

Published in final edited form as:

*Addict Behav.* 2012 October ; 37(10): 1158–1161. doi:10.1016/j.addbeh.2012.04.016.

## Severity of anxiety in mental health versus addiction treatment settings when social anxiety and substance abuse are comorbid

Sarah W. Book, MD, Suzanne E. Thomas, PhD, Joshua P. Smith, PhD, and Peter M. Miller, PhD

Charleston Alcohol Research Center, Center for Drug and Alcohol Programs, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina

Sarah W. Book: booksw@musc.edu

### Abstract

There is increasing interest in the co-occurrence of social anxiety and addiction. Each investigation has a specific vantage point, e.g. the effect social anxiety has in a population with addiction or that of addiction in a population with social anxiety, which could create unique findings. Among comorbid individuals, is social anxiety more severe in people seeking treatment for anxiety, as compared to those seeking treatment for addiction? This report compares social anxiety severity between subjects in two studies—one involving socially anxious individuals (n=38) seeking treatment for addictions; the other (n=41) subjects with social anxiety and an alcohol use disorder, seeking treatment for social anxiety. Baseline severity scores on the Liebowitz Social Anxiety Scale for social anxiety were compared between the groups. No significant differences were found. For both groups, social anxiety was largely in the severe range. The results suggest that clinicians should attend to social anxiety symptom severity in patients with co-occurring social anxiety and addiction, regardless of the condition for which treatment is sought.

### Keywords

Social anxiety; social phobia; alcohol dependence; addiction treatment; drug dependence

## 1.1 INTRODUCTION

The frequent co-occurrence of social anxiety disorder (SAD; also known as social phobia) and substance use disorders (SUD) is well-documented. The National Epidemiologic Survey on Alcohol and Related Conditions estimated a 2.4% prevalence of co-occurring SAD and alcohol use disorders (Schneier et al. 2010).

© 2012 Elsevier Ltd. All rights reserved.

67 President Street, Charleston, SC 29425, Tel: 843-792-5200, Fax: 843-792-7353.

**Publisher's Disclaimer:** This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

#### Contributors

Dr. Book and Dr. Miller designed the study and Dr. Book wrote the first draft of the methods and results section. Dr. Thomas conducted the statistical analysis. Dr. Smith wrote the first draft of the introduction and discussion. All authors edited and approved the final manuscript.

#### Conflict of Interest

All authors declare that they have no conflicts of interest.

Interest in the comorbidity between SAD and SUD has generated considerable research, including multiple reviews focusing on this topic (e.g., (Book, & Randall 2002; Morris, Stewart, & Ham 2005; Tran, & Smith 2008). Comorbidity studies can be complicated by the fact that the connection between disorders can differ based on the ‘index’ condition upon which the inquiry is focused. In the context of SAD-SUD research, investigators often evaluate this comorbidity by selecting a sample of individuals with either SAD or SUD, and then examining the impact of the other disorder on the index condition.

Results of studies using this approach have shown that comorbid SAD-SUD can differ based on whether researchers examine the burden associated with SAD among persons with an SUD, or the impact of substance abuse on individuals with SAD. For example, alcoholics with SAD (compared to alcoholics without SAD) have greater severity of alcohol dependence, larger odds of additional Axis I and II disorders, elevated rates of polysubstance dependence, higher levels of depression, and more deficits in social networks, (Thevos, Thomas, & Randall 1999; Thomas, Thevos, & Randall 1999; Bakken, Landheim, & Vaglum 2005; Schneier, Foose et al. 2010). In contrast, evaluation of the impact of having an alcohol use disorder among individuals with SAD (compared to those without an alcohol use disorder) have produced findings that demonstrate increased rates of impulse-driven problems such as other substance dependence, pathological gambling, and antisocial personality disorder, as well as greater deficits in interpersonal functioning, poorer physical health, and elevated health service utilization (Buckner, Timpano, Zvolensky, Sachs-Ericsson, & Schmidt 2008; Schneier, Foose et al. 2010). When compared side by side, these sets of findings reveal that when SAD and SUD co-occur, they present a complicated set of problems for affected individuals that can appear different based upon the “control” group to which they are compared.

This differentiated view of comorbid SAD-SUD may be especially salient in clinical settings. Whether a person with comorbid SAD-SUD seeks treatment for social anxiety or substance-related problems is an easily measurable index that may have clinical implications. Essentially, what an individual seeks treatment *for* is an indication of the affected individual’s appraisal of their difficulties. It is within the context of treatment-seeking that individuals who have both disorders can self-select the ‘index’ condition, based on the setting where they choose to initiate treatment. Furthermore, although all comorbid individuals have both SAD and SUD, individuals seeking treatment for one of the disorders should have a greater severity of that disorder when compared to similarly comorbid individuals who are not seeking treatment for it. The severity of SAD might then be lower among comorbid individuals seeking treatment in an addiction setting, relative to the severity of SAD among comorbid individuals seeking treatment in a mental health setting.

It is important to determine whether such a difference in severity of SAD among comorbid individuals across treatment settings exists, as a lower severity of SAD in addiction settings may lead to underrecognition of this disorder. Previous findings have shown that SAD is underestimated overall by both clinicians and patients (e.g. Dingemans, Van, Vliet, Couvee, & Westenberg, 2001; Lecrubier, 1998; Sheeran & Zimmerman, 2002), and failure to identify SAD may be especially problematic for comorbid individuals, based on previous findings from our group which showed that social anxiety had a significant negative impact on willingness to participate in addiction treatment activities (Book, Thomas, Dempsey, Randall, & Randall 2009). To our knowledge, however, there has been little or no investigation of symptom severity of SAD among individuals with this comorbidity based on whether an individual is seeking treatment for either SAD or an SUD.

The present study examined whether the severity of social anxiety differed between individuals seeking treatment for SAD versus those seeking treatment for SUD when those

two problems are comorbid. To account for more global psychiatric differences between groups, we also compared them on depression severity.

## 1.2 MATERIALS and METHODS

This is a retrospective analysis from two separate studies, both of which went through an independent ethical review by the university's IRB including having each subject demonstrate understanding of the risks and benefits of participation in a research study and sign an informed consent. One study included 41 subjects *seeking treatment for social anxiety* who met DSM-IV criteria for either alcohol abuse ( $n=8$ ) or alcohol dependence ( $n=33$ ) (Book, Thomas, Randall, & Randall 2008; Thomas, Randall, Book, & Randall 2008). The other included 38 subjects *seeking treatment for addiction* at three separate intensive outpatient treatment programs (one of which was a woman-only program) who screened positive for social anxiety (Book, Thomas et al. 2009).

The Liebowitz Social Anxiety Scale (LSAS) is the gold standard for quantifying severity of social anxiety (Heimberg et al. 1999; Heimberg, & Holaway 2007; Rytwinski et al. 2009) and was administered in both studies. An LSAS score of 60 was used as it has been shown to be a valid and reliable self-rated indicator of a diagnosis of social anxiety disorder (Mennin, Fresco, Heimberg, Schneier, Davies, & Liebowitz 2002; Rytwinski, Fresco et al. 2009). For the purposes of this post hoc analysis, social anxiety was considered "severe" if the LSAS  $\geq 82$  (Montgomery 1998).

Severity of depression was measured with the Beck Depression Inventory (BDI-II). The BDI-II is a self rated scale with documented reliability and validity in the measurement of severity of depressive symptoms (Richter, Werner, Heerlein, Kraus, & Sauer 1998). Subjects who score  $\geq 19$  on the BDI-II have at least "moderate" depression severity (Whisman, Perez, & Ramel 2000).

Demographics (age, gender, employment status, marital status, and race) of the two groups were compared and significant differences were included as covariates in analyses.

Analyses of covariance were used to compare groups on severity of social anxiety (LSAS scores) and severity of depression (BDI-II scores). Both LSAS and BDI-II scores were normally distributed; skewness and kurtosis values fell between  $-1$  and  $+1$ . Using binary logistic regression, we also examined whether group membership predicted whether the participants met criteria for severe problems based on threshold scores, controlling for relevant demographic differences.

## 1.3 RESULTS

Demographics are summarized in Table 1. Patients seeking treatment for addiction were older, predominantly women (one of the addiction treatment sites was a program for only women), and less likely to be employed than patients seeking treatment for social anxiety ( $p$  values  $< .05$ ). Subsequent analyses include these three variables as covariates.

Differences in psychiatric severity are summarized in Table 2. Mean social anxiety is in the "severe" range in both groups. Mean depression severity in the two groups and is in the "mild" range. Mean LSAS scores and mean BDI-II scores, adjusted for age, gender, and employment status, did not differ between groups (Table 2 shows the adjusted means and inferential statistics). Logistic regression analysis showed that groups also did not differ in percentage of each who met criteria for severe social anxiety (as defined by LSAS score  $> 82$ ), Wald  $X^2(1)=.71$ ,  $p=.40$ . Approximately 62% of each group had LSAS scores  $> 82$ . The same result was observed for percentage of each group who met criteria for moderate

depression severity, as reflected by BDI-II 19, Wald  $X^2(1)=.11$ ,  $p=.74$ . For both groups, approximately 46% had BDI-II scores 19.

## 1.4 DISCUSSION

To our knowledge no studies have been conducted to compare comorbid SAD-SUD patients from both treatment settings to determine whether these groups present with similar clinical features. Findings from this study contribute uniquely to the literature in this area by characterizing the social anxiety severity among treatment-seeking comorbid patients, and explicitly addressing the question of whether these patients differ based on the disorder for which they have chosen to enter treatment.

The present study examined whether the severity of social anxiety differed between individuals seeking treatment for social anxiety versus those seeking treatment for a substance use disorder when those two problems are comorbid. Results indicate that after controlling for demographic difference, there was no significant difference between the two groups in the percentage that presented in the 'severe' range of social anxiety severity and that approximately 62% of the participants fell in this range. It is notable that we used a threshold to define "severe" (82) that exceeded the generally accepted clinical cutoff of 60 on the LSAS, which shows that nearly 2 in 3 individuals in this sample had a marked impairment in social interaction and performance situations. While it is generally accepted that clinical samples will have greater symptom severity (cf. Kushner et al., 2008), these findings provide an empirical description of the level of social anxiety among this co-morbid population. It is notable that only 46% of individuals in this sample had depression severity at or above the 'moderate' range of severity, and that the mean score fell into the 'mild' range. This finding illuminates the specificity of distress associated with social anxiety in this sample, which provides evidence that these individuals are not simply endorsing severe psychiatric impairment. Considering the importance of social support in recovery from substance use problems, finding such high severity of social anxiety among this sample dovetails with our previous findings (Book, Thomas et al. 2009), which highlight the potential difficulties these individuals face when attempting to initiate participation in addiction treatment. Additionally, these findings suggest that patients with SAD-SUD are not qualitatively different, in terms of depression or anxiety severity, based on the disorder for which they engage in treatment, and that although patients in the addiction treatment setting may not initiate treatment for social anxiety, it is nevertheless a significant source of distress.

The results of the present study have implications for addiction treatment providers. Group therapy is a common modality in addiction treatment, and participation in AA or NA involves significant social interactions to maximize benefit, including speaking at meetings, initiating a relationship with a sponsor, and volunteering to "sponsor". Comorbid individuals may benefit less from traditional treatment and have worse treatment outcomes unless their social anxiety is recognized and addressed. Prior results suggest that this may be especially likely for women (Thevos, Roberts, Thomas, & Randall 2000; Tonigan, Book, Pagano, Randall, Smith, & Randall 2010). Given the level of social anxiety and its potential impact on addiction treatment, it is important for providers to assess for SAD among addiction treatment-seekers.

Finding similar social anxiety severity across our treatment-seeking groups is in contrast to previously published findings which showed that social anxiety severity was greater among patients who identified SAD as the principal reason for seeking treatment, compared to comorbid patients seeking treatment for depression/other anxiety disorders but also had SAD (Dalrymple, & Zimmerman 2011). It is possible that the social anxiety severity among

treatment-seeking SAD-SUD patients is generally elevated (yielding a ceiling effect). In contrast, the comparative social anxiety severity within the more diverse sample with comorbid mood/anxiety disorders may have more variability, and more possibility of producing a difference based on which disorder for which treatment is sought.

There were limitations in the current study. First, we employed a convenience sample, not randomly selected, so results may not be generalizable. Second, although we controlled for the differences in our analysis, the fact that the addiction treatment-seeking sample was significantly older, and more likely to be female and unemployed, may have created a selection bias in terms of anxiety severity. Third, the symptom measures used in the study were derived using self-report methods and anxiety was evaluated with only one measure. Although self report measures are straightforward, face-valid, and widely used, these instruments are subject to response distortion. Additionally, the relatively small sample sizes from the respective treatment studies limits generalizability to other populations. Further work in this area should replicate and extend these results within larger, more diverse samples.

In summary, the results of the present study provide an empirical illustration of the severity of social anxiety among treatment-seeking individuals who also have a substance use disorder. These findings suggest that social anxiety is not only a ‘co-occurring’ piece of the overall clinical picture, but it is also a relatively salient factor regardless of whether comorbid patients are seeking treatment for their social anxiety or for their substance use problems.

## Acknowledgments

The authors would like to thank Dr. Carrie Randall for her mentorship, Ms Nancy White for her administrative assistance and NIAAA for supporting this work through K23-AA014430, (SWB), and R01 AA013379 (Carrie Randall, PhD, PI)

NIAAA had no role in the study design, collection, analysis or interpretation of the data, writing the manuscript or the decision to submit the paper for publication

## REFERENCES

- Bakken K, Landheim AS, Vaglum P. Substance-dependent patients with and without social anxiety disorder: occurrence and clinical differences. A study of a consecutive sample of alcohol-dependent and poly-substance-dependent patients treated in two counties in Norway. *Drug & Alcohol Dependence*. 2005; 80(3):321–328. [PubMed: 15964156]
- Book SW, Randall CL. Social anxiety and alcohol use disorders. *Alcohol Research and Health*. 2002; 26(2):130–135.
- Book SW, Thomas SE, Dempsey JP, Randall PK, Randall CL. Social anxiety impacts willingness to participate in addiction treatment. *Addict Behav*. 2009; 34(5):474–476. [PubMed: 19195794]
- Book SW, Thomas SE, Randall PK, Randall CL. Paroxetine reduces social anxiety in individuals with a co-occurring alcohol use disorder. *Journal of Anxiety Disorders*. 2008; 22(2):310–318. [PubMed: 17448631]
- Buckner JD, Timpano KR, Zvolensky MJ, Sachs-Ericsson N, Schmidt NB. Implications of comorbid alcohol dependence among individuals with social anxiety disorder. *Depression & Anxiety*. 2008; 25(12):1028–1037. [PubMed: 18781667]
- Dalrymple KL, Zimmerman M. Treatment-seeking for social anxiety disorder in a general outpatient psychiatry setting. *Psychiatry Res*. 2011; 187(3):375–381. [PubMed: 21310497]
- Heimberg RG, Holaway RM. Examination of the known-groups validity of the Liebowitz Social Anxiety Scale. *Depression & Anxiety*. 2007; 24(7):447–454. [PubMed: 17120297]

- Heimberg RG, Horner KJ, Juster HR, Safren SA, Brown EJ, Schneier FR, et al. Psychometric properties of the Liebowitz Social Anxiety Scale. *Psychological Medicine*. 1999; 29(1):199–212. [PubMed: 10077308]
- Mennin DS, Fresco DM, Heimberg RG, Schneier FR, Davies SO, Liebowitz MR. Screening for social anxiety disorder in the clinical setting: using the Liebowitz Social Anxiety Scale. *Journal of Anxiety Disorders*. 2002; 16(6):661–673. [PubMed: 12405524]
- Montgomery SA. Implications of the severity of social phobia. *Journal of Affective Disorders*. 1998; 50(Suppl 1):S17–S22. [PubMed: 9851574]
- Morris EP, Stewart SH, Ham LS. The relationship between social anxiety disorder and alcohol use disorders: A critical review. *Clinical Psychology Review*. 2005; 25(6):734–760. [PubMed: 16042994]
- Richter P, Werner J, Heerlein A, Kraus A, Sauer H. On the validity of the Beck Depression Inventory. A review. *Psychopathology*. 1998; 31(3):160–168. [PubMed: 9636945]
- Rytwinski NK, Fresco DM, Heimberg RG, Coles ME, Liebowitz MR, Cissell S, et al. Screening for social anxiety disorder with the self-report version of the Liebowitz Social Anxiety Scale. *Depression & Anxiety*. 2009; 26(1):34–38. [PubMed: 18781659]
- Schneier FR, Foose TE, Hasin DS, Heimberg RG, Liu SM, Grant BF, et al. Social anxiety disorder and alcohol use disorder co-morbidity in the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine*. 2010; 40(6):977–988. [PubMed: 20441690]
- Thevos AK, Roberts JS, Thomas SE, Randall CL. Cognitive behavioral therapy delays relapse in female socially phobic alcoholics. *Addictive Behaviors*. 2000; 25(3):333–345. [PubMed: 10890288]
- Thevos AK, Thomas SE, Randall CL. Baseline Differences in Social Support Among Treatment-Seeking Alcoholics With and Without Social Phobia. *Subst Abus*. 1999; 20(2):107–118. [PubMed: 12511825]
- Thomas SE, Randall PK, Book SW, Randall CL. A complex relationship between co-occurring social anxiety and alcohol use disorders: what effect does treating social anxiety have on drinking? *Alcoholism: Clinical & Experimental Research*. 2008; 32(1):77–84.
- Thomas SE, Thevos AK, Randall CL. Alcoholics with and without social phobia: a comparison of substance use and psychiatric variables. *Journal of Studies on Alcohol*. 1999; 60(4):472–479. [PubMed: 10463803]
- Tonigan JS, Book SW, Pagano ME, Randall PK, Smith JP, Randall CL. 12-Step therapy and women with and without social phobia: a study of the effectiveness of 12-step therapy to facilitate alcoholics anonymous engagement. *Alcoholism Treatment Quarterly*. 2010; 28:151–162. [PubMed: 21423569]
- Tran, GQ.; Smith, JP. Comorbidity of social anxiety and alcohol use disorders: Review of psychopathology research findings. In: Conrod, PJ.; Stewart, SH., editors. *Anxiety and substance use disorders: the vicious cycle of co-morbidity*. New York: Springer; 2008. p. 59-79.
- Whisman MA, Perez JE, Ramel W. Factor structure of the Beck Depression Inventory-Second Edition (BDI-II) in a student sample. *Journal of Clinical Psychology*. 2000; 56(4):545–551. [PubMed: 10775046]

**Highlights**

- Clients seeking help for addiction (SUD) often have social anxiety (SAD)
- Clients seeking treatment for SAD often also have SUD.
- We compared social anxiety severity in these two comorbid populations
- Comorbid clients seeking help for SUD had very severe levels of social anxiety
- Addiction treatment providers should screen clients for social anxiety disorder.

**Table 1**

## Subject demographics

	Treatment seeking for social anxiety	Treatment seeking for addiction	p Value
Age (M (SD)) (Range: 21–67)	29 (7.4)	34 (11.7)	.02
Gender (% Male)	51	29	.04
Employment (% Part or Full time employed)	90	24	.00
Marital Status (% Married)	46	54	.69
Race (% White)	93	79	.08

**Table 2**

Differences in psychiatric severity  
Adjusted mean LSAS and BDI-II with demographics included as covariates (age, gender, and employment)

	Treatment seeking for social anxiety	Treatment seeking for addiction	Degrees of Freedom	F	p Value
LSAS (M (SE)) [95% Conf Interval]	88.9 (4.4) [80.2–97.6]	88.2 (4.6) [79.1–97.3]	1,73	.01	.93
BDI-II (M (SE)) [95% Conf Interval]	18.7 (2.8) [13.0–23.3]	18.1 (3.0) [12.2–24.0]	1,73	.01	.91