Social Anxiety and Marijuana-Related Problems: The Role of Social Avoidance

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Abstract

Background—People with elevated social anxiety seem vulnerable to marijuana-related impairment. Yet little work has examined core facets of social anxiety that may be especially related to marijuana-related problems.

Method—The present study examined the relationships between current (past three months) marijuana-related problems and two aspects of social anxiety (fear in social situations and social avoidance) among current (*N*=102) marijuana users.

Results—Although both social fear and social avoidance were significantly correlated with marijuana-related problems, only social avoidance was uniquely related to marijuana problems (after controlling for social fear, sex, negative affect, alcohol problems, and marijuana use frequency). Sex moderated the relationship between social avoidance and marijuana-related problems such that men with greater social avoidance exhibited the greatest severity of marijuana-related problems.

Conclusions—Avoidance of social situations appears robustly related to marijuana-related problems. This finding has important implications for theoretical models that can inform treatment of co-occurring social anxiety and marijuana problems.

Keywords

Marijuana; Cannabis; Drug Abuse; Social Anxiety; Social Phobia; Social Avoidance

Approximately 6% of the U.S. population used marijuana in the past month and nearly 30% of marijuana users suffer from a marijuana use disorder (MUD; Substance Abuse and Mental Health Services Administration [SAMHSA], 2009). Individuals with elevated social anxiety appear particularly vulnerable to marijuana-related problems. The lifetime prevalence rate of marijuana dependence among people with social anxiety disorder (SAD) is nearly *seven times* that of the general population (Agosti, Nunes, & Levin, 2002; Anthony, Warner, & Kessler, 1994). Undergraduates with higher social anxiety also appear to be particularly vulnerable to marijuana problems (Buckner, Bonn-Miller, Zvolensky, & Schmidt, 2007; Buckner, Mallott, Schmidt, & Taylor, 2006; Buckner & Schmidt, 2008, 2009; Buckner, Schmidt, Bobadilla, & Taylor, 2006). Social anxiety was related to the transition from first use to the development of marijuana-related problems among adolescent boys (Marmorstein, White, Loeber, & Stouthamer-Loeber, 2010). Moreover, adolescents with SAD, compared to those without SAD, were nearly *five times* more likely to develop marijuana dependence as adults (Buckner et al., 2008).

People with elevated social anxiety may use marijuana to reduce anxiety in social situations, a hypothesis consistent with tension reduction models (Conger, 1956). Supporting this idea, those with higher social anxiety were more likely to use marijuana to manage negative affect (NA; Buckner, Bonn-Miller et al., 2007). Yet, social anxiety and SAD were unrelated to the expectation that marijuana reduces NA (Buckner & Schmidt, 2008, 2009), suggesting the relationship between social anxiety and marijuana-related problems may be motivated by more than simple tension reduction. Another limitation of this hypothesis is that it does not address why people with elevated *social anxiety,* as opposed to other types of NA, experience such high rates of marijuana-related problems.

Anecdotal evidence from our clinic suggests socially anxious individuals may use marijuana as a social avoidance strategy. To illustrate, one client reported that he used marijuana at home instead of going to social events. He reported that, since his friends also used marijuana, they would understand that sometimes using marijuana makes it difficult to leave the house. However, research is necessary to test whether social avoidance is related to marijuana use behaviors more broadly.

This study examined whether affective (fear in social situations) or behavioral (social avoidance) facets of social anxiety were uniquely related to marijuana-related problems and whether relations between social fear/avoidance and marijuana-related problems remained robust after controlling for sex, NA, alcohol problems, and marijuana use frequency. Also because social anxiety may be differentially related to marijuana-related problems based on sex (Buckner, Mallott et al., 2006), we tested whether sex moderated these relationships. We examined these relationships among undergraduates because college students appear vulnerable to marijuana-related problems (Buckner, Ecker, & Cohen, 2010; Caldeira, Arria, O'Grady, Vincent, & Wish, 2008) and the transition from high school to college appears associated with increased social anxiety (Spokas & Heimberg, 2009).

2. Method

2.1 Participants

The sample consisted of 102 (43.1% female) current marijuana users who received psychology research credit for participating. Ages ranged from 18–22 (*M*=19.13, *SD*=1.04). The racial/ethnic composition was: 2.0% African American or Black, 1.0% American Indian, 2.0% Asian or Asian American, 85.3% Caucasian, 2.9% Hispanic/Latino, 5.9% mixed, and 1.0% "other." Participants completed computerized versions of study measures. This study was approved by the university's Institutional Review Board and informed consent was obtained prior to data collection.

2.2 Measures

2.2.1 Liebowitz Social Anxiety Scale (LSAS)—Participants completed the self-report version of the LSAS which assesses fear and avoidance of 24 social situations and is comprised of two subscales: (1) fear in social situations and (2) avoidance of social situations (Liebowitz, 1987). The LSAS and these subscales demonstrate adequate psychometric properties (Fresco et al., 2001; Heimberg et al., 1999).

2.2.2 Marijuana Use Form (MUF)—The MUF is a self-report instrument assessing current (past three months) frequency using a 0–9 rating scale (Buckner, Bonn-Miller et al., 2007). Similar questionnaires have been successfully used to assess marijuana use (e.g., Buckner, Bonn-Miller et al., 2007; Buckner & Schmidt, 2008).

2.2.3 Marijuana Problems Scale (MPS)—The MPS is a 19-item list of negative consequences associated with past 90-day marijuana use on a 0–2 scale (Stephens, Roffman, & Curtin, 2000) with good reliability (Buckner, Keough, & Schmidt, 2007; Buckner & Schmidt, 2008; Stephens et al., 2000).

2.2.4 Positive and Negative Affect Schedule (PANAS)—The Negative Affectivity scale of the PANAS (Watson, Clark, & Tellegen, 1988) was used to control for general levels of NA. The PANAS is a widely used and well-validated measure (for review see Watson, 2000).

2.2.5 Alcohol Use Disorders Identification Test (AUDIT)—The AUDIT is a 10-item self-report screen of alcohol-related problems (Saunders, Aasland, Babor, & de la Fuente, 1993) with good psychometric properties (O'Connell et al., 2004). The AUDIT was included to control for alcohol-related problems.

3. Results

Bivariate correlations between study variables (and means and standard deviations) are presented in Table 1. Social avoidance and social fear were both positively correlated with marijuana-related problems. Next, social avoidance and social fear were simultaneously entered as predictor variables into a linear regression to examine the unique relations of these variables with marijuana-related problems. Only social avoidance remained significantly related to marijuana problems, $\beta = .48$, $p=.017$, $sr^2=.054$ (social fear: $\beta = -.13$, $p=.513$, $sr^2=.003$).

A hierarchical linear regression analysis was conducted to examine whether this unique relationship remained after controlling for relevant variables. Predictor variables were: Step 1: sex, marijuana use frequency, alcohol-related problems, and NA; and Step 2: social avoidance and social fear. This strategy ensured that effects at Step 2 cannot be attributed to variance shared with variables in Step 1 (Cohen & Cohen, 1983). Social avoidance continued to be significantly related to marijuana-related problems after controlling for the Step 1 variables, $\beta = .44$, $p=.021$, $sr^2=.042$. Overall, this model accounted for 30.1% of the variance in marijuana-related problems, with covariates accounting for 23.5%, social avoidance uniquely accounting for an additional 4.2%, and social fear only uniquely accounted for 0.7%.

We next examined whether sex moderated this relationship. Predictor variables were: Step 1: social avoidance, sex, marijuana use frequency, alcohol-related problems, and NA; and Step 2: the interaction between social avoidance and sex. The sex X social avoidance interaction was significant, $\beta = -.32$, $p = .034$, $f^2 = .051$. The form of the interaction (Figure 1) was examined by inserting ratings of social avoidance (one standard deviation above and below the mean) for men and women (Cohen & Cohen, 1983). Although higher social avoidance was

related to more severe marijuana-related problems for both men and women, this effect was particularly pronounced for men. Tests of simple slopes were also conducted (Aiken & West, 1991). Only the simple slope of the moderator variable for men was significant ($t = 4.04$, $p < .001$; women: $t = 1.48$, $p = .136$). This pattern suggests that greater social avoidance makes it particularly likely that men will experience marijuana-related problems.

4. Discussion

This study supports previous findings that people with elevated social fear and social avoidance experience more marijuana-related problems (Agosti et al., 2002; Buckner, Bonn-Miller et al., 2007; Buckner, Mallott et al., 2006; Buckner & Schmidt, 2008, 2009; Buckner, Schmidt, Bobadilla et al., 2006; Buckner et al., 2008). We extended this work by delineating that greater social avoidance (but not social fear) was uniquely related to marijuana-related problems, even after controlling for sex, marijuana use frequency, alcohol problems, and NA.

These data suggest that those who avoid situations may be engaging in more high-risk use. Using marijuana to manage affect is associated with more marijuana-related problems than using marijuana for more socially-oriented motives (Buckner, Bonn-Miller et al., 2007; Simons, Correia, Carey, & Borsari, 1998). Thus, it may be that those who avoid social situations use marijuana for more high-risk motives rather than for more benign reasons. Alternatively, it may be that social avoiders have fewer opportunities to use given that marijuana use tends to occur in social situations (Reilly, Didcott, Swift, & Hall, 1998). If this is the case, it may be that when they do use marijuana they are less able to successfully manage their use.

It is noteworthy that sex moderated the relationship between social avoidance and marijuana-related problems such that the relationship between social avoidance and marijuana-related problems was particularly pronounced among male marijuana users. Future work is necessary to directly test whether these men use marijuana as a means to avoid social situations and if so, what about this type of use is related to marijuana-related impairment.

It is also noteworthy that social fear and avoidance were unrelated to alcohol-related problems in this sample. This finding seems counter to mounting evidence that elevated social anxiety is related to alcohol-related problems (Buckner & Heimberg, in press; Buckner, Schmidt, & Eggleston, 2006; Buckner et al., 2008; Buckner & Turner, 2009; Lewis & O'Neill, 2000). Yet our sample was comprised entirely of current marijuana users. In another marijuana use sample, social anxiety was also unrelated to alcohol problems (Buckner, Bonn-Miller et al., 2007), suggesting that socially anxious marijuana users may use marijuana as their substance of choice to manage their social anxiety. Although their use seems related to marijuana problems, they may not be particularly vulnerable to also experiencing alcohol-related problems.

The present findings have important implications for the treatment of co-occurring social anxiety and marijuana-related problems. Using marijuana for social avoidance can be conceptualized as a "safety behavior," or behavior that decreases anxiety in the short-term but tends to exacerbate anxiety in the long run (Clark, 2001). If individuals with elevated social anxiety use marijuana to avoid social situations, it may help them feel less anxious in the short-term but may increase anxiety in the long-term as they ruminate about potential social repercussions for not attending the social event, fail to habituate to anxiety by attending social situations, fail to obtain information that disconfirms negative thoughts that maintain social anxiety, etc. As with any safety behavior, therapists can use cognitive-behavioral strategies (see Hope, Heimberg, & Turk, 2010) to help clients reduce their reliance on marijuana for social avoidance.

Present findings should be considered in light of limitations. First, the cross-sectional nature of the design precludes delineation of causal relationships. Second, the sample was comprised

of undergraduates. Third, we did not explicitly test whether individuals with elevated social anxiety (elevated social fear and/or avoidance) use marijuana to avoid social situations or to manage social fear and future work could benefit from more fine-grained examination of these marijuana use motives.

Research Highlights

- Social fear and social avoidance were positively correlated with marijuana problems

- Only social avoidance (not social fear) was uniquely related to marijuana problems

- Sex moderated the relationship between social avoidance and marijuana problems

- Men with higher social avoidance were particularly vulnerable to marijuana problems

Acknowledgments

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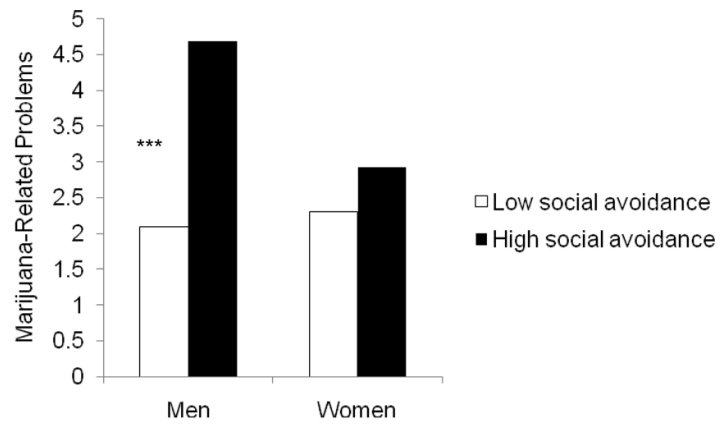
***p < .001

Figure 1.
The interaction between social avoidance and sex in the prediction of marijuana-related problems.
***p < .001

Table 1

Means, Standard Deviations, and Bivariate Correlations between Social Avoidance, Social Anxiety, Negative Affect, and Marijuana and Alcohol Use Behaviors

	1	2	3	4	5
1. Social avoidance					
2. Social fear	.87**				
3. Negative affect	.43**	.47**			
4. Marijuana problems	.37**	.29**	.44**		
5. Alcohol problems	.16	.06	.16	.26**	
M (SD)	17.3 (12.2)	18.5 (12.9)	17.5 (6.6)	4.7 (4.8)	11.64 (5.2)
Range	0.0–52.0	0.0–59.0	10.0–38.0	0.0–28.0	0.0–28.0

Note. Social avoidance = the Avoidance Subscale of the *Liebowitz Social Anxiety Scale.* Social Fear = the Fear Subscale of the *Liebowitz Social Anxiety Scale.*

*
$p < .05$,

**
$p < .01$