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Feeling safe but appearing anxious: Differential effects of alcohol on anxiety and social performance in individuals with social anxiety disorder

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ABSTRACT

Social anxiety disorder (SAD) and alcohol use disorders (AUD) co-occur frequently and there is preliminary evidence that alcohol might reduce social anxiety. It is, however, unclear which mechanisms contribute to the anxiety reducing effect, particularly regarding key aspects of social anxiety such as deficits in social performance. We compared self-rated and physiological measures of anxiety as well as self- and observer-rated social performance in a sample of 62 individuals with SAD and 60 nonanxious control participants during a speech task after receiving either alcohol, an alcohol-free placebo drink or orange juice. SAD patients reported more anxiety during the speech task than did control participants. Furthermore, SAD patients underestimated their performance in comparison to observer ratings. Alcohol reduced self-report anxiety only in SAD patients, while observers rated all participants as less competent when intoxicated. Although individuals with SAD experience a reduction in anxiety when drinking alcohol, simultaneous decreases in social performance might contribute to negative reactions from others and consequently increase the risk of further alcohol use to cope with these negative reactions.

1. Introduction

Social anxiety disorder (SAD) and alcohol use disorders (AUD) are highly comorbid (Davidson, Hughes, George, & Blazer, 1993; Kessler, Chiu, Demler, & Walters, 2005). Moreover, both subclinical (Crum & Pratt, 2001) and clinical (Kushner, Sher, & Beitman, 1990) social anxiety often precedes the onset of pathological drinking patterns. This heightened comorbidity is not surprising, given that alcohol is often used as a coping mechanism for social fears: more than half of individuals with SAD report to "often or always" use alcohol to attenuate symptoms of SAD (Buckner & Heimberg, 2010; Thomas, Randall, & Carrigan, 2003). Similarly, the motive to drink alcohol to cope with anxiety in social situations is higher in socially anxious individuals compared to non-anxious controls (Cludius, Stevens, Bantin, Gerlach, & Hermann, 2013). Individuals with SAD and comorbid alcohol use disorder unanimously confirmed that they had previously used alcohol to cope with anticipatory anxiety regarding social situations (Randall, 2000). Social anxiety among students undergoing a brief alcohol intervention has been related to poorer outcomes (Terlecki, Buckner, Larimer, & Copeland, 2011), which highlights the need to understand anxiety-specific consequences of present alcohol use.

Such findings are often conceptualized within the framework of general theories of alcohol's stress-dampening effects, for example the "self-medication hypothesis" (Chutuape & Dewit, 1995; Quitkin, Rifkin, Kaplan, & Klein, 1972), the "attention allocation model" (Josephs & Steele, 1990), or the "appraisal disruption model" (Sayette, 1993). Experimentally, the effects of alcohol on social anxiety were previously assessed in speech tasks, yielding mixed results regarding the anxiolytic effect of alcohol: While some studies found an anxiolytic effect (Abrams, Kushner, Medina, & Voight, 2001; Himle et al., 1999; Kidorf & Lang, 1999), others failed (Himle et al., 1999; Keane & Lisman, 1980; Naftolowitz, Vaughn, Ranc, & Tancer, 1994) or underlined the role of alcohol expectancies and placebo effects (Abrams & Kushner, 2004).

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More explicit social anxiety-relevant models were only recently established and empirical support for them is still being developed (Buckner, Heimberg, Ecker, & Vinci, 2013). These models suggest that when explaining the complex relationship between social anxiety and alcohol use disorders, not only the level of negative affect due to social anxiety is relevant, but also other pivotal components such as low positive affect, fear of scrutiny, and social avoidance. In line with the idea that specific components of social anxiety contribute to the risk of alcohol related problems is the "avoidance coping" model (Bacon & Ham, 2010), which states that the reduction of attentional biases through alcohol use increases the risk for alcohol dependency in individuals with social anxiety. Indeed, this is underscored by the fact that alcohol reduces attentional bias toward threat as measured with attentional probe tasks (Gerlach, Schiller, Wild, & Rist, 2006; Stevens, Rist, & Gerlach, 2009). To summarize, the effects of alcohol on state social anxiety in individuals with SAD are much more complex than a simple direct relation (more alcohol – less anxiety) and explicitly should consider cognitive processes like expectancy effects, attentional biases, drinking motives and comorbid depression.

As suggested by the above-mentioned models, there is potential value in evaluating the components of social anxiety that may be influenced by the use of alcohol and which may contribute to the etiology and/or maintenance of SAD. In addition to biased cognitive processing of social situations, self-focused attention in social situations, self-awareness and safety behaviors, cognitive models of SAD (i.e. Clark & Wells, 1995) emphasize the role of social performance deficits in the maintenance of social anxiety. Whereas patients usually possess adequate skills to perform in social situations, their high level of state anxiety in feared social situations, or actual physiological arousal, often interferes with situational demands (anxiety inhibition) and may lead to a significant decrease in social performance (Hofmann, Gerlach, Wender, & Roth, 1997). Supporting this notion, individuals with SAD rate themselves as performing worse compared to healthy controls, expect to be rated more negatively by others and observers rate the performance of individuals with SAD as worse compared to non-anxious controls (Baker & Edelmann, 2002; Norton & Hope, 2001; Stevens et al., 2010; Voncken & Bogels, 2008). Furthermore, individuals with SAD even underestimate their actual performance when compared to observer performance ratings in speech (Rapee & Lim, 1992) and interaction situations (Stopa & Clark, 1993). Against this background it is not surprising that the probability of negative reactions from others in social situations is increased in individuals with SAD (Alden & Taylor, 2004). In a study by Keane and Lisman (1980), the authors investigated the effects of alcohol and alcohol expectancy on social anxiety in males. They did not find an anxiolytic effect of alcohol or alcohol expectancy on self-reported anxiety. On the contrary, alcohol had detrimental effects on social performance. However, in this landmark study social skills were only assessed regarding verbal responses (i.e. total speaking time and how often a test subject asked a question). Self-ratings of social performance were not measured. Against this background, the aim of the current study is to explicitly disentangle the effects of alcohol on social anxiety and social performance to better understand the heightened comorbidity between the two disorders.

In summary, it is not well-known if and how alcohol influences social performance, and how a possible core feature of social anxiety, i.e. decreased social performance, is influenced by alcohol intake in both healthy controls and socially anxious individuals. Thus, the aims of the present study were to explore the acute effects of alcohol during a speech task on social performance in individuals with SAD and non-anxious control participants. We additionally assessed self-reported anxiety and physiological arousal.

As research on a state social anxiety reducing effect of alcohol revealed a complex pattern of results (see Battista, Stewart, & Ham, 2010), we again examined the influence of alcohol in a common social speech task. Although the influence of alcohol on self-awareness in individuals with SAD has been shown, evidence for its effects on social performance is quite rare. Based on the social anxiety literature, we predicted that sober individuals (i.e. persons in the orange juice condition) with SAD would judge their social performance as worse compared to controls and blind raters (e.g., Voncken & Bogels, 2008). If anxiety inhibits performance, decreases in anxiety in individuals with SAD in the alcohol group may lead to increases in self-rated and perhaps even observer rated social performance. While remembering that the relation between social anxiety and alcohol is complex and additionally based on expectancy effects, drinking motives and attentional processes (Battista et al., 2010), we nonetheless hypothesize that social performance would increase in individuals with SAD after ingesting alcohol. Finally, we expected that participants with SAD receiving placebo would benefit less as compared to those receiving alcohol, as a pharmacological effect on anxiety should be more profound than a pure expectancy based effect.

2. Method

2.1. Participants

Participants suffering from social anxiety were invited to the experiment through newspaper ads, flyers, and emails (sent to all students of the University of Giessen) that specifically targeted individuals who feel insecure in social situations. Participants in the SAD group could choose between monetary compensation (20 € for the OJ condition, 30 € for the ALC and PLA conditions) or a 2-hour counseling session concerning their social fears and treatment options. Participants were included if they fulfilled the *DSM-IV* criteria for a primary SAD diagnosis. The diagnosis of a substance use (including alcohol use disorders), bipolar, or psychotic disorder resulted in exclusion from the study. Further general exclusion criteria included suffering from coronary heart diseases; undergoing current psychiatric, neurological, or psychological treatment; and the current intake of drugs affecting the central nervous system or the cardiovascular system. Due to possible alcohol intake, pregnant or breast-feeding female participants were excluded. In addition, participants who were alcohol naïve (i. e., reported to have never consumed alcohol) or reported a history of were excluded. To recruit control participants (CONT), flyers and emails were sent out that targeted people who do not feel anxious in social situations. Control participants were compensated monetarily as explained above. In addition to the general exclusion criteria, specific exclusion criteria for control subjects consisted of a diagnosis of any current mental disorder.

Initially, we screened 99 individuals for the SAD and 78 individuals for the control group. Sixty-two SAD participants and 60 healthy control participants (CONT) participants were included. 19 individuals with SAD were excluded as they failed to fulfill DSM-IV criteria for SAD, 10 refused to drink alcohol during the experiment and 10 had additional diagnoses (seven substance use, two bipolar disorder and one somatic liver disease). In the control group, 10 participants fulfilled criteria for a DSM-IV diagnosis, six refused to drink alcohol during the experiments and 3 moved after the completion of the initial screening. Detailed sociodemographic information is presented in Table 1.

2.2. Measures

2.2.1. Demographics questionnaire

Participants were asked to self-report age, gender, education,