

The Relationship Between Eating Disorder Symptoms and Treatment Rejection among Young Adult Men in Residential Substance Use Treatment

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ABSTRACT: Research has demonstrated that individuals with substance use disorders (SUDs) and comorbid mental health problems evidence heightened negative consequences, including poorer treatment outcomes, a higher risk for relapse, and mortality compared to individuals with a single disorder. In this study, we focus on the comorbidity between SUDs and eating disorder (ED) symptomatology, as EDs are similarly associated with high rates of relapse, morbidity, and mortality. Of particular importance is research examining treatment rejection among individuals in treatment for SUDs with cooccurring ED symptomatology. This study seeks to add to the literature by examining treatment rejection among young adult men in residential treatment for SUDs ($N = 68$) with cooccurring ED symptomatology. Results from hierarchical regression analyses indicated that ED symptoms were significantly associated with treatment rejection after controlling for alcohol and drug use and problems and depression symptoms. Although this is a preliminary study, the results add to a growing body of research examining the comorbidity between SUDs and ED symptomatology. Future research examining this relationship is needed to further elucidate the treatment patterns among individuals with comorbid ED symptoms and substance use diagnoses.

KEYWORDS: eating disorders, bulimia nervosa, binge eating disorder, substance use disorders, treatment rejection, treatment nonadherence

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Introduction

There is a wealth of research examining the risk factors for substance use disorders (SUDs), treatments for SUDs, and risk for relapse. Despite this research, the prevalence of SUDs, treatment nonseeking, treatment rejection, and risk for relapse remains high.^{1,2} Specifically, only 6% of individuals with an SUD seek treatment, and among those who do seek treatment, approximately 55% do not complete treatment.^{3,4} Given the negative consequences associated with SUDs and the risk for relapse, the prevalence of treatment nonadherence or rejection is a significant and serious problem.^{5,6} The construct of treatment rejection refers to one's level of motivation and openness for treatment; thus, individuals high in treatment rejection have a low motivation and openness for treatment.⁷

Past research has indicated that the presence of comorbid psychopathology is associated with an increased risk for treatment rejection among individuals in treatment for SUDs.³ However, past research has not examined the relationship between treatment rejection and eating disorder (ED)

symptoms among individuals seeking treatment for SUDs. ED symptoms are one potentially important factor that could be associated with treatment rejection among individuals in treatment for SUDs, as the prevalence of cooccurring SUDs and EDs is high.^{8–12} The purpose of this study was to examine the relationship between treatment rejection and ED symptoms among young adult men in residential treatment for SUDs. The current investigation was limited to examine bulimia and binge eating symptoms, as the assessment measures used in this study only measured the presence of bulimia and binge eating. However, past work has demonstrated higher rates of co-occurrence between SUDs and bulimia and binge eating symptoms compared to anorexia nervosa.¹³ We would also like to note that we limited our investigation to men, given the recent and significant increase in body image concerns and ED symptoms among men.¹⁴ As a result, there has been an increased and recent interest in examining disordered eating among men; however, there still remains a significant gap in our understanding.¹⁵



Treatment rejection and SUDs. Extant literature has indicated a significant relationship between SUDs and treatment rejection, particularly among individuals with poly-substance and drug dependence. For example, White et al.² found that drug use prior to treatment was associated with an increased risk for treatment rejection. The significance of this relationship increased among individuals who were dependent upon multiple drugs prior to treatment. Specifically, the risk for treatment rejection for participants who tested positive for a single drug at baseline was doubled, and the risk was quadrupled among participants who were positive for multiple drugs. Additionally, Brown et al.¹ examined factors associated with initial engagement in treatment for SUDs and found that being male and having a drug dependence diagnosis were associated with a greater likelihood of treatment rejection.

Furthermore, past work has consistently demonstrated that the co-occurrence of SUDs and psychiatric disorders is associated with worse treatment outcomes compared to the presence of a single disorder.^{16,17} Hiller et al examined the factors associated with treatment rejection among individuals on criminal probation and mandated to substance use treatment. Findings indicated that drug dependence and a history of psychiatric treatment were significant predictors of treatment rejection.¹⁸ Moreover, in a sample of individuals seeking alcohol or drug treatment, Doumas et al.³ found that the presence of comorbid psychopathology was associated with a greater risk for treatment attrition or dropout, suggesting that the presence of a comorbid psychiatric disorder increases the risk of dropout from alcohol or drug treatment.

Thus, the prevalence of treatment nonadherence and rejection in SUD treatment populations is a significant and serious problem, as it is well documented in the existing literature that treatment rejection and shorter length of treatment are associated with worse long-term outcomes (eg, relapse).^{19,20} This, in conjunction with the extant literature indicating that comorbid SUDs and psychiatric disorders are associated with an increased risk for treatment rejection, supports the need for continued research in this area.

Treatment rejection and ED symptoms. EDs are associated with high rates of morbidity,²¹ mortality,²² and treatment nonadherence.²³ It is estimated that treatment dropout ranges between 20% and 50% among individuals in treatment for bulimia nervosa.²⁴ In a review of the literature, Fassino et al.²⁴ found that treatment dropout ranged from 20% to 51% among individuals in residential treatment and from 29% to 73% among individuals in outpatient treatment.²⁵ In another study, Bandini et al.²³ found that treatment dropout was significantly more frequent among ED patients with psychiatric comorbidity, lower cooperativeness with treatment, and more frequent purging behaviors. Results from this study point to the importance of patients' willingness to engage in treatment and psychiatric comorbidity in treatment adherence.

With regard to SUDs, comorbidity estimates between SUDs and EDs are alarmingly high. Specifically,

the prevalence of EDs among patients seeking treatment for SUDs is 35%, while the prevalence of EDs in the general population is only 3%.^{11,12} Additionally, the prevalence of SUDs among individuals with EDs is between 25% and 50%.^{24,25} Numerous theories have been proposed to explicate the high co-occurrence of EDs and SUDs. For example, it is posited that individuals with ED symptoms may use alcohol and/or drugs as an appetite suppressor, which ultimately results in both disordered eating behaviors and problematic substance use.²⁵ Additionally, individuals with ED symptoms often replace nutritionally balanced meals with alcohol use. Episodic heavy drinking (eg, five or more drinks on one occasion for men) may be followed by severe caloric restriction in order to compensate for the alcohol intake.²⁵ Although it is clear that the comorbidity between SUDs and EDs is a serious problem, we are unaware of any research that has examined whether the co-occurrence of SUDs and EDs is associated with treatment rejection. Knowledge of this information could help to advance the understanding of risk factors for treatment rejection among SUD populations.

Current study. Past theoretical and empirical literature suggests a high prevalence of co-occurring EDs and SUDs⁸ and high rates of dropout from both ED and SUD treatments.^{10,24} Thus, it is likely that individuals with co-occurring ED symptoms and SUDs are at a heightened risk for treatment rejection relative to individuals with a single disorder. In this study, we seek to examine the relationship between ED symptoms and treatment rejection among young adult men in residential substance use treatment. We hypothesized that ED symptoms would be significantly associated with treatment rejection after controlling for alcohol and drug use and problems and depression.

Methods

Participants and procedures. Medical records from 68 young adult men (aged 18–25 years) at a 12-step-based residential SUD treatment center in the Southeastern United States were included in this study. All medical records between January 2014 and October 2014 were reviewed and included in this study. The treatment offered at the private, residential treatment center in which the study was conducted is approximately 28–35 days in duration and has the following admission procedures and requirements: (1) all patients have to be 18 years of age or older, (2) all patients have to have a primary diagnosis of SUD, and (3) all patients have to complete an intake assessment that includes self-report measures to facilitate treatment. Patients' responses on self-report measures and clinical interviews are used to make substance use diagnoses, which are based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition – Text Revision criteria.²⁶ A consultation group consisting of a licensed psychologist, a psychiatrist, a general physician, and substance abuse counselors make all substance use diagnoses. Prior to treatment, all patients provide informed consent for treatment, which

includes a disclosure that de-identified treatment records could be utilized for research.

The present sample consisted of primarily non-Hispanic Caucasian men (88.2%). The mean age of the sample was 21.92 (SD = 2.19) years. The substance use diagnoses of the sample were as follows: 44.1% opioid dependence, 27.9% alcohol dependence, 11.8% cannabis dependence, 7.4% polysubstance dependence, 5.9% amphetamine dependence, and 3.0% others (eg, sedative abuse).

Measures. *ED and depression symptoms.* Bulimia and binge eating symptoms were assessed with the 10-item ED subscale of the Psychiatric Diagnostic Screening Questionnaire.²⁷ Participants were asked to indicate the extent to which each item applies to them on a *yes/no* scale. Scores on the ED subscale range from 0 to 10 with higher scores indicating a higher probability of the presence of ED symptoms. The 22-item depression subscale was used to assess for the presence of depression symptoms. Scores on the depression subscale range from 0 to 22. The psychometric properties (ie, reliability and test-retest reliability) of the Psychiatric Diagnostic Screening Questionnaire have been well documented in the existing literature.²⁸

Treatment rejection. Treatment rejection was assessed using the 8-item treatment rejection (RXR) subscale of the Personality Assessment Inventory.²⁹ The treatment rejection subscale assesses characteristics of treatment nonadherence (eg, lack of motivation and unwillingness to accept responsibility).²⁹ Patients indicated the extent to which each item applied to their experiences on a four-point scale (ie, false, not at all true, slightly true, mainly true, and very true), with higher scores indicating higher rejection of treatment. Scores of 50 or greater on the treatment rejection scale are indicative of problematic levels of treatment rejection.²⁹ The reliability and validity of the Personality Assessment Inventory have been well supported in the extant literature.^{29–31}

Alcohol use and problems. The 10-item Alcohol Use Disorders Identification Test³² was used to measure past year alcohol use and problems (ie, frequency, duration, intensity of drinking, symptoms of tolerance and dependence, and consequences associated with drinking). The psychometric properties of the Alcohol Use Disorders Identification Test have been supported in numerous empirical studies.³³

Drug use and problems. The 14-item Drug Use Identification Test (DUDIT),^{34,35} which measures past year drug use and problems, was utilized in this study to assess the frequency of drug use, symptoms of tolerance, and negative consequences of drug use. The following drugs are included in this assessment measure: cannabis, cocaine, hallucinogens, stimulants, sedatives/hypnotics/anxiolytics, opiates, and other substances (eg, steroids and inhalants). Previous work has supported the reliability of the DUDIT, with reliability estimates between 0.89 and 0.90.^{34,35}

Data analytic strategy. Bivariate correlation analysis was used to determine if there were significant relationships

among all variables of interest in this study. To further elucidate the relationship between ED symptoms and treatment rejection, we utilized a hierarchical multiple regression analysis occurring in two steps. This analytic strategy enabled us to examine whether there was a significant relationship between ED symptoms and treatment rejection while controlling for potential confounding factors (eg, alcohol and drug use and problems). Depression was included as a covariate, since depression is significantly related to both EDs^{36–38} and SUDs.³⁹ Specifically, alcohol and drug use and problems and depression symptoms were entered in the first step and ED symptoms were added to the model in the second step.

Results

Table 1 contains descriptive statistics (ie, means and standard deviations) and bivariate correlations among study variables. Alcohol use was significantly and *negatively* associated with treatment rejection and positively associated with ED symptoms. Alcohol use was negatively associated with drug use. Drug use was significantly associated with depression symptoms, and treatment rejection was negatively associated with depression symptoms.

Results from the hierarchical multiple regression analysis are presented in Table 2. Results indicated that ED symptoms were significantly and positively associated with treatment rejection after controlling for alcohol and drug use and problems and depression symptoms.

Discussion

Findings support our hypothesis that treatment rejection would be associated with ED symptoms among men in residential treatment for SUDs after controlling for alcohol and drug use and problems and depressive symptoms. This is consistent with previous empirical and theoretical literature indicating that EDs and SUDs are associated with treatment rejection; however, there is no known empirical literature that has directly examined the relationship between co-occurring EDs and SUDs and treatment rejection. One potential reason

Table 1. Descriptive statistics and bivariate correlations for study variables.

	1	2	3	4	
1. AUDIT	–				
2. DUDIT	–0.34**	–			
3. Depression symptoms	0.13	0.34**	–		
4. Eating disorder symptoms	0.39**	–0.02	0.15		
5. Treatment rejection	–0.33**	–0.15	–0.38**	0.03	
<i>M</i>	10.91	25.81	9.21	0.66	27.40
<i>SD</i>	10.75	11.88	4.62	1.72	8.86
<i>Range</i>	0–36	0–43	0–19	0–10	20–61

Note: ** $P < 0.01$.



Table 2. Hierarchical regression analysis for the relationship between eating disorder symptoms and treatment rejection.

	B	SE	β	R ²	F
Model 1				0.24	6.90***
Alcohol use	−0.03	0.10	−0.35**		
Drug use	−0.13	0.10	−0.17		
Depression symptoms	−0.52	0.23	−0.27*		
Model 2				0.30	6.76***
Alcohol use	−0.40	0.11	−0.47***		
Drug use	−0.16	0.09	−0.21		
Depression symptoms	−0.54	0.22	−0.28*		
Eating disorder symptoms	1.35	0.60	0.25*		

Notes: * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

for the association between ED symptoms and treatment rejection is that individuals with bulimia nervosa⁴⁰ and SUDs⁴¹ have been found to have high levels of impulsivity. Impulsivity is a known predictor of SUD treatment dropout.⁴² Thus, individuals with comorbidity for both disorders might be at a heightened risk for impulsivity, which could ultimately increase the risk for treatment rejection and dropout. Future research should examine impulsivity as a mediator between ED symptomatology and treatment rejection among SUD populations.

Second, patients with comorbid EDs and SUDs might also be at a heightened risk for treatment rejection because of difficulties with distress tolerance and emotion regulation.^{43,44} Distress tolerance is defined as the perceived and/or actual behavioral capacity to withstand aversive experiential states (eg, negative emotional, physiological, and physical states).^{17,44} Treatments for EDs and SUDs are likely to cause aversive emotional states among patients with co-occurring EDs and SUDs. This could ultimately result in treatment rejection and dropout, as patients with this comorbidity may be less able to cope with and withstand this negative affect and emotional experience. Future research should examine distress tolerance and emotion regulation and how they impact treatment rejection and outcomes among patients with comorbid SUDs and EDs.

Moreover, the treatment center in which this study took place assesses for the presence of ED symptoms. Patients who score high on this assessment are flagged and provided with additional resources (eg, supervised meals, educational materials, and posttreatment referrals) to help address ED symptoms. However, there are no empirically validated treatment protocols or interventions that target both EDs and SUDs.⁴⁵ Treatment often is sequential, with the most severe disorder being treated first, which is costly and ineffective.⁴⁵ There has been a growing emphasis on developing treatments that effectively target both disorders. Hail et al.⁴⁶ proposed an integrated cognitive behavioral therapy (CBT) that incorporates aspects of CBT for substance use and EDs. This treatment includes interventions enhancing behavioral change (eg, functional analysis)

and interventions targeting personality characteristics (eg, impulsivity) underlying both disorders.⁴⁶ Dialectical behavior therapy, including a mindfulness component, has also been proposed as potentially useful in the combined treatment of SUDs and EDs.⁴⁷ Of particular importance are interventions targeting emotion regulation and relapse triggers.^{47,48}

Of note, depression was included as a covariate in the analysis given extensive literature supporting a significant relationship between depression and EDs^{36–38} and SUDs.³⁹ Results from this study indicated that ED symptoms were associated with treatment rejection after controlling for depression. This is a pilot study, and thus, future research needs to continue examining and comparing the relationship between co-occurring ED symptoms and SUDs with the relationship between other psychiatric disorders (eg, depression), which often co-occur with SUDs and treatment rejection.

Finally, a counterintuitive finding emerged in this study that warrants discussion. Specifically, alcohol and drug use and problems were negatively associated with treatment rejection among the young adult male sample. Past research has demonstrated a positive relationship between alcohol and drug use and treatment rejection.^{1,2} One possible reason for this finding is that previous work examining the relationship between SUDs and treatment rejection has focused on older adult populations.^{1–3,16–18} Older adults might have different substance use patterns compared to young adults and a different set of negative consequences. The relationship between comorbid SUDs and psychopathology and treatment rejection might be different in young adults compared to older adult samples. Additionally, among young adults, it is possible that an increased alcohol and/or drug problem severity is associated with a greater motivation for treatment and ultimately less treatment rejection. Although this finding is in contrast to previous literature, the sample included in this study is unusual, as it consisted of young adult men who largely entered treatment voluntarily. Alternatively, young adults who self-report less alcohol and drug severity might not think that they need to stay in a 28- to 35-day residential treatment, and as a result, they might report greater treatment rejection. Continued research is needed to further examine the relationship between SUDs and other psychiatric disorders, particularly in young adults.

Limitations and Directions for Future Research

The following limitations should be considered when interpreting the results from this study. First, this study is cross sectional, which prevents us from making the determinants of causality among study variables. Longitudinal research is needed to further elucidate the temporal relationship between co-occurring EDs and SUDs and treatment rejection. Second, the structured diagnostic interviews were not conducted to determine substance use and ED diagnoses, which reduces diagnostic reliability. Third, the sample contained primarily non-Hispanic Caucasian men, which limits generalizability.

Fourth, the treatment center only reports total scores for all assessment measures administered at intake, thus precluding internal consistency calculations. Fifth, although examining the interrelationships among study variables in a young adult male sample was a strength, we recognize the importance of examining the gender differences in the relationship between comorbid EDs and SUDs and treatment rejection in future work. Finally, this study did not examine the differences in the relationship between ED symptoms and treatment rejection for young adult men who abused alcohol versus men who abused drugs. It is possible that the relationship differs depending on the type of substance dependence, as research has supported differences across substances of abuse (eg, alcohol versus drugs).^{49,50} Future research should compare the relationship between ED symptoms and treatment rejection among alcohol-dependent patients versus specific types of drug-dependent patients.

Conclusions

Previous work has established high co-occurrence between EDs and SUDs and a high rate of treatment rejection for both disorders. We extend this research by examining treatment rejection among individuals with comorbid EDs and SUDs. Consistent with our hypothesis, ED symptoms were significantly associated with treatment rejection among young adult men in residential treatment for SUDs after controlling for alcohol and drug problems. The results suggest that patients with comorbid EDs and SUDs are an at-risk clinical group that would likely benefit from further intervention and assessment.

Ethics

The study was approved by the University of Tennessee's Institutional Review Board (IRB). The research was conducted in accordance with the principles of the Declaration of Helsinki.

Author Contributions

Conceived and designed the experiments: JE, RCS, SEA, GLS. Analyzed the data: JE. Wrote the first draft of the manuscript: JE. Contributed to the writing of the manuscript: JE, RCS, SEA, JRT, GLS. Agree with manuscript results and conclusions: JE, RCS, SEA, JRT, GLS. Jointly developed the structure and arguments for the paper: JE, RCS, GLS. Made critical revisions and approved final version: JE, RCS, SEA, JRT, GLS. All authors reviewed and approved of the final manuscript.

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