THESIS

SOCIAL INTERACTION ANXIETY AND PERSONALITY TRAITS PREDICTING ENGAGEMENT IN RISKY SEXUAL BEHAVIOR

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ABSTRACT

SOCIAL INTERACTION ANXIETY AND PERSONALITY TRAITS PREDICTING ENGAGEMENT IN RISKY SEXUAL BEHAVIOR

Social anxiety disorder is a prevalent psychiatric condition, especially among adolescents (American Psychiatric Association, 2013, p. 204). Individuals with social interaction anxiety, which pertains to interpersonal exchanges with others, ruminate on perceived failures in past interactions, withdraw from or avoid social encounters, and engage in coping behaviors in response to negative feelings (Clark & Wells, 1995; Hoffman, 2007; Kashdan, 2004; Leary, 2001). While the majority of individuals with social interaction anxiety avoid risky situations, a subset engages in risky behaviors, including more frequent sexual encounters and unprotected sex (Kashdan, Elhai, & Breen, 2008; Kashdan & Hoffman, 2008; Kashdan, McKnight, Richey, & Hoffman, 2009). The personality constructs sensation seeking, emotion dysregulation, and impulsivity predict engagement in risky sexual behavior and have been suggested in previous studies to explain the relation between social interaction anxiety and risky sexual behavior (Arnold, Fletcher, & Farrow, 2002; Gullette & Lyons, 2005, 2006; Hoyle, Fejfar, & Miller, 2000; Kalichman et al., 1994; Kashdan et al., 2008; Kashdan et al., 2009; Kashdan & Hoffman, 2008; Kashdan & McKnight, 2010; Parent & Newman, 1999). Therefore, the present study hypothesized that latent classes of social interaction anxiety and personality traits would be identified that distinguish engagement in risky sexual behaviors. Finite mixture modeling was used to discern latent heterogeneous classes of social interaction anxiety and facets of sensation seeking, emotion dysregulation, impulsivity, behavioral approach, and behavioral inhibition.

Risky sexual behaviors were treated as auxiliary variables. Four classes were discerned: two low social interaction anxiety classes distinguished by facets of emotion dysregulation, positive urgency, and negative urgency (Low SIAS High Urgency and Low SIAS Low Urgency) and two high social interaction anxiety classes distinguished by positive urgency, negative urgency, risk seeking, and facets of emotion dysregulation (High SIAS High Urgency and High SIAS Low Urgency). Of importance to this study were the findings that the High SIAS High Urgency class was significantly more likely to engage in all identified risky sexual behaviors than the High SIAS Low Urgency class and that the High SIAS High Urgency class did not significantly differ from the Low SIAS High Urgency and Low SIAS Low Urgency classes in engagement in risky sexual behaviors. This study extends previous findings on the heterogeneity of social interaction anxiety by identifying the effects of social interaction anxiety and personality on engagement in risky sexual behaviors.

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INTRODUCTION

Social Anxiety

Social anxiety disorder is a prevalent psychological diagnosis affecting 7% of the United States population in a 12-month span and 12% of people across the lifetime (American Psychiatric Association [APA], 2013, p. 204; Kashdan, McKnight, Richey, & Hoffman, 2009). Of those diagnosed with social anxiety disorder, 75% of initial diagnoses are made between the ages of 8 and 15, with a median initial diagnosis age of 13 years (APA, 2013, pp. 204-205). Diagnostic criteria for the disorder from the *Diagnostic and Statistical Manual of Mental Disorders* (*5th ed.*) include strong fears of circumstances or interactions in which affected individuals may be evaluated by others; fear of being judged negatively for social behavior or display of anxiety symptoms; avoidance of social encounters; having high levels of anxiety during social encounters; and anxious symptoms above what would be expected for the social experience (APA, 2013 p. 203). Literature on social anxiety has supported two distinct presentation categories: Social interaction anxiety, which pertains to fear of encountering or communicating with other people, and social observation anxiety, relating to situations in which individuals are presenting or performing (Kashdan, 2004). The two categories appear to be distinct, as symptoms of social observation anxiety do not tend to manifest in social interactions (APA, 2013).

Briefly, social interaction anxiety has been described as fear of impression management failure, in which individuals strive to perform well socially or present themselves positively but lack self-efficacy to do so (Clark & Wells, 1995; Hofmann, 2007; Leary, 2001). This relates to socially anxious individuals' negatively biased self-evaluation of their performances in social

interactions (Hofmann, 2007; Wallace & Alden, 1995). During social encounters, individuals with social interaction anxiety present with heightened self-awareness and negative self-imagery related to closely observing and assessing their interactions with others (Hirsch, Clark, Mathews, & Williams, 2003; Hofmann, 2007). Recalling past perceived social failures and negative self-images, individuals with social interaction anxiety predict they are presenting themselves poorly, are being judged negatively, and will ultimately be rejected (Clark & Wells, 1995; Hackmann, Surawy, & Clark, 1998; Hofmann, 2007; Rapee & Heimberg, 1997; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999). Following social encounters, socially anxious individuals commonly ruminate about their performances and interactions, especially if they perceive themselves to have failed to fulfill others' expectations of their behavior or if they sense a high risk of rejection (Clark & Wells, 1995; Hofmann, 2007). In response to negative self-evaluation and anticipated risk of rejection by others, socially anxious individuals tend to engage in avoidance or withdrawing behaviors to reduce the likelihood of being observed by others (Kashdan et al., 2011a).

Socially anxious individuals predict poor social performance, perceive likely social rejection, and negatively evaluate themselves based on past experiences regardless of supporting or contradicting evidence related to present social experiences (Hackmann, Clark, & McManus, 2000; Hackmann et al., 1998; Hofmann, 2007; Hofmann & Heinrichs, 2003). When a social experience is positive, those with social interaction anxiety may become more anxious about future social encounters, feeling pressure to perform to new, higher standards (Kashdan et al., 2011a; Kashdan, Weeks, & Savostyanova, 2011; Weeks, Heimberg, & Rodebaugh, 2008; Weeks, Heimberg, Rodebaugh, & Norton, 2008). As a result, they may minimize or dismiss the success of the interaction so as to reduce the perceived expectations to perform well in future

scenarios (Kashdan et al., 2011a). Overall, socially anxious individuals' negative self-evaluation process, wherein they dismiss positive social experiences and dwell on negative social encounters, leads them to plan for failure in future social experiences. This cycle sustains social anxiety (Clark & Wells, 1995; Hofmann, 2007).

Social interaction anxiety presents with an affective state that impairs general functioning. Individuals suffering from social interaction anxiety are predisposed to experience elevated negative emotions and diminished, transitory positive emotions. This affective profile is more similar to that of depression than to the other anxiety disorders (Brown, Chorpita, & Barlow, 1998; Chorpita, Plummer, & Moffitt, 2000; Kashdan, 2004; Kashdan et al., 2011b; Watson, Clark, & Carey, 1988). For example, both individuals with social interaction anxiety and individuals with depressive symptoms experience difficulty deriving pleasure from activities or enjoyable pursuits (Kashdan, 2004). As individuals suffer from higher levels of social interaction anxiety, they report decreased quality of life, more loneliness, and greater suicidal ideation than those who are less anxious about social interactions (Kashdan, 2004; Safren, Heimberg, Brown, & Holle, 1996; Schneier et al., 1994; Wittchen, Fuetsch, Sonntag, Muller, & Liebowitz, 2000).

In addition, higher levels of social interaction anxiety, but not observation anxiety or general anxiety, are associated with decreased energy, less relationship satisfaction, less sexual satisfaction, and more behavioral inhibition, similar to depression (Kashdan, Elhai, & Breen, 2008; Kashdan et al., 2011a; Kashdan et al., 2011b; Kashdan & Hofman, 2008; Safren et al., 1996; Stein & Kean, 2000). A previous study found that women and men with social anxiety reported significantly less pleasure and connectedness during partnered sexual encounters than individuals with lower levels of social anxiety (Kashdan et al., 2011a). For women, high levels

of social anxiety were associated with less frequent sexual activity, less daily sexual contact, and avoidance of sexual partners. However, among men, higher levels of social anxiety were associated with more frequent sexual activity and greater likelihood of sexual encounters. These findings remained true even when socially anxious men also endorsed symptoms of depression, which is typically associated with decreased sexual interest. For men with social anxiety, frequent sexual activity was related to augmented perceived social status, suggesting the use of partnered sexual behavior to increase self-esteem, thereby counteracting fears of judgment or rejection (Kashdan et al., 2011a). However, frequent sexual encounters, especially with multiple partners, can increase the risk of experiencing unwanted or harmful outcomes, such as exposure to sexually transmitted infections.

Health Risk Behaviors among Adolescents and Young Adults

Health risk behaviors are behaviors that increase risk of injury, disability, or death (Steptoe & Wardle, 2004). Health risk behaviors include sexual behaviors associated with unintended pregnancy and sexually transmitted infections (e.g., unprotected sexual intercourse), tobacco use, alcohol and other substance use, unhealthy diet, and inadequate physical activity (Centers for Disease Control and Prevention [CDC], 2016). Adolescents and young adults are particularly susceptible to engagement in risk behaviors (Reynolds et al., 2013). Age and risk-taking share a quadratic relation wherein risk-taking emerges in early adolescence, increases until early adulthood, and then tapers (Ben-Zur & Zeidner, 2009; Boyer, 2006; Steinberg, 2008). Similar curvilinear relations have been demonstrated for age and perceived rewards, as well as age and sensitivity to rewards, derived from risky behavior. Specifically, as young adolescents age, the perceived rewards of risky behavior increase, peaking at mid-to-late adolescence, and declining through young adulthood (Steinberg, 2004; Steinberg, 2008**)**. Additionally, during mid-

to-late adolescence, individuals have higher reward sensitivity and lesser, but linearly increasing, punishment sensitivity. Combined, increased risk-taking behavior in mid-to-late adolescence is predicted by perceptions of risky behaviors as more rewarding and more sensitivity to rewards than punishment (Cauffman et al., 2010; Steinberg, 2004; Steinberg, 2008).

Increases in risk-taking during adolescence have also been predicted by sensation seeking, or the personality propensity toward novel and risky experiences, which may increase with pubertal maturation (Martin et al., 2002; Steinberg, 2008). Risk-taking in adolescence is also affected by individual differences in affect, impulse control, and vulnerability to peer influence (Steinberg, 2006, 2008). Individual differences in these constructs among adolescents and young adults are implicated with such risky behaviors as binge drinking, cigarette smoking, aggression against others, driving while impaired by alcohol, reckless driving, and sex with casual or unfamiliar partners (Steinberg, 2008).

Health-risk sexual behavior is a particularly salient concern for adolescents and young adults, as they engage in risky sexual behaviors more than other age groups (Raffaelli & Crockett, 2003). Risky sexual behavior threatens physical well-being, especially related to the transmission of HIV and other sexually transmitted infections (Hoyle, Fejfar, & Miller, 2000). Among adolescents and young adults ages 13-24, 10,000 new cases of HIV were diagnosed in 2013 (CDC, 2013). Of the annual 20 million new diagnoses of sexually transmitted infections - including HPV, HSV-2, Trichomoniasis, Chlamydia, HIV, Hepatitis B, Gonorrhea, and Syphilis - half are accounted for by individuals ages 15-24. This finding is especially meaningful when considering that adolescents and young adults ages 15-24 account for only approximately 25% of the sexually active population in the United States (CDC, 2013). Specific risky sexual behaviors associated with the transmission of sexual infections include sex with multiple partners, sex with

unfamiliar partners, and lacking or incorrect condom use (Hoyle et al., 2000; U.S. Department of Health & Human Services, 2015). In their study of undergraduate college students who are sexually active, Gullette and Lyons found the majority of students reported having sexual encounters without using protection (2006). It should be noted that the most commonly cited reason for not using protection was having sexual intercourse in the context of a long-term, primary relationship. While sexual contact in primary relationships reduces the risk for acquiring sexually transmitted infections, individuals in relationships might not be monogamous (Gullette & Lyons, 2006). Additionally, 38% of the students in their study had sexual encounters with between two and five different partners in the previous six months, and 10% of the sample had been diagnosed with a sexually transmitted infection (Gullette & Lyons, 2006). Thus, adolescent and young-adult college students are at increased risk for both engagement in health-risk sexual behavior and experiencing unintended health outcomes.

Social Anxiety and Health Risk Behavior

Adolescents and young adults are at risk for social anxiety, as well as engagement in risky sex and experiencing unwanted consequences of sexual behavior (APA, 2013; CDC, 2013). Moreover, some individuals with social anxiety engage in sexual risk-taking behavior despite negative affect profiles and low energy levels – both of which would be expected to relate to non-engagement in sexual risk-taking (Ben-Hur & Zeidner, 2009; Kashdan, Collins, & Elhai, 2006; Kashdan, Elhai, & Breen, 2008; Kashdan et al., 2009; Kashdan & McKnight, 2010; Lorian, Mahoney, & Grisham, 2012). For some socially anxious individuals, risky behavior may provide temporary relief from negative self-evaluations and anxious emotions while also augmenting perceived social status (Kashdan et al., 2008; Kashdan & Hofmann, 2008). Yet, risky behaviors appear to result in more negative self-evaluations, diminished social support, and

poorer self-reported well-being among socially anxious individuals. These outcomes may reinforce symptoms of social anxiety, thereby maintaining the condition (Kashdan et al., 2008; Kashdan et al., 2011b; Kashdan & McKnight, 2010).

A probe into the relation between social interaction anxiety and risky behavior suggests the existence of two distinct subgroups of social interaction anxiety. The first subgroup reflects typical diagnostic criteria of social anxiety disorder, wherein individuals experience elevated social fears, resulting in avoiding risky and novel situations and withdrawing from social interactions. Further, this group appears to be behaviorally inhibited (Kashdan et al., 2009; Leary, 2001). Individuals in the second subgroup approach novel and risky experiences in spite of social fears or even as a way to cope with anxiety (Kashdan & Hofmann, 2008). Individuals in the risk approach sub-group have reported engaging in more frequent social and sexual encounters, unprotected sex, substance use, and aggression than the risk-avoidant group over a period of three months (Kashdan et al., 2008; Kashdan et al., 2009). Group membership does not overlap: Individuals either belong to the risk-approach or risk-avoidance group (Kashdan et al., 2009). Previous studies have found that up to 21% of individuals with social anxiety disorder can be classified in the risk-approach subgroup (Kashdan et al. 2006a; Kashdan, Elhai, & Breen, 2008; Kashdan et al., 2009; Kashdan & McKnight, 2010).

The literature examining the risk-approach subgroup of social interaction anxiety has assessed the effects of several factors (Kashdan et al., 2009). Severity of social anxiety symptoms, type of feared social situations, number of feared social situations, and limitations in overall functioning do not significantly relate to inclusion in the risk-approach subgroup of social interaction anxiety (Kashdan et al., 2009). Compared to the risk-avoidant group, most individuals in the risk-approach social anxiety subgroup tend to be younger, less healthy men with poorer

socioeconomic status (Kashdan et al., 2009). Previous studies have identified processes related to the personality traits sensation seeking, impulsivity regulation, and emotion response to account for differences between the majority group of socially anxious individuals who withdraw from risk and the minority subgroup who approach risk (Kashdan, Barrios, Forsyth, & Steger, 2006; Kashdan & Hofmann, 2008). Thus, individual differences in these personality traits may account for distinctions between the risk-approach and risk-avoidant subgroups of individuals with social interaction anxiety.

Sensation Seeking, Social Anxiety, and Risky Behavior

Sensation seeking, or "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experiences" (Zuckerman, 1994, p. 27) is associated with risky behavior (Knorr, Jenkins, & Conner, 2013). Individuals high in sensation seeking appear to appraise risks differently than individuals low in sensation seeking, in that they perceive fewer negative outcomes of experiences and value novel or high-risk activities (Hoyle et al., 2000; Knorr et al., 2013; Weinstein 1980; Zuckerman 1979). Indeed, adolescents who endorse higher levels of sensation seeking also report a greater propensity toward risk-taking (Greene, Krcmar, Walters, Rubin, & Hale, 2000). This tolerance of risk and value on experiences may explain engagement in risky sex (Hoyle et al., 2000).

College students who are high in sensation seeking report engaging in risky sexual behavior more than those low in sensation seeking (Arnold, Fletcher, & Farrow, 2002; Gullette & Lyons, 2005, 2006). In their meta-analysis of studies evaluating personality traits predicting engagement in risky sexual behavior, Hoyle et al. identified sensation seeking to be positively correlated with all forms of sexual risk taking, especially number of sexual partners and

unprotected sexual encounters (2000). However, sensation seeking had a significantly greater effect on number of partners (mean r = .28) than on condom use (mean r = .14). Further, sensation seeking was a significantly stronger predictor of risky sexual behavior among college students (r = .24) than people not in college (r = .13; Hoyle et al., 2000). Both college women and men high in sensation seeking reported more sexual partners than individuals low in sensation seeking (Gullette & Lyons, 2005). Further, college men high in sensation seeking were more likely to engage in sexual behaviors exposing them to risk of HIV transmission, and college women high in sensation seeking were less likely to have a stable sexual partner (Gullette & Lyons, 2005). Therefore, sensation seeking may account for the relation between social anxiety and risky sexual behavior among adolescents and young adults.

Emotion Dysregulation, Social Anxiety, and Risky Behavior

Individuals with social anxiety may engage in risky behavior as a result of poor emotion regulation, the process by which individuals experience and respond to emotions (Gross, 1999). Individuals with social anxiety struggle more with attending to, identifying, and expressing emotional experiences (Spokas, Luterek, & Heimberg, 2009). People with social anxiety have reported feeling more distressed about their emotional experiences, including anger, fear, anxiety, depression, and positive emotions (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). Additionally, individuals with social anxiety are less attentive to their emotions than people without social anxiety. Individuals with social anxiety also have reported difficulty discerning between feelings and labeling them (Turk et al., 2005). Moreover, people with social anxiety express both negative and positive emotions less than those without social anxiety, but express negative emotions more than positive emotions. This may relate to concerns that their feelings will not be validated by others (Turk et al., 2005). Emotion expression may be avoided by

socially anxious people because of fear of being observed or rejected by others, believing that emotional expression is associated with a loss of control and interpersonal weakness (Spokas et al., 2009).

Both social anxiety and emotion dysregulation are predicted by experiential avoidance, wherein individuals criticize and refuse to experience their own personal thoughts, feelings, and perceptions. In doing so, they may engage in safety behaviors aimed at emotional avoidance (Hayes, 1994; Hayes, Strosahl, & Wilson, 1999; Kashdan et al., 2006b). Safety behaviors include avoiding anxiety-provoking situations, withdrawing from interactions with others, and suppressing emotional expressions (Kashdan et al., 2011a; Spokas et al., 2009). These safety behaviors may be used by socially anxious individuals before, during, or after social interactions in response to fears of rejection or judgement (Hofmann, 2007; Spokas et al., 2009; Turk et al., 2005). Further, individuals with social anxiety endorse beliefs about emotional suppression regardless of their reported self-efficacy in labeling and experiencing emotions (Spokas et al., 2009). The difficulties socially anxious individuals have with emotion identification, tolerance, and expression reflect emotion dysregulation, a disordered process of emotion experience (Donahue, Goranson, McClure, & Van Male, 2014; Gross, 2013; Werner & Gross, 2010).

Emotion dysregulation has been associated with impairments in impulse control, goal-directed behaviors, and use of coping skills when emotionally distressed (Donahue et al., 2014). Among socially anxious individuals, emotion dysregulation has been associated with engaging in maladaptive behaviors including risky sexual encounters, aggressive acting-out, and increased alcohol use (Kashdan et al., 2008; Kashdan et al., 2009; Kashdan & McKnight, 2010). Engaging in risky behavior might function as a coping strategy for socially anxious individuals experiencing emotion dysregulation. Specifically, risky behavior distracts from experiences of

negative feelings, such as anxiety, fear of rejection, and rumination, thereby functioning as an avoidance strategy for socially anxious individuals (Kashdan et al., 2006b; Kashdan et al., 2011b; Reynolds et al., 2013). For example, social anxiety has been associated with increased risk for self-medicating with excessive alcohol or other substances, as well as having sex with strangers to produce immediate feelings of pleasure and connectedness (Kashdan et al., 2011b; Reynolds et al., 2013). The distraction from the symptoms of social interaction anxiety negatively reinforces the risky behavior, integrating it into a coping repertoire (Reynolds et al., 2013). However, while risky sexual behavior may be used to cope with emotional distress, it can also cause more negative self-evaluations and fear of perceived judgement. Thus, while risky behaviors may serve as an avoidance mechanism, they result in a maintenance of social interaction anxiety symptoms, potentially increasing the likelihood of further engaging in risky behaviors to distract from ongoing symptomology (Auerback, Kertz, & Gardiner, 2012; Kashdan et al., 2008; Kashdan et al., 2011b; Kashdan & McKnight, 2010).

Impulsivity, Social Anxiety, and Risky Behavior

Previous studies have associated social anxiety with risky behavior through impulsivity, especially via depletion of self-regulation resources (Reynolds et al., 2013). Stemming from the limited cognitive resources framework, this line of inquiry posits that individuals have a limited pool of self-regulatory cognitive resources with which to self-observe, self-evaluate, and modify behavior (Baumeister, Vohs, & Tice, 2007; Kashdan et al., 2011b; Muraven, Tice, & Baumeister, 1998; Vohs, Baumeister, & Ciarocco, 2005). This resource pool is used for several functions, including regulating thoughts and emotions and inhibiting behavior aimed at fulfilling appetitive demands. Engaging in too many concurrent or continuous self-regulatory tasks diminishes the resources necessary to do so, reducing the likelihood of successfully self-

regulating in any domain (Vohs et al., 2005). The depletion of self-regulatory resources has been linked to decreased academic success, relationship quality, and psychological health as well as difficulty enjoying positive social experiences (Baumeister, Gailliot, DeWall, & Oaten, 2006; Kashdan et al., 2011b; Tangney, Baumeister, & Boone, 2004).

Individuals with social anxiety utilize self-regulatory resources to frequently and intensely self-monitor, predict others' evaluations of themselves, suppress emotional experiences and expressions, and ruminate on past and expected social encounters in an attempt to enhance self-presentation (Vohs et al., 2005). Further, individuals with social anxiety increase their use of self-regulatory resources to manage self-presentation when there is a greater risk of judgement or rejection by others or when they feel unclear about how to present themselves to others (Hofmann, 2007; Kashdan et al., 2011b; Vohs et al., 2005). Such intense focus on self-presentation diverts self-regulation resources away from controlling impulsivity (Kashdan et al., 2011b; Reynolds et al., 2013). Because there are few self-regulatory resources remaining to inhibit risky behavior, individuals with social anxiety may act out impulsively (Kashdan et al., 2008; Reynolds et al., 2013).

Impulsivity can also be considered from a behavioral economics, dual-selves perspective (Fudenberg & Levine, 2006). This framework suggests that individuals choose between immediate short-term gains and working toward long-term goals. In pursuit of long-term interests, individuals engage in self-control to inhibit acting on more immediate urges that contradict or risk long-term goals. The model assumes that costs are associated with both acting on immediate urges and inhibiting acting on immediate urges, and individuals are motivated to choose behavior with the least associated cost. However, cognitive load, or demands placed on working memory, interacts with this process such that as the demands on cognitive resources

increase, ability to resist acting on immediate urges decreases. This is especially salient when immediate urges have an affective component (Fudenberg & Levine, 2006). Individuals who are sensitive to the cost of inhibiting impulses may be less likely to engage in self-control (Kool, McGuire, Wang, & Botvinick, 2013). To prevent acting impulsively, individuals who are sensitive to the costs of self-control or who have low self-efficacy in their ability to inhibit impulsive action may avoid situations demanding cognitive resources to choose between short-term rewards and long-term goals (Kool et al., 2013).

Drawing from the dual-selves perspective, impulsivity in socially anxious individuals can be considered a multi-faceted trait. Individuals with social interaction anxiety may choose to avoid situations in which they have low self-efficacy in inhibiting impulses (Kool et al., 2013). As individuals experience impulsive urges, they use working memory resources to compare the costs of acting on urges to the costs of resisting urges (Fudenberg & Levine, 2006). Impulsivity can occur in response to emotions, and affect-related urges can overload cognitive resources used in decision-making and inhibition (Cyders et al., 2007; Fudenberg & Levine, 2006; Whiteside & Lynam, 2001). Positive urgency is the tendency to act impulsively in response to positive affect or elevated mood, while negative urgency is the tendency to act impulsively in response to negative feelings (Cyders et al., 2007; Whiteside & Lynam, 2001). For impulsive individuals with social anxiety, urgency-related behavior may provide temporary, brief increases in positive feelings followed by an increase in negative evaluation (Kashdan & Hofmann, 2008; Muraven et al., 1998; Vohs et al., 2005). For example, impulsively having sex with an unfamiliar partner may provide a fleeting sense of connectedness and gratification individuals with social anxiety might not otherwise pursue because of fears of judgment or rejection (Cyders et al., 2007; Kashdan & Hofmann, 2008; Whiteside & Lynam, 2001). Yet, self-reflection on the behavior

provides feedback to individuals' social anxiety symptoms in that they may perceive the behavior as a social failure. This feeds into a self-evaluative or ruminative process, thereby consuming even more self-regulatory resources (Muraven et al., 1998; Vohs et al., 2005). Socially anxious individuals' ability to evaluate costs or inhibit immediate gratifying behavior may be impaired by cognitive load related to self-monitoring, rumination, or predicting others' evaluations of them (Vohs et al., 2005).

However, impulsivity alone may not account for all risky sexual behavior. In their meta-analysis of predictors of risky sexual behavior, Hoyle and colleagues found a consistent but weak association between impulsivity and risky sex (2000). This may be because most studied risky sexual behaviors necessarily involve two people: sex without protection, sex with multiple people, one-night stands, and sex with strangers. Most models of impulsive sexual behavior among socially anxious individuals do not account for communication with, or needs of, sexual partners (Cooper, Agocha, & Sheldon, 2000). Sexual partners, whether familiar or strangers, may act as gatekeepers to sex, thereby blocking or moderating impulsive action. Further, many models of impulsive risky behavior incorporate cognitive processes beyond impulsivity, such as emotion regulation. Finally, differences in the operational definition of impulsivity in the literature on risk-taking behavior have yielded several distinct models (Hoyle et al., 2000).

Behavioral Approach and Behavioral Inhibition, Social Anxiety, and Risky Behavior

Reinforcement sensitivity theory (RST) posits that learning and behavioral responding are driven by individual differences in reward and punishment sensitivity (Gray, 1982; 1991). These individual differences underlie key personality traits, including anxiety and impulsivity (Gray, 1982, 1991). According to a recent revision of RST, three distinct neurobiological systems are involved in reward and punishment sensitivity and responding: the Behavioral

Activation System, Behavioral Inhibition System (BIS), and Fight/Flight/Freeze System (FFFS). The BAS encourages approach behavior toward rewarding or punishment-relieving stimuli (Gray, 1977, 1981, 1990). The BIS is a conflict detection system that prompts behavioral inhibition or activation of the FFFS in response to novel stimuli (Beck, Smits, Claes, Vandereycken, & Bijtterbier, 2009; Gray & McNaughton, 2000; Luman, van Meel, Ooserlaan, & Geurts, 2012). Lastly, the FFFS responds to threats, triggering flight away from threats perceived as far away, fight if threats cannot be escaped, or freezing (Beck et al., 2009; Gray & McNaughton, 2000).

Individuals with high BAS and low BIS sensitivity are prone to seek out rewards, be more impulsive, and more likely to experience positive affect. Individuals with low BAS and high BIS reactivity are sensitive to punishment, behaviorally inhibited, more anxious, and more likely to experience negative affect (Corr, 2001, 2002; Kambouropoulos & Staiger, 2004; Smillie & Jackson, 2005; De Pascalis, Arwari, Matteucci, & Mazzocco, 2005). Further, differences in BIS and BAS sensitivity are related to the development and presentation of psychopathology. Specifically, higher BIS reactivity has been associated with rumination and anxiety disorders, including social anxiety. Higher BAS reactivity has been associated with addictive behaviors (Corr & McNaughton, 2008; Gray, 1982; Johnson, Turner, & Iwata, 2003; Lyvers, Duff, Basch, & Edwards, 2009). Additionally, BAS has been associated with engagement in health-risk behaviors, including risky sexual behavior (Braddock et al., 2011; Voigt et al., 2009).

Summary

Social anxiety disorder is comprised of two discrete categories: social interaction anxiety and social observation anxiety (Kashdan, 2004). Further, while the majority of individuals with social

anxiety can be described as risk-approach, engaging in risky or novel behaviors (Kashdan & Hofmann, 2008). Previous studies have identified that up to 21% of socially anxious individuals can be described as risk-approach, engaging in recreational risk-taking, substance use, aggression, or risky sexual behaviors (Kashdan et al., 2006a, 2008, 2009; Kashdan and McKnight, 2010; Lorian et al., 2012). Individual differences in sensation seeking, emotion regulation, and impulsivity have been associated with engagement in risky sexual behaviors and may moderate the relation between social interaction anxiety and risky sex (Arnold et al., 2002; Gullette & Lyons, 2005, 2006; Kalichman et al., 1994; Kashdan et al., 2008; Kashdan et al., 2009; Kashdan & Hoffman, 2008; Kashdan & McKnight, 2010; Parent & Newman, 1999; Reynolds et al., 2013). Individuals who engage in risky behaviors and suffer from symptoms of social interaction anxiety may be excluded from a social anxiety disorder diagnosis, as the diagnosis is typically characterized as risk-avoidant and behaviorally inhibited (Kashdan & McKnight, 2010). Recognizing risky behaviors as an effect of social anxiety, rather than exclusion criteria for diagnosis, can help clinicians identify and recommend effective treatments to reduce symptoms of social anxiety and potentially harmful consequences of risky behavior. Therefore, the overall aims of this study were to identify latent classes of social interaction anxiety distinguished by personality traits and to examine if identified latent classes differentiate engagement in risky sexual behaviors.

Hypotheses

The present study addressed two goals. First, to extend previous findings regarding the heterogeneity of social interaction anxiety by identifying personality traits which distinguish latent classes of social interaction anxiety. Second, to examine how latent classes of social

interaction anxiety and personality traits differentially predict engagement in risky sexual behaviors. To address these goals, two broad hypotheses and related sub-hypotheses were tested.

Hypothesis 1: Distinct latent classes of social interaction anxiety and personality traits would be discerned.

Hypothesis 2: Discerned classes of social interaction anxiety and personality traits would differentially predict engagement in risky sexual behaviors.

Hypothesis 2a: Classes of low levels of social interaction anxiety would be associated with greater likelihood of engaging in risky sexual behavior.

Hypothesis 2b: Classes of high levels of social interaction anxiety; low levels of sensation seeking, emotion dysregulation, urgency, and behavioral approach; and high levels of behavioral inhibition would be associated with lesser likelihood of engaging in risky sexual behavior.

Hypothesis 2c: Classes of high levels of social interaction anxiety; high levels of sensation seeking, emotion dysregulation, urgency, and behavioral approach; and low levels of behavioral inhibition would be associated with greater engagement in risky sexual behaviors.

Support for these hypotheses contribute to the literature regarding the heterogeneity of social interaction anxiety, specifically related to risk-approach and risk-avoidant tendencies. Further, support for these hypotheses identify personality traits related to engagement in risky sexual behaviors, which inform clinical assessment and intervention.

METHODS

Participants and Procedures

Participants were 1005 undergraduate students with a mean age of 18.92 (*SD* = 1.69). Participants self-reported their sex, sexual orientation, race, and ethnicity, as shown in Table 1.

Table 1
Participant Demographic Information

Characteristic	*N*	%
Sex		
Female	679	67.6
Male	321	31.9
Missing or Do Not Wish To Respond	5	0.5
Sexual Orientation		
1. Exclusively Gay/Lesbian	54	5.4
2. Mostly Gay/Lesbian	20	2.0
3. Between Bisexual and Gay/Lesbian	6	0.6
4. Bisexual	27	2.7
5. Between Bisexual and Straight	27	2.7
6. Mostly Straight	145	14.4
7. Exclusively Straight	682	67.9
0. Do Not Wish To Respond	31	3.1
Missing	13	1.3
Race		
American Indian or Alaskan Native	9	0.9
Asian	40	4.0
Black or African American	22	2.2
Native Hawaiian or Other Pacific Islander	0	0.9
White	841	83.7
Multi-racial	51	5.1
Do Not Wish To Respond	30	3.0
Missing	12	1.2
Ethnicity		
Hispanic or Latino	157	15.6
Not Hispanic or Latino	814	81.0
Do Not Wish To Respond	25	2.5
Missing	9	0.9

Note. $N = 1005$.

Sexual orientation was measured using a Likert-type scale, with a value of 1 indicating an exclusively gay or lesbian sexual orientation identity and 7 indicating an exclusively straight sexual orientation identity.

Participants were recruited from introductory psychology and psychology research methods classes. In return for participating in the study, participants received research credit for their classes. To ensure privacy, participants completed online surveys in individual cubicles in a computer laboratory. Participants were encouraged to respond honestly. The study was approved by the Colorado State University Institutional Review Board. Participants electronically provided informed consent prior to participating in the study and were provided written debriefing information, including resources for counseling services, at the end of the study. Participants were informed they could discontinue their participation at any point during the survey and skip questions they wished not to answer.

Measures

Risky Behavior Inventory

Engagement in a variety of health-risk sexual behaviors was assessed with the Risky Behavior Inventory (RBI; Conner & Henson, 2013). The RBI inquires about several types of health-risk, social-risk, and crime-risk behaviors, as well as the frequency and extent of engaging in identified behaviors. Items selected for analysis focused numbers of oral, vaginal, and anal sexual partners in the past 12 months; numbers of partners with whom participants had unprotected and under-protected sexual encounters in the past 12 months; numbers of partners with whom participants had one-night stands in the past 12 months; and numbers of lifetime partners with whom participants engaged in sexual activity while in a committed relationship with someone else.

Table 2
Descriptive Information for Risky Sexual Behavior Variables

Item	Count Responses		Binary Responses		
	M (SD)	Range	*N* Yes	*N* No	*M*
How many different people have you performed oral sex on in the last 12 months?	1.97 (2.13)	0-20	665	331	0.67
How many different people have performed oral sex on you in the last 12 months?	2.02 (4.00)	0-100	698	298	0.70
How many different people have you had vaginal intercourse with in the last 12 months?	2.36 (3.17)	0-45	643	353	0.65
How many different people have you had unprotected vaginal intercourse with in the last 12 months?	1.61 (2.67)	0-30	329	665	0.33
How many different people have you had under-protected vaginal intercourse with in the last 12 months?	1.75 (2.58)	0-40	333	662	0.33
How many different people have you had anal intercourse with in the last 12 months?	0.99 (1.18)	0-10	105	890	0.11
How many times in the last 12 months have you had unprotected anal intercourse?	14.04 (81.19)	0-730	64	933	0.06
How many different people have you had a one-night stand with in the last 12 months?	1.99 (3.39)	0-45	287	709	0.29
How many times in your life have you been in a committed relationship and had a sexual encounter with someone who was not your partner?	0.36 (2.27)	0-50	120	878	0.12

Note. Count responses were transformed to binary responses such that a count value of 0, indicating non-engagement in the behavior, was coded as 0 for the binary responses. Count responses greater than 0, indicating engagement in the behavior, were coded as 1. The *M* of the binary responses indicates likelihood of engagement, with values closer to 0 indicating more non-engagement than engagement and values closer to 1 indicating more engagement than non-engagement.

All risky sex variables were count variables, with a high number of participants responding with zero, reflecting non-engagement in the behaviors. Preliminary analysis of the risky sex variables revealed a negative binomial distribution of responses. The count, rather than continuous, nature of the variables, as well as the negative binomial distribution of responses, violated assumptions of the analysis (i.e., continuous variables and normal distribution). To make responses amenable to analysis, count responses were transformed to binary responses such that values of 0, indicating non-engagement, remained 0 and values greater than 0, indicating engagement, were coded as 1. Table 2 reports items and descriptive data for both the count responses and binary responses.

Social Interaction Anxiety Scale

Social interaction anxiety was assessed with the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS includes 20 items designed to measure distress related to social interactions or encounters with others, especially pertaining to fearing negative evaluation from, or being rejected by, others (Mattick & Clarke, 1998). The SIAS has demonstrated good psychometric properties in previous studies, including among samples of undergraduate college students, community participants, and individuals diagnosed with social phobia (Mattick & Clarke, 1998). In the current study, the SIAS demonstrated excellent internal consistency (α = .94). Respondents rated their experiences of social anxiety indicated on each item using a 5-point Likert-type scale from 0 (“Not at all characteristic or true of me”) to 4 (“Extremely characteristic or true of me”). Three items were reverse-scored: item 5, item 9, and item 11. Total scores of 34 or more reflect meeting *DSM-IV* criteria for social phobia and scores of 43 or more indicate social anxiety (Brown et al., 1997; Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006). One item, item 14 ("I have

difficulty talking to attractive persons of the opposite sex"), was rewritten to be more inclusive ("I have difficulty talking to attractive persons").

Sensation Seeking Personality Type Scale

Sensation seeking was measured with the Sensation Seeking Personality Type scale (SSPT; Conner & Henson, 2011). The SSPT contains two subscales, each measuring a distinct trait of sensation seeking: experience seeking (5 items) and risk seeking (9 items). Participants responded to latent trait assessments of risk seeking and experience seeking (e.g., "I avoid activities if there is a chance I could get hurt") using a 5-point scale, with responses ranging from "Strongly Disagree" to "Strongly Agree." The SSPT has demonstrated good psychometric properties in previous studies. In the current study, both the risk seeking subscale ($\alpha = .87$) and the experience seeking subscale ($\alpha = .81$) demonstrated good internal consistency.

Emotion Dysregulation

Emotion dysregulation was assessed with the Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS includes six subscales measuring distinct attributes of emotion regulation which all demonstrated good internal consistency in the present study: non-acceptance of emotional responses (Non-Acceptance; 6 items; $\alpha = .91$), difficulties engaging in goal-directed behavior (Goals; 5 items; $\alpha = .88$), impulse control difficulties (Impulse; 6 items; $\alpha = .86$), lack of emotional awareness (Awareness; 6 items; $\alpha = .84$), limited access to emotion regulation strategies (Strategies; 8 items; $\alpha = .89$), and lack of emotional clarity (Clarity; 5 items; $\alpha = .83$) (Gratz & Roemer, 2004). Participants responded to items reflecting this multidimensional assessment of emotion dysregulation (e.g. "When I'm upset, I become angry with myself for feeling that way") on a 5-point scale, with responses ranging from 1

("Almost Never") to 5 ("Almost Always"). Several items were reverse scored: 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34.

UPPS-P

Impulsivity was measured by positive urgency, the tendency to act impulsively in response to positive affect, and negative urgency, the tendency to act impulsively in response to negative affect (UPPS-P, Cyders et al., 2007). Positive urgency was assessed with the positive urgency subscale of the Negative Urgency, Lack of Premeditation, Lack of Perseverance, Sensation Seeking, and Positive Urgency scale. The UPPS-P is a revision of the original Urgency, Lack of Premeditation, Lack of Perseverance, and Sensation Seeking scale (UPPS) designed to provide a multidimensional measure of impulsivity (Whiteside & Lynam, 2001). The positive urgency subscale measures propensity to act rashly during positive mood states and has demonstrated good psychometric properties in previous studies (Cyders et al., 2007). Internal consistency was good in the present study ($\alpha = .85$). Participants responded to items (e.g. "When I am very happy, I can't seem to stop myself from doing things that can have bad consequences") using a 4-point Likert-type scale ranging from 1 ("Agree Strongly") to 4 ("Disagree Strongly").

Negative urgency was assessed with the negative urgency subscale of the UPPS-P, a revision of the original UPPS (Cyders et al., 2007; Whiteside & Lynam, 2001). The negative urgency subscale measures tendency to feel strong impulses when experiencing negative affective states (12 items) and has demonstrated good psychometric properties (Whiteside & Lynam, 2001). Internal consistency in the present study was adequate ($\alpha = .78$). Participants responded to items (e.g. "When I feel bad, I will often do things I late regret in order to make myself feel better now") using a 4-point Likert-type scale ranging from 1 ("Agree Strongly") to 4 ("Disagree Strongly").

BIS/BAS Scales

Behavioral approach and behavioral inhibition were measured with a modified version the BIS/BAS Scales (Carver & White, 1994; Demianczyk, Jenkins, Henson, & Conner, 2014). Both the original and modified versions of the BIS/BAS Scales are comprised of four factors: BAS Reward, BAS Fun, BAS Drive, and BIS. The modified version, assessed with a large diverse sample, trimmed items that cross-loaded on multiple factors and reconfigured the factor structure such that each factor was unidimensional (Demianczyk et al., 2014). Participants provided their reactions to punishment or anxiety-provoking situations (e.g. "I worry about making mistakes") using a 4-point Likert-type scale ranging from 1 ("Strongly Agree") to 4 ("Strongly Disagree"), with no option for a neutral response. The modified BIS/BAS scales are comprised of 20 items, with four items on BAS Reward (α = .66), three items on BAS Fun (α = .76), three items on BAS Drive (α = .77), and four items on BIS (α = .77).

Analysis

The first goal of the analysis was to identify latent classes derived from reports of social interaction anxiety, sensation seeking, emotion dysregulation, positive urgency, negative urgency, behavioral approach, and behavioral inhibition. Person-centered analysis using finite mixture modeling (FMM) was used to derive latent classes from the SIAS, all six subscales of the DERS, the risk seeking and experience seeking subscales of the SSPT, the positive urgency and negative urgency subscales of the UPPS-P, and all subscales of the BIS/BAS Scales. Individuals have probabilistic membership in each class based on their patterns of responses to the measures of social interaction anxiety and personality traits. Individuals are considered to belong to the class to which they have the highest probability of belonging. Individuals belonging to each class had more similar patterns of responding to measures than individuals in

other classes. Thus, FMM and other person-centered approaches maximize within-group homogeneity and between-group heterogeneity (Jung & Wickrama, 2008).

To identify the best fitting model, one- through five- class models were run using MPlus version 7 (Muthén & Muthén, 1998–2017). Little's missing completely at random test indicated that data were missing completely at random (χ^2 (12) = 15.42, p = .22). Due to the non-normality of the risky sexual behavior variables, missing data was handled using maximum likelihood estimation with robust standard errors and chi-square (MLR). MLR is recommended for use when data are missing at random and non-normally distributed (Muthén & Asparouhov, 2002; Schafer & Graham, 2002). Model fit statistics were chosen based on recommendations from a Monte Carlo study which identified the most appropriate indices of fit for Latent Profile Analysis (LPA; Nylund, Asparouhov, & Muthén, 2007) and four recommended criteria (Muthén & Muthén, 2000). The first recommended criterion of model fit is the Lo-Mendell-Rubin likelihood ratio test of model fit (LMR; Lo, Mendell, & Rubin, 2001). LMR compares a model with k classes to a model with k-1 classes and statistically tests the probability that the data have been generated by the model with k-1 classes. A significant p-value for the LMR test indicates that the k-class model is an improvement in fit over the k-1 class model. The second criterion is the Bayesian Information Criterion (BIC; Schwarz, 1978). The BIC rewards parsimony and maximizes the likelihood ratio statistic (Muthén & Muthén, 2000). A lower BIC value indicates a better fitting model; a best-fitting model as indicated by BIC is one in which there are as many classes as there are participants such that each participant's data is its own class. Thus, the BIC statistic is balanced with parsimony, wherein the fewest classes are discerned, to maximize generalizability (Muthén & Muthén, 2000). The third fit criterion is entropy values, which provide an index of model classification quality. Entropy values range from 0 to 1, with higher

values indicating better classification quality (Jung & Wickrama, 2008). The fourth criterion is the average latent class probabilities for the most likely latent class membership by latent class discrimination. Values close to 1 in the primary diagonal and values close to 0 in the off-diagonal of the average latent class probabilities table represent good fit, with values above 0.90 preferred. Values close to 0.50 suggest that individuals in a particular class would fit equally well in either group. These values provide an index of how likely the individuals within a latent class belong to that class. The usefulness of FMM classes to differentiate participants on variables of interest was also considered, as final model selection was based on goodness of model fit indices, parsimony, and substantive interpretability of the model.

The second goal of the analysis was to determine whether the identified latent classes were associated with the likelihood of engaging in risky sexual behaviors, as represented by Figure 1. The 3-step method was used test for differences in the probability of engaging in risky sex variables of interest and to treat them as distal outcomes of the latent classes (Vermunt, 2010). To make the risky sex variables amenable to analysis as auxiliary distal outcome variables, items were dichotomized to indicate non-engagement versus engagement. Values of zero indicated non-engagement, while values of one indicated engagement.

The first step in the 3-step method is to estimate the finite mixture model. The second step is to calculate a classification uncertainty rate, or error, using each individual's probability of class membership for the class each individual is most likely to belong. In the third step, the distal outcome is regressed on the most likely class membership, accounting for the classification uncertainty rate, or error, found in step 2 (Asparouhov & Muthén, 2013; Vermunt, 2010). Simulation studies demonstrated that the 3-step method performs better than the psuedo-class approach and the one-step approach for identifying relations between the latent class variable

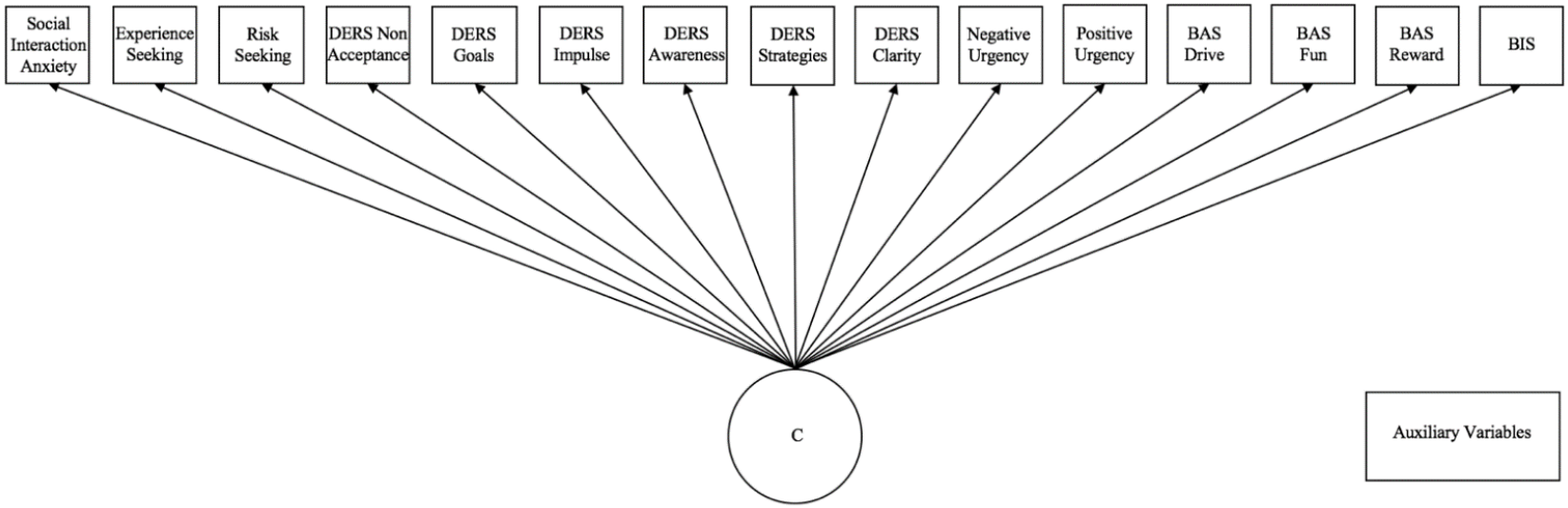

Figure 1. Finite Mixture Model of SIAS and Personality Traits. Risky sexual behaviors were entered into the model as auxiliary variables and include: oral sex performed, oral sex received, vaginal sex, unprotected vaginal sex, under-protected vaginal sex, anal sex, unprotected anal sex, one-night stands, and number of sexual encounters with someone who was not individuals' primary partners while in a monogamous relationship with someone else. Responses to risky sexual behavior items were dichotomized.

and an auxiliary variable (Asparouhov & Muthén, 2013). When multiple auxiliary variables are entered into the model, one auxiliary variable is tested at a time (Asparouhov & Muthén, 2013). Global and pairwise comparisons are conducted using Wald Tests, which use Chi-square ($\chi 2$) to compare latent groups with a posterior probability-based multiple imputation strategy (Clark & Muthén, 2009). These analyses are conducted simultaneously with mixture models and allow consideration of the probabilistic class membership of participants to control error. Equality tests of means across 4 classes have 3 degrees of freedom for each overall (pairwise) test. Each class's mean score for each auxiliary risky sexual behavior variable reflect the likelihood of non-engagement versus engagement, with values closer to zero indicating decreased likelihood of engagement and scores closer to one indicating greater likelihood of engagement.

RESULTS

Descriptive statistics are provided in Table 3 for the SIAS; risk seeking and experience seeking subscales of the SSPT; all six subscales of the DERS; positive urgency and negative urgency subscales of the UPPS-P; and all four subscales of the BIS/BAS Scale. Examination of univariate distributions and descriptive statistics of the SIAS and all measures of personality traits indicated that the variables did not violate assumptions of normality (see Table 3).

Table 3
Descriptive Statistics for All Measures

Measure	*M (SD)*	Skew	Kurtosis
Social Interaction Anxiety Scale	26.98 (15.09)	0.48	-0.42
Sensation Seeking Personality Type			
Risk Seeking	24.99 (5.89)	0.041	-0.13
Experience Seeking	40.40 (5.32)	-0.13	-0.087
Difficulties with Emotion Regulation Scale			
Non-Acceptance	12.73 (5.34)	0.93	0.44
Goals	14.44 (4.63)	0.26	-0.64
Impulse	10.81 (4.38)	1.33	1.90
Awareness	14.90 (4.79)	0.51	-0.24
Strategies	16.35 (6.29)	0.85	0.17
Clarity	11.39 (3.70)	0.82	0.76
UPPS-P			
Negative Urgency	28.88 (5.63)	0.11	-0.36
Positive Urgency	28.96 (6.33)	0.54	-0.048
BIS/BAS Scales			
BAS Drive	11.05 (2.26)	-0.13	-0.17
BAS Fun	12.18 (2.27)	-0.44	-0.11
BAS Reward	17.24 (1.93)	-0.52	0.050
BIS	20.98 (3.59)	-0.39	-0.010

Overall Model Fit

The four-class solution provided the best overall model fit to the data (see Table 4).

Table 4
Model Fit Statistics for the 1- through 5- Class Models

Class Model	1-Class	2-Class	3-Class	**4-Class**	5-Class
LMR		< 0.0001	< 0.0001	**0.0001**	0.391
BIC	88260.20	85428.39	84609.07	**83902.70**	83704.39
Entropy		0.86	0.87	**0.87**	0.87
ALCP		0.95-0.97	0.94-0.95	**0.91-0.95**	0.88-0.95
Individuals Per Class					
Class 1	1003	532	251	**228**	145
Class 2		471	260	**225**	224
Class 3			492	**240**	188
Class 4				**310**	226
Class 5					220

Note. The 4-Class model is the best fitting model as indicated by the significant LMR test, lower BIC than Classes 1-3, entropy ≥ 0.80, ALCP ≥ 0.90, and acceptable distribution of individuals per class.

First, examination of the Lo-Mendell-Rubin (LMR) tests indicated that the two-class model was an improvement over the one-class model; the three-class model was an improvement over the two-class model; and the four-class model was an improvement over the three-class model. The five-class model was not an improvement over the four-class model. Second, while the five-class model had the lowest BIC of all classes, because the LMR indicated that the five-class model was not a statistical improvement over the four-class model, only the BIC for each of the one- through four-class models were considered. The four-class model had the lowest BIC of the one- through four- class models. Third, the four-class solution had the highest entropy of the two- through five- class models. The one-class model was not included in the examination of entropy values, as one-class models always have an entropy of 1. Fourth, the average latent class probabilities (ALCP) for the most likely latent class membership by latent class discrimination

were acceptable for the four-class model, with values along the diagonal all above .90. Lastly, the class breakdown based on most likely class membership of the four-class model was reasonable, with 23% of the sample in class 1, 22% of the sample in class 2, 24% of the sample in class 3, and 31% of the sample in class 4.

Description of the Best-Fitting Model

The estimated means and variances for the SIAS and personality measures used to discern the latent classes are provided in Table 5. Figure 2 displays mean scores for SIAS and all personality measures by class. SIAS, the independent variable of interest, was used to partially describe the four classes. The SIAS scores for classes 1 and 4 were below 34, the cutoff score reflecting a clinical diagnosis of social phobia (Brown et al., 1997; Heimberg et al., 1992; Rodebaugh et al., 2006). Conversely, the mean SIAS score of class 2 approached cutoff criteria and the mean score for class 3 surpassed cutoff criteria for a clinical diagnosis of social phobia. Therefore, classes 1 and 4 were considered low SIAS, while classes 2 and 3 were considered high SIAS. In addition to examining differences in mean SIAS scores among classes, effect sizes of the mean differences between the personality indicators of the two high SIAS and two low SIAS classes were examined (see Table 6). Effect sizes for mean differences on indicators of the two high SIAS classes and two low SIAS classes were calculated using *Cohen's d* for two independent groups (Cumming, 2012). The pooled variances of the measures in high SIAS classes and low SIAS classes were used as the denominator in the calculation. Because negative urgency and positive urgency effect sizes were among the largest between the two higher SIAS groups and between the two lower SIAS groups, these variables were used to further distinguish the classes. For ease of naming, the term urgency was used to describe both positive urgency and negative urgency. Thus, class 1 was labeled Low SIAS – Low Urgency (LS-LU); class 2 High

SIAS – Low Urgency (HS-LU); class 3 High SIAS – High Urgency (HS-HU); and class 4 Low SIAS – High Urgency (LS-HU).

Table 5
Estimated Means and Variances for Each Class in the 4-Class Solution

	LS-LU		LS-HU		HS-LU		HS-HU	
Measure	*M*	s^2	*M*	s^2	*M*	s^2	*M*	s^2
SIAS	13.96	61.30	23.03	129.96	32.77	165.96	38.83	216.62
SSPT								
Risk Seeking	24.03	34.45	27.80	20.82	20.51	17.76	26.57	35.06
Experience Seeking	41.32	24.22	42.43	19.28	37.13	22.68	40.05	32.74
DERS								
Non-Acceptance	8.24	4.41	11.51	11.39	13.03	20.83	18.28	28.68
Goals	10.45	9.62	14.31	15.14	14.36	16.12	18.46	14.43
Impulse	7.32	1.55	10.45	6.79	9.22	4.97	16.09	19.90
Awareness	11.99	11.76	14.91	22.07	15.02	18.67	17.54	23.61
Strategies	10.22	2.99	14.65	11.31	16.05	17.03	24.65	23.59
Clarity	8.30	3.72	11.28	8.95	10.98	8.09	14.85	13.27
UPPS-P								
Negative Urgency	23.82	12.87	31.04	14.52	25.75	17.88	33.87	20.15
Positive Urgency	24.33	14.54	31.95	29.53	25.36	17.84	32.92	39.23
BIS/BAS								
BAS Drive	11.11	5.31	11.78	4.21	9.92	3.74	11.13	5.51
BAS Fun	11.99	4.62	13.54	2.17	10.21	3.33	12.49	5.04
BAS Reward	17.38	3.34	17.63	3.61	16.52	3.72	17.31	3.51
BIS	18.93	11.03	19.91	11.43	22.52	7.63	22.82	10.34

Note. The abbreviation LS-LU refers to Low Social Interaction Anxiety, Low Urgency; LS-HU refers to Low Social Interaction Anxiety, High Urgency; HS-LU refers to High Social Interaction Anxiety, Low Urgency; and HS-HU refers to High Social Interaction Anxiety, High Urgency.

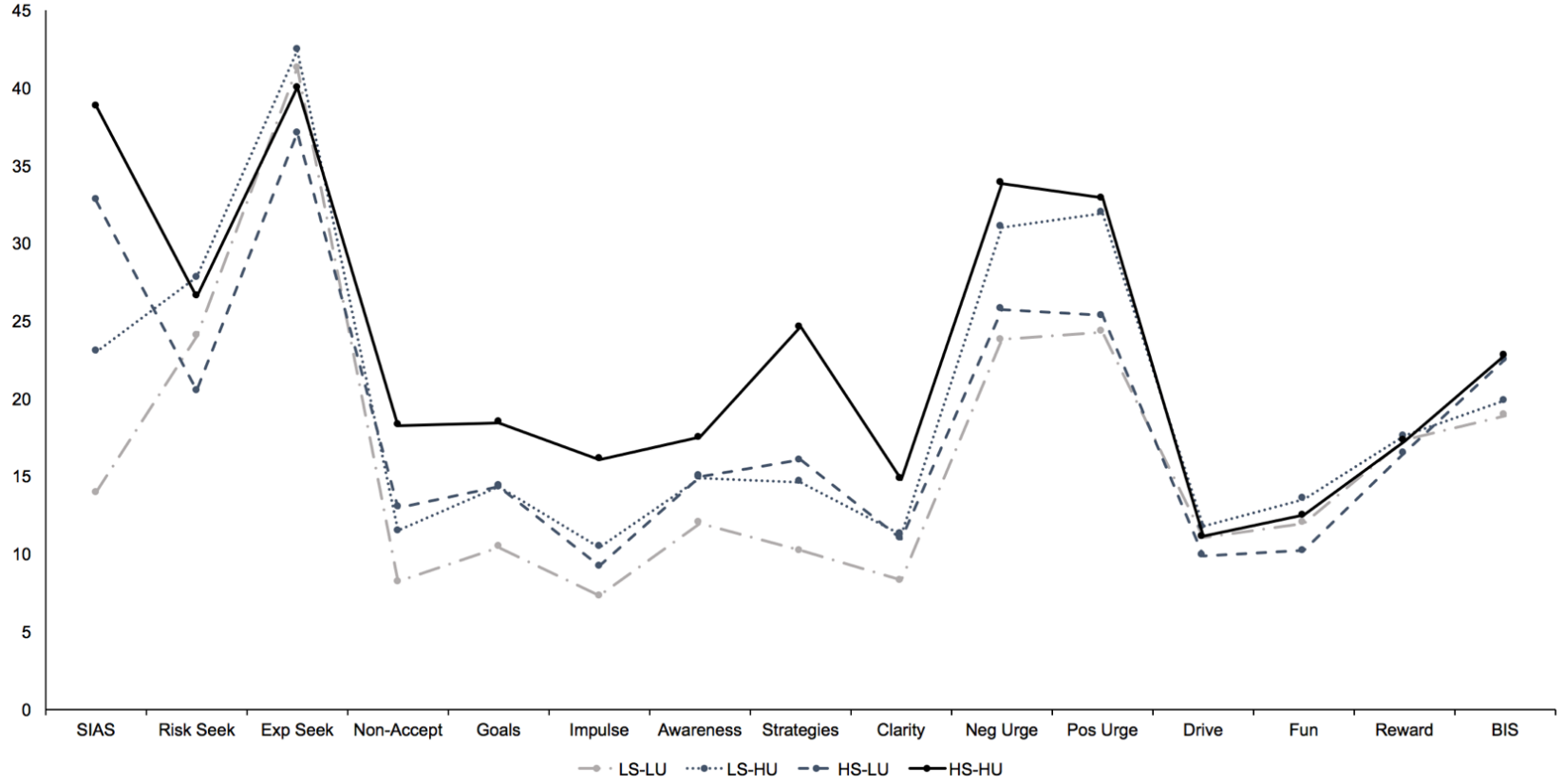

Figure 2. Mean Scores for SIAS and All Personality Measures by Class.

Table 6
Effect Sizes of Mean Differences on the SIAS and Measures of Personality Traits between the Two Higher SIAS Classes and Two Low SIAS Classes

Measure	Higher SIAS			Lower SIAS		
	M HS-HU	*M* HS-LU	*Cohen's d*	*M* LS-HU	*M* LS-LU	*Cohen's d*
SIAS	32.77	38.83	0.44	13.96	23.03	0.90
SSPT						
Risk Seeking	20.51	26.57	1.17	24.03	27.80	0.73
Experience Seeking	37.13	40.05	0.55	41.32	42.43	0.24
DERS						
Non-Acceptance	13.03	18.28	1.05	8.24	11.51	0.85
Goals	14.36	18.46	1.05	10.45	14.31	1.08
Impulse	9.22	16.09	1.93	7.32	10.45	1.46
Awareness	15.02	17.54	0.55	11.99	14.91	0.69
Strategies	16.05	24.65	1.90	10.22	14.65	1.59
Clarity	10.98	14.85	1.18	8.30	11.28	1.15
UPPS-P						
Negative Urgency	25.75	33.87	1.86	23.82	31.04	1.94
Positive Urgency	25.36	32.92	1.41	24.33	31.95	1.58
BIS/BAS						
BAS Drive	9.92	11.13	0.56	11.11	11.78	0.31
BAS Fun	10.21	12.49	1.11	11.99	13.54	0.87
BAS Reward	16.52	17.31	0.42	17.38	17.63	0.13
BIS	22.52	22.82	0.11	18.93	19.91	0.29

Note. The abbreviation LS-LU refers to Low Social Interaction Anxiety, Low Urgency; LS-HU refers to Low Social Interaction Anxiety, High Urgency; HS-LU refers to High Social Interaction Anxiety, Low Urgency; and HS-HU refers to High Social Interaction Anxiety, High Urgency.

Given that results of the FMM indicate significant differences in mean scores of indicators between classes, a conservative approach was taken to identify and discuss these differences. Thus, values of *Cohen's d* that were greater than 1.00, indicating more than 1.00 *SD* between mean scores of indicators, were examined. Between the two higher SIAS classes, the highest effect sizes were observed for the risk seeking subscale of the SSPT; non-acceptance, goals, impulse, strategies, and clarity subscales of the DERS; negative urgency and positive urgency subscales of the UPPS-P; and BAS fun subscale of the BIS/BAS scales. The mean scores for these subscales were all higher in class 3 than class 2. Between the two lower SIAS classes, the highest effect sizes were observed for the goals, impulse, strategies, and clarity subscales of the DERS and positive urgency and negative urgency subscales of the UPPS-P. The mean scores for negative urgency and positive urgency were higher in class 4 than in class 1.

Three-Step Method Tests of Equality

After discerning classes of SIAS and personality traits, the risky sexual behavior variables were entered into the model as auxiliary distal outcomes using the three-step method. The risky sexual behavior variables were dichotomized, with a value of zero indicating non-engagement and a value of one indicating engagement in the behavior. Examination of the means and standard errors for likelihood of engagement in risky sexual behaviors for each class indicate that the LS-LU, LS-HU, and HS-HU classes are similarly likely to engage in all risky sexual behaviors, while the HS-LU class is less likely to engage in risky sexual behaviors (see Table 7). To test for the significance of these differences, pairwise comparisons between groups using χ^2 tests were conducted to identify differences in likelihood of engagement between classes. Of particular interest to this study, results from the χ^2 tests indicate that the HS-HU class was

significantly more likely to report engagement in all risky sexual behaviors than the HS-LU class (see Table 8).[1]

Table 7
Mean and Standard Errors for the Likelihood of Engagement in Sexual Behavior by Class

	LS-LU (Class 2)		LS-HU (Class 3)		HS-LU (Class 1)		HS-HU (Class 4)	
Sex Behavior	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Oral sex performed	0.71	0.032	0.74	0.028	0.49	0.039	0.70	0.031
Oral sex received	0.72	0.031	0.79	0.026	0.54	0.039	0.71	0.031
Vaginal sex	0.65	0.033	0.75	0.028	0.50	0.038	0.65	0.033
Unprotected vaginal sex	0.31	0.032	0.42	0.032	0.20	0.029	0.36	0.033
Under-protected vaginal sex	0.34	0.033	0.39	0.031	0.25	0.032	0.35	0.033
Anal sex	0.10	0.021	0.14	0.022	0.058	0.016	0.12	0.022
Unprotected anal sex	0.065	0.017	0.091	0.018	0.028	0.011	0.061	0.017
1-Night stands	0.22	0.029	0.43	0.033	0.18	0.028	0.27	0.031
Extra-relational encounters	0.14	0.024	0.17	0.024	0.048	0.014	0.12	0.022

Note. The abbreviation LS-LU refers to Low Social Interaction Anxiety, Low Urgency; LS-HU refers to Low Social Interaction Anxiety, High Urgency; HS-LU refers to High Social Interaction Anxiety, Low Urgency; and HS-HU refers to High Social Interaction Anxiety, High Urgency.

[1] To examine differences in engagement in risky sexual behaviors by sex, sexual orientation, and age, two latent classes of risky sexual behaviors were discerned indicating engagement versus non-engagement. Class membership was regressed onto sex, sexual orientation, and age. Neither sex ($p = .97$) nor sexual orientation ($p = .83$) predicted class membership. Age significantly predicted class membership, such that as age increased, the likelihood of belonging to the non-engagement class increased ($B = 0.12$, $p = .01$).

Table 8
Chi-Square Statistics and Significance for Engagement in Oral Sex Performed between Classes

Test	Oral Sex Performed	Oral Sex Received	Vaginal Sex	Unprotected Vaginal Sex	Under-Protected Vaginal Sex
Omnibus	40.01**	26.73**	18.39**	31.78**	10.93*
LS-LU vs. LS-HU	0.071	0.42	0.84	1.17	0.23
LS-LU vs. HS-LU	24.26**	16.88**	9.77*	6.22*	3.94*
LS-LU vs. HS-HU	0.022	0.092	0.001	2.39	0.059
HS-LU vs. HS-HU	38.01**	24.33**	16.96**	26.19**	10.33**
HS-LU vs. LS-HU	5.45*	5.54*	5.23*	4.67*	1.81
HS-HU vs. LS-HU	0.11	0.62	0.96	0.44	0.18

	Anal Sex	Unprotected Anal Sex	1-Night Stands	Extra-Relational Encounters
Omnibus	7.88*	5.07	20.20**	11.86*
LS-LU vs. LS-HU	0.16	0.066	4.03*	0.083
LS-LU vs. HS-LU	2.01	2.38	1.09	7.16*
LS-LU vs. HS-HU	0.14	0.069	3.45	0.88
HS-LU vs. HS-HU	6.64*	4.85*	10.57*	11.47*
HS-LU vs. LS-HU	0.65	0.38	5.81*	1.28
HS-HU vs. LS-HU	0.11	0.89	2.53	0.24

Note. * < 0.05, ** < 0.001

DISCUSSION

The two primary goals of the present study were to discern latent classes of social interaction anxiety and personality traits, and to explore how these classes differentially relate to engagement in risky sexual behaviors. The personality traits of interest are ones that have been implicated in engagement versus non-engagement in risky behaviors: sensation seeking, emotion dysregulation, positive urgency, negative urgency, behavioral approach, and behavioral inhibition. To address the goals of this study, two hypotheses and three sub-hypotheses were tested. The first hypothesis supported if distinct classes of social interaction anxiety and personality traits could be discerned. The second hypothesis tested if discerned classes differentially predict engagement in risky sexual behaviors. To address the second hypothesis, three sub-hypotheses were tested. First, that classes with low levels of social interaction anxiety would predict greater engagement in risky sexual behavior. Second, that classes with high levels of social interaction anxiety; low levels of sensation seeking, emotion dysregulation, urgency, and behavioral approach; and high levels of behavioral inhibition would predict decreased engagement in risky sexual behavior. Third, that classes of high levels of social interaction anxiety; high levels of sensation seeking, emotion dysregulation, urgency, and behavioral approach; and low levels of behavioral inhibition would predict greater engagement in risky sexual behaviors.

To test the first hypothesis, person-centered analysis using Finite Mixture Modeling was used to discern classes of social interaction anxiety and the personality traits of interest. The analysis discerned that the four-class solution best fit the data from participants' responses on measures of social interaction anxiety and personality traits. Each class was distinguished by a

different pattern of responses to the measures of social interaction anxiety and personality traits. Individuals who had the highest probability of belonging to the same class responded similarly to each other on the measures of social interaction anxiety and personality traits and responded differently than individuals belonging to other classes. Two classes were characterized as high social interaction anxiety and two classes were characterized as low social interaction anxiety. Of the high social interaction anxiety classes, one had high mean scores on measures of risk seeking, non-acceptance of emotions, difficulty with goal-directed behavior in response to emotions, impulsivity related to emotion dysregulation, lacking use of strategies to regulate emotions, lacking clarity in identifying emotions, negative urgency, positive urgency, and behavioral approach toward fun (HS-HU). The other high social interaction anxiety class had lower mean scores on measures of these personality traits (HS-LU). Of the two low social interaction anxiety classes, one had higher mean scores on measures of non-acceptance of emotions, difficulty with goal-directed behavior in response to emotions, lacking use of strategies to regulate emotions, lacking clarity in identifying emotions, positive urgency, and negative urgency (LS-HU), while the other had lower mean scores on measures of these traits (LS-LU). The discernment of the latent classes of social interaction anxiety and personality traits supports hypothesis 1.

To test the second hypothesis and related sub-hypotheses, the likelihood of engaging in several risky sexual behaviors were added to the model. Risky sexual behaviors included performing oral sex, receiving oral sex, vaginal sex, unprotected vaginal sex, under-protected vaginal sex, anal sex, unprotected anal sex, one-night stands, and number of sexual encounters with someone who was not individuals' primary partners while in a monogamous relationship with someone else (extra-relational encounters). All risky sexual behavior variables were

reported as having occurred over the past 12-months, with the exception of extra-relational encounters, which was reported as having ever occurred over participants' lifetimes. Auxiliary testing revealed differences in each class's likelihood of engaging in the identified sexual behaviors. Of particular interest to this study were differences in engagement in risky sexual behaviors between the High Social Anxiety – Low Urgency (HS-LU) and High Social Anxiety – High Urgency (HS-HU) classes. Compared to the HS-LU class, the HS-HU class was significantly more likely to have endorsed all sexual behaviors. Further, the likelihood of engaging in the sexual behaviors did not significantly differ among the HS-HU, Low Social Anxiety – High Urgency (LS-HU), and Low Social Anxiety – Low Urgency (LS-LU) classes. The HS-LU class was significantly less likely than both the LS-HU and LS-LU classes to have engaged in several sexual behaviors, including performing oral sex, receiving oral sex, vaginal sex, and unprotected vaginal sex. The HS-LU class was also significantly less likely to have engaged in under-protected vaginal sex and extra-relational encounters than the LS-LU class, and was significantly less likely to have engaged in one-night stands than the LS-HU class. The LS-HU and LS-LU class did not significantly differ in their likelihoods of engaging in the identified sexual behaviors.

The pattern of responses to social interaction anxiety and personality measures in the HS-HU and HS-LU classes indicated the highest effect sizes for measures of risk seeking, non-acceptance of emotions, difficulty engaging in goal-direct behavior in response to emotion, impulsivity related to emotion dysregulation, lacking use of strategies to manage emotions, lacking emotional clarity, negative urgency, positive urgency, and behavioral approach toward fun. Specifically, the HS-HU mean scores for measures of these traits were at least 1 *SD* higher than the mean scores for the HS-LU group. Overall, these findings support hypothesis 2. The

four classes differentially predicted engagement in risky sexual behaviors, such that the HS-HU class was more likely to predict engagement than the HS-LU class, and the two low social interaction anxiety classes did not differ on their engagement.

These findings add to the growing literature examining the heterogeneity of social interaction anxiety and, more broadly, social anxiety disorder. In the present study, heterogeneity of social anxiety disorder was identified by using measures of social interaction anxiety and personality to group together individuals with similar patterns of responses. Two distinct classes of high social interaction anxiety were discerned. Social interaction anxiety is fear or anxiety pertaining to social encounters. Individuals with social interaction anxiety typically present with behavioral inhibition, decreased energy, increased negative affect, and fleeting brief experiences of positive affect (Brown, Chorpita, & Barlow, 1998; Chorpita, Plummer, & Moffitt, 2000; Kashdan, 2004; Kashdan, Elhai, & Breen, 2008; Kashdan et al., 2009; Kashdan et al., 2011a; Kashdan et al., 2011b; Kashdan & Hofman, 2008; Leary, 2001; Safren et al., 1996; Stein & Kean, 2000; Watson et al., 1988). Individuals with this typical manifestation of social interaction anxiety tend to avoid risky or new situations (Kashdan et al., 2009; Leary, 2001). However, previous studies have identified a subgroup of people with social interaction anxiety who engage in risky or new experiences despite their symptoms of social anxiety (Kashdan & Hofmann, 2008). These individuals report engaging in more frequent social encounters, unprotected sex, and substance use (Kashdan et al. 2008; Kashdan et al., 2009). Studies exploring differences between the risk-approach and risk-avoidant subgroups of individuals with social interaction anxiety have found no differences pertaining to symptom severity, types of situations about which individuals have anxiety, the number of feared social situations, and limitations in overall functioning (Kashdan et al., 2009). However, individual differences in personality traits, such as

sensation seeking, impulsivity, and emotion responding, have been hypothesized to account for differences between the risk-approach and risk-avoidant subgroups (Kashdan et al., 2006b; Kashdan & Hofmann, 2008).

While social interaction anxiety, sensation seeking, emotion dysregulation, and impulsivity have been associated with risky sexual behavior, this is the first study which could be found to simultaneously model the relations among these constructs. This study extended previous research by examining how differences in personality traits distinguish between classes of social interaction anxiety to predict engagement versus non-engagement in risky sexual behavior. Consistent with previous findings, two distinct classes of high social interaction anxiety were discerned (Kashdan et al., 2006a; Kashdan et al., 2008; Kashdan et al., 2009; Kashdan & McKnight, 2010). Further, these classes differentially predicted engagement versus non-engagement in risky sexual behaviors. The classes differed in their reports of risk seeking, non-acceptance of emotions, difficulty engaging in goal-direct behavior in response to emotion, impulsivity related to emotion dysregulation, lacking use of strategies to manage emotions, lacking emotional clarity, negative urgency, positive urgency, and behavioral approach toward fun. Specifically, one class was characterized as having high scores on measures of these traits, and one class as having low scores on measures of these traits. The class with high levels of these traits demonstrated increased likelihood of engaging in risky sexual behaviors, while the class with low levels of these traits demonstrated decreased likelihood of engaging in risky sexual behaviors. Thus, these personality traits explained differences between the risk-approach and risk-avoidant classes of high social interaction anxiety as they pertain to engagement in sexual behavior.

Implications

This study expands on previous work regarding heterogeneous presentations of social interaction anxiety. Results of this study indicate that social interaction anxiety does not override the effects of personality on engagement in risky sexual behavior. Indeed, personality traits account for differential engagement in risky sexual behaviors among individuals with social interaction anxiety. Specifically, difficulty inhibiting impulsive behavior when feeling bad, acting out in response to negative emotion, and acting impulsively in response to positive emotion all increase the likelihood of engagement in risky sexual behavior and may place individuals at greater risk for unintended health outcomes of these behaviors. Other meaningful elevations in emotion regulation were observed in the high social interaction anxiety class which engaged in risky sexual behavior. Specifically, this class presented with increased difficulty with emotion-regulation strategies and lack of emotional clarity. Individuals with limited regulation strategies tend to believe there is little they can do to regulate their emotions, especially in response to negative emotions. Individuals who lack of emotional clarity have difficulty labeling their emotions clearly (Gratz & Roemer, 2004).

Further, the class with social interaction anxiety that was more likely to engage in risky sexual behavior presented with increased behavioral approach toward fun, rewarding activities, and an increased propensity to seek out risky activities. This is important to note, as the two high social interaction anxiety classes presented with similar mean scores of behavioral inhibition. Behavioral inhibition is the avoidance of situations perceived to be negative or punitive, and individuals with higher levels of behavioral inhibition are more likely to experience fear or anxiety in response to negative situations or punishment and not act impulsively (Demianczyk et

al., 2014; Gray, 1990). Thus, risk seeking and approach towards fun activities are distinguished from inhibition.

Taken together, differences in these personality traits suggest that individuals with high social interaction anxiety who engage in risky behaviors present with greater difficulty identifying, coping with, and responding to their emotions and act out in pursuit of fun despite fear of punishment. Risky sexual behavior may be perceived as a fun, rewarding experience rather than a risky, potentially harmful or punitive experience. Collectively, engagement in risky sexual behaviors may serve as a fun-oriented coping mechanism for some individuals with social interaction anxiety. This is consistent with previous literature on social interaction and risky behaviors, which suggests that individuals with social interaction anxiety experience increased negative feelings and may be prone to acting impulsively as a distraction from, or avoidance of, their negative feelings (Kashdan et al., 2006b; Kashdan et al., 2011b; Reynolds et al., 2013).

Diagnosis and intervention informed by the heterogeneity of social interaction anxiety should examine the effects of emotion regulation processes and assess engagement in risky behaviors, including risky sexual behavior. For example, assessment of emotion dysregulation using the DERS (Gratz & Roemer, 2004) or the DERS Short Form (Kaufman et al., 2015) can indicate potential engagement in risky behaviors for individuals with social interaction anxiety. Although clinical cutoff values have yet to be developed, higher scores on these measures may reflect an increased likelihood of engaging in risky behaviors. Further, emotion regulation skills, especially related to emotion-related impulsivity, may be important areas of intervention for people with social interaction anxiety. This study examined a multidimensional, trait-like pattern of difficulty regulating emotions (Gratz & Roember, 2004). However, the specific behaviors or strategies individuals use to regulate emotions differ across individuals and evolve throughout

individuals' lives as a function of developmental tasks (Gross, 2015). Interventions, such as teaching more adaptive ways of responding to emotions, may help individuals learn strategies to purposefully engage in emotion regulation despite an underlying pattern of difficulty with emotion regulation (Gross, 2015). However, more research is needed regarding how emotion regulation interventions interact with trait emotion dysregulation (Gross, 2015).

Limitations and Future Directions

This study presents with limitations. First, this study relies exclusively on self-report data. This is especially limiting concerning the assessment of risky sexual behavior, as participants may misremember their sexual encounters over the past 12 months and lifetime. Second, participants may inflate or minimize their self-reports of engagement in identified behaviors. Third, data was collected from a convenience sample of undergraduate psychology students, limiting the generalizability of the findings. Although classes of high social interaction anxiety were discerned from the sample, a clinical sample with confirmed diagnoses of social phobia or social anxiety disorder would enhance the generalizability of the findings to individuals suffering from these diagnoses and the clinical implications. Fourth, this study is limited by the use of cross-sectional data, as a longitudinal study would best address the causal sequence of the association between classes of social interaction anxiety and personality traits and engagement in risky sexual behavior. Fifth, the variances of SIAS and all measures of personality were free to vary, with the highest variances occurring in the HS-HU class followed by the HS-LU class. Thus, the ranges of scores on the SIAS and personality measures in these classes included both high and low scores. However, the HS-HU and HS-LU classes included scores at the extreme high end of SIAS, while the LS-HU and LS-LU classes did not include SIAS scores at the extreme high end. Thus, some of the variability in the HS-HU and HS-LU

classes was accounted for by including high SIAS scores, supporting the discernment of these two groups from the LS-HU and LS-LU classes. Further studies fixing the variances for the discerned classes are needed to confirm the current results. Lastly, lacking consensus of the operational definition of impulsivity renders this construct difficult to assess. Because of social interaction anxiety's substantial affective component, this study focused on constructs of impulsivity focusing on emotion-related action.

Despite these limitations, acknowledging the existence of latent classes of social interaction anxiety and identifying personality traits implicated in the differences between these classes inform diagnosis and treatment. Individuals who are both socially anxious and engage in risky behavior may be excluded from a clinical diagnosis of social anxiety disorder (Kashdan & McKnight, 2010). Recognizing risky behavior as an effect of social anxiety and underlying personality constructs can help clinicians provide interventions to address social anxiety symptomology, emotion dysregulation, and risk seeking, which then can reduce the likelihood of experiencing potentially harmful consequences of risky behavior. This is an especially salient concern for adolescents and young adults, who are at higher risk for social anxiety disorder, engaging in risky sexual behavior, and experiencing unwanted outcomes of risky sex (APA, 2013; CDC, 2013).

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