et al., 2009). Additional research focusing on postassault substance abuse treatment is warranted to determine how such problems are addressed in general mental health settings among sexual assault victims. Moreover, there may be benefit in treating subsequent posttrauma distress and alcohol symptoms simultaneously as part of SBIRT approaches for victims of sexual assault (Hien et al., 2010; Resnick et al., 2013).

The present study did not support a difference between use among African Americans and Whites, which contrasts with previous work. Indeed, the utility of race as a categorical predictor has been questioned in that it is often highly associated with constructs that are not often tested (Trimble, 2007). The present study accounted for factors that may have reduced the unique contribution of racial status to predicting mental health service utilization such as having private insurance, Medicaid/Medicare, and prior use of mental health care. Additional work would benefit from the inclusion of variables that specifically target issues related to the use of services in underserved groups including stigma, stereotype confirmation concerns, and attitudes towards care (Sue, Fujino, Hu, Takeuchi, & Zane, 1991).

The current study had several limitations of note. First, the study had considerable missing data and relied on empirically developed missing data methods to obtain parameter estimates. Although the missing data strategy used in the current study provides less biased estimates relative to listwise or pairwise deletion, such strategies are not a substitute for complete data (Baraldi & Enders, 2010). Thus, the results of the present study should be interpreted cautiously pending replication with a sample that contains a greater proportion of complete data. Second, the present study focused on postassault PTSD and 1 day depression as predictors of postrape treatment as opposed to assessments of functioning. There were numerous variables that were not assessed in the current study that may be associated with treatment utilization including utilization of informal support networks (Lewis et al., 2005; Price, Gros, Strachan, Ruggiero, & Acierno, 2013), person-level resilience factors like use of coping techniques, and preassault functioning (Zatzick et al., 2007), all of which have been associated with mental health after a trauma.

Third, the current study, and much of the prior literature on this topic, did not assess characteristics of the treatment approaches that participants received, the dose of treatment received, or when treatment specifically began. This is problematic given the potential to receive nonevidence-based treatment or an insufficient amount of treatment (Rosenberg et al., 2001). Future work is encouraged to examine factors of treatment engagement, defined as the continued involvement in clinical care, given that avoidance is a common symptom of post-sexual assault distress. The present study did not also reassess insurance status and therefore could not determine if insurance coverage changed during the 6-month postassault period.

Fourth, the present study used an interview format for follow-up that may have proved burdensome for a subset of the participants in the current study as 66% of the initial sample returned for a follow-up assessment. Although this follow-up rate is consistent with other studies (Rothbaum et al., 2012), it is possible that those who did not complete follow-up interviews may also have been unable to successfully engage in treatment. The present sample comprised solely African American and White women making it unclear if these findings can generalize to other ethnic/racial groups or men. Finally, the current study focused on utilization in mental health care whereas sexual assault victims experience a wide array of challenges including physical ailments. Furthermore, not all victims who are sexually assaulted will seek acute care services after their rape (e.g., Resnick et al., 2000; Zinzow, Resnick, Barr, Danielson, & Kilpatrick, 2012). Thus, the generalizability of these

findings may be limited to mental health treatment for female rape victims who seek acute care services rather than all trauma victims.

Despite these limitations, the current study provided important information about a comparatively large sample of recent sexual assault victims seen soon after the incident. Future work should examine the pathways by which individuals receive care from multiple sources after a traumatic event, including medical and mental health treatment. Additionally, strategies are needed to identify those at increased risk for psychopathology shortly after a trauma.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Demographic Characteristics of Sample

Variable	1.5 Months (n = 214)		3 Months (n = 126)		6 Months (n = 204)	
	n	%	n	%	n	%
Utilized mental health care	93	43.5	46	36.5	64	31.4
Alcohol abuse	33	15.4	20	15.7	41	20.1
Marijuana use	44	20.6	27	21.4	45	22.1
Medicaid/Medicare	61	22.9	-	-	-	-
Private insurance	107	40.2	-	-	-	-
Prior mental health care	147	55.3	-	-	-	-
History of assault	158	59.4	-	-	-	-
Stranger assailant	109	41.0	-	-	-	-
Acquaintance or friend assailant	133	50.0	-	-	-	-
Use of alcohol during assault	145	54.1	-	-	-	-

Note. Values for Medicaid, private insurance, prior mental health care, history of assault, stranger assailant, acquaintance or friend assailant, and use of alcohol during assault were obtained at the baseline interview and are a percentage of $N = 266$ cases. Sample sizes at each assessment point correspond to the amount of information available on utilizing care. Percentages for utilizing care variable are based on the cases with available information for that assessment point.

Table 2

Descriptive Statistics at Three Time Points

Variable	1.5 Months (<i>n</i> = 214)		3 Months (<i>n</i> = 126)		6 Months (<i>n</i> = 204)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (years)	26.15	10.29	-	-	-	-
PSS	22.97	12.54	17.38	15.01	13.67	12.05
BDI	17.45	11.56	12.97	11.4	11.27	10.99

Note. Sample sizes for each assessment point correspond to the amount of information available on utilizing care. PSS = Posttraumatic Stress Disorder symptom scale. BDI = Beck Depression Inventory.

Table 3
Final GEE Model Predicting Utilizing Mental Health Care

Variable	AOR	95% CI	
		Lower	Upper
African American ^a	0.64	0.40	1.03
Receipt of prior mental health care ^a	4.09**	2.48	6.75
Private insurance ^a	2.24**	1.35	3.73
Medicaid/Medicare ^a	2.19**	1.18	4.07
BDI	1.06**	1.04	1.08
Alcohol abuse ^a	0.50	0.15	1.61
Time	0.92	0.80	1.04
Alcohol abuse × Receipt of Prior Care	4.07**	1.07	15.48
Video condition ^a	0.74	0.40	1.38
Video condition ^a × Time	1.05	0.88	1.25

Note. Sample sizes for variables included in the model ranged from $n = 125$ to $n = 236$ across measurement points. See Supplemental Table 1 for complete information on sample sizes. GEE = generalized estimating equations; BDI = Beck Depression Inventory.

^aDichotomous variable for which the reference category was the absence of the variable and the adjusted odds ratio corresponds to the presence of the variable.

*
 $p < .05$.

**
 $p < .01$.