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Interpersonal violence exposure and alcohol treatment utilization among medical inpatients with alcohol dependence

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Abstract

The goal of this study was to examine the association between interpersonal violence exposure and utilization of alcohol treatment after medical hospitalizations among adults with alcohol dependence. We analyzed data collected from a prospective cohort of 238 adults with alcohol dependence who were inpatients in a large, urban hospital. Participants who reported interpersonal violence victimization had 1.6 times the odds (adjusted OR = 1.64, 95% CI 0.92–2.91) of receiving alcohol treatment during the year after hospitalization compared to participants with no violence exposure. Recent (past 3 months) exposure to violence was not more strongly related to receipt of treatment than any lifetime violence exposure. Results suggest that a history of interpersonal violence victimization may be associated with an increased odds of alcohol treatment utilization following a medical hospitalization. Therefore, clinicians should be optimistic about identifying and referring patients who have experienced interpersonal violence to alcohol treatment. Moreover, given the potentially high prevalence of interpersonal violence exposure among inpatient populations at large, urban hospitals, alcohol treatment providers should develop methods to address both alcohol dependence and violence recovery.

Introduction

It is well documented that adult alcohol treatment services utilization is influenced by multiple individual and institutional factors, including the severity of dependence, physical and mental health status, socioeconomic status, ethnicity, gender, cognitive ability, marital and employment status, and the availability of services (Arroyo, Westerberg, & Tonigan, 1998; Edlund, Belin, & Tang, 2006; Green, Polen, Dickinson, Lynch, & Bennett, 2002; Kertesz et

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al., 2006; McAuliffe & Dunn, 2004; Sakai, Ho, Shore, Risk, & Price, 2005; Satre, Knight, Dickson-Fuhrmann, & Jarvik, 2004). The relationship between trauma exposure and substance dependence is well-established (Farley, Golding, Young, Mulligan, & Minkoff, 2004; Ullman, Filipas, Townsend, & Starzynski, 2006), and research demonstrates that the prevalence of lifetime exposure to trauma (e.g., physical or sexual abuse) is high among substance dependent patients in treatment, with estimates ranging from 37–47% for lifetime physical and/or sexual abuse exposure (Dunn, Ryan, & Dunn, 1994; Easton, Swan, & Sinha, 2000; Pirard, Sharon, Kang, Angarita, & Gastfriend, 2005). However, it is not known whether adult survivors of interpersonal violence victimization who have alcohol dependence are any more or less likely to utilize substance use treatment services or programs (e.g., detoxification, counseling, or self-help) than those with dependence and no exposure to interpersonal violence victimization. Interpersonal violence exposure may be positively associated with treatment and self-help utilization, as trauma exposures including violence have been found to be positively related to increased use of medical services (Liebschutz, Geier, Horton, Chuang, & Samet, 2005; Rosenberg et al., 2000), and correlated with a decreased likelihood of alcohol treatment drop-out or under-attendance (Copeland & Hall, 1992; Easton et al., 2000). On the other hand, exposure to interpersonal violence may lead to self-medication with alcohol for trauma-related symptoms, and could interfere with help-seeking for and receipt of alcohol treatment. It is important for substance abuse treatment professionals to know if survivors of interpersonal violence are as likely or more likely to follow through on clinician referrals to treatment programs or services than other patients who screen positive for dependent drinking. This information could be used to build the case in favor of consistent screening and referrals among general patient populations where the co-occurrence of multiple types of psychological disorders resulting from trauma is prevalent, and patients may otherwise be presumed to be unlikely or incapable of making behavioral changes (e.g., “lost causes”). Substance abuse treatment providers may be able to form new and more effective alliances with hospital-based healthcare providers who serve populations where experiences of interpersonal violence victimization are prevalent if the likelihood that survivors will follow through on clinician referrals to substance abuse treatment is established. Therefore, the goal of the present analysis was to assess whether lifetime and recent exposure to four specific forms of interpersonal violence were associated with the utilization of alcohol treatment services after hospitalization among medical inpatients identified by screening as having alcohol dependence. To our knowledge, this study is the first to examine the relationship between interpersonal violence exposure and alcohol dependence-related help-seeking among a general patient population.

Materials and Methods

This study was a secondary analysis conducted using data collected prospectively for a randomized-controlled effectiveness trial of an alcohol screening and brief intervention in a large, urban teaching hospital. The study was approved by the Institutional Review Board of the Boston University Medical Center. The results of the trial are described elsewhere (Saitz et al., 2007).

Participants

Between February 2001 and June 2003, all hospital medicine inpatients ages 18 years old and older whose physicians did not decline the research contact were approached by trained research associates and invited to participate in screening (N = 7,824). Patients who were fluent in English or Spanish and gave verbal consent completed a screening interview to determine their eligibility (N = 5,813). Eligibility criteria included current (past month) drinking of risky amounts (defined for eligibility as >14 standard drinks per week or ≥ 5 drinks per occasion for men; >11 drinks per week or ≥ 4 drinks per occasion for women and people ≥ 66 years); a Mini-Mental State Examination score of ≥ 21 ; consent to participate in two follow-up contacts

associated with the study and no plans to move away from the area during the upcoming year. Of the 986 patients identified eligible inpatients drinking risky amounts, 341 provided written informed consent and enrolled in the clinical trial (35%). Since only people with alcohol dependence would be expected to utilize alcohol treatment programs or helping services, the current analyses are restricted to that sample.

Procedure

Eligible participants were interviewed at three time points over a one-year period, at baseline, three months following baseline and twelve months following baseline. Interviews took place in-person, with the exception of 11% of the three-month and 13% of the twelvemonth follow-ups which took place by phone.

Measures

Dependent variable—To assess alcohol treatment utilization, at the 3- and 12-month follow-up assessments, patients were read a series of six questions. These six questions elicited information about patients' use of various forms of alcohol and drug assistance, and mental and physical health care services, in the past three and 12 months, respectively. For the present analysis, we defined "treatment" broadly, beyond formal specialty treatment, and included in our definition forms of assistance such as hospital detoxification, all other detoxification programs, residential alcohol or drug treatment, living in a halfway house, counseling or therapy, attendance at self-help, mutual-help or 12-step meetings (e.g., Alcoholics Anonymous), or counseling from an Employee Assistance Program. The definition excluded the brief intervention provided by the clinical trial. A positive response to any of the alcohol treatment questions at either the 3- or 12-month assessment was classified as receipt of alcohol treatment during the year following medical hospitalization.

Independent variable—Our primary independent variable of interest, exposure to interpersonal violence, was a binary variable created from four separate questions asked at baseline that solicited information about lifetime and recent experiences with (1) family or partner physical violence, (2) stranger-perpetrated violence (i.e., robbing, mugging, or physical attacks), (3) sexual assault, and (4) rape. These four questions were selected from the 31 items used to assess trauma exposure in the Women, Co-Occurring Disorders, and Violence Study (WCDVS) (McHugo et al., 2005), and are modified versions of items from the Life Stressor Checklist-Revised (LSC-R) (Wolfe & Kimerling, 1997). The content validity of these questions has been determined to be good and the reliability of these four questions has been assessed in a sample of women with substance abuse disorders and been found to be adequate (kappa values: 0.52–0.63) (McHugo et al., 2005). Individuals who reported that they had experienced any one of the four interpersonal violence victimization exposures at any point during their lives were classified as having lifetime interpersonal violence exposure. These individuals were asked follow-up questions to determine when these experiences had occurred. For example, they were asked, "How old were you when this first happened?" and to distinguish the effects of recent (defined as occurring in the past 3 months) and lifetime experiences of trauma, we also categorized subjects into 3 groups: any interpersonal violence exposure within the past three months (i.e., recent exposure), any lifetime exposure but no recent exposure, and never exposed.

Covariates included in the analyses were randomization group, age, gender, White race vs. other race, homelessness and employment status, post-traumatic stress disorder (PTSD) symptoms, and the frequency and number of alcohol-related consequences or problems. All covariates were assessed at baseline, self-reported and assessed through single questions, with the exception of PTSD symptoms and severity of alcohol dependence. PTSD was assessed via the civilian PTSD symptom checklist (PCL-C), which is a valid, reliable 17-item self-report

symptom scale whose score corresponds to the DSM-IV diagnosis of PTSD (Blake et al., 1995; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). The severity of alcohol consequences or problems was measured via the Short Inventory of Problems (SIP) total score (Miller, Tonigan, & Longabaugh, 1995). Time since baseline was also included as a covariate in all adjusted regression analyses.

Data analysis

Study data was analyzed using SAS/STAT software versions 8.2 and 9.1.3 (SAS Institute, Inc., Cary, NC). Frequencies and proportions were used to describe the study sample. Bivariate associations between baseline characteristics and treatment utilization were assessed using a chi-square test. We used generalized estimating equations (GEE) with a logit link function to assess the association between trauma and treatment utilization, adjusting for randomization group, age, gender, race, homelessness, and employment status. The generalized estimating equation (GEE) approach was used in order to account for the correlation due to repeated measures from the same subject over time. The empirical standard errors from the GEE approach were used for all analyses. To minimize the potential for collinearity, models did not include variables that were highly correlated with each other (correlations >0.40). PTSD symptoms (PCL-C score) and severity of alcohol problems (SIP score) were not included as covariates in the primary regression models since these factors were expected to be in the causal pathway between interpersonal violence exposure and treatment utilization rather than confounders. To further assess this relationship, secondary models were fit that included these variables as covariates to assess whether their inclusion strongly attenuated the effect of violence exposure. PTSD symptoms and severity of alcohol problems were included separately in models as they were found to be highly correlated (correlation coefficient = 0.55). All analyses were conducted with two-sided tests and a significance level of 0.05.

Results

Of the 341 subjects enrolled in the randomized clinical trial, 261 (77%) had alcohol dependence. Of these, 238 (91%) had follow-up data on treatment utilization at the 3 or 12 month time points and comprised the final sample for analysis. Subjects (N = 238) were primarily male (71%), and the majority was not Hispanic (92%) and unemployed (68%) (Table 1). Thirty percent of the sample reported that they were homeless, meaning at least one night in a shelter or street in the past six months.

There was an exceedingly high prevalence of interpersonal violence victimization among this sample. At the time of hospitalization (i.e., baseline), 77% of the inpatients with alcohol dependence reported at least one experience of interpersonal violence victimization in their lifetimes. Of those who had been victimized, 46% reported family or partner physical abuse victimization, 57% reported experiencing stranger-perpetrated violence, 29% reported having been sexually assaulted, and 22% reported a history of rape. The risk for violence exposure was slightly elevated among females (relative risk 1.19, not shown).

One year after hospitalization, 56% of all alcohol dependent patients identified through clinician screening reported having used any alcohol treatment program or service in the past 12 months. The unadjusted analysis revealed that participants who reported any lifetime history of interpersonal violence victimization, including physical abuse, stranger-perpetrated violence, sexual assault or rape, had almost twice the odds (OR = 1.88, 95% CI 1.08–3.28) of treatment utilization in the year following medical hospitalization compared to participants with no lifetime history of violence exposure (Table 2). When specific types of interpersonal violence were assessed individually, a higher odds of treatment utilization was consistently observed for those who had experienced each of the four forms of violence as compared to those who had not, and the effect was strongest for rape (OR = 2.23, 95% CI 1.23–4.05) (Table

2). A similar effect was observed in the adjusted models. In the multivariable regression model adjusting for randomization group, age, gender, race, homelessness and employment status, the odds of treatment utilization was higher for those with any lifetime history of violence exposure compared to those with no such exposure (OR = 1.64, 95% CI 0.92–2.91), although the difference was not statistically significant at the $p < .05$ level (Table 2). A lifetime history of being a victim of stranger violence remained significantly related to treatment utilization in the adjusted analysis (OR = 1.70, 95% CI 1.03–2.80), however the effect of the other forms of violence victimization were attenuated and no longer statistically significant. To explore our post hoc hypotheses that PTSD and/or the severity of drinking problems were potential mediators of the relationship between any lifetime violence exposure and treatment utilization, we fit additional regression models that included each of these variables separately. Both PTSD symptoms and drinking problem severity attenuated the odds ratio corresponding to the primary predictor of interest (violence exposure) by more than 10%, as would be expected if they were mediators of the relationship between violence exposure and treatment utilization.

In adjusted analyses assessing the impact of recent interpersonal violence victimization on treatment utilization, odds ratios for all categories of interpersonal violence were >1 , though none reached statistical significance (odds ratios for any interpersonal violence 1.4, physical abuse 1.1, stranger-perpetrated violence 1.2, sexual assault 1.1, rape 2.2) (Table 3). Only recent exposure to rape produced a clinically important increase in the odds of treatment utilization (Table 3). Odds ratios were larger for lifetime-but-not-recent interpersonal violence for all categories except rape (recent rape odds ratio 2.2, lifetime-but-not-recent rape odds ratio 1.6) (Table 3).

Discussion

Prior research indicates that trauma survivors are more likely than people who have not experienced trauma to receive medical services and are less likely to drop out of substance use treatment (Copeland & Hall, 1992; Liebschutz et al., 2005; Rosenberg et al., 2000). Consistent with these studies we observed an association, with moderate effect sizes, in the relationship between interpersonal violence victimization and subsequent utilization of alcohol treatment services after hospitalization among medical inpatients with alcohol dependence. In addition, these findings were consistent with a mediating effect of both PTSD symptoms and alcohol problem severity, which other research has also detected (Breslau, Davis, & Schultz, 2003).

There are at least three possible explanations for the association between interpersonal violence victimization and increased alcohol treatment utilization. First, it's plausible that the violence victimization preceded PTSD, that PTSD influenced drinking problem severity among survivors, and that the severity of alcohol dependence and consequences brought these individuals into more frequent contact with health professionals and services than individuals who were never victimized. Alternately, patients who experience violence and suffer from PTSD may, as a result, experience problems in multiple areas of their lives simultaneously, which may bring them into contact with providers more frequently than individuals in the general population. This disproportionate contact with providers may result in a greater number of referrals to substance abuse treatment. Finally, evidence suggests that assessment for an alcohol problem may prompt all alcohol dependent patients to reflect on their alcohol use, seek help, and decrease consumption (Kypri, Langley, Saunders, & Cashell-Smith, 2007). Patients who have experienced an interpersonal violence trauma during their lives may be particularly primed to react to an assessment, as compared to other alcohol dependent patients.

This comparison of alcohol treatment utilization among those with recent (3 month), lifetime and no violence victimization exposure suggested that for most types of interpersonal violence experiences, lifetime rather than recent events may be stronger predictors of alcohol treatment

utilization in the year following a medical hospitalization, with the exception of rape. In this sample, individuals who had been raped within the 3 months prior to hospitalization had higher odds of using alcohol treatment at the 12-month follow up than individuals who had been raped during their lifetimes (but not within the prior 3 months). These findings raise several questions for additional research studies with larger samples. For example, it would be beneficial to understand whether there is a “critical window” for alcohol dependent rape survivors in the immediate aftermath of the trauma that is not necessarily present for other survivors of violence (e.g., survivors of muggings, sexual molestation, or physical assault), and whether rape functions as a cue to help-seeking among alcohol dependent individuals in a way that other forms of violence victimization do not.

Clinicians should recognize that hospitalization may represent a particular opportunity to begin addressing alcohol dependence. Substance abuse treatment professionals can help tailor treatment services so that they address both trauma and alcohol dependence simultaneously. Both substance abuse treatment and healthcare providers should recognize that patients may be more receptive to substance abuse treatment than treatment for their traumatic experiences because they may feel less stigma, shame and guilt about being alcohol dependent than having experienced the abuse or violence (Gibson & Leitenberg, 2001; Street, Gibson, & Holohan, 2005), they may not recall the traumatic event (Halligan, Clark, & Ehlers, 2002), or because they do not consider the interpersonal violence to be an important determinant of their own mental health (Lab & Moore, 2005).

More research is needed to clarify why individuals reporting no exposure to interpersonal violence may be less likely to initiate and utilize treatment services than those who are survivors of violence, and whether additional motivational intervention techniques should be developed to increase treatment utilization among the former subgroup. Moreover, education of clinicians in substance use treatment and medicine should emphasize that trauma survivors are not at all “hopeless” or “lost causes” in terms of their capacity to follow-through on referrals to treatment. On the contrary, despite the multiple challenges that they face, these results suggest that survivors of interpersonal violence victimization may be more likely than other patients to seek help and utilize alcohol treatment services pursuant to a hospital-based alcohol screening.

The results of this study are subject to three main limitations. First, treatment utilization data were self-reported. It is possible that violence survivors were more likely to recall and report past month treatment utilization than patients who had not experienced interpersonal violence, although the likelihood of differential reporting is small. Moreover, our definition of “treatment” might not have captured all forms of alcohol treatment. However, a strength of our study is that we used a broad definition of treatment, including common forms of treatment not typically captured in treatment databases (e.g., mutual and self-help groups, and Employee Assistance Programs). Second, the sample size was small and may have limited our ability to detect differences in treatment utilization among patients by specific type of violence exposure, particularly in adjusted analyses and analyses of recent violence. Furthermore, although many of the associations in adjusted analyses were not statistically significant, all tested associations (adjusted and unadjusted) had odds ratio point estimates greater than one. Third, our results may not be generalizable to populations other than inpatients of large, academic hospitals in urban settings.

Despite these limitations, our results are encouraging with regard to the likelihood that patients who have faced adversity during their lifetimes, including rape and physical assault, will have the capacity to seek and engage in alcohol dependence treatment, and may do so after clinician contact while in the general healthcare system.

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Table 1

Characteristics of medical inpatients with alcohol dependence, by lifetime exposure to interpersonal violence victimization (N = 238)*

	Total (n = 238)	Violence Exposed (n = 183)	No violence Exposure (n = 55)	p-value
<u>Sex</u>				0.0186
Male	169 (71.0%)	123 (67.2%)	46 (83.6%)	
Female	69 (29.0%)	60 (32.8%)	9 (16.4%)	
<u>Ethnicity</u>				0.7865
Hispanic	20 (8.4%)	15 (8.2%)	5 (9.1%)	
Non-Hispanic	218 (91.6%)	168 (91.8%)	50 (90.9%)	
<u>Race</u>				0.8643
White	85 (35.7%)	68 (37.2%)	17 (30.9%)	
Black	116 (48.7%)	87 (47.5%)	29 (52.7%)	
<u>Employed (past 3 months)</u>				0.8527
Yes	76 (31.9%)	59 (32.2%)	17 (30.9%)	
No	162 (68.1%)	124 (67.8%)	38 (69.1%)	
<u>Homeless (>1 night, past 3 months)</u>				0.0591
Yes	72 (30.3%)	61 (33.3%)	11 (20.0%)	
No	166 (69.7%)	122 (66.7%)	44 (80.0%)	
<u>Age</u>				0.1466
18 – 25	11 (4.6%)	9 (4.9%)	2 (3.6%)	
26 – 35	32 (13.4%)	28 (15.3%)	4 (7.3%)	
36 – 45	91 (38.2%)	73 (39.9%)	18 (32.7%)	
46 and older	104 (43.7%)	73 (39.9%)	31 (56.4%)	

* Data are from 238 patients, at baseline

Table 2
Use of alcohol treatment services by medical inpatients with alcohol dependence during the year following hospitalization, by lifetime exposure to interpersonal violence (N = 230) [†]

	Total N	% used alcohol treatment	Unadjusted OR (95% CI)	Adjusted OR (95% CI) [‡]
Any violence (composite)				
Yes	188	57%	1.88 (1.08, 3.28) *	1.64 (0.92–2.91)
No	42	42%		
Physical abuse ¹				
Yes	118	61%	1.72 (1.07, 2.76) *	1.48 (0.89–2.45)
No	109	47%		
Stranger-perpetrated violence ²				
Yes	144	60%	1.68 (1.05, 2.70) *	1.70 (1.03–2.80) *
No	86	46%		
Sexual assault or rape (composite)				
Yes	87	64%	1.87 (1.12, 3.12) *	1.54 (0.88–2.68)
No	143	49%		
Sexual assault ³				
Yes	78	64%	1.81 (1.06, 3.09) *	1.46 (0.84–2.55)
No	152	49%		
Rape ⁴				
Yes	67	69%	2.23 (1.23, 4.05) **	1.67 (0.85–3.28)
No	163	49%		

[†] Analyses based on data from 230 subjects and 430 observations across the 3- and 12-month assessments;

[‡] controlling for randomization group, age, gender, White race, time since baseline, homelessness and employment

* p < .05

** p < .01

¹ Response to: “Have you ever been physically abused—for example, hit, choked, burned, or beaten—or severely punished—for example locked up, shut in a closet, tied up, or chained – by someone you knew well such as a parent, sibling, boyfriend, or girlfriend?”

² Response to: “Have you ever been robbed, mugged, or physically--not sexually--attacked by a stranger or someone you did not know well?”

³ Response to: “Have you ever been touched or made to touch someone else in a sexual way because you felt forced in some way or threatened by harm to yourself or someone else?”

⁴ Response to: “Have sex because you felt forced in some way or threatened by harm to yourself or someone else?”

Table 3
Use of alcohol treatment services by medical inpatients with alcohol dependence during the year following hospitalization, by recent and lifetime interpersonal violence exposure (N = 230)[‡]

	Total n	% Used Services	Unadjusted OR (95% CI)	Adjusted OR (95% CI) [†]
<u>Any interpersonal violence (composite)</u>				
In past 3 months	30	59%	2.11 (0.90, 4.95) [*]	1.38 (0.56, 3.45)
In lifetime, but not in past 3 months	158	57%	1.84 (1.04, 3.24) [*]	1.68 (0.94, 3.02)
Never	42	42%	1.00 (referent)	1.00 (referent)
<u>Physical abuse</u>				
In past 3 months	14	61%	1.73 (0.54–5.51)	1.12 (0.34, 3.72)
In lifetime, but not in past 3 months	104	60%	1.71 (1.05–2.80) [*]	1.50 (0.90, 2.54)
Never	109	47%	1.00 (referent)	1.00 (referent)
<u>Stranger-perpetrated violence</u>				
In past 3 months	16	57%	1.69 (0.65, 4.38)	1.15 (0.41, 3.24)
In lifetime, but not in past 3 months	128	60%	1.68 (1.03, 2.74) [*]	1.80 (1.07, 3.02) [*]
Never	86	46%	1.00 (referent)	1.00 (referent)
<u>Sexual assault</u>				
In past 3 months	7	64%	1.52 (0.34, 6.69) [*]	1.13 (0.25, 5.19)
In lifetime, but not in past 3 months	69	63%	1.80 (1.03, 3.13) [*]	1.47 (0.82, 2.64)
Never	152	49%	1.00 (referent)	1.00 (referent)
<u>Rape</u>				
In past 3 months	13	76%	3.08 (0.81, 11.73)	2.19 (0.56, 8.55)
In lifetime, but not in past 3 months	54	68%	2.08 (1.10, 3.96) [*]	1.56 (0.75, 3.28)
Never	163	49%	1.00 (referent)	1.00 (referent)

[†]controlling for randomization group, age, gender, White race, time since baseline, homelessness and employment

^{*}p < .05

^{**}p < .01

[‡]Analyses based on data from 230 subjects and 430 observations across the 3- and 12-month assessments