HHS Public Access

Author manuscript

Traumatology (Tallahass Fla). Author manuscript; available in PMC 2019 March 01.

Published in final edited form as:

Traumatology (Tallahass Fla). 2018 March ; 24(1): 1–7. doi:10.1037/trm0000126.

PTSD and Problem Drinking in Relation to Seeking Mental Health and Substance Use Treatment Among Sexual Assault Survivors

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Abstract

This study seeks to understand the effects of the co-occurrence of PTSD and problem drinking on formal help-seeking among sexual assault survivors over time. Data comes from a diverse sample of 1,863 women in a large Midwestern city who participated in a three-year study on women's experiences with sexual assault. Generalized Estimating Equations (GEE) were used to estimate the parameters of generalized linear models to assess the effects of PTSD and problem drinking on survivor mental health help-seeking and substance use treatment-seeking over time. In our models, having more PTSD, more education, and receiving a reaction of tangible support increased the odds of survivors seeking mental health treatment, which replicates past findings. This is the first study of women sexual assault survivors to find a unique effect of both PTSD and problem drinking on substance use treatment- seeking. The findings suggest survivors with co-occurring PTSD and problem drinking are less likely to seek substance use treatment over time. Future directions are discussed for research on survivors with co-occurring symptoms.

Keywords

co-morbidity; sexual assault; trauma; help-seeking; PTSD; problem drinking

The prevalence of sexual assault for women in the US remains high, with nearly one in five women experiencing a sexual assault in her lifetime (Black, et. al., 2011). In a study that assessed post-assault recovery trajectories in survivors of interpersonal violence, the psychological impacts of sexual trauma were both acute and chronic for some survivors, with most experiencing a gradual decline in posttraumatic symptoms rather than quickly returning to baseline functioning (Steenkamp, Dicksetin, Salters-Pednault, Hoffman, & Litz, 2012). Mental health issues including PTSD symptoms, substance abuse issues, and depression may persist for many survivors (see Campbell, Dworkin, & Cabral, 2009 for review).

Survivors with problem drinking may face even greater problems in their post-assault recovery. One study found women survivors of sexual assault had double the risk of developing an alcohol use disorder compared to women without assault histories (Glover, Olfson, Gameroff, & Neria, 2010). Another study found women with histories of child

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sexual abuse (CSA) had almost double the likelihood of alcohol abuse symptoms compared to women without such histories (Epstein, Saunders, Kilpatrick, & Resnick, 1998). Histories of CSA moderated substance abuse treatment outcomes for women, such that women with CSA had better outcomes with more instances of treatment contacts compared to similar women with fewer treatment contacts (Rosen, Ouimette, Sheikh, Gregg, & Moos, 2002). More recent studies suggested women with more instances of lifetime sexual victimization were more likely to use drinking to cope, which in turn put them at higher risk for more victimization and also increased PTSD symptoms, yet PTSD was not directly associated with drinking problems (Najdowski & Ullman, 2009; Ullman, Filipas, Townsend, & Starzynski, 2005).

Yet past studies have also shown that while survivors of sexual assault experienced increased risk for mental health problems and problem drinking, they tended to seek mental health services at low rates (Ullman, 2007). Access to resources is an important factor in mental health help-seeking, but it does not explain all of the differences in help-seeking behavior among sexual assault survivors. Studies of service utilization among survivors indicate that demographics, assault characteristics, and post-assault symptoms influence the likelihood of formal help-seeking.

Demographics and Help-seeking

Studies examining help-seeking among sexual assault survivors have shown inconsistent results regarding the influence of demographic predictors. Most studies have found that White women use mental health services post-assault at higher rates than Black women (Lewis, et. al., 2005; Ullman & Brecklin, 2002; Weist, et. al., 2014). However, Price, Davidson, Ruggiero, Acierno, and Resnick (2014) found no significant racial differences in service utilization in a prospective analysis of female rape victims. They suggested race may be a limited construct for predicting service utilization as it is often a proxy for other constructs related to inequality of access, such as disparities in resources due to geography and income (Price, et. al., 2014). Younger women were more likely to utilize mental health services after a sexual assault (Lewis, et. al., 2005) though some studies have shown no link between age and services use (Price, et. al., 2014) or showed the opposite effect with older women using more mental healthcare services (Starzynski, et. al., 2007). More education has been associated with greater service utilization (Ullman & Filipas, 2001). Having medical insurance was also positively associated with seeking mental health services (Ullman & Brecklin, 2002; Price, et. al., 2014). This factor may be especially salient since the 2010 expansion of US healthcare coverage. However, a recent study highlighted extant barriers to affordable mental health care for many women such as smaller healthcare networks and therefore fewer affordable options (Salganicoff & Sobel, 2016).

Assault Characteristics, Social Reactions, and Mental Health Help-Seeking

Survivors with more cumulative sexual trauma (Ullman & Brecklin, 2002) and who experience more stereotypical attacks tend to seek out mental health services more often. This is likely related to issues of self-blame regarding risky pre-assault behavior and societal rape myths, as sociocultural definitions of sexual assault influence how survivors define their

experiences which in turn influence likelihood of help-seeking (Liang, Goodman, Tummala-Narra, & Weintraub, 2005). For example, women who experienced a drug or alcohol-facilitated assault were less likely to seek out mental health support because they were more likely to blame themselves for taking drugs or drinking (Walsh, et. al., 2015). Survivors who reported high levels of violence, perceived life threat during the assault, and whose assailants were strangers were more likely to seek counseling than those who experienced less stereotypical assaults (Lewis, Resnick, Ruggiero, Smith, Kilpatrick, Best, & Saunders, 2005; Roy-Byrne, Berliner, Russo, Zatzick, & Pitman, 2003; Ullman & Filipas, 2001). Positive social reactions (e.g., belief, emotional support) from others following an assault facilitate survivors' help-seeking. Survivors who were offered resources in addition to positive, supportive reactions engaged in more adaptive coping strategies (Ullman & Peter-Hagene, 2014). Finally, survivors who received supportive reactions of tangible aid such as mental health and legal resources when disclosing were more likely to seek out mental health counseling (Ullman & Brecklin, 2002).

Post- Assault PTSD and Substance Use Problems

Women with PTSD diagnoses have also been shown to be more likely to seek counseling, suggesting a link between experiencing more severe psychological symptoms and recognizing the need for mental health assistance (Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2010; Lewis, et. al., 2005; Starzynski et al., 2007). In addition to PTSD, some survivors also develop problematic drinking patterns. Survivors of multiple sexual victimization experiences were more likely to develop problem drinking than those with only one instance of victimization (Najdowski & Ullman, 2009). PTSD and problem drinking may co-occur for many survivors. PTSD may affect problem drinking in part by increasing survivors' substance use coping (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). Further, survivors who believed drinking could reduce stress or drank to cope with the assault were more likely to develop co-occurring PTSD and problem-drinking symptoms post-assault compared to survivors who developed PTSD only (Ullman, Filipas, Townsend, & Starzynski, 2006). The literature overall suggests PTSD is the critical link between trauma exposure and problem drinking, such that problem drinking is not a direct outcome of sexual assault without the presence of PTSD (Bailey & Stewart, 2014).

PTSD, Substance Use, and Help-seeking

Given evidence of the mediating relationships between lifetime sexual victimization histories, PTSD symptoms, and problem drinking, it is important to understand the help-seeking behavior and potential barriers for survivors with these co-occurring symptoms. While PTSD has been shown to be associated with greater help-seeking (see Ullman, 2007 for review) and survivors of sexual victimization tend to have higher rates of problem drinking, there are mixed findings regarding how problem-drinking may affect survivors' formal help-seeking behavior. Some studies have found a positive effect of substance abuse on mental health help-seeking among survivors (Amstadter, et. al., 2008; Bosworth, Parsey, & Butterfield, 2000; Decker, Rosenheck, Tsai, Hoff, & Harpaz-Rotem, 2013) while others found substance abuse did not have an effect on mental health help-seeking (Starzynski, Ullman, Townsend, Long, & Long, 2007).

There are only a handful of previous studies that specifically assessed the effects of sexual assault trauma, PTSD, and substance use on mental health and substance use help- seeking (see van den Berk-Clark & Patterson Silver Wolf, 2015 for a review). Among the handful of studies, only two studies used samples of women sexual assault survivors who were not military veterans and thus whose trauma experiences would not include military service or military sexual trauma (Amstadter, et. al., 2008; Starzynski, Ullman, Townsend, Long, & Long, 2007). A recent study from researchers in Norway found that among trauma survivors (including sexual and physical abuse), seeking help from a doctor was positively predicted by PTSD symptoms but negatively predicted by alcohol abuse symptoms (Sheerin, Berenz, Knudsen, Reichborn- Kjennerud, Kendler, Aggen, & Amstadter, 2016). Previous research shows that people with mental health symptoms more broadly (mood disorders and depressive symptoms but not necessarily PTSD or trauma histories) who also have problem drinking tended to delay treatment with medical doctors or any type of counseling professional (Wang, et. al., 2005). Survivors of sexual assault with problem drinking may not seek mental health or substance use help because they are engaging in substance use coping instead, which has been shown to increase post sexual assault (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013).

Taken together, the above literature suggests PTSD and problem drinking symptoms may have different effects on survivors' help-seeking, but it is unclear if one set of symptoms is more salient than the other or if they interact to create a unique effect on mental health and substance use help-seeking. It is critical to understand the effects of PTSD and substance abuse on help-seeking, as women who delay treatment tend to have worse mental health problems over time and PTSD can become chronic if untreated (Frazier, Rosenberger, & Moore, 2000).

The Present Study

Based on the literature, PTSD and problem drinking symptoms appear to have different impacts on mental health and substance use help-seeking among sexual assault survivors-with PTSD increasing the likelihood of mental health help-seeking and problem drinking having positive, negative, or no effect on mental health help-seeking depending on the study (van den Berk-Clark & Patterson Silver Wolf, 2015). Therefore, the present study sought to understand the unique effects of demographic, assault/trauma characteristics, and post-assault outcomes as well as any interactive effect between PTSD and problem drinking on mental health help-seeking among sexual assault survivors over time. Based on the extant literature, we expected to see significant positive effects on mental health help-seeking of being White-identified, having more education, younger age, receiving social reactions of tangible support, and having medical insurance. We expected that more stereotypical assault characteristics (e.g., life threat, stranger assailants, physical injury) would also positively predict help-seeking over time (Ullman, 2007).

We expected the main predictive effect of PTSD on mental health help-seeking to be positive while we expected the main effect of problem drinking on mental health help-seeking to be nonsignificant. We also expected problem drinking to positively predict substance use treatment seeking. We expected those who engage in avoidant coping strategies, such as

drinking alcohol, may have more difficulty managing the symptoms of PTSD by themselves. Therefore, we expected an interaction such that higher scores on PTSD and problem drinking would predict more substance use treatment seeking and more mental health help-seeking.

Methods

Sample

The data came from a 3-year annual longitudinal survey study of 1,863 women who had an unwanted sexual experience as an adult that they told someone about. Participants ranged in ages from 18 to 71 (M = 36.51, SD = 12.54). The sample was racially and ethnically diverse: 45% Black/African-American, 35% White, 2% Asian 7%, multiracial and 11% other, unknown, or unreported; 13% reported Latina or Hispanic ethnicity (assessed separately). While 32% of women reported having a college degree, 42% had some college education, and 26% had a high school degree or less. Less than half were employed (43%) and a majority had household annual incomes below US$30,000 (67.9%). The study response rate was 85%. Of the 1,863 women at Wave 1, the follow-up rate at Wave 2 was 72% and at Wave 3, it was 56%. Participants who completed all three waves were slightly older (M = 37.88, SD = 12.72) compared to those who dropped out (M = 34.89, SD = 12.13). However, they did not differ by race, Hispanic ethnicity, sexual orientation, education, income, employment status, parental status, or marital status.

Procedures

Participants were recruited through posted fliers, local newspaper advertisements, Craigslist, and university mass emails. Fliers were posted throughout the community, at Chicago colleges and universities, community organizations (e.g., cultural centers, substance abuse agencies, domestic violence/rape crisis centers) and women-oriented businesses. Women who called were screened with the following criteria: a) unwanted sexual experience at age 14 or older, b) 18 or older at time of participation, and c) previously told at least one person about their unwanted sexual experience. Eligible participants received mailed study materials including the survey, informed consent, stamped return envelope for their completed survey, and a list of community resources for trauma, victimization, mental health, and substance abuse. Participants were paid $25 after returning their surveys. The University's IRB approved all procedures and documents.

Measures

Unless otherwise noted, all measures below were assessed at all three Waves of the study.

Race (collected at Wave 1) was trichotomized as Black/African-American, White, and Other, with dummy variables computed for each race category and Black women as the reference group. Those in the Other category consist of women who identified as American Indian, Asian, Native Hawaiian or Pacific Islander, or self-identified as Other. *Education* was assessed with four ordinal categories: (less than 12th grade, high school graduate or GED, some college, college graduate or more). *Age* in years was assessed. *Insurance* was assessed

by asking if they had medical insurance at the time of their most traumatic unwanted sexual experience (no/yes).

Unwanted sexual experiences were assessed with a revised version of the Sexual Experiences Survey (SES-R; Testa, VanZile-Tamsen, Livingston, & Koss, 2004). Almost all women reported sexual assault as adults (12.4% unwanted sexual contact or coercion and 86.6% attempted or completed rape). Sexual victimization experiences under age 14 were dichotomized with 66.1% reporting a history of child sexual abuse (CSA).

Posttraumatic stress symptoms were measured using the 17-item Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995). Participants rated items on a scale of 0 (*not at all*) to 3 (*almost always*) regarding how often they experienced each symptom related to the assault in the past year. The items were summed to reflect the extent of posttraumatic symptoms ($\alpha = .93$, $M = 21.13$; $SD = 12.93$). The maximum PTSD symptom score in the sample was 51.

Tangible support is a 5-item ordinal sub-scale from the Social Reactions Questionnaire (SRQ; Ullman, 2000). Participants are asked if the people they told about their assault "helped you get medical care; encouraged you to seek counseling; helped you get information of any kind about coping with sexual assault; took you to the police; and provided information/discussed options." The number of affirmative answers is summed and a mean score computed to reflect how much tangible support was given to the survivor, $\alpha = .80$ ($M = 1.33$, $SD = 1.16$).

Problem drinking was measured at Wave 1 using the Michigan Alcohol Screening Test, or MAST (Selzer, et. al., 1971). The MAST uses a weighted scale to compute problem drinking in the past 12 months. This variable was then dichotomized to represent problem drinking or no problem drinking (including those who may have been problem drinkers but who reported not drinking in the last 12 months). Less than 20% of women (19.1%) in our sample scored as being current? problem drinkers.

Mental health help-seeking was measured with one question at all three waves: "Did you receive counseling for the [sexual assault] experience?" and was scored no (0) or yes (1). *Substance use help-seeking* was measured by asking respondents if they had sought any of the following types of substance abuse treatment: impatient hospital treatment; inpatient detox treatment; detox treatment not based in a hospital; residential treatment program; halfway house; holding unit; mutual aid/self-help group (AA, NA, etc.); psychiatrist or mental health counselor; other doctor; other health-care provider (e.g. nurse); other outpatient treatment program; and other (fill-in). Respondents were coded as having sought substance use treatment if they answered 'Yes' to seeking any of the above types of substance use treatment.

Data Analysis Plan

We used Generalized Estimating Equations to estimate the parameters of two generalized linear models with a logit link function using SPSS: the first to assess fixed and random effects on seeking mental health treatment over time and the second model to assess fixed and random effects on substance use treatment over time. We used odds ratios (OR) to assess

the relationships between our hypothesized predictors on two types of help-seeking (mental health and substance use). The GEE approach allowed us to use the maximum amount of our data for longitudinal analysis even when there are missing cases (other methods require listwise deletion of missing cases). The GEE approach also provided us with lower standard errors compared to a binary logistic or a multinomial regression and quasi-likelihood estimates, which does not assume normally distributed data with cases missing at random (Diggle, 1994).

The outcome variables of interest were Counseling (dichotomized as 'ever sought counseling', no/yes) and Substance Use Treatment (dichotomized as 'ever sought substance use treatment', no/yes). After calculating initial correlations and multinomial logistic regressions including all of our hypothesized variables, we included the following variables in our more parsimonious model: two racial identity variables (being White and being Other race, with African-Americans as reference category), total unwanted sexual experiences, education level, receiving tangible support after a sexual assault, total PTSD score, and problem drinking (dichotomized) as random effects. Within each model, we included an interaction term consisting of problem drinking and PTSD symptoms.

Results

The purpose of this study was to understand the mental health and substance use treatment help-seeking behavior of women with co-occurring PTSD and problem drinking symptoms. Our results indicate a majority of survivors did not seek counseling across all 3 Waves- 37.1% at Wave 1; 20.0% at Wave 2; 17.7% at Wave 3. An independent samples t-test showed average PTSD scores at Wave 1 were higher for those who sought counseling (M = 26.2, SD = 12.38) compared to those who did not seek counseling at Wave 1 (M = 18.91, SD = 12.64) ($p < .001$). Slightly more than half of those who sought counseling also met the criteria for problem drinking (54.8%).

General Estimating Equations

In the first model assessing predictors of mental health help-seeking over time, the fixed effects of being White women and those who identified in the Other race category (American Indian, Asian, Native Hawaiian or Pacific Islander, or self-identified as Other) were more likely to seek mental health services compared to African Americans (see Table 1). White women had increased odds of seeking mental health services and those identifying in the Other category had increased odds of seeking mental health treatment. The variable of Wave, measuring time, was related to decreased odds of mental health help-seeking over time. Education, tangible support, and PTSD scores were each related to increased odds of mental health help-seeking over time. There was no significant interaction effect of PTSD score and problem drinking on odds of mental health help-seeking.

The second model predicting substance use treatment seeking showed that race did not have a significant effect on the odds of survivors seeking substance use treatment (see Table 2). Being a problem drinker was related to significantly increased odds of seeking substance use treatment, as well as having more unwanted sexual experiences, receiving tangible support, and having higher PTSD scores. Education level was related to significantly decreased odds

of seeking substance use treatment. The interaction effect of PTSD scores and problem drinking was significantly related to seeking substance use treatment. Specifically, for problem drinkers, an increase in PTSD scores was associated with decreased odds of seeking substance use treatment.

Discussion

This study examined unique predictors of mental health help-seeking and substance use treatment seeking among a diverse, community sample of women sexual assault survivors. In prospective analyses, we found PTSD symptoms interacted with problem drinking to decrease the likelihood substance use treatment seeking.

In accordance with past research, we found more education (Weist, et. al., 2014), being White (Ullman & Filipas, 2001, receiving tangible support from others (Ullman & Brecklin, 2002; Ullman & Peter-Hagene, 2014), and having more PTSD symptoms (Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2010) were associated with increased odds of mental health help-seeking. Being part of the Other race category in this sample, which included survivors who identified as American Indian, Asian, Native Hawaiian or Pacific Islander, or self-identified as Other, related to increased odds of mental health help-seeking. This demographic effect does not appear in any past research to our knowledge to date. Future studies should examine how different racial and ethnic minority groups of survivors beyond the Black/White binary seek mental health and substance use treatment. Time had a negative effect on seeking mental health resources, suggesting that survivors were more likely to seek help sooner after assault.

Substance use treatment help-seeking was more likely for survivors who received tangible support. Tangible support has not previously been studied for its effect on substance use treatment-seeking, but our results demonstrate the need for more research on social reactions to sexual assault survivors and how this impacts their seeking help for substance use problems. More education had a negative effect on substance use treatment-seeking, consistent with research showing that less educated women are more likely to seek substance abuse treatment than their male counterparts (Green, 2006). However, education level of sexual assault survivors has not previously been assessed for its impact on seeking substance use treatment, therefore we recommend more studies focusing on representative samples of survivors (with varying educational backgrounds) to more deeply understand this connection. Finally, substance use treatment help-seeking was also more likely among survivors with more unwanted sexual experiences. This finding is likely related to survivors with more sexual trauma having more severe PTSD symptom scores.

We were most interested in the effects of co-occurring PTSD symptoms and problem drinking on mental health help-seeking and substance use treatment over time. Our results showed that problem drinkers with more PTSD symptoms had decreased odds of seeking substance use treatment over time. Problem drinking has been shown to exacerbate the effects of PTSD (Ullman, Filipas, Townsend, & Starzynski, 2006) and it appears from our results that the effect of PTSD on problem drinkers poses a barrier to seeking substance use treatment. Our findings are similar in part to a recent study from Norway in which, within

one model, problem drinking emerged as a negative predictor of seeking help from a doctor while PTSD emerged as a positive predictor (Sheerin, Berenz, Knudsen, Reichborn-Kjennerud, Kendler, Aggen, & Amstadter, 2016). This is also consistent with another past study that found decreased formal help-seeking among survivors with problem drinking (Starzynski, Ullman, Townsend, Long, & Long, 2007).

It is possible that the women in our sample who fit the criteria for problem drinking engaged in substance use coping rather than seeking help from substance use professionals when their PTSD symptoms increased. Past research has shown a positive relationship between lifetime sexual trauma and developing problem drinking (Long & Ullman, 2016; Najdowski & Ullman, 2009). A past study also found the effect of PTSD symptoms on problem drinking was partially mediated by substance use coping and that substance use coping was predicted by lifetime trauma exposure and severity of child sexual abuse (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). Our findings extend this literature by showing the co-occurrence of PTSD symptoms and problem drinking in survivors of sexual assault has a negative impact on seeking substance use treatment and this negative effect persists over time for survivors. Specifically, while problem drinking by itself does not act as a barrier to seeking counseling, higher PTSD levels do pose a barrier for problem drinkers seeking substance use treatment.

Our study found that PTSD by itself increased the likelihood survivors would seek substance use treatment, even though for problem drinkers PTSD decreased the likelihood of seeking substance use treatment. This points to the possibility that survivors with PTSD who use substances other than alcohol may have an increased likelihood of seeking substance use treatment. Future research should focus on different types of substance use among survivors to determine for which types of substances PTSD may act as a barrier or facilitator of substance use treatment seeking.

Limitations and Implications

The current study was limited in that we were not able to assess or control for baseline mental health or substance use prior to the sexual assault. Survivors in this study had multiple unwanted sexual experiences in their lifetimes and often between waves of data collection, which made it difficult to disentangle the time-order of assault, substance use and mental health problems, and help-seeking. Future studies should try to address the problems of collecting baseline data.

Future studies of co-occurring symptoms in SA survivors should further disentangle interactive effects of PTSD and substance abuse symptoms or problems on help-seeking from various formal sources. While the overall study was larger, our smaller convenience sample of help seekers limited our analysis to those survivors with problem drinking. Larger samples should study the effects of drug abuse, PTSD, and other psychological symptoms.

This study provides further support in a longitudinal sample of community-residing survivors that survivors with both PTSD and problem drinking face greater barriers to substance use treatment and that we need both community and professional treatment resources to enhance women’s ability to recover from developing comorbid symptoms.

Programs for treating dual disorders in female survivors of sexual trauma already exist and have shown some efficacy in community outpatient populations, such as Seeking Safety (Morrissey, Jackson, Ellis, Amaro, Brown, & Najavits, 2005). However, we still need further study of such programs in community-residing survivors who may not yet be in formal treatment or qualify for diagnoses of PTSD and/or alcohol use disorder yet still have significant symptoms. Given that our data indicate that some of these survivors may be less likely to access treatment, finding innovative ways to get effective programs and supportive interventions to women not already in treatment settings or formally diagnosed with dual disorders is a challenge warranting further investigation

Acknowledgments

This research was supported by the National Institute on Alcohol Abuse and Alcoholism grant R01 #17429 to Sarah E. Ullman. We acknowledge Cynthia Najdowski, Liana Peter-Hagene, Amanda Vasquez, Meghna Bhat, Rannveig Sigurvinsdottir, Rene Bayley, Gabriela Lopez, Farnaz Mohammad-Ali, Saloni Shah, Susan Zimmerman, Diana Acosta, Shana Dubinsky, Brittany Tolar, and Edith Zarco for assistance with data collection and Dr. William McCarty for assistance with data analysis.

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Table 1

GEE Model Predicting Mental Health Help-Seeking

Factors	OR	95% CI
White	1.67	1.37, 2.04***
Other race	1.42	1.11, 1.80**
Problem drinking	.99	.62, 1.58
Wave	.79	.70, .88***
Sexual assaults	1.02	.99, 1.04
Education	1.30	1.16, 1.46***
Tangible support	1.64	1.54, 1.74***
PTSD score	1.02	1.02, 1.03***
Prob. drinking *PTSD	.99	.98, 1.01

Note: *African-American used as reference category for White and Other race;*

*** $p < .001$,

** $p < .01$,

* $p < .05$

Table 2

GEE Model Predicting Substance Use Treatment Seeking

Factors	OR	95% CI
White	1.01	.79, 1.28
Other race	1.02	.75, 1.38
Problem drinking	4.08	2.72, 6.12***
Wave	1.06	.95, 1.17
Sexual assaults	1.03	1.01, 1.06*
Education	.87	.78, .96**
Tangible support	1.17	1.10, 1.25***
PTSD score	1.03	1.02, 1.04***
Prob. drinking *PTSD	.97	.96, .99***

Note: *African-American used as reference category for White and Other race;*

*** $p < .001$,

** $p < .01$,

* $p < .05$