



# HHS Public Access

Author manuscript

*Subst Use Misuse*. Author manuscript; available in PMC 2017 June 06.

Published in final edited form as:

*Subst Use Misuse*. 2016 June 6; 51(7): 835–839. doi:10.3109/10826084.2016.1155612.

## The relationship between generalized anxiety symptoms and treatment dropout among women in residential treatment for substance use disorders

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### Abstract

**Background**—Generalized anxiety disorder (GAD) co-occurs with substance use disorders (SUDs) at an alarmingly high rate, and the presence of anxiety is associated with an increased risk for relapse to substance use following treatment. Furthermore, comorbid SUDs and other forms of psychopathology are associated with an increased risk for leaving treatment against medical advice (AMA).

**Objective and Method**—Research has yet to examine whether the presence of GAD symptoms is associated with leaving treatment AMA in SUDs populations. Thus, the current study sought to address this important gap in the literature by examining this relationship among a sample of 122 women in residential treatment for SUDs.

**Results**—Results demonstrated that GAD symptoms were significantly associated with the decision to leave treatment AMA after controlling for age, education, problematic alcohol and drug use, and depression symptoms.

**Conclusions/Importance**—Our finding indicates the potential importance of assessing and targeting GAD in treatment for SUDs, which may increase treatment compliance.

### Keywords

generalized anxiety disorder; substance use disorders; treatment dropout; alcohol abuse; drug abuse

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DECLARATION OF INTEREST: Gregory Stuart started conducting psychoeducational treatment groups for patients at Cornerstone of Recovery for a maximum of 4 hours per week. None of this research project pertains to any of the psychoeducational groups. Dr. Stuart does not ever do any study recruitment, is not informed which patients do or do not participate in research, and does not mention anything about research to the patients attending groups.

Ryan Shorey started working as a research consultant at Cornerstone. There is no restriction on what Ryan can publish and his research consultation does not influence the study results in any way. Ryan does not interact with Cornerstone patients. Ryan has reported all of his consultation activities to Ohio University and no concern about financial conflict of interest has been raised.

Treatment dropout among individuals seeking residential treatment for substance use disorders (SUDs) is a prevalent and significant problem. Comorbid psychopathology is one factor associated with greater treatment dropout among SUDs populations (e.g., Herbeck, Fitek, Svikis, Montoya, Marcus, & West, 2005). To date, no research has examined whether generalized anxiety disorder (GAD) symptoms are significantly associated with leaving treatment against medical advice (AMA) among individuals in residential treatment for SUDs. This relationship is important given the high co-occurrence between GAD and SUDs and the prevalence of leaving treatment AMA among individuals with comorbid SUDs and psychopathology.

Research supports a high comorbidity between SUDs and GAD, with the rates of co-occurrence ranging from 9% to 65% (Tollefson, Montague-Clouse, & Tollefson, 1992). Epidemiological studies have found more alcohol and drug use among individuals with GAD compared to other anxiety disorders (e.g., PTSD, social phobia; Back & Brady, 2008). Furthermore, symptoms of GAD accelerate the progression from the onset of substance use to the development of a SUD, and the co-occurrence between GAD and SUDs is associated with poor treatment prognosis and increased risk for relapse (e.g., Boschloo et al., 2012).

It is also well documented in the literature that there is a significant relationship between SUDs and leaving residential treatment AMA, with dropout rates reaching as high as 50% (Daughters et al., 2005). Research has further established that comorbid psychopathology and greater psychiatric symptom severity is associated with increased dropout from residential substance use treatment (Daughters et al., 2005). However, no research has examined the influence of GAD symptoms on treatment dropout among SUD populations.

The current study sought to examine whether GAD symptoms were associated with decisions to leave treatment AMA among women in residential treatment for SUDs. Extant literature has found that women with GAD experience poorer treatment prognosis compared to men (Rubio & López-Ibor, 2007). Given this, the current study focused its examination on women. It was hypothesized that GAD symptoms would be significantly associated with decisions to leave AMA after controlling for demographic factors (e.g., age, education), problematic alcohol and drug use, and depression symptoms.

## Method

### Participants and procedure

Medical records from 122 women in residential treatment for SUDs were included in the current study. The typical length of treatment is between 28 and 35 days; however, treatment length can vary based on a variety of factors, such as a decision to leave AMA. All procedures were approved by the last author's Institutional Review Board (IRB).

The sample had a mean of 14.1 years of education ( $SD = 2.4$ ) and was, on average, 43.0 years of age ( $SD = 10.5$ ). The ethnic composition of the sample was predominately non-Hispanic Caucasian (96.7%). The vast majority of the patient sample was diagnosed with alcohol dependence (62.3%) followed by opioid dependence (19.7%).

**Psychopathology**—The presence GAD symptoms was assessed using the GAD subscale (10 items) and depression symptoms was assessed using the depression subscale (21 items) of the Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman, 2002). Patients are asked to indicate on a yes/no scale whether 125 items apply to them. Items endorsed as “yes” are coded as “1” and items endorsed as “no” are coded as “0”. Total scores were obtained by summing all subscale items. The PDSQ has exhibited excellent reliability (mean  $\alpha = .82$ ) in previous work utilizing clinical samples (Zimmerman & Mattia, 2001).

**Substance use**—The 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) was used to assess alcohol use (i.e., quantity, frequency, and intensity), symptoms of dependence and tolerance, and problems associated with alcohol use in the year prior to treatment. Drug use (i.e., frequency of use and problems related to use) in the year prior to treatment was assessed using the Drug Use Disorders Identification Test (DUDIT; Stuart, Moore, Kahler, & Ramsey 2003; Stuart, Moore, Ramsey, & Kahler, 2004), which is a 14-item self-report measure. The reliability of the AUDIT and DUDIT have been supported in previous work (Barbor, Higgins-Biddle, Saunders, & Monterio, 2001; Stuart et al., 2003, 2004).

**Treatment dropout**—Women who voluntarily chose to leave treatment early or who were administratively discharged for violating the treatment center’s rules were categorized as leaving treatment AMA. Treatment dropout or the decision to leave treatment AMA was coded as “1” and treatment completion was coded as “0.”

## Results

Descriptive statistics (i.e., means and standard deviations) and bivariate correlations are depicted in Table 1. An independent samples t-test was utilized to compare length of stay in treatment between patients who left treatment AMA versus those who did not. Groups significantly differed,  $t(120) = -6.79, p < .001$ , with length of stay being significantly lower for patients who left treatment AMA ( $M = 16.62, SD = 9.33$ ) compared to treatment completers ( $M = 30.49, SD = 1.45$ ). In order to determine whether GAD was significantly associated with a decision to leave treatment AMA ( $N = 21$ ), a logistic regression was utilized. The results for the logistic regression are presented in Table 2. Results demonstrated that GAD symptoms were significantly associated with leaving treatment AMA over and beyond age, education, problematic alcohol and drug use, and depression symptoms.

## Discussion

As hypothesized, the presence of GAD symptoms significantly predicted leaving treatment AMA after controlling for demographic factors (i.e., age and education), problematic alcohol and drug use, and depression symptoms. This result suggests that SUD patients with GAD symptoms are potentially more likely to leave treatment AMA than SUD patients without GAD symptoms. One potential explanation for the study’s finding is that many individuals with GAD use alcohol and/or drugs as a means of coping with their anxiety

symptoms (Baillie et al., 2010). Thus, these individuals might experience increased difficulty in treatment because it is possible that they will experience heightened anxiety symptoms and distress, as they have not developed adaptive skills to cope with these symptoms.

Additionally, many residential treatments for SUDs challenge patients' avoidant behaviors in an attempt to help them overcome maladaptive behaviors and their SUDs (Reif et al., 2014). Past work has indicated that individuals with GAD often engage in avoidant behaviors to minimize or cope with their distressing anxiety symptoms (Stewart & Conrad, 2007). Thus, these patients may have difficulty with treatments that focus on overcoming avoidant behaviors and may be at an increased risk for leaving treatment AMA. Future research should longitudinally examine treatment reactions and symptomatology across the course of treatment for SUDs to determine the mechanisms responsible for this association.

There are a number of limitations of the current study. First, the treatment facility in which the study took place does not include structured clinical interviews to confirm the presence of psychopathology and SUDs. Future research using structured clinical interviews to make diagnoses should be conducted to further examine the relationship between GAD and treatment dropout. Second, generalizability in the current study is limited by the predominately non-Hispanic Caucasian sample. Future research incorporating a more diverse sample would increase the generalizability of the study's finding. Moreover, the sample in the current study was limited to women. Future work should examine potential gender differences in the relationship between GAD symptoms and treatment dropout among substance use populations. Finally, only total scores for assessment measures were provided by the treatment center, and thus internal consistency estimates could not be determined.

There are potentially important clinical implications from the current study. For example, interventions targeting stress and enhancing adaptive stress responses could potentially help improve treatments for SUDs. Mindfulness-based strategies could help reduce stress and anxiety symptoms and enhance more adaptive stress and coping responses. Numerous studies have supported the effectiveness of mindfulness in reducing anxiety (e.g., Vøllestad, Sivertsen, & Nielsen, 2011) and stress (Garland, Gaylord, Boettiger, & Howard, 2010) among SUD populations. It is possible that engaging substance use patients with GAD symptoms in anxiety management strategies early in the treatment process may reduce treatment dropout among this vulnerable population.

## Acknowledgments

### FUNDING:

This work was supported, in part, by grant K24AA019707 from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) awarded to the last author. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIAAA or the National Institutes of Health.

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**Table 1**

Descriptive statistics and Bivariate Correlations among study variables

	1	2	3	4	5	6	7
1. Age	--						
2. Years of Education	.12	--					
3. Alcohol Use	-.06	.13	--				
4. Drug Use	-.04	-.04	-.19**	--			
5. Depression symptoms	-.12	.02	.02	.31**	--		
6. GAD symptoms	-.14	-.16	.02	.26**	.70**	--	
7. AMA <sup>a</sup>	-.17	.11	.07	-.04	.18*	.24**	--
<i>M</i>	43.00	14.06	16.50	10.34	8.39	4.91	--
<i>SD</i>	10.51	2.43	11.70	12.19	4.94	3.54	--
<i>Range</i>	25-64	10-23	0-37	0-42	0-18	0-10	--

\*  $p < .05$ ,

\*\*  $p < .01$

Note. All psychiatric symptoms are probable symptoms of psychiatric diagnoses.

<sup>a</sup> AMA refers to leaving treatment against medical advice. Women who voluntarily chose to leave treatment early or who were administratively discharged for violating the treatment center's rules were categorized as leaving treatment AMA. Treatment dropout or the decision to leave treatment AMA was coded as "1," and treatment completion was coded as "0."

Logistic Regression Examining the Relationship Between GAD Symptoms and Decisions to Leave Treatment Against Medical Advice

Table 2

	B	SE	Exp(B)	p	Nagelkerke's R2	X2
					.20*	.20
Age	-.05	.03	.95	.07		
Education	.20	.11	1.22	.08		
Alcohol Use	.002	.02	1.00	.94		
Drug Use	-.03	.02	.97	.23		
Depression Symptoms	-.001	.08	.10	.10		
GAD symptoms	.27	.12	1.30	.03		

\*  $p < .05$

Note. AMA refers to leaving treatment against medical advice. Women who voluntarily chose to leave treatment early or who were administratively discharged for violating the treatment center's rules were categorized as leaving treatment AMA. Treatment dropout or the decision to leave treatment AMA was coded as "1" and treatment completion was coded as "0."