DISSERTATION

A DIARY STUDY OF SELF-ESTEEM, SOCIAL ANXIETY, INTERPERSONAL INTERACTIONS AND HEALTH RISK BEHAVIOR IN COLLEGE STUDENTS

Submitted by

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY KRISTINA WILSON ENTITLED A DIARY STUDY OF SELF-ESTEEM, SOCIAL ANXIETY, INTERPERSONAL INTERACTIONS AND HEALTH RISK BEHAVIOR IN COLLEGE STUDENTS BE ACCEPTED AS FULLFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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ABSTRACT OF DISSERTATION

A DIARY STUDY OF SELF-ESTEEM, SOCIAL ANXIETY, INTERPERSONAL INTERACTIONS AND HEALTH RISK BEHAVIOR IN COLLEGE STUDENTS.

This study sought to clarify mixed findings regarding the association between trait self-esteem and social anxiety and engagement in health risk behaviors among college. A daily diary methodology was used to investigate whether trait self-esteem, social anxiety and interpersonal experiences predict health risk behaviors using Sociometer Theory (Leary & Downs, 1995) as a framework for understanding how daily interpersonal experiences may be related to engagement in health risk behaviors.

A total of 219 participants completed an online survey that assessed demographic characteristics, trait self-esteem and social anxiety and completed a shorter online survey daily for 28 days. Findings revealed that participants were more likely to engage in a number of health risk behaviors on days that they experienced relatively more negative interpersonal experiences and that positive experiences appeared to protect against engagement in a number of health risk behaviors.

In general, trait self-esteem and social anxiety did not moderate the influence of daily negative interpersonal experiences on health risk behaviors; however, the effects of positive interpersonal experiences on engagement in a number of health risk behaviors depended upon levels of trait self-esteem and social anxiety. For example, individuals

with high trait self-esteem were more likely to engage in vaginal sex with a new partner on days when they experienced relatively more positive interpersonal experiences. Socially anxious individuals were also more likely to engage in a broad range of health risk behaviors on days when they experienced more positive interpersonal experiences.

Overall, this study provides evidence for how people with low versus high trait self-esteem and low versus high social anxiety differ in terms of their reactions to positive interpersonal experiences. In addition, these findings suggest that in the context of daily life, these trait characteristics are more likely to moderate the influence of positive interpersonal experiences, rather than negative interpersonal behaviors, on health risk behavior.

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CHAPTER I: INTRODUCTION

People are generally willing to engage in behaviors that may prove harmful to their health and well-being (Byrnes, Miller, & Schafer, 1999; Irwin & Millstein, 1986). Health risk behavior is defined as any behavior carried out by an individual at a frequency or intensity that increases his or her risk of disease or injury (Steptoe & Wardle, 2004). A number of behaviors fall under the category of health risk behavior, including unprotected and/or promiscuous sex, substance abuse, heavy drinking and reckless driving. Over the past several decades, there has been considerable attention focused on understanding factors that contribute to college students' engagement in health risk behaviors. Sexual risk behaviors, alcohol abuse and illegal drug use are health risk behaviors carried out by young adults that are typically of greatest concern. Engagement in these health risk behaviors may lead to a variety of negative consequences (e.g., STI acquisition), both for the individual (Hawkins & Anderson, 1996) and for society (Rutter & Quinne, 2004).

Recent health statistics suggest that sexually transmitted infections (STIs) disproportionately affect young adults (Paul, McManus, & Hayes, 2000; von Sadovsky, Keller, & McKinney, 2002), with 15-24 year olds accounting for nearly half of all new cases of STIs (Weinstock, Berman, & Cates, 2004). Additionally, it is estimated that approximately 25% of sexually experienced adolescents acquire an STI (von Sadovsky et al., 2002). While sexually active young adults are disproportionately at risk for infection

with an STI, they also appear to be at risk for HIV infection as well. For example, it is estimated that approximately 15% of all new HIV infections in the U.S. are among people under the age of 25, and that the majority of young people are infected through sexual contact (Centers for Disease Control and Prevention (CDC), 2005). In addition, it is estimated that as many as 1 in 500 college students could be infected with HIV (Lance, 2001). Thus, being a young adult of college age appears to be a risk factor for STI/HIV infection.

Risky sexual behavior is commonly defined in terms of quantity of sexual partners and/or inconsistent condom use. Engagement in such behaviors typically involves the possibility of negative consequences (e.g., STI infection) as well as the possibility of potential gains (e.g., greater intimacy with a sexual partner; Ben-Zur & Zeidner, 2009). The risk of acquiring an STI or HIV can be reduced by engaging in consistent condom use, abstinence or other preventative behavior (e.g., knowing the STI/HIV status of your sexual partners). Data from the American College Health Association (ACHA, 2009) suggests that college students regularly engage in sexual behaviors that place them at risk for STI/HIV infection. According to the ACHA, 66.3% of respondents engaged in sexual activity in the past 12 months and, of those who reported sexually activity, 36.5% reported multiple sexual partners during this time period. Furthermore, 45.4% of respondents engaged in sexual activity in the past 30 days and, of those who reported sexual activity during this time period, 41% reported not using a condom during any of their sexual encounters. This finding is similar to a CDC (2006) report indicating that among sexually active college students, 40% report not using condoms during their last sexual encounter.

The consequences of acquiring an STI can be quite damaging and possibly life threatening. For example, STIs may lead to damaged reproductive organs for women (Hillis & Wasserheit, 1996), genital cancers (CDC, 2004a), and enhanced transmission of HIV (Fleming & Wasserheit, 1999). The medical costs associated with the treatment of STIs are great and are estimated at $14.1 billion per year (Chesson, Blanford, Gift, Tao, & Irwin, 2004). In addition, Syphilis and HIV can lead to severe health problems and eventual death (CDC, 2004). Given the serious health consequences associated with STI/HIV infection, additional research is necessary to reverse current STI/HIV infection trends. A variety of explanations have been provided for the high rates of STI/HIV infection, including the lack of communication about past sexual behavior with current partners (Bowen & Michael-Johnson, 1989), blurring of emotional safety with the physical safety of a partner (Comer & Nemeroff, 2000) and using implicit personality theories to judge the STI/HIV risk status of sexual partners (Williams et al., 1992). Despite the usefulness of these perspectives in explaining high rates of STI/HIV infection, the development of effective safer sex interventions for young adults has proved challenging.

These statistics clearly indicate that young adults engage in sexual behaviors that places them at risk for negative consequences. However, health risk behaviors commonly co-occur (Perkins, 2002; Presley, Meilman, & Cashin, 1996), such that someone who engages in sexual risk behaviors is also likely to engage in other health risk behaviors as well (e.g., alcohol misuse). Similar motives (e.g., coping motives, enhancement motives) appear to underlie decisions to engage in diverse health risk behaviors (Cooper, 1994;

LaBrie, Hummer & Pedersen, 2007, Cooper, Shapiro, & Powers, 1998), and therefore similar processes may underlie decisions to engage in different types of risk behaviors.

In addition to sexual risk behaviors, college students are known to engage in a number of other health behaviors that are of concern. For example, alcohol consumption among college students is associated with a wide range of negative consequences (National Institutes of Health (NIH), 2007; Perkins, 2002). The negative consequences that can occur as a result of problematic drinking include; blackouts, hangovers, drunk driving, poor academic performance, disruption of sleep, damage to the brain, violence, unintentional injuries, property damage and death from alcohol poisoning (LaBrie, Pedersen, Earleywine, & Olsen, 2006; Maddock, Laforge, Rossi, & O'Hare, 2001; NIH, 2007). It is estimated that approximately 43% of college students engage in heavy drinking at least once every two weeks (Weschler, et al., 2002), suggesting that the total number of college students suffering negative consequences may be quite large. In addition, other risk behaviors such as risky driving, risky sexual behavior and illegal drug use often accompany alcohol use (Perkins, 2002). The use of illegal substances by college students is also of concern (CDC, 2009). Evidence suggests that marijuana is the illegal substance used most frequently by college students. Research evidence suggests that 25-30% of college students have used marijuana in the past year and that 16% report marijuana use in the past month (Kilmer, Walker, Lee, Palmer et al., 2006), and the use of the drug is associated with impulsivity, short-term memory impairment, decreased self-awareness and impaired social judgment (Schuckit, 2006).

The pervasiveness of health risk behaviors among college students has led many researchers to speculate about the underlying causes and motives for such behaviors.

Social behavior occurs in a mix of motives, feelings and interpersonal experiences (Nezlek & Smith, 2005). Two distinct motives appear to underlie a variety of interpersonal behaviors: the desire to pursue positive or pleasurable experiences (i.e., appetitive behaviors) and the desire to avoid negative or painful experiences (i.e., aversive behaviors). Research evidence suggests that aversive and appetitive behaviors are distinct motivational systems regulated by separate neurological systems (Gray 1970, 1987). The first of these regulatory systems is the behavior inhibition system (BIS), whose function is to regulate and control aversive motivation and the experience of negative emotions. The second of these regulatory systems is the behavior activation system (BAS) which functions to regulate appetitive motivation and the experience of positive emotions. Although people may engage in health risk behavior to either enhance positive events or to regulate negative events, these different types of events are typically taken to represent distinct motives for engaging in health risk behavior that are associated with distinct consequences (Cooper, Frone, Russell, & Mudar, 1995; Cooper et al., 1998).

Daily events, particularly negative interpersonal experiences, play an important role in health risk behavior. For example, daily negative interpersonal experiences have been associated with increased alcohol consumption (e.g., Epstein & McCrady, 1998; Hussong, Hicks, Levy, & Curran, 2001; Marlatt, 1996; Mohr, Armeli, Tennen, Carney, Affleck, & Hromi, 2001). Perceptions of negative interpersonal experiences (Leary, Tambor, Terdal, & Downs, 1995) and responses to interpersonal rejection (Vohs & Heatherton, 2001) have been related to self-esteem differences. Research has not thoroughly examined whether self-esteem differences moderates the relation between daily interpersonal experiences and health risk behaviors. Therefore, trait self-esteem

differences may prove to be an important moderator of the relationship between daily interpersonal experiences and health risk behaviors.

Self-Esteem

Self-esteem refers to an individual's evaluation of the self and refers to how positive or negative a person feels about him or herself. Traditionally, a distinction has been made between state and trait self-esteem. State self-esteem refers to how a person feels about him or herself at a particular moment in time. In contrast, trait self-esteem refers to how a person generally feels about him or herself. A variety of theoretical perspectives presume that self-evaluations develop based on interactions with significant others (e.g., Bartholomew, 1990; Bowlby, 1982; Cooley, 1902; Leary et al., 1995). For example, Cooley (1902) suggested that a sense of the self is developed based on how other people treat the individual, and that people who receive praise or acceptance from valued others develop positive beliefs about the self. Similarly, attachment theorists argue that people develop beliefs about the self from interactions with their primary caregiver during childhood (Bartholomew, 1990; Bowlby, 1992).

High trait self-esteem is often viewed as an important component of psychological well-being (Taylor & Brown, 1998) and low trait self-esteem is viewed as a predictor of emotional and behavioral problems. For example, those with low trait self-esteem tend to be more depressed (Hammen, 1988; Smart & Walsh, 1993), anxious (Rawson, 1992), lonely (Haines, Scalise, & Ginterm 1993; Vaux, 1988), and have decreased satisfaction in their interpersonal relationships (Fincham & Bradbury, 1993; Murray, Holmes, & Griffin, 2000). Trait self-esteem is also related to a number of maladaptive behaviors, whereby individuals with low self-esteem are more likely to

engage in drug and alcohol use (Cookson, 1994; Griffin-Shelley, Sandler, & Lees, 1990; Vega, Zimmerman, Warheit, & Apospori, 1993), antisocial behaviors (Peiser & Heaven, 1996; Rigby & Cox, 1996) and sexual risk behaviors (Gullette & Lyons, 1997).

Studies investigating the relationship between trait self-esteem and risk behaviors often report inconsistent findings (Baumeister, Campbell, Krueger, & Vohs, 2003). For example, low trait self-esteem is associated with inconsistent condom use and decreased sexual communication among partners (e.g., Gullette & Lyons, 2006). High trait self-esteem is not always more adaptive than low trait self-esteem (Baumeister, Smart, & Boden, 1996), and has been linked to more risky sexual behavior, both in terms of number of sexual partners and inconsistent condom use (e.g., Smith, Gerrard, & Gibbons, 1997). Conflicting findings have also been reported between trait self-esteem and other risk behaviors. For example, research investigating whether trait self-esteem predicts alcohol consumption has reported no relationship between alcohol consumption and trait self-esteem (McGee & Williams, 2000), that high trait self-esteem is related to higher levels of alcohol consumption (Glendinning, 1998; Griffin & Diaz, 2000), and that high trait self-esteem is related to lower levels of alcohol use (Andrews & Duncan, 1997; Moore & Li, 1998).

Thus, the relationship between trait self-esteem and health risk behaviors is far from clear, suggesting the need for further research on this topic. One potential explanation for why studies have linked low trait self-esteem to both increased and decreased engagement in health risk behaviors is that research examining this relationship has relied on cross-sectional survey methods, which ask participants to retrospectively report on their behavior and to generalize across experiences. The use of

cross-sectional designs has not allowed researchers to investigate whether people with low trait self-esteem are more likely to engage in health risk behavior in response to specific experiences that occur in everyday life. Everyday social experiences and how individuals react to them likely play an important role in health risk behavior. Thus, the use of an experience sampling methodology may prove useful in examining if trait characteristics, such as trait self-esteem, predict whether people respond to daily interpersonal experiences with engagement in health risk behaviors.

Related to this, it is important to understand the factors that predict situations in which young adults are more likely to engage in health risk behaviors. One benefit of studying individual difference factors (e.g., self-esteem, social anxiety), rather than more basic systems (e.g., affect), is that such findings may further our understanding of stable characteristics that moderate the relationship between interpersonal experiences and engagement in health risk behavior. Such information may prove useful in the development of interventions targeting young adults who engage in behaviors that place them at risk for negative health consequences, such as STI/HIV infection. Therefore, the purpose of the current investigation is to document the daily events of college students to determine how interpersonal experiences interact with characteristics of the individual, such as trait self-esteem, to predict daily health risk behavior.

The Need to Belong and Interpersonal Interactions

The need to belong is a fundamental human motivation (Baumeister & Leary, 1995). For early humans, chances of survival were greatly reduced if isolated from others and thus, strong motives have evolved to promote social bonding (Ainsworth, 1989; Barash, 1997; Hogan, Jones, & Cheek, 1985). According to Baumeister and Leary, in

order to increase the likelihood of survival, early humans evolved a fundamental motive to maintain social connections with others. Because of the importance of the need to belong, individuals find events that violate it, such as rejection, to be highly distressing (Baumeister & Leary, 1995; Dickerson, Gruenewald, & Kemeney, 2004; MacDonald & Leary, 2005). Such feelings of distress are part of an assortment of evolved mechanisms that alert individuals to cues of rejection and motivate behavior change in order to avoid future rejection. These responses to rejection include decreases in happiness and adjustment (Baumeister & Leary, 1995), as well as increases in anxiety (Leary, Schreindorfer, & Haup, 1995), emotional pain (Leary & Springer, 2001), loneliness (Cassidy & Asher, 1992; Leary et al., 1995), feelings of shame (Gruenewald, Kemeny, Aziz, & Fahey, 2004), jealousy (Downey & Feldman, 1996, Leary et al., 1995) and depression (Kupershmidt & Patterson, 1991; Leary et al., 1995; Panak & Garber, 1992). Taken together, these findings suggest that humans may be hardwired to experience interpersonal rejection as distressing.

Given our fundamental need to belong and be accepted by others, it is likely that our daily interactions, and negative interactions in particular, play an important role in our psychological and physical well-being. One explanation for why negative interpersonal interactions may play a role in health risk behavior is because such interactions pose a threat to the self and are related to how accepted people feel by others (Leary et al., 1995; Murray et al., 2000). However, rejection is to some extent dependent on how social cues are perceived, and therefore distress caused by perceived rejection may be amplified depending on an individual's interpretation of a situation. There are two ways that biased interpretations of social cues may make an individual more

vulnerable to the negative effects of rejection (Leary & Downs, 1995). More specifically, individuals may be biased both in their perception of the frequency of rejecting events and in how rejecting they perceive a given event to be. Although some social experiences may be objectively rejecting (e.g., a romantic partner breaks up with an individual), the social world is often ambiguous and individuals differ in the degree to which the same social experience is perceived as rejecting. Some individuals are more likely to perceive social cues as rejecting and therefore over perceive rejection in their daily lives (Leary, Koch, & Hechenbleikner, 2001; Leary & MacDonald, 2003).

Such biases in perceptions of cues to one's inclusionary status will potentially make individuals more or less vulnerable to the harmful effects of negative interpersonal experiences. Therefore, it is important to understand what factors make individuals more or less likely to make these biased perceptions. There are many dispositional characteristics that are related to biased perceptions of social events, but one that is well linked to biased perceptions of interpersonal experiences is trait self-esteem. For example, trait self-esteem is strongly correlated with general feelings of acceptance and confidence that others value us (e.g., Leary et al., 1995; Sommer, Williams, Ciarocco, & Baumeister, 2001). Trait self-esteem can serve as a buffer against the negative effects of rejection for individuals who are high in trait self-esteem, or as a risk factor for maladaptive responses to rejection for individuals who are low in trait self-esteem (Koch, 2002; Nezlek, Kowalski, Leary, Blevins & Holgate, 1997). The Sociometer theory (Leary & Downs, 1995) of self-esteem provides a framework for understanding the role of trait and state self-esteem in differences in the perception of social rejection.

Sociometer Theory

In order to satisfy our fundamental need to belong and maintain social bonds, a system is required to monitor one's inclusionary status and others' responses to us. Sociometer theory (Leary & Downs, 1995) proposes that the purpose of self-esteem is to monitor the environment for social cues indicating our inclusionary status. It is further proposed that in order to effectively monitor cues related to one's inclusionary status, the self-esteem system must monitor the social environment in a continuous and automatic manner. Furthermore, in order to decrease the likelihood that one will be rejected or excluded by others, people are motivated to behave in ways that maintain and/or enhance their self-esteem.

According to sociometer theory, trait self-esteem functions as the resting position of the sociometer when no cues relevant to one's relational value are present. Sociometer theory further proposes that trait self-esteem involves the assessment of the extent to which one is accepted by others, and can be thought of as one's general beliefs about their potential for social inclusion. According to this perspective, trait self-esteem is formed through our interactions with others. More specifically, sociometer theory proposes that individuals with low trait self-esteem repeatedly experience perceived interpersonal rejection, whereas those with high trait self-esteem repeatedly experience positive or non-rejecting interpersonal interactions (Baumeister & Leary, 1995). In order to avoid being excluded, low trait self-esteem individuals learn to be especially sensitive to rejection cues and learn to closely monitor their environment for information relevant to their inclusionary status. Thus, low trait self-esteem individuals develop an especially sensitive sociometer system that is very reactive to signs of rejection and especially vulnerable to the threat of rejection. Low trait self-esteem individuals chronically believe

that they have low relational value and have a lower threshold for responding to threats to their inclusionary status (Leary & Downs, 1995). As these individuals are persistently on the lookout for cues of rejection, when they are presented with ambiguous information that may indicate rejection they are more likely to interpret that information as rejecting (Leary & MacDonald, 2003).

Furthermore, due to experiencing different outcomes as a result of interpersonal interactions, individuals with high and low trait self-esteem differ in terms of how they respond to potential threats of social rejection (Leary et al., 1995; Vohs & Heatherton, 2001). For example, individuals with high trait self-esteem continue to feel accepted when they perceive rejection, whereas those with low trait self-esteem report feeling unaccepted when facing social rejection. Related to this, research by Vohs & Heatherton (2001) indicates that those with low trait self-esteem, in comparison to those with high trait self-esteem, are more likely to respond to perceived social rejection by seeking interpersonal acceptance from others.

While sociometer theory proposes that trait self-esteem functions as the resting point on the sociometer, the theory purposes that state self-esteem serves a very different function. According to sociometer theory, state self-esteem functions as a sociometer, monitoring the social environment for cues indicating rejection or disapproval. Once rejection cues are detected, the individual is alerted via decreases in state self-esteem and increases in negative affect (Leary et al., 1995). A variety of evidence suggests that changes in state self-esteem occur in response to social information. For example, decreases in state self-esteem have been reported in response to receiving negative feedback (Leary, Haupt, Strausser, & Chokel, 1998) and interpersonal rejection (Leary,

Cottrell, & Phillips, 2001; Zadro, Williams, & Richardson, 2004). Decreases in state self-esteem that occur in response to negative interpersonal rejection alert the individual to decreases in their relational value and serve to motivate behavior change in order to restore feelings of acceptance. In comparison, increases in state self-esteem have been reported in response to receiving positive social feedback (Leary et al., 1998). Evidence such as this suggests that state self-esteem is sensitive to social cues relevant to one's inclusionary status.

Sociometer Theory & Health Behavior

Much research has examined the effects of interpersonal rejection on psychological well-being. However, only recently have the consequences of perceiving interpersonal rejection on subsequent health behaviors been investigated. These studies suggest that negative daily events, such as rejection, may potentially have negative consequences for health (Dickerson, Gruenewald, & Kemeney, 2004; Dickerson & Kemeney, 2004; Gunnar, Sebanc, Tout, Donzella, & van Dulmen, 2003). Unfortunately, very few of these studies have investigated individual differences that place some individuals at a greater risk for negative health consequences following interpersonal rejection. The hypersensitivity of low trait self-esteem individuals to interpersonal rejection potentially places them at increased risk for a variety of negative outcomes. For example, it is possible that individuals with low trait self-esteem may be more likely than their high trait self-esteem counterparts to respond to negative interpersonal experiences with ineffective coping responses. Negative interpersonal experiences are social stressors that require effective coping efforts, and individuals with low trait self-esteem may be more vulnerable to negative health outcomes as a result of the way that they cope with

rejection. As individuals with high trait self-esteem possess the resources to self-enhance (Sommer & Baumeister, 2002) they are likely buffered from the negative effects of interpersonal rejection and therefore may be less likely to engage in health risk behaviors following negative interpersonal experiences. However, individuals with low trait self-esteem often do not possess the resources to reaffirm themselves following rejection. Instead of coping with rejection by bolstering their self-esteem, low trait self-esteem individuals are more likely to choose maladaptive coping behaviors, such as drug abuse and alcohol use, to provide themselves with some distraction from these negative feelings (Hull, Levenson, Young, & Sher, 1983). Finally, following self-esteem threat, people's efforts to maintain self-esteem may result in behaviors that may pose a risk to their health and well-being (e.g., alcohol use, sexual behavior) as a means of increasing the extent to which they feel accepted by others (Leary & Downs, 1995; Baumeister, 1991; Mecca, Smesler, & Vasconcellos, 1989).

According to Leary and Downs (1995), the sociometer often responds in a preconscious and automatic manner, and in some situations may result in attempts to maintain self-esteem by engaging in behaviors that have negative long term consequences associated with them. From this perspective, dysfunctional behaviors that are often associated with low trait self-esteem reflect maladaptive attempts to increase one's acceptance by other people (Leary et al., 1995). While frequently individuals will pursue social inclusion through adaptive means, this is not always the case. If individuals do not perceive that they will be accepted via socially sanctioned routes, they may try to gain social inclusion through maladaptive actions, such as engaging in health risk behavior. As individuals with low trait self-esteem are more likely to perceive their social

relationships as fragile (Leary et al., 1995), they may be more likely to pursue social acceptance through whatever means are available, even if their behaviors are in the long run detrimental to their health and well-being.

Sexual behavior, amongst many other things, can function to increase one's sense of social inclusion (Leary et al., 2004). According to Leary et al. being a desirable sexual partner can often increase one's sense of belonging, and agreeing to have sex is a tactic that can enhance one's acceptance by another person. After engaging in sexual activity, people often report feeling loved or accepted by their relationship partner. For example, in the National Health and Social Life Survey the majority of participants reported feeling "loved," "wanted" or "taken care of" after sexual intercourse (Laumann, Gagnon, Michael, & Michaels, 1994). Based on the role that sex can play in increasing one's sense of social inclusion, Leary et al. proposed that individuals with low trait self-esteem may behave in a more sexually indiscriminate manner. Very little research has investigated the link between low trait self-esteem and the tendency to use one's sexuality to enhance social acceptance. However, low trait self-esteem is associated with failure to practice safe sex (Tashakkori & Thompson, 1992) and fear of rejection is commonly cited as the reason for failure to use condoms (e.g., Misovich, Fisher, & Fisher, 1998).

Other maladaptive behaviors (e.g., substance abuse, antisocial behavior) have also been explained in terms of attempts to increase one's sense of social inclusion (Leary et al., 2004). For example, young adults often report that they use alcohol or other drugs in order to be accepted by their peers (Botvin, Baker, Botvin, Dusenbury, et al., 1993; Kandel 1980) or to dampen emotions associated with interpersonal rejection (Baumeister, 1991). Given that individuals may engage in health risk behavior as a means of

increasing acceptance by others or to cope with feelings of rejection, it is possible that daily negative interpersonal experiences and trait self-esteem differences play an important role in health risk behavior. Thus, the current study will further research on sociometer theory by examining if trait self-esteem differences predict whether individuals respond to daily negative interpersonal experiences with engagement in health risk behavior.

Social Anxiety and Health Risk Behavior

Another individual difference that may be related to interpersonal interactions and engagement in health risk behavior is social anxiety. Social anxiety is defined as a fear of social situations that involve the potential for negative evaluation or rejection by others (American Psychiatric Association, 2002). In general, socially anxious people tend to believe that they are undesirable to others and that their actions will ultimately lead to embarrassment and social rejection (Kashdan & Steger, 2006; Miller, 1985). As socially anxious individuals are concerned with how they are perceived and evaluated by others, it is likely that social anxiety plays a role in both the detection of and responses to events that threaten the degree to which one feels accepted by others (Leary, 2001). Sociometer theory proposes that when the self-esteem system detects decreases in one's degree of acceptance that the system alerts the individual via negative emotional responses. A typical response to real, imagined or anticipated decreases in one's inclusionary status is anxiety (Baumeister & Tice, 1990). Furthermore, Leary (2001) suggested that social anxiety might serve as an early warning system for decreases in relational value, which serves to alert the individual to the potential threat and to motivate behavior to protect social relationships. According to this perspective, individual differences in trait social

anxiety reflect differences in the degree to which one values being accepted by others and the degree to which they perceive that others do indeed value them.

Frequently, individuals with social anxiety disorder are characterized as shy, behaviorally inhibited and risk aversive (Gilbert 2001; Leary, 2001). However, there appears to be a sub-type of socially anxious individuals who are aware of the rewards associated with risk taking behavior and appear to use risk taking behavior as a strategy for avoiding rejection and gaining acceptance from others (Kashdan & Hoffman, 2008; Kashdan, McKnight, Richey, & Hoffman, 2009). Recently, social anxiety has been implicated in a number of risk behaviors, including aggression, risky sexual behaviors and substance abuse problems (Kashdan et al., 2009). One explanation for why socially anxious individuals may be more likely to engage in risk behaviors, is that often times engaging in risk behaviors can be perceived as providing the opportunity for increasing the degree to which we are accepted by others (Kashdan, Collins, & Elhai, 2006). In addition, social anxiety is often associated with impaired social skills (Kachin, Newman, & Pincus, 2001) and it is possible that such impairments may increases the chances of risk behaviors in situations that require refusal skills (e.g., ability to negotiate condom use, refuse alcohol). Socially anxious individuals appear to be concerned with the degree to which they are accepted by others and accordingly may be likely to engage in health risk behaviors as a means of increasing their sense of social conclusion. However, given that socially anxious individuals appear to be particularly sensitive to negative evaluation and rejection by others, it is possible that such individuals may be more likely to engage in health risk behavior on days when they have experienced negative interpersonal experiences.

Positive Events and Health Risk Behavior

Positive interpersonal experiences also appear to play an important role in health risk behavior (DeHart, Tennen, Armeli, Todd, Affleck, & Mohr, 2009; Mohr et al., 2001, 2005). Following positive events, individuals tend to respond by seeking out other people as a means of sharing that event and enhancing the impact that the positive event has on their life (Langston, 1994). For example, individuals appear to engage in health risk behavior, such as excessive alcohol consumption, as a way of enhancing positive experiences that occur in their lives (Cooper et al., 1995). However, this research did not examine whether trait self-esteem or social anxiety moderated the relation between positive interpersonal experiences and alcohol consumption.

There is evidence to suggest that individuals with low and high trait self-esteem differ in how they respond to positive events. Self-consistency theories suggest that positive daily events may be psychologically disruptive to individuals with low trait self-esteem (Andrews, 1989; Swann, 1992). For example, self-verification theory (Swann & Schroeder, 1995) proposes that people are motivated to maintain their views of themselves. According to this perspective, positive emotions that typically occur in response to positive life events are inconsistent with low trait self-esteem individual's self-conceptions, leading low trait self-esteem individuals to inhibit the positive feelings that accompany positive life events. In addition, evidence suggests that socially anxious individuals are likely to discount positive experiences (Alden & Wallace, 1995), and because of this may be less likely to use health risk behaviors as a means to enhance positive interpersonal experiences in their daily life. In comparison, research by Wood, Heimpel, and Michela (2003) suggests that individuals with high trait self-esteem are

more likely to seek others in response to positive events as a means to savor these experiences, whereas individuals with low trait self-esteem are more likely to respond to positive events with attempts to dampen their positive mood (i.e., calm themselves down or distract themselves).

These findings suggest that trait self-esteem and social anxiety may influence how individuals respond to daily positive interpersonal interactions. In comparison to individuals with low trait self-esteem, individuals with high trait self-esteem appear to be more likely to seek out others in an attempt to savor positive events. Similarly, socially anxious individuals appear less likely to pay attention to positive experiences and because of this they may be less likely to engage in behaviors that attempt to enhance such experiences. Due to these differences in responses to positive events, it is possible that individuals with either high trait self-esteem or low social anxiety may be more likely to engage in health risk behaviors following positive events as a means of savoring those experiences.

Health Risk Behavior and Daily Interpersonal Interactions

To date, the vast majority of studies investigating health risk behavior have been cross-sectional. Such an approach to data collection has many methodological limitations, including recall biases such as recency and salience effects (Reis & Gable, 2000). Recently, health behaviors have been investigated using a daily diary methodology. For example, health behaviors such as smoking and alcohol consumption have been investigated in relation to health related constructs such as stress, coping and affect on a daily basis (e.g., Armeli, Carney, Tennen, Affleck, & O'Neil, 2000; Carney, Armeli, Tennen, Affleck, & O"Neil, 2000; Tennen, Affleck, Armeli, & Carney, 2000). This

approach allows for the temporal sequencing of predictors of health behavior and actual health behavior as they occur or within 24 hours. As participants are reporting on events soon after they occur, this can lead to a reduction in recall errors and bias. A daily diary methodology can help researchers understand how people react to their everyday interpersonal interactions and the impact that such experiences may have on subsequent health behaviors.

The majority of studies investigating health risk behavior that have used a daily dairy methodology have focused on alcohol consumption. However, very few studies to date have investigated factors predicting sexual behavior or illegal substance use using a daily diary methodology or whether trait self-esteem or social anxiety interacts with interpersonal experiences to predict daily health risk behavior. The current investigation documented the daily experiences of college students using a daily diary methodology and thus has the potential to add substantially to our understanding of how characteristics of the individual interact with daily events to influence health risk behaviors. This method of data collection improves upon cross-sectional data collection techniques, as it allows health risk behaviors to be studied longitudinally and in a more naturalistic way in the form of a daily diary. Furthermore, diary methods are effective in examining intrapersonal processes that fluctuate over time, such as sexual behavior (Ridley et al., 2006).

A limited number of studies have investigated the effects of daily events on sexual behavior; however, research evidence suggests these factors are predictive of daily sexual behavior. Specifically, receiving negative feedback and worrying about performance in one’s classes has been associated with increases in vaginal and oral sex

among college students (Harman, O'Grady, Gleason, & Agocha, 2008), and high levels of daily stress have been associated with increased levels of sexual activity (Bodenmann, Ledermann, & Bradbury, 2007). Daily interpersonal interactions have also been implicated in alcohol consumption, whereby people tend to drink more on days they report negative interpersonal experiences (Mohr et al., 2001, Mohr et al., 2005). While none of these studies examined the role of trait self-esteem or social anxiety in daily health risk behavior, it is possible that these dispositional characteristics moderate the relation between negative interpersonal experiences and health risk behavior. For example, negative events, such as interpersonal rejection, are often perceived as a threat to the self. Given that individuals with low trait self-esteem perceive interpersonal rejection more frequently than individuals with high trait self-esteem (Downs & Leary, 1995), and respond to it with decreases in state self-esteem and attempts to increase the inclusionary status, it is possible that the results reported above may have been moderated by trait self-esteem differences. Therefore, the current study will extend prior research by examining if self-esteem and social anxiety differences moderate the effects of daily interpersonal experiences on health risk behavior.

The Current Study

The current investigation documented the daily interpersonal experiences of college students to determine how positive and negative interpersonal experiences interact with characteristics of the individual to predict daily health risk behavior. More specifically, the current study investigated the role of daily positive and negative events, self-esteem and social anxiety on daily health risk behavior. Based on previous research on the effects of daily events (DeHart et al., 2009; Mohr et al., 2001, 2005), self-esteem

(e.g., Leary et al., 1995), and social anxiety (e.g., Kashdan et al., 2009) on health risk behaviors a number of hypotheses were generated.

H1: Experiencing a greater number of negative interpersonal events during the day will be associated with an increased likelihood of engaging in health risk behaviors later that evening.

H2: Experiencing a greater number of positive interpersonal events during the day will be associated with an increased likelihood of engaging in health risk behaviors later that evening.

H3: It is hypothesized that individuals with low trait self-esteem will be more likely to engage in health risk behavior on days when they experience more (versus fewer) negative interpersonal experiences. This is in comparison to high trait self-esteem individuals whose probability of engaging in health risk behavior is not predicted to increase on days when they experience more negative interpersonal experiences, due to their ability to self-enhance following interpersonal rejection.

H4: It is hypothesized that individuals with high trait self-esteem will be more likely to engage in health risk behavior on days when they experience more (versus fewer) positive interpersonal experiences. This is in comparison to low trait self-esteem individuals whose probability of engaging in health risk behavior is not predicted to increase on days when they experience positive interpersonal experiences, due to their tendency to respond to positive events with attempts to dampen their positive mood.

H5: It is hypothesized that individuals with high social anxiety will be more likely to engage in health risk behavior on days that they experience more (versus fewer) negative interpersonal experiences. This is in comparison to individuals low in social

anxiety whose probability of engaging in health risk behavior is not predicted to increase on days when they experience negative interpersonal experiences.

H6: It is hypothesized that individuals with low social anxiety will be more likely to engage in health risk behavior on days that they experience more (versus fewer) positive interpersonal experiences. This is in comparison to individuals high in social anxiety whose probability of engaging in health risk behavior is not predicted to increase on days when they experience positive interpersonal experiences, due to their tendency to discount positive experiences.

H7: It is predicted that participants will be more likely to engage in health risk behavior on days that they experience decreases in their state self-esteem, as such decreases serve to motivate behavior change in order to restore feelings of acceptance.

CHAPTER II: METHOD

Participants

219 participants (155 female and 64 male) were recruited from Colorado State University using the psychology research pool (PSY100 and PSY250). The mean age of participants was 19.00 years old (*SD* = 1.77, Range = 18-27), and the majority were White (84.5%). The remaining participants in the sample identified themselves as Mulitracial (7.3%), Hispanic/Latino (3.7%), Asian/Pacific Islander (2.3%), American Indian/Alaskan Native (1.4%) or Black or African-American (0.9%). Participants reported that they were single (46.1%), dating casually (less than three months; 12.3%), in a committed relationship (40.20%), engaged (0.9%) or married (0.5%). Of those participants in a committed relationship (dating more than 3 months, engaged or married), the mean number of years that the individuals had been in their relationships was 1.46 years (*SD* = 1.30), and length of time together ranged between 3 months and 6.00 years.

The majority of participants reported having engaged in penetrative sex (89.5%). Of the 196 participants who reported having engaged in penetrative sex, 149 reported having engaged in unprotected penetrative sex in the past month, and they had an average of 4.59 lifetime sexual partners (*SD* = 4.75, Mode = 2, Range = 1-26). The mean age of first penetrative sex in this sample was 16.42 years (*SD* = 1.39) and most participants (92%) reported exclusively having sex with someone of the opposite sex. Of those participants reporting penetrative

sex, about 6% of participants reported that they had received treatment for an STI in the past, and most had never been tested for HIV (74.90%). When asked to report on their last sexual encounter, 43.8% of participants reported that this encounter took place less than one week ago and 44.3% indicated that this sexual encounter involved unprotected vaginal sex.

Overview of Procedure

Participants were recruited to take part in a web-based study of "Health Behavior, Social Processes and Personality." At the beginning of the study, participants came to an orientation session and received information about the study and instructions regarding completion of the background and daily surveys. After attending the orientation session, participants completed an online survey consisting of several background measures including scales assessing trait self-esteem and social anxiety. Then, everyday for 28 days, participants logged onto a secure (password protected) website to access the daily diary portion of the study. Each day participants received an email reminding them to complete the daily survey and a link to the survey website was provided in the email. The daily surveys contained a variety of measures assessing interpersonal interactions that occurred earlier that day, state self-esteem, and health risk behavior since completion of the previous day's survey. Participants were allowed access to the website between 2:30 p.m. and 7:00 p.m. These times were selected so that participants' interpersonal interactions could be used to predict their subsequent health risk behavior. Although participants were asked to report on health risk behavior that occurred up to 24 hours ago, concrete experiences, such as sexual activity, are less susceptible to recall bias than are momentary experiences, such as fluctuations in state self-esteem (e.g., Conner, Barrett,

Tugade, & Tennen, 2007). Because health risk behavior (which was reported the next day) was predicted from events that occurred during the previous day, consecutive days of data were required for these analyses. If participants skipped one day of data collection, this resulted in losing two days of data for these analyses. Following completion of the daily diary portion of the study, participants returned for a debriefing appointment in which they were fully informed of the purpose and hypotheses of this study and received compensation for their participation in the study.

In total, participants could receive up to six research credits for their participation in the study. Participants received one research credit for attending the initial research session and for completing the online background survey. Participants received an additional research credit for each week that they completed daily surveys. Thus, participants could earn up to four research credits for taking part in all weeks of the daily diary portion of the study. If participants failed to complete a minimum of five daily surveys in a given week, they were excluded from further participation in the study. Participants earned an additional research credit for attending the debriefing appointment. In total, participants could earn up to six research credit for taking part in this study. In addition, those participants that completed at least 22 out of the 28 surveys were entered into a raffle to win one of eight $25 gift certificates to the university bookstore.

Background Measures

Demographics. Demographic characteristics (e.g., sex, racial/ethnic group membership, age) were assessed. In addition, participants were asked to indicate if they were in a committed relationship and if so, how long they have been in a relationship with that partner.

Trait self-esteem. The Rosenberg (1979) Self-Esteem Scale (SES) was administered to assess global self-esteem. The scale consists of 10 items, and responses are given on a 4-point scale (1 = *I don't agree at all* to 4 = *I very much agree*). Items included in this scale include statements such as, "On the whole, I am satisfied with myself." This scale was selected as it is a brief, unidimensional measure of global self-esteem with demonstrated validity and reliability across a large number of samples (e.g., Martin, Thompson, & Chan, 2006). Alpha-reliability estimates generally range from .72-.88 (Byrne & Shavelson, 1986). Furthermore, this measure has been shown to have a high level of test-retest reliability ($r > .80$; Byrne, 1983). In the current study, the SES demonstrated good reliability ($\alpha = .86$).

Social anxiety. The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998) was administered to assess anxiety and avoidance in social situations, and was selected as it provides a brief measure of trait social anxiety. The scale consists of 19-items and responses are given on a 5-point scale (0 = *Not at all* to 4 = *Extremely*). Items included in this scale include statements such as, "I am nervous mixing with people I don't know well." This scale has demonstrated good internal consistency ($\alpha = .94$) and test-retest reliability ($r = .92$). The SIAS demonstrated good internal consistency in the current study ($\alpha = .90$).

Repeated Diary Measures

Daily sexual activity. Participants reported on whether they engaged in various types of sexual activity (e.g., gave oral sex, vaginal sex) since completion of the previous day's survey. Participants reporting sexual intercourse were also asked to indicate whether or not a condom was used and if the person in the sexual situation was a steady

or casual partner. Participants completed a maximum of 17 questions regarding their sexual activity since completion of the previous day's survey. However, questions related to sexual activity had skip patterns and therefore the total number of questions participants were asked to respond to each day depended on whether they engaged in sexual activity in the past 24 hours.

Alcohol consumption. Participants were asked to respond to one question regarding their alcohol consumption in the past 24 hours. Participants reported on the total number of standard alcoholic drinks they consumed since completion of the previous day's survey. Participants were instructed that "One drink equals one 12 ounce can or bottle of beer, one 4 ounce wine cooler, or 1 ounce of liquor straight or in a mixed drink."

Substance use. Participants reported as to whether they had used any illegal drugs in the past 24 hours. Participants were asked to respond to five questions regarding their use of illegal drugs, with each question asking them to indicate whether they had used a specific illegal drug (e.g., marijuana, cocaine) since completion of the last survey.

Daily events. Each day participants completed a daily event checklist containing events that occur frequently in the lives of college students (adapted from Butler, Hokanson, & Flynn, 1994). Daily interpersonal interactions were assessed with a total of 12-items, with 6-items assessing positive social interactions (e.g., "Went out socializing with friends/date (e.g., party, dance clubs) and 6-items assessing negative social interactions (e.g., "A disagreement with a close friend or steady date was left unresolved").

State self-esteem. Heatherton and Polivy's (1991) state self-esteem scale (SSES) was used in this study to assess daily fluctuations in state self-esteem. This scale was selected as a measure of state self-esteem as prior research indicates that this scale is sensitive to the effects of naturally occurring negative experiences on self-esteem, such as academic failure. This 20-item scale consists of three subscales: Social (e.g., "Today I am worried what other people thought of me"), Performance (e.g., "Today I felt confident in my abilities") and Appearance (e.g., "Today I felt unattractive"). For each item, participants were asked to indicate how well each statement described how they felt about themselves at that moment and responses were given on a 5-point scale (0 = *Not at all,* 4 = *Extremely*). Total SSES scores, rather than scores for the individual subscales, were used in the analyses as an indicator of daily state self-esteem.

Summary of repeated measures. Participants were asked to respond to a maximum of 55 questions when completing each daily survey, however the actual number of questions each participant was asked to respond each day depended on the health risk behavior they had engaged in since completion of the previous day's survey. The number of questions participants were asked to respond to ranged from 38 to 55 questions. It took participants approximately 5-10 minutes to complete the daily surveys.

Chapter III: RESULTS

Descriptive Statistics

On 56.4% of the total person-period assessments (i.e., total number of daily reports) participants reported experiencing at least one negative interpersonal experience and on average .92 (*SD* = 1.02) negative interpersonal experiences were reported each day. Positive events were experienced more frequently, with 78.0% of the total person-period assessments indicating that at least one positive interpersonal event was experienced. On average, 1.35 (*SD* = 1.05) positive interpersonal events were experienced each day. Preliminary analyses indicated that trait self-esteem did not predict the number of negative interpersonal experiences reported each day (b = .005, p >.05, R^2 = .00). However, trait self-esteem did significantly predict the number of positive interpersonal events experienced (b = .018, p < .05, R^2 = .01), such that high trait self-esteem was associated with experiencing a greater number of positive daily interpersonal experiences. Social anxiety predicted the number of negative interpersonal experiences reported each day (b = -.007, p < .05, R^2 = .01), such that socially anxious participants reported fewer daily negative interpersonal experiences than less socially anxious participants. However, social anxiety was unrelated to the total number of positive interpersonal experiences reported each day (b = .001, p > .05, R^2 = .00).

Across all study days, participants consumed at least one alcoholic beverage on 21.5% of the recording days and drank an average of 1.04 drinks per day (*SD* = 2.41; Mode = 0, scores ranged from 0-10). However, on days in which participants reported

alcohol consumption, they drank an average of 4.82 drinks (*SD* = 2.97; Mode = 2, scores ranged from 1-10). Vaginal sex was reported on 13.5% of the study days. Participants reported a total of 372 instances of unprotected vaginal sex (62.8% of total vaginal sex events). Of the total person-period assessments, 0.3% indicated use of stimulants, 0.1% indicated use of heroin, 0.1% indicated use of ecstasy, 0.05% indicated use of illegal prescription drugs and 9.1% indicated use of marijuana.

Data Analysis

Multilevel regression analyses were conducted using the GLIMMIX procedure in SAS v9.2 (SAS Institute, 2004). The current study contains two levels of data in which the repeated assessments of health risk behavior, state self-esteem and daily interpersonal interactions (Level 1) are nested within participants (Level 2). In these models, health risk behaviors were regressed on time-varying predictors of interest (i.e., state self-esteem and daily interpersonal interactions). Moreover, the effects of these time-varying predictors were partitioned into a within person and between person component (Nezlek, 2001). The within person component captures the extent to which within person change in the predictor is associated with health risk behavior while the between person component captures the extent to which an overall higher average score on the predictor (i.e., averaged across time) is associated with health risk behavior. As such, the former captures intraindividual effects of the predictor while the latter captures interindividual effects of the predictor. In addition, a set of Level 2 (i.e., person level) predictors were added to the model, including trait self-esteem and social anxiety. The main effects of these predictors on health risk behavior were assessed, as well as the potential interaction effects between these Level 2 predictors and the time-varying predictors discussed

earlier. For example, cross level interactions were tested to determine if the intraindividual effect of negative interpersonal interactions on health risk behavior is moderated by trait self-esteem.

For questions pertaining to between-person differences, the predictor variables that were examined were trait self-esteem and social anxiety, which were both viewed as continuous variables. Given that trait self-esteem and social anxiety were significantly correlated ($r = .43$, $p < .001$), ideally trait self-esteem and social anxiety and all possible cross-level interactions should have been included in a single model. However, these models failed to converge which is likely a function of the relatively small sample size and low frequency of health risk taking. Thus, two separate models were tested for each dependent variable. In one of these models trait self-esteem was examined as a Level 2 predictor and, in the second model, trait social anxiety was examined as a Level 2 predictor. In addition, participants' mean levels of daily negative and positive interpersonal experiences across the 28 days of the study were entered into the models as Level 2 predictors, which accounted for the possibility that people who experience different mean levels of positive and negative interpersonal events (e.g., some people are consistently high, others are consistently low) may be more or less likely to engage in health risk behavior. For all analyses, person-level predictors were grand-mean centered (i.e., centered around the sample average). For questions pertaining to within-person differences, the predictor variables that were examined were daily negative and positive interpersonal experiences and state self-esteem. For all analyses, Level 1 predictors were person-mean centered (i.e., centered around each participant's average event rating across the 28 days). By person-mean centering these predictors, interindividual effects are

removed and the Level 1 effect can only account for intraindividual variability. As Level 1 predictors were person-mean centered, coefficients for daily events and state self-esteem describes the relation between increases or decreases from that person's average score for those variables across the 28 days of the study.

Before building full models, the effect of each Level 1 variable was examined to determine if the regression slope should be fixed or random. When analyses revealed a nonsignificant slope variance component, the Level 1 slope was included in the final model as a fixed effect (Snijders & Bosker, 1999). In order to properly estimate Level 1 effects when analyzing temporally ordered data, it is necessary to account for the possibility of autocorrelation (e.g., trends and serial dependencies; West & Hepworth, 1991) in the data. For each dependent variable in the study, autocorrelated errors were examined and when the AR(1) covariance parameter was significant, autocorrelations were controlled for in the final model. In addition, six dummy variables, with Monday as the reference group, were entered in all models in order to control for day of the week variations in health behavior (e.g., Armeli et al., 2000). These days of the week contrasts were included in the models as fixed effects (see Bryk & Raudenbush, 1992, pp. 121-123).

Separate analyses were run for each type of health risk behavior (e.g., sexual behavior, alcohol consumption, substance use). The dependent variable for some of these analyses was count data (e.g., number of drinks). As in other diary studies of health risk behavior (e.g., Barta, Portnoy, Kiene, Tennen, Abu-Hasaballah, & Ferrer, 2008; Mohr et al., 2001), the distribution of these count outcomes had an excessive number of zeros (i.e., no alcohol use was reported on many of the study days). Specifically, of the total

person-period assessments, 78.5% indicated no alcohol use, 86.5% indicated no sexual activity and 87.2% indicated no illegal drug use. These excessive zeroes exceed that allowed under the Poisson probability function. While alternative modeling strategies were considered (i.e., negative-binomial and zero-inflated models), these models failed to converge. This is likely a function of the severity of the excessive zeros and the relatively small sample size. Rather than ignoring the excessive zeros, and potentially invalidating or biasing the model estimates, I elected to dichotomize the dependent variables in this study to provide an indicator of whether or not participants had engaged in a specific health risk behavior since completion of the previous day's survey. Specifically for health behavior outcomes that were measured as a count variable (e.g., number of vaginal sex encounters, number of alcoholic drinks consumed), the data was dichotomized and factors that predict likelihood of engaging in a specific health risk behavior were examined using multilevel regression models.

Multilevel Logistic Regression Model Results

Sexual behavior

To test hypotheses related to sexual behavior, within-person relations among daily positive and negative interpersonal experiences, state self-esteem and the likelihood of sexual behavior were examined. The extent to which the within-person associations among positive and negative interpersonal experiences varied as a function of trait self-esteem and social anxiety (Level 2) were also examined. Daily data was collected for a number of variables related to sexual activity. Due to low frequencies of anal sex (reported on 0.1% of person-period assessment), variables assessing engagement in anal sex were not used in the analyses. Thus, the analyses reported here focus on daily reports

of vaginal sex. Three distinct dependent variables were selected; number of vaginal sex encounters, number of unprotected vaginal sex encounters and whether the vaginal sex partner was a new sexual partner. The variables assessing frequency of vaginal sex and unprotected vaginal sex were dichotomized. More specifically, these variables were dichotomized to indicate whether participants engaged in any vaginal sex in a given day (0 = No vaginal sex, 1 = Vaginal sex) and whether participants engaged in unprotected vaginal sex (0 = Condom use; 1 = No condom use). The final dependent variable assessed if the vaginal sex partner was a new sexual partner (0 = Regular partner; 1 = New partner). In all of the models reported, participant gender (0 = Female; 1 = Male) and relationship status (0 = Single; 1 = In a relationship) were added as control variables.

Initial model testing for evidence of autocorrelated errors revealed that the AR(1) covariance parameter estimates for models predicting the likelihood of vaginal sex and vaginal sex with a new partner were significant. Therefore, autocorrelated errors were allowed for in the final models for these dependent variables. The AR(1) covariance parameter estimates for the model predicting the likelihood of unprotected vaginal sex was not significant and therefore was not included in the final model.

Self-esteem and likelihood of sexual behavior. In order to determine if trait self-esteem moderated the influence of daily interpersonal interactions on the three sexual behavior outcomes, the likelihood of these outcomes were predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \qquad \text{(equation 1)}$$

$\beta_{0i} = \gamma_{00} + \gamma_{01}$ (gender) + γ_{02} (relationship status) +γ_{03} (negative events mean) + γ_{04} (positive events mean) + γ_{05} (state self-esteem mean) + γ_{06} (trait self-esteem) + γ_{07} (negative events mean x trait self-esteem) + γ_{08} (positive events mean x trait self-esteem) + u_{0i} (equation 2)

$\beta_{1i} = \gamma_{10} + \gamma_{11}$ (trait self-esteem) + u_{1i} (equation 3)

$\beta_{2i} = \gamma_{20} + \gamma_{21}$ (trait self-esteem) + u_{2i} (equation 4)

Equation 1 shows the within-person statement regressing the daily sexual behavior outcomes on daily negative and positive interpersonal experiences and state self-esteem. Where log $it(\pi_{ij})$ refers to the expected log odds of sexual behavior for participant *i* on day *j*. In Equation 1, the term β_{0i} refers to the expected log odds of engaging in sexual behavior for participant *i* when all other predictors equal zero on day *j*. The terms β_{1i}, β_{2i} and β_{3i} in Equation 1 represent the within-person effects of daily negative and positive interpersonal events and state self-esteem on daily sexual behavior, respectively, and e_{it} is a random residual component. Equations 2, 3 and 4 regress the Level 1 intercepts and slopes on the between-person (Level 2) predictors and assess the effects of the individual difference variables on the within-person relations (Level 1 slopes). Equation 2 shows the intercept model (i.e., average log odds of sexual behavior by mean state self-esteem, mean negative events, mean positive events and trait self-esteem). The terms γ_{03}, γ_{04} and γ_{05} in Equation 2 refer to the effects of mean number of negative and positive daily events and mean levels of state self-esteem reported across the 28-day study on person's *i's* likelihood of sexual behavior. The term γ_{06} refers to the effect of the person-level variable trait self-esteem on person *i*'s log odds of sexual behavior. The term γ_{07} refers to the Negative events mean x Trait self-esteem interaction

and γ_{08} refers to the Positive events mean x Trait self-esteem interaction. Equation 3 shows the Level 2 regression model predicting the Level 1 within-person association between negative interpersonal interactions and the log odds of sexual behavior. Equation 4 shows the Level 2 regression model predicting the Level 1 within-person association between positive interpersonal interactions and the log odds of sexual behavior.

Initially, the Level 1 slopes were modeled as random effects. Initial model testing revealed that in the models predicting likelihood of vaginal sex and vaginal sex with a new partner, that the only Level 1 predictor with a significant variance component was daily negative interpersonal experiences. Thus, in the final model for these dependent variables, the slopes for positive daily events and daily state self-esteem were modeled as fixed effects and the slope for daily negative events was modeled as a random effect. Initial model testing for the model predicting unprotected vaginal sex revealed nonsignificant slope variance components for all Level 1 predictors, and because of this the slopes for all Level 1 predictors were modeled as fixed effects.

Of key interest to the hypotheses of this study are Equations 3 and 4. In Equations 3 and 4, the Level 1 slopes (β_{1i} and β_{2i}) are modeled as a function of trait self-esteem and random person effects (u_{1i} and u_{2i}). These equations are important in determining whether there are cross-level interactions between daily interpersonal experiences and trait self-esteem. Cross-level interactions between trait self-esteem and state self-esteem were not included in the final models, as initial model testing indicated that state self-esteem did not interact with trait self-esteem to predict the likelihood of sexual behavior.

The hypothesis that trait self-esteem moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of vaginal sex

was tested. The results are presented in Table 1. The coefficients reported in Table 1 (B and SE) are expressed in the metric of log odds, and can be interpreted as the expected increase in the log odds of vaginal sex for a one unit increase in variable X. The corresponding odd ratios (OR) is also presented. Participants' trait self-esteem was unrelated to their likelihood of engaging in vaginal sex (β = -.04, $p > .05$). Results indicated that daily reports of negative events (β = -.16, $p < 0.05$) significantly predicted vaginal sex, such that experiencing relatively more negative interpersonal experiences earlier in the day was associated with a decrease in the log odds of vaginal sex. Neither daily reports of positive events (β = .01, $p > 0.05$) nor state self-esteem (β = .01, $p > 0.05$) were significant predictors of the likelihood of vaginal sex. In addition, mean levels of negative events (β = .09, $p > 0.05$), positive events (β = .11, $p > 0.05$) and state self-esteem (β = .012 $p > 0.05$) were not significant predictors of vaginal sex.

Trait self-esteem did not moderate the within-person relation between daily negative interpersonal events and the likelihood of vaginal sex (β = .004, $p > 0.05$). In addition, the interaction between trait self-esteem and mean reports of negative (β = -.07, $p > 0.05$) and positive (β = .04, $p > 0.05$) interpersonal experiences were not significant predictors of the likelihood of vaginal sex. However, the Trait self-esteem x Positive interpersonal events interaction was significant (β = -.03, $p < .05$). As suggested by Figures 1 and 2, as trait self-esteem increases the effect of positive interpersonal experiences on the likelihood of vaginal sex becomes more negative. This significant cross-level interaction suggests that the effect of positive daily interpersonal interactions on the likelihood of vaginal sex depends upon participants' level of trait self-esteem. However, this significant interaction does not support the hypothesis of this study that

high trait self-esteem individuals would be more likely to engage in health risk behaviors on days when they experience relatively more positive interpersonal experiences.

Next, the hypothesis that trait self-esteem moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of unprotected vaginal sex was tested. Refer to Table 2 for a summary of these analyses. The only significant predictors of unprotected vaginal sex were the control variables, gender ($\beta = -.55$, $p < .05$) and relationship status ($\beta = 1.15$, $p < .05$). More specifically, females and those in a relationship were more likely to report unprotected vaginal sex than males and those who were single. All other variables in the model were not significant predictors of unprotected vaginal sex (*p*s > .05). Thus, the most important predictors of the likelihood of unprotected vaginal sex in the model were gender and relationship status and it does not appear that interpersonal experiences or trait self-esteem predict the likelihood of unprotected vaginal sex.

Finally, whether trait self-esteem moderated the strength of the within-person association between daytime interpersonal experiences and the likelihood of vaginal sex with a new partner was examined. The results with odds ratios for this model are presented in Table 3. Relationship status, which was included in the model as a control variable, was a significant predictor of vaginal sex with a new partner ($\beta = 1.53$, $p < .05$). Interestingly, participants that reported being in a relationship at the beginning of the study were more likely to report vaginal sex with a new partner. Trait self-esteem was not a significant predictor of the likelihood of engaging in vaginal sex with a new partner ($\beta = -.04$, $p > .05$. Results indicated that daily reports of negative events ($\beta = 0.21$, $p > 0.05$) and state self-esteem ($\beta = .02$, $p > 0.05$) were not significant predictors of the likelihood

of vaginal sex with a new partner. Daily reports of positive interpersonal experiences (β = .60, $p < 0.05$) predicted vaginal sex with a new partner, such that the log odds of engaging in vaginal sex with a new partner increased on days when relatively more positive interpersonal experiences were reported. Mean reports of negative interpersonal experiences (β = 1.02, $p > 0.05$) and positive interpersonal experiences (β = -1.43, $p > 0.05$) did not significantly predict the likelihood of vaginal sex with a new partner. However, mean reports of state self-esteem (β = .02, $p = 0.053$) was a marginally significant predictor of vaginal sex with a new partner, such that participants that consistently reported higher state self-esteem were more likely to report vaginal sex with a new partner.

Trait self-esteem did not moderate the within-person relation between daily negative interpersonal experiences and the likelihood of vaginal sex with a new partner (β = .01, $p > .05$). In addition, the interaction between trait self-esteem and mean levels of negative (β = -.05, $p > .05$) and positive (β = .07, $p > .05$) were both not significant. However, the interaction between trait self-esteem and daily reports of positive interpersonal experiences was significant (β = -0.02, $p < 0.05$). Participants were more likely to engage in vaginal sex with a new partner on days that they experienced relatively more positive interpersonal experiences. However, this effect was moderated by trait self-esteem, such that the effect of daily fluctuations in positive events was weaker for individuals with high trait self-esteem. This interaction is demonstrated in Figures 3 and 4. This significant interaction provides evidence in support of Hypothesis 4, which predicted that high trait self-esteem individuals would be more likely to engage

in health risk behaviors on days when they experienced relatively more positive interpersonal experiences.

Social anxiety and likelihood of sexual behavior. In order to determine if social anxiety moderated the influence of daily interpersonal interactions on sexual behavior, the likelihood of sexual behavior outcomes was predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \quad \text{(equation 5)}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}\,(\text{gender}) + \gamma_{02}\,(\text{relationship status}) + \gamma_{03}\,(\text{negative events mean}) + \gamma_{03}\,(\text{positive events mean}) + \gamma_{05}(\text{state self-esteem mean}) + \gamma_{06}\,(\text{social anxiety}) + \gamma_{07}\,(\text{negative events mean x social anxiety}) + \gamma_{07}\,(\text{positive events mean x social anxiety}) + u_{0i} \quad \text{(equation 6)}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}\,(\text{social anxiety}) + u_{1i} \quad \text{(equation 7)}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21}\,(\text{social anxiety}) + u_{2i} \quad \text{(equation 8)}$$

These equations can be interpreted in a similar fashion as the previous equations reported for sexual behavior, with a few exceptions. In Equation 6, the term γ_{06} refers to the effect of the person-level variable social anxiety on person *i*'s log odds of sexual behavior. The terms $\gamma_{07,}$ $\gamma_{08,}$ γ_{11} and γ_{21} in the equation refer to the coefficients for the Social anxiety x Negative events mean, Social anxiety x Positive events mean, Social anxiety x Daily negative events, Social anxiety x Daily Positive events interaction terms. Similar to the prior model, cross-level interactions between social anxiety and state self-esteem were not included in the final models, as initial model testing indicated that state self-esteem did not interact with social anxiety to predict the likelihood of sexual behavior outcomes. Initially, the Level 1 slopes were modeled as random effects and in

all the models the only Level 1 predictor with a significant variance component was daily negative interpersonal experiences. Thus, in the final models reported below the slopes for positive daily events and daily state self-esteem were modeled as fixed effects.

The hypothesis that social anxiety moderated the strength of the within-person association between daytime interpersonal experiences and the likelihood of vaginal sex was examined. The results with odds ratios for this model are presented in Table 4. Participants' trait social anxiety was unrelated to their likelihood engaging in vaginal sex ($\beta = .002$, $p > .05$). Results indicated that daily reports of negative events significantly predicted vaginal sex ($\beta = -0.16$, $p < 0.05$), such that on days when negative events were higher than usual, the log odds of vaginal sex decreased. Daily reports of positive events ($\beta = .01$, $p > 0.05$) and state self-esteem ($\beta = .01$, $p > 0.05$) were not significant predictors of the likelihood of vaginal sex. In addition, mean levels of negative ($\beta = .04$, $p > 0.05$), positive events ($\beta = .09$, $p > 0.05$) and state self-esteem ($\beta = .01$, $p > 0.05$) were not significant predictors of vaginal sex.

Trait social anxiety did not moderate the within-person relation between daily negative interpersonal events and the likelihood of vaginal sex ($\beta = .004$, $p > 0.05$). In addition, the interaction between trait social anxiety and mean negative events ($\beta = -.01$, $p > 0.05$) and mean positive events ($\beta = .02$, $p > 0.05$) were not significant predictors of vaginal sex. However, the Trait social anxiety x Daily positive events interaction was significant ($\beta = .01$, $p < .05$). As suggested by Figures 5 and 6, socially anxious participants were more likely to engage in vaginal sex on days when they experienced more positive interpersonal experiences (in comparison to days when they reported fewer positive interpersonal experiences). The significant cross-level interaction suggests that

the effect of positive interpersonal interactions on the likelihood of vaginal sex depends upon participants' level of trait social anxiety. This significant interaction does not provide evidence in support of Hypothesis 4, which predicted that individuals low in social anxiety would be more likely to engage in risk behaviors on days when they experienced relatively more positive interpersonal experiences.

Next, the hypothesis that trait social anxiety moderated the strength of the within-person association between daytime interpersonal experiences and the likelihood of unprotected vaginal sex was tested. Refer to Table 5 for a summary of these analyses. Participants' trait social anxiety was unrelated to their likelihood engaging in unprotected vaginal sex (β = -.004, p > .05. Results indicated that daily reports of negative events (β = -.09, p > 0.05), positive events (β = .05, p > 0.05) and state self-esteem (β = -.001, p > 0.05) were not significant predictors of the likelihood of unprotected vaginal sex. In addition, mean levels of negative events (β = .02, p > 0.05), positive events (β = -.14 p > 0.05) and state self-esteem (β = .01, p > 0.05) were not significant predictors of unprotected vaginal sex.

Trait social anxiety did not moderate the within-person relation between daily negative interpersonal events and the likelihood of unprotected vaginal sex (β = .01, p > 0.05). In addition, the interaction between trait social anxiety and mean negative events (β = -.01, p > 0.05) and mean positive events (β = -.01, p > 0.05) were not significant predictors of unprotected vaginal sex. However, the Trait self-esteem x Daily positive events interaction was significant (β = .01, p < .05). As suggested by Figures 7 and 8, the likelihood of unprotected sex for individuals low on social anxiety increased only slightly on days when relatively more positive interpersonal events were experienced. In

comparison, socially anxious individuals were much more likely to engage in unprotected sexual activity on days when they experienced relatively more positive interpersonal experiences. This significant cross-level interaction suggests that the effect of daily positive interpersonal interactions on the likelihood of unprotected vaginal sex depends upon participants' level of trait social anxiety. However, this result does not support of Hypothesis 4 which predicted that individuals low in social anxiety would be more likely to engage in health risk behaviors on days that they experienced relatively more positive interpersonal experiences.

Finally, the possibility that trait social anxiety moderated the strength of the within-person association between daytime interpersonal experiences and the likelihood of vaginal sex with a new partner was examined. The results with odds ratios for this model are presented in Table 6. Relationship status, which was included in the model as a control variable, was a significant predictor of vaginal sex with a new partner ($\beta = 1.48$, $p < .05$). Participants that reported being in a relationship at the beginning of the study were more likely to report vaginal sex with a new partner. Trait social anxiety was unrelated to the likelihood of engaging in vaginal sex with a new partner ($\beta = .001$, $p > .05$). Results indicated that daily reports of negative events ($\beta = -.12$, $p > 0.05$) and positive events ($\beta = .07$, $p > 0.05$) were not significant predictors of the likelihood of vaginal sex with a new partner. Daily state self-esteem ($\beta = .01$, $p = 0.07$) was a marginally significant predictor of vaginal sex with a new partner, such that on days when participants reported increases in state self-esteem they were more likely to report vaginal sex with a new partner. Mean reports of negative interpersonal experiences ($\beta = -.12$, $p > 0.05$) and positive interpersonal experiences ($\beta = -.03$, $p > 0.05$) did not significantly predict the likelihood

of vaginal sex with a new partner. However, mean levels of state self-esteem (β = .01, *p* = 0.08) was a marginally significant predictor of vaginal sex with a new partner, such that participants who reported consistently high state self-esteem across study days were more likely to engage in vaginal sex with a new partner. None of the interaction terms included in this model were significant predictors of the likelihood of vaginal sex with a new partner (*p*s > .05). However, the interaction between trait social anxiety and positive daily interpersonal experiences was a marginally significant predictor of vaginal sex with a new partner (β = .01, *p* = 0.08). The results of this model suggest that the strongest predictor of vaginal sex with a new partner was participants' relationship status at the beginning of the study.

Alcohol consumption

To test hypotheses related to alcohol consumption, within-person relations among daily positive and negative interpersonal experiences, state self-esteem and the likelihood of consuming alcohol later that evening were examined. The extent to which the within-person associations among positive and negative interpersonal experiences varied as a function of trait self-esteem and social anxiety (Level 2) were also examined. As previously mentioned, the dependent variable, number of alcoholic drinks consumed per evening had an excessive number of zeros (i.e., no alcohol was reported during many of the study days). Rather than ignoring the excessive zeros, and potentially invalidating or biasing the model estimates, I elected to dichotomize alcohol consumption in two different ways. First, alcohol consumption was dichotomized to indicate whether participants consumed any alcohol in a given day (0 = no alcohol consumption, 1 = any alcohol consumption). Second, alcohol consumption was dichotomized to provide an

indicator of binge drinking. Specifically, on a given day if participants consumed an excessive amount of alcohol (4 drinks for females and 5 drinks for males; National Institute of Alcohol Abuse and Alcoholism, 2004) binge drinking behavior was coded 1 and all other alcohol consumption was coded as 0. Separate models were tested for each of these binary outcomes. In addition, participant sex was added as a control variable in order to account for gender differences in drinking behavior.

Initial model testing for evidence of autocorrelated errors revealed that the AR(1) covariance parameter estimates for models predicting the likelihood of alcohol consumption and binge drinking were not significant. Therefore, autocorrelated errors were not included in the final models for these dependent variables. Initial model testing revealed that none of the Level 1 predictors had significant variance components. Thus, in the final models for all drinking analyses, the slopes for Level 1 predictors were modeled as fixed effects (Snijders & Bosker, 1999).

Self-esteem and likelihood of alcohol consumption. In order to determine if trait self-esteem moderated the influence of daily interpersonal interactions on drinking, the likelihood of consuming any alcohol was predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \qquad \text{(equation 9)}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}\,(\text{gender}) + \gamma_{02}\,(\text{negative events mean}) + \gamma_{03}\,(\text{positive events mean}) + \gamma_{04}\,(\text{state self-esteem mean}) + \gamma_{05}\,(\text{trait self-esteem}) + \gamma_{06}\,(\text{negative events mean x trait self-esteem}) + \gamma_{07}\,(\text{positive events mean x trait self-esteem}) + u_{0i} \qquad \text{(equation 10)}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}\,(\text{trait self-esteem}) + u_{1i} \qquad \text{(equation 11)}$$

$\beta_{2i} = \gamma_{20} + \gamma_{21}$ (trait self-esteem) + u_{2i} (equation 12)

Equation 9 shows the within-person statement regressing daily alcohol consumption on daily negative and positive interpersonal experiences and state self-esteem. Where log $it(\pi_{ij})$ refers to the expected log odds of consuming alcohol for participant *i* on day *j*. In Equation 9, the term β_{0i} refers to the expected log odds of consuming alcohol for participant *i* when all other predictors equal zero on day *j*. The terms γ_{10}, γ_{20} and γ_{30} in Equation 11 represent the within-person effects of daily negative and positive interpersonal events and state self-esteem on daily drinking, respectively, and e_{it} is a random residual component. Equations 10, 11 and 12 regress the Level 1 intercepts and slopes on the between-person (Level 2) predictors and assess the effects of the individual difference variables on the within-person relations (Level 1 slopes). Equation 10 shows the intercept model (i.e., average log odds of drinking by mean state self-esteem, mean negative events, mean positive events and trait self-esteem). The terms γ_{02}, γ_{03} and γ_{04} in Equation 10 refer to the effects of mean number of negative and positive daily events and mean levels of state self-esteem reported across the 28-day study on person's *i's* likelihood of drinking. The term γ_{05} refers to the effects of the person-level variable trait self-esteem on person *i*'s likelihood of drinking. The term γ_{06} refers to the Negative events mean x Trait self-esteem interaction and γ_{07} refers to the Positive events mean x Trait self-esteem interaction. Equation 11 shows the Level 2 regression model predicting the Level 1 within-person association between negative interpersonal interactions and drinking. Equation 12 shows the Level 2 regression model predicting the Level 1 within-person association between positive interpersonal interactions and drinking.

Of key interest to the hypotheses of this study are Equations 11 and 12. In Equations 11 and 12, the Level 1 slopes (β_{1i} and β_{2i}) are modeled as a function of trait self-esteem and random person effects (u_{1i} and u_{2i}). These equations are important in determining whether there are cross-level interactions between daily interpersonal experiences and trait self-esteem. Cross-level interactions between trait self-esteem and state self-esteem were not included in final models, as initial model testing indicated that state self-esteem did not interact with trait self-esteem to predict the likelihood of evening drinking.

The hypothesis that trait self-esteem moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of any evening alcohol consumption was tested. The results are presented in Table 7. The coefficients reported in Table 7 (B and SE) are expressed in the metric of log odds, and can be interpreted as the expected increase in the log odds of alcohol use for a one unit increase in variable X. The corresponding odds ratio (OR) is also presented. Participants' trait self-esteem was unrelated to their likelihood of consuming any alcohol ($\beta = -.01$, $p > .05$). However, results indicated that both negative ($\beta = 0.12$, $p < 0.05$) and positive ($\beta = -0.15$, $p < 0.05$) daily interpersonal experiences were important predictors of the likelihood of consuming alcohol. More specifically, participants' log odds of consuming alcohol increased on days when they experienced more negative interpersonal experiences and decreased on days when they experienced more positive interpersonal experiences. In addition, mean levels of negative ($\beta = .76$, $p < 0.05$) and positive ($\beta = -.41$, $p < 0.05$) interpersonal experiences significantly predicted the likelihood of evening alcohol consumption. These coefficients indicate that participants who consistently reported more

negative interpersonal events were more likely to consume alcohol and those that consistently reported more positive events were less likely to consume alcohol. Daily state self-esteem (β = .01, $p > 0.05$) and mean levels of state self-esteem (β = .01, $p > 0.05$) did not predict the likelihood of evening drinking.

Trait self-esteem did not moderate the within-person relation between daily negative interpersonal experiences (β = -.01, $p > 0.05$) or daily positive interpersonal experiences (β = -.02 $p > 0.05$) and the likelihood of consuming any alcohol. The interactions between trait self-esteem and mean levels of negative (β = .02, $p > .05$) and positive (β = .003, $p > .05$) events were also not significant. Thus, while interpersonal experiences appear to be an important predictor of the likelihood of alcohol consumption, the hypothesis that trait self-esteem would moderate the impact of interpersonal experiences on health risk behaviors was not supported.

Next, the hypothesis that trait self-esteem moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of evening binge drinking was examined. Refer to Table 8 for a summary of these analyses. Trait self-esteem (β = .01, $p > .05$), and daily reports of negative interpersonal experiences (β = .09, $p > .05$) and state self-esteem (β = .01, $p > .05$) were unrelated to the likelihood of evening binge drinking. However, results indicated that positive daily interpersonal events (β = -0.14, $p < 0.05$) experienced earlier that day were an important predictor of the likelihood of binge drinking later that evening. Specifically, the log odds of evening binge drinking decreased on days when relatively more positive interpersonal experiences were experienced. In addition, mean levels of negative (β = 1.23, $p < 0.05$) and positive events (β = -.73, $p < 0.05$) significantly predicted the likelihood of binge

drinking. These coefficients indicate that participants who consistently reported more negative interpersonal events were more likely to engage in binge drinking and participants that consistently reported more positive events were less likely engage in binge drinking. Mean levels of state self-esteem did not predict the likelihood of evening binge drinking ($\beta = .01$, $p > 0.05$).

Trait self-esteem did not moderate the within-person relation between either daily negative interpersonal interactions ($\beta = -.01$, $p > .05$) or daily positive interpersonal interactions ($\beta = .02$, $p > .05$) and the likelihood of binge drinking later that evening. In addition, the interaction between trait self-esteem and mean levels of negative ($\beta = -.01$, $p > .05$) and positive ($\beta = -.01$, $p > .05$) events were both not significant. Thus, interpersonal experiences do appear to predict the likelihood of binge drinking. However, the effect of daily interpersonal experiences on the likelihood of evening binge drinking did not depend upon participants' level of trait self-esteem.

Social anxiety and likelihood of alcohol consumption. In order to determine if social anxiety moderated the influence of daily interpersonal interactions on drinking, the likelihood of consuming alcohol was predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \quad \text{(equation 13)}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}\,(\text{gender}) + \gamma_{02}\,(\text{negative events mean}) + \gamma_{03}\,(\text{positive events mean}) + \gamma_{04}\,(\text{state self-esteem mean}) + \gamma_{05}\,(\text{social anxiety}) + \gamma_{06}\,(\text{negative events mean x social anxiety}) + \gamma_{07}\,(\text{positive events mean x social anxiety}) + u_{0i} \quad \text{(equation 14)}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}\,(\text{social anxiety}) + u_{1i} \quad \text{(equation 15)}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21} \text{ (social anxiety)} + u_{2i} \quad \text{(equation 16)}$$

These equations can be interpreted in a similar fashion as the equations for the previous model, with a few exceptions. In Equation 14, the term γ_{05} refers to the effect of the person-level variable social anxiety on person *i*'s log odds of drinking. The terms $\gamma_{06,}$ $\gamma_{07,}$ γ_{11} and γ_{21} refer to the coefficients for the Social anxiety x Negative events mean, Social anxiety x Positive events mean, Social anxiety x Daily negative events and Social anxiety x Daily positive events interaction terms, respectively. Similar to the prior model, cross-level interactions between social anxiety and state self-esteem were not included in the final models as initial model testing indicated that state self-esteem did not interact with social anxiety to predict the likelihood of evening binge drinking.

The hypothesis that social anxiety moderates the strength of the within-person association between daytime interpersonal experiences and the log odds of any evening alcohol consumption was tested. The results with odds ratios for this model are summarized in Table 9. Social anxiety was a marginally significant predictor of likelihood of evening alcohol consumption ($\beta = .01$, $p = 0.09$), such that participants with higher levels of social anxiety were more likely to report evening alcohol consumption. Results indicated that daily reports of negative interpersonal experiences ($\beta = .13$, $p > 0.05$) and state self-esteem ($\beta = .01$, $p > 0.05$) were not significant predictors of the likelihood of evening alcohol consumption. Daily reports of positive interpersonal events were an important predictor of the likelihood of consuming alcohol later that evening ($\beta = -.29$, $p < 0.05$), such that the log odds of consuming alcohol decreased on days when relatively more positive events are experienced. In addition, mean levels of negative ($\beta = 0.95$, $p < 0.05$) and positive ($\beta = -.82$, $p < 0.05$) interpersonal events significantly

predicted the likelihood of evening alcohol consumption. These coefficients indicate that participants who consistently reported more negative interpersonal events were more likely to consume alcohol and those that consistently reported more positive events were less likely to consume alcohol. Daily reports of state self-esteem (β = .01, $p > 0.05$) and mean levels of state self-esteem (β = .01, $p > 0.05$) did not predict the likelihood of evening alcohol consumption.

Social anxiety did not moderate the within-person relation between daily negative interpersonal interactions (β = -.001, $p > 0.05$) and the likelihood of consuming any alcohol. The interaction between daily positive interpersonal experiences and trait social anxiety was a marginally significant predictor of the likelihood of evening alcohol consumption ((β =.008, $p = 0.09$). The interaction between social anxiety and mean levels of negative (β = .01, $p > .05$) and positive (β = .02, $p > .05$) events were also not significant. Thus, interpersonal experiences do appear to predict the likelihood of consuming alcohol. However, the effect of daily interpersonal experiences on the likelihood of alcohol consumption did not depend upon participants' level of trait social anxiety.

Next, the hypothesis that social anxiety moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of evening binge drinking was examined. Refer to Table 10 for a summary of these analyses. Trait social anxiety (β = 0.003, $p > .05$) and negative interpersonal events experienced earlier that day (β = 0.08, $p > .05$) were unrelated to the likelihood of evening binge drinking. Results indicated that positive daily interpersonal experiences (β = -0.14, $p = 0.06$) were a marginally significant predictor of the likelihood of binge

drinking later that evening. In addition, mean levels of negative (β = 1.23, $p < 0.05$) and positive (β = -.75, $p < 0.05$) interpersonal events significantly predicted the likelihood of evening binge drinking. These coefficients indicate that participants who consistently reported more negative interpersonal events were more likely to engage in binge drinking and participants that consistently reported more positive events were less likely to engage in binge drinking. Daily reports of state self-esteem (β = .01, $p > 0.05$) and mean levels of state self-esteem (β = .01, $p > 0.05$) did not predict the likelihood of evening binge drinking.

Social anxiety did not moderate the within-person relation between daily negative interpersonal interactions and the likelihood of binge drinking (β = -.004, $p > .05$). The interaction between social anxiety and mean levels of negative (β = .001, $p > .05$) and positive (β = .03, $p > .05$) events were both not significant. However, the Social anxiety x Positive interpersonal events interaction was significant (β = 0.02, $p < 0.05$). As suggested by Figures 9 and 10, those with high trait social anxiety were more likely to binge drink in the evening on days that they experienced relatively more positive interpersonal interactions. In comparison, individuals with low trait social anxiety were somewhat less likely to binge drink on days when they experienced relatively more positive interpersonal events. This significant cross-level interaction suggests that the effect of positive interpersonal events on the likelihood of evening binge drinking depends upon participants' level of social anxiety. This finding does not support Hypothesis 4, which predicted that individuals with low trait social anxiety would be more likely to engage in health risk behaviors on days when relatively more positive interpersonal events are experienced.

Drug Use

To test hypotheses related to drug use, within-person relations among daily positive and negative interpersonal experiences, state self-esteem and the likelihood of illegal drug use were examined. The extent to which the within-person associations among positive and negative interpersonal experiences varied as a function of trait self-esteem and social anxiety (Level 2) were also examined. Daily data was collected for a number of variables related to illegal drug use. However, frequency of use for many of the drugs in which data was collected was very low. For example, of the total person-period assessments, only 0.3% indicated use of stimulants, 0.1% indicated use of heroin, 0.1% indicated use of ecstasy and .05% indicated use of illegal prescription drugs. Given the low frequency of use of these drugs, factors predicting use of these specific drugs were not examined. The models reported here only examine predictors of daily marijuana use, which was reported on a total of 9.1% of the total person-period assessments. Marijuana use was measured as a dichotomous variable and each day participants indicated whether they had smoked marijuana since completion of the previous days survey (coded 0 = No marijuana use, 1 = Marijuana use).

Initial model testing for evidence of autocorrelated errors revealed that the AR(1) covariance parameter estimates for models predicting marijuana use were significant. Therefore, autocorrelated errors were controlled for in the final models. Initially, the Level 1 slopes were modeled as random effects and analyses revealed that the only Level 1 predictor with a significant variance component was daily negative interpersonal experiences. Thus, in the final models reported below the slopes for positive daily events and daily state self-esteem were modeled as fixed effects.

Self-esteem and likelihood of marijuana use. In order to determine if trait self-esteem moderated the influence of daily interpersonal interactions on marijuana use, the likelihood of marijuana use was predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \quad \text{(equation 17)}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}\,(\text{gender}) + \gamma_{02}\,(\text{negative events mean}) + \gamma_{03}\,(\text{positive events mean}) + \gamma_{04}\,(\text{state self-esteem mean}) + \gamma_{05}\,(\text{trait self-esteem}) + \gamma_{06}\,(\text{negative events mean x trait self-esteem}) + \gamma_{07}\,(\text{positive events mean x trait self-esteem}) + u_{0i} \quad \text{(equation 18)}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}\,(\text{trait self-esteem}) + u_{1i} \quad \text{(equation 19)}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21}\,(\text{trait self-esteem}) + u_{2i} \quad \text{(equation 20)}$$

Equation 17 shows the within-person statement regressing daily marijuana use on negative and positive interpersonal experiences and state self-esteem. Where $\log it(\pi_{ij})$ refers to the expected log odds of marijuana use for participant *i* on day *j*. In Equation 17, the term β_{0i} refers to the expected log odds of marijuana use for participant *i* when all other predictors equal zero on day *j*. The terms β_{1i}, β_{2i} and β_{3i} in Equation 17 represent the within person effects of daily negative and positive interpersonal events and state self-esteem on daily marijuana use, respectively, and e_{it} is a random residual component. Equations 18, 19 and 20 regress the Level 1 intercepts and slopes on the between-person (Level 2) predictors and assess the effects of the individual difference variables on the within-person relations (Level 1 slopes). Equation 18 shows the intercept model (i.e., average log odds of marijuana use by mean state self-esteem, mean negative events, mean positive events and trait self-esteem). The terms γ_{02}, γ_{03} and γ_{04} in Equation 18 refer

to the effects of mean number of negative and positive daily events and mean levels of state self-esteem reported across the 28-day study on person's *i's* likelihood of marijuana use. The term γ_{05} refers to the effects of the person-level variable trait self-esteem on person *i*'s log odds of marijuana use. The term γ_{06} refers to the Negative events mean x Trait self-esteem interaction and γ_{07} refers to the Positive events mean x Trait self-esteem interaction. Equation 19 shows the Level 2 regression model predicting the Level 1 within-person association between negative interpersonal interactions and the log odds of marijuana use. Equation 20 shows the Level 2 regression model predicting the Level 1 within-person association between positive interpersonal interactions and the log odds of marijuana use.

Of interest to the hypotheses of this study are Equations 19 and 20. In Equations 19 and 20, the Level 1 slopes (β_{1i} and β_{2i}) are modeled as a function of trait self-esteem and random person effects (u_{1i} and u_{2i}). These equations are important in determining whether there are cross-level interactions between daily interpersonal experiences and trait self-esteem. Cross-level interactions between trait self-esteem and state self-esteem were not included in the final model as initial model testing indicated that state self-esteem did not interact with trait self-esteem to predict the likelihood of marijuana use.

The possibility that trait self-esteem moderates the strength of the within-person association between daytime interpersonal experiences and the likelihood of marijuana use was examined. The results are presented in Table 11. The coefficients reported in Table 7 (B and SE) are expressed in the metric of log odds, and can be interpreted as the expected increase in the log odds of marijuana use for a one unit increase in variable X. The corresponding odds ratio (OR) is also presented. None of the main effects in this

model significantly predicted the likelihood of marijuana use (*p*s > .05). However, mean reports of negative events were a marginally significant predictor of marijuana use (β =.82, $p = 0.06$), such that consistently experiencing more negative events was associated with an increased log odds of marijuana use. In addition, mean reports of positive events were a marginally significant predictor of marijuana use (β = -.68, $p = 0.09$), such that consistently experiencing more positive events was associated with an decreased log odds of marijuana use. The interaction between trait self-esteem and daily negative interpersonal experiences was also a marginally significant predictor of the likelihood of marijuana use (β = -.04, $p = 0.09$).

Trait self-esteem did not moderate the within-person relation between daily positive interpersonal experiences and the likelihood of marijuana use (β = -.01, $p > .05$). The interaction between trait self-esteem and mean levels of negative (β = -.13, $p > .05$) and positive (β = .01, $p > .05$) events were both not significant. However, the Trait self-esteem x Negative interpersonal events interaction was significant (β = -0.04, $p < 0.05$). As suggested by Figures 11 and 12, those with high trait self-esteem were not more likely to report marijuana use on days when they reported relatively more (versus fewer) negative interpersonal experiences. However, individuals with low trait self-esteem were more likely to report marijuana use on days that they experienced relatively more positive interpersonal interactions (in comparison to days when they experienced relatively fewer negative interpersonal experiences). This significant cross-level interaction suggests that the effect of negative interpersonal events on the likelihood of marijuana use depends upon participants' level of trait self-esteem. This finding provides evidence in support of Hypothesis 3, which predicted that low trait self-esteem individuals would be more likely

to engage in health risk behaviors on days when relatively more negative interpersonal events are experienced.

Social anxiety and likelihood of marijuana use. In order to determine if trait social anxiety moderated the influence of daily interpersonal interactions on marijuana use, the likelihood of marijuana use was predicted from the following equations:

$$\log it(\pi_{ij}) = \beta_{0i} + \beta_{1i}\,(\text{daily negative events}) + \beta_{2i}\,(\text{daily positive events}) + \beta_{3i}\,(\text{daily state self-esteem}) + e_{it} \quad \text{(equation 21)}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}\,(\text{gender}) + \gamma_{02}\,(\text{negative events mean}) + \gamma_{03}\,(\text{positive events mean}) + \gamma_{04}\,(\text{state self-esteem mean}) + \gamma_{05}\,(\text{social anxiety}) + \gamma_{06}\,(\text{negative events mean x social anxiety}) + \gamma_{07}\,(\text{positive events mean x social anxiety}) + u_{0i} \quad \text{(equation 22)}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}\,(\text{social anxiety}) + u_{1i} \quad \text{(equation 23)}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21}\,(\text{social anxiety}) + u_{2i} \quad \text{(equation 24)}$$

These equations can be interpreted in a similar fashion as the previous equations reported for marijuana use, with a few exceptions. In Equation 22, the term γ_{05} refers to the effect of the person-level variable social anxiety on person *i*'s log odds of marijuana use. The terms $\gamma_{06,}$ $\gamma_{07,}$ γ_{20} and γ_{21} in the equation refer to the coefficients for the Social anxiety x Negative events mean, Social anxiety x Positive events mean, Social anxiety x Daily negative events, Social anxiety x Daily Positive events interaction terms. Similar to the prior model, cross-level interactions between social anxiety and state self-esteem were not included in the final models as initial model testing indicated that state self-esteem did not interact with social anxiety to predict the likelihood of marijuana.

The possibility that social anxiety moderated the strength of the within-person association between daytime interpersonal experiences and the likelihood of marijuana use was examined. The results with odds ratios for this model are presented in Table 12. Participants' trait social anxiety (β = .03, $p > .05$) was not related to their likelihood of engaging in marijuana use. Daily negative events (β =.08, $p > 0.05$), positive events (β =.08, $p > 0.05$) and state self-esteem (β =.003, $p > 0.05$) were not significant predictors of marijuana use. Results indicated that mean reports of negative events were a marginally significant predictor of the likelihood of marijuana use (β = 0.87, $p = 0.052$), whereby participants who consistently experienced a greater number of negative interpersonal experiences during their participation in the study were more likely to report marijuana use. Mean levels of positive interpersonal experiences (β = -.89, $p < 0.05$) significantly predicted marijuana use and results indicated that participants who consistently experienced a greater number of positive interpersonal experiences were less likely to report marijuana use. Mean reports of state self-esteem (β = -.01, $p > 0.05$) did not significantly predict the likelihood of marijuana use.

Trait social anxiety did not moderate the within-person relation between daily negative interpersonal events (β = .01, $p > 0.05$) or daily positive interpersonal experiences (β = -.003, $p > 0.05$) and the likelihood of marijuana use. The interaction between social anxiety and mean reports of negative interpersonal experiences did not significantly predict the likelihood of marijuana use (β = -.02, $p > 0.05$). However, the Positive events mean x Social anxiety interaction (β =.06, $p = 0.09$) was a marginally significant predictor of the likelihood of marijuana use. Thus, while interpersonal events

appear to play a role in marijuana use, these effects were not moderated by trait social anxiety.

Summary of Analyses

Taken together, these analyses do provide some support for the hypotheses of this study. Refer to Figure 13 for a summary of the significant predictors of many of the health risk behaviors assessed in this study. It was hypothesized that experiencing a greater number of negative interpersonal events during the day would be associated with an increased likelihood of engaging in health risk behaviors later that evening (Hypothesis 1). Daily reports of negative interpersonal experiences only significantly predicted an increased likelihood of alcohol consumption. It was also hypothesized that experiencing a greater number of positive interpersonal events during the day would be associated with an increased likelihood of engaging in health risk behaviors later that evening (Hypothesis 2). The hypothesis was supported when vaginal sex with a new partner was the health risk behavior examined. However, for other dependent variables, daily reports of positive events were often associated with a decreased likelihood of health risk taking.

Dispositional characteristics were hypothesized to moderate the relationship between daily interpersonal events and health risk behaviors. It was hypothesized that individuals with low trait self-esteem would be more likely to engage in health risk behavior on days when they experienced more (versus fewer) negative interpersonal experiences (Hypothesis 3). Findings revealed that low trait self-esteem individuals were indeed more likely to engage in marijuana use on days that relatively more negative interpersonal events were experienced. For individuals with high trait self-esteem, it was

hypothesized that they would be more likely to engage in health risk behavior on days when they experienced more (versus fewer) positive interpersonal experiences (Hypothesis 4). This hypothesis was partially supported, in that high trait self-esteem individuals were more likely to engage in vaginal sex with a new partner on days when they experienced relatively more positive interpersonal experiences. However, similar moderating effects were not found in the other health risk behaviors assessed in this study.

It was hypothesized that individuals with high social anxiety would be more likely to engage in health risk behavior on days that they experienced more (versus fewer) negative interpersonal experiences (Hypothesis 5). However, none of the analyses provided evidence in support of this hypothesis. It was also hypothesized that individuals with low trait social anxiety would be more likely to engage in health risk behavior on days that they experienced more (versus fewer) positive interpersonal experiences. While this cross–level interaction was significant across a number of health behaviors (i.e., vaginal sex, unprotected vaginal sex, and binge drinking), analyses revealed that socially anxious (rather than nonsocially) individuals were more likely to engage in health risk behaviors on days that relatively more positive interpersonal events were experienced.

Finally, it was predicted that participants would be more likely to engage in health risk behavior on days that they experienced decreases in their state self-esteem (Hypothesis 6). However, this hypothesis was not supported.

CHAPTER IV: DISCUSSION

Despite considerable research on the influence of self-esteem and social anxiety on engagement in health risk behaviors, findings are somewhat unclear as to the relationship between these variables and health risk behaviors (e.g., Baumeister et al., 2003; Kashdan et al., 2009). Given the serious health consequences that can occur among college students who engage in health risk behaviors, it is important to continue research efforts to clarify the conditions under which college students are most likely to engage in health risk behaviors. This study sought to shed light on mixed findings regarding the relationship between trait self-esteem and trait social anxiety and health risk behaviors using the experience sampling method to examine whether these dispositional characteristics moderate the influence of daily interpersonal experiences on health risk behaviors.

Thus, the daily events of college students were documented to determine how positive and negative interpersonal experiences interact with characteristics of the individual to predict daily health risk behavior. Based on previous research on trait self-esteem (e.g., Leary et al., 1995) and social anxiety (e.g., Kashdan et al., 2009) a number of hypotheses were generated. It was hypothesized that experiencing relatively more negative interpersonal experiences earlier in the day would be associated with an increased likelihood of engaging in health risk behaviors later that evening. Similarly, it was hypothesized that experiencing relatively more positive interpersonal experiences earlier in the day would be associated with an increased likelihood of engaging in health

risk behaviors later that evening. Given mixed findings related to trait self-esteem, social anxiety and risk taking, main effects of trait self-esteem and social anxiety on risk taking were not predicted. Rather these dispositional characteristics were hypothesized to moderate the influence of daily interpersonal experiences on health risk behaviors.

Specifically, it was hypothesized that individuals with either low trait self-esteem or high trait social anxiety would be more likely to engage in health risk behavior on days when they experienced a greater number of negative interpersonal experiences. For individuals with either high trait self-esteem or low trait social anxiety, it was predicted that their probability of engaging in health risk behavior would not increase on days when they experienced a greater number of negative interpersonal experiences. It was also predicted that these individual difference variables would moderate the effects of daily positive interpersonal experiences on health risk behaviors. For individuals with either high trait self-esteem or low trait social anxiety, it was predicted that experiencing a greater number of daily positive interpersonal experiences would predict engagement in health risk behaviors. This is in comparison to individuals with either low trait self-esteem or high trait social anxiety, whose probability of engaging in health risk behavior was not predicted to increase on days when they experienced a greater number of positive interpersonal experiences. Finally, because interpersonal experiences often result in fluctuations in state self-esteem and these fluctuations can often motivate behavior change (Leary et al., 1995), it was predicted that daily decreases in state self-esteem would predict the likelihood of engaging in health risk behavior later that day. The results of this study are summarized below.

Self-esteem and daily interpersonal experiences

Vaginal sex. Results indicated that the likelihood of vaginal sex was predicted by relationship status, daily reports of negative interpersonal experiences and the interaction between trait self-esteem and daily positive interpersonal interactions. Experiencing a greater number of negative interpersonal experiences earlier in the day was associated with a decreased likelihood of vaginal sex. The hypothesis that high trait self-esteem individuals would be more likely to engage in vaginal sex on days when they experienced relatively more positive interpersonal experiences was not supported. Interestingly, there was an overall decrease in the probability of vaginal sex on days when relatively more positive interpersonal events were experienced. A potential explanation for the decreased likelihood of engaging in sexual behavior on days when more positive interpersonal events are experienced is that participants were engaging in some other type of behavior to enhance the positive events that they experienced earlier that day. In addition, consensual sexual activity requires the participation of a consenting sexual partner. It is possible that while positive events may in general increase the likelihood of sexual behavior among high trait self-esteem individuals, that sexual behavior does not necessarily occur on the same day that positive events are experienced. However, this possibility may be unlikely given that the interaction between mean reports of positive interpersonal experiences and trait self-esteem was not significant.

For the unprotected vaginal sex outcome, result indicated that the only significant predictors of unprotected vaginal sex were gender and relationship status. More specifically, females were more likely to report unprotected sex than males and those in a relationship were more likely to report unprotected sex than those who were single. The finding regarding relationship status is consistent with research suggesting that

unprotected sex is much more likely to occur in the context of committed relationships than in the context of sex with a causal partner (Misovich, Fisher, & Fisher, 1998). Although unprotected vaginal sex was more likely to occur in the context of a committed relationship, this is still of concern given the relatively low rates of HIV testing in this sample.

In the model predicting the likelihood of vaginal sex with a new partner, significant predictors were relationship status, daily positive interpersonal experiences, and the interaction between daily reports of positive events and trait self-esteem. Interestingly, participants that reported being in a relationship at the beginning of the study were more likely to report vaginal sex with a new partner during the daily diary portion of the study. It remains unclear if the sexual encounters with a new partner involved instances of sexual activity outside the relationship reported at the beginning of the study (i.e., extra-relationship sexual activity), or if this relationship had dissolved when vaginal sex with a new partner was reported. Daily fluctuations in positive interpersonal experiences did predict the likelihood of vaginal sex with a new partner, such that on days when increases in positive interpersonal events were experienced participants were more likely to report vaginal sex with a new partner. The interaction between daily reports of positive events and trait self-esteem was also significant. Participants were more likely to report vaginal sex with a new partner on days when they experienced relatively more positive interpersonal experiences and this effect was stronger for individuals with high trait self-esteem. This finding may suggest that individuals with high trait self-esteem are potentially using sexual activity to enhance positive events in their lives.

Alcohol use. Results indicated that daily negative interpersonal experiences were associated with an increased likelihood of consuming alcohol later that evening, but did not significantly predict the likelihood of binge drinking. In addition, mean reports of negative interpersonal experiences predicted the probability of alcohol consumption and binge drinking, such that participants who consistently experienced more negative interpersonal experiences were more likely to engage in these behaviors. In contrast, results indicated that positive interpersonal experiences appeared to function as a protective factor against alcohol consumption. For example, positive interpersonal events experienced during the day predicted a decreased likelihood of consuming any alcohol and binge drinking later that evening. Results also indicated that average reports of positive interpersonal events predicted alcohol consumption such that individuals who consistently reported experiencing more positive interpersonal experiences during their participation in the study were less likely to engage in alcohol consumption and binge drinking. The finding that positive interpersonal experiences are related to decreased engagement in alcohol consumption is inconsistent with the idea that college students often consume alcohol as a means to enhance positive events in their lives (e.g., Cooper, 1994). The results of this study did not support the hypothesis that daily fluctuations in state self-esteem predict the likelihood of evening alcohol consumption or binge drinking. In addition, trait self-esteem was not related to the likelihood of consuming alcohol or binge drinking.

Of interest to the hypotheses of this study was whether trait self-esteem moderated the effects of negative interpersonal experiences on alcohol consumption. Results indicated that trait self-esteem did not moderate the influence of negative

interpersonal experiences on alcohol consumption; indicating that low trait self-esteem individuals are not more likely to drink on days when they experience relatively more negative interpersonal experiences. In addition, trait self-esteem did not moderate the effects of daily positive interpersonal experiences on drinking behavior; indicating that high trait self-esteem individuals are no more likely to drink on days that they experience relatively more positive interpersonal experiences. Thus, these results did not support the main hypotheses of this study.

Marijuana use. Mean reports of negative and positive events were marginally significant predictors of the likelihood of marijuana use. In addition, marijuana use was significantly predicted by the interaction between daily reports of negative events and trait self-esteem. For participants with high trait self-esteem, experiencing relatively more negative interpersonal experiences had minimal impact on their likelihood of using marijuana. However, the likelihood of marijuana use for participants with low trait self-esteem did appear to depend on the number of negative interpersonal events they experienced earlier that day. More specifically, among low trait self-esteem individuals, experiencing relatively more negative interpersonal experiences was associated with an increased likelihood of marijuana use. This finding provides evidence in support of the prediction that experiencing a greater number of negative interpersonal experiences would be associated with an increased likelihood of engaging in health risk behaviors among low trait self-esteem individuals.

Taken together, the findings of this study indicate that negative interpersonal experiences do play a role in daily health risk behaviors. When alcohol consumption and marijuana use are considered, it appears that experiencing negative interpersonal

experiences is associated with an increased likelihood of engaging in these behaviors. This finding is consistent with the idea that health risk behaviors may be used to cope with the negative feelings that often result following interpersonal rejection (e.g., Hull et al., 1983) or as a means to increase the extent to which one feels accepted by others (e.g., Leary & Downs, 1995). Results related to the impact of daily negative interpersonal experiences on alcohol consumption are also consistent with research that suggests interpersonal rejection has negative consequences for health (Dickerson et al., 2004; Dickerson & Kemeney, 2004). In general, the results of this study were inconsistent with research on Sociometer Theory that suggests that low trait self-esteem individuals are more likely to engage in maladaptive coping behaviors, such as alcohol consumption, following interpersonal rejection. With the exception of marijuana use, low trait self-esteem individuals were no more likely than their high trait self-esteem counterparts to engage in health risk behaviors following negative interpersonal experiences.

The findings of this study are generally inconsistent with the hypothesis that experiencing a greater number of positive events earlier in the day would be associated with an increased likelihood of engaging in health risk behavior and that positive events would be associated with an increased likelihood of engaging in health risk behavior among high trait self-esteem individuals. However, there were a few exceptions to this general finding. More specifically, participants were more likely to engage in vaginal sex with a new partner on days when relatively more positive interpersonal events were experienced. In addition, high trait self-esteem individuals were more likely to engage in vaginal sex with a new partner on days when they experienced relatively more positive

interpersonal experiences. However, a similar pattern was not found across all health risk behaviors investigated in this study.

Social anxiety and interpersonal experiences

Vaginal sex. Results indicated that the likelihood of vaginal sex was predicted by relationship status, daily reports of negative events and the interaction between trait social anxiety and daily positive interactions. Individuals that reported being in a relationship were more likely to engage in vaginal sex. In addition, days when relatively more negative interpersonal events were experienced were associated with a decreased likelihood of vaginal sex. The interaction between trait social anxiety and daily positive interpersonal experiences significantly predicted the likelihood of vaginal sex. However, the hypothesis that individuals with low trait social anxiety would be more likely to engage in vaginal sex on days when they experience relatively more positive interpersonal experiences was not supported. Counter to the hypotheses of this study, socially anxious individuals were more likely to engage in vaginal sex on days when they experienced relatively more (versus fewer) positive interpersonal experiences.

For the unprotected vaginal sex outcome, results indicated that relationship status and the interaction between trait social anxiety and daily positive interpersonal experiences significantly predicted the likelihood of unprotected vaginal sex. More specifically, those in a relationship were more likely to report unprotected sex than those who were single. The significant interaction term indicated that individuals with high trait social anxiety were more likely to engage in unprotected vaginal sex on days when they experienced relatively more positive interpersonal experiences. Social anxiety is often associated with impaired social skills (Kashdan, Collins, & Elhai, 2006), which may

reduce the ability of socially anxious individuals to successfully negotiate condom use. As socially anxious participants were more likely to engage in vaginal sex on days when they experienced more positive events, it is possible that an inability to successfully negotiate condom use explains the increased likelihood of socially anxious individuals to engage in unprotected sex on these days as well.

In the model predicting the likelihood of vaginal sex with a new partner, the only significant predictor was relationship status, such that participants that reported being in a relationship at the beginning of the study were more likely to report vaginal sex with a new partner. In addition, daily state self-esteem, mean reports of state self-esteem and the interaction between daily positive events and trait social anxiety were marginally significant predictors of the likelihood of vaginal sex with a new partner.

Alcohol use. Results indicated that negative interpersonal experiences did not predict the likelihood of engaging in alcohol consumption or binge drinking. However, participants who consistently experienced a greater number of negative interpersonal experiences were significantly more likely to consume alcohol and to binge drink. In contrast, results indicated that positive interpersonal experiences decreased the likelihood of alcohol consumption. For example, positive interpersonal events experienced during the day were associated with a decreased likelihood of consuming any alcohol and binge drinking later that evening. Results also indicated that participants who consistently experienced more positive interpersonal experiences during the 28 day study were less likely to consume alcohol and to binge drink. The results of this study did not support this hypothesis that daily fluctuations in state self-esteem predict evening drinking behavior. Results indicated that trait social anxiety was a marginally significant predictor of

evening alcohol consumption, such that socially anxious participants were more likely to consume alcohol in the evening. Trait social anxiety was unrelated to the likelihood of binge drinking.

Of importance to the hypotheses of this study was whether trait social anxiety moderated the effects of interpersonal experiences on alcohol consumption. The results of this study did not support the hypothesis of this study and indicated that socially anxious individuals were no more likely to drink on days when they experienced relatively more negative interpersonal experiences than participants with low trait social anxiety. However, the results did indicate that trait social anxiety moderated the effects of daily positive events on the likelihood of binge drinking. Interestingly, this moderating effect was not consistent with the hypothesis of this study. More specifically, socially anxious individuals were more likely to engage in binge drinking on days when they experienced relatively more positive interpersonal experiences. This is in comparison to individuals low on trait social anxiety, that in general were less likely to binge drink on days when they experienced relatively more positive interpersonal experiences.

Marijuana use. Marijuana use was significantly predicted by mean reports of positive events. Participants in this study who consistently experienced more positive events were less likely to report marijuana use. In addition, daily positive interpersonal experiences, mean reports of negative events and the interaction between mean reports of positive events and social anxiety were all marginally significant predictors of the likelihood of marijuana use.

Taken together, findings from this study examining the role of social anxiety and interpersonal events on health risk behaviors suggest that both positive and negative

interpersonal experiences do play a role in daily health risk behaviors. In general, negative interpersonal experiences increased the likelihood of health risk behaviors and positive interpersonal experiences decreased the likelihood of health risk behaviors. Across a broad of health risk behaviors, socially anxious individuals were no more likely than individuals with low trait social anxiety to engage in health risk behaviors following negative interpersonal experiences.

Contrary to the hypotheses of this study, socially anxious individuals were more likely to engage in health risk behaviors on days when they experienced relatively more positive interpersonal experiences. One explanation for this finding is that socially anxious individuals may experience decreases in state social anxiety on days when they experience relatively more positive experiences, and this in turn may increase their willingness to socialize with others. Some socially anxious individuals appear to be aware that engaging in health risk behaviors can provide the opportunity for increasing the degree to which one is accepted by others (Kashdan et al., 2006). If socially anxious individuals are more likely to socialize on days when they experience positive events, it is possible that, because of chronic concerns related to fears that they are not accepted by others, they may be more likely to engage in risk behaviors as they are attempting to increase the extent to which they feel accepted by others.

Alternatively, it could be that social anxious individuals experience positive events in a different manner from non-socially anxious individuals. More specifically, the experience of positive events may results in increased anxiety and concerns related to negative evaluation in socially anxious individuals. For example, Gilbert (2001) proposed that, in addition to fearing negative evaluation, socially anxious individuals fear positive

evaluation presumably due to concerns that positive evaluations will bring them into conflict with others or that they will be unable to maintain gains associated with positive evaluations in the future. Consistent with this notion, Wallace and Alden (1997) found that receiving positive social feedback increased socially anxious individuals concerns that others would expect more of them in a future interaction and that they would experience greater anxiety in future social interactions. These findings indicate that experiencing positive social events is associated with a fear that such events will lead to future negative evaluation among socially anxious individuals. Indeed, it has recently been suggested that fear of positive evaluation is a key characteristic of social anxiety (Weeks, Heimberg, & Rodenbaugh, 2008).

Fear of positive evaluation by socially anxious individuals may help to explain the pattern of results found in this study. More specifically, it could be that on days when socially anxious individuals experienced a greater number of positive events that such events increased their feelings of anxiety and concerns related to negative evaluation by others. If this is the case, socially anxious individuals may be using health risk behaviors to cope with fears and anxiety that they experience following positive social interactions. Future research is necessary to understand the way in which socially anxious individuals process positive social information and the implications that potential biases in the processing of positive social information have for engagement in health risk behaviors.

Limitations

Although the present findings provide some support for the role of trait self-esteem, social anxiety and daily interpersonal experiences in health risk behaviors, there are several limitations of this study that should be considered. First, it is important to note

that this study was correlational in nature, making it impossible to rule out the possibility that unmeasured variables are responsible for the observed effects. In addition, even though the method of data collection made it possible to establish that the predictor variables (i.e., interpersonal experiences and state self-esteem) occurred prior to engagement in health risk behaviors, because of the correlational nature of this study it is not possible to establish causality.

A second limitation of this study is that participants only indicated whether or not they experienced specific interpersonal events in a given day and not how these events impacted their feelings of rejection or acceptance or their emotional states. One benefit of using reports of the occurrence of discrete interpersonal experiences is that such reports are less subjective than reports of feelings that occur in response to such events. However, research evidence suggests that some individuals are more sensitive to interpersonal rejection. For example, low trait self-esteem individuals are much more reactive to signs of interpersonal rejection than their high trait self-esteem counterparts (Leary & Downs, 1995). If this study collected data on the impact of negative interpersonal experiences on feelings of rejection or mood, rather than simply the occurrence of such events, it is possible that results may have indicated that trait self-esteem and social anxiety moderated the impact of negative interpersonal experiences on health risk behavior.

A third limitation of this study is that relatively few participants reported having low trait self-esteem. The average trait self-esteem of participants in this sample was 22.10 (*SD* = 4.36). Scores on Rosenberg's self-esteem scale range from 0-30 and scores in between 15-25 are considered in the normal range. In the current sample, scores below

the normal range were only observed in 7.8% of participants. The fact that the majority of participants in this study reported high levels of trait self-esteem could help explain why participants did not react to negative interpersonal experiences in the hypothesized manner. Research evidence suggests that low trait self-esteem individuals are more reactive to negative social information, and may be more likely to engage in health risk behaviors than high trait self-esteem individuals following interpersonal rejection (e.g., Hull et al., 1983; Baumeister, 1991). Given the relatively small number of participants who actually reported below normal levels of trait self-esteem, it is possible that this may have made it difficult to detect whether low trait self-esteem individuals respond to negative interpersonal experiences with engagement in health risk behaviors. It would be interesting to test the hypotheses of this study related to the moderating effect of trait self-esteem and negative interpersonal experiences in a sample of participants with more diverse levels of trait self-esteem. Alternatively, in future research it may be necessary to consider alternative measures of self-esteem, such as the contingencies of self-worth scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003), rather than global measures of self-esteem.

A fourth limitation is the relatively low frequency that participants reported experiencing the interpersonal events assessed in this study. For example, participants reported very low rates of negative interpersonal experiences (M = .92, SD = 1.02) and this may have influenced the ability to detect whether trait self-esteem differences moderate the impact of daily negative events on health risk behavior. In future research, it may be helpful to test the predictions of this study with participants who are more likely to experience negative events on a daily basis. The health behaviors reported in this study

also occurred at a low frequency. Specifically, of the total person-period assessments, 78.5% indicated no alcohol use, 86.5% indicated no sexual activity and 87.2% indicated no illegal drug use. This limited the type of analyses that could be conducted, such that only factors that predict the likelihood of engaging in a specific behavior were examined. If this study was conducted with participants that engage in health risk behaviors more frequently, it would have been possible to look not only at factors that predict the likelihood of engaging in a specific health risk behaviors, but also factors that predict the extent to which the health behavior was engaged in on a particular day (e.g., number of drinks consumed).

A fifth limitation of this study is that the compliance rate for the daily survey was lower than that reported in other daily diary studies. A variety of strategies were used to increase compliance. For example, participants received daily reminder emails to complete the survey and participants who completed 80% of the surveys were entered into a raffle for a gift certificate at the CSU bookstore. Despite these strategies to increase compliance, the compliance rate in the current study was 68%, which is much lower than the 80% compliance rate than is typically reported in daily diary studies. In addition, because health risk behaviors (which were reported the next day) were predicted from events that occurred during the previous day, consecutive days of data were required for these analyses. If participants skipped one day of data collection, this resulted in losing two days of data for these analyses. It is possible that the low compliance rate impacted the ability to detect significant predictors in the models.

A final limitation of this study is related to the daily surveys only being completed on a daily basis. As surveys were only completed once per day, it is not possible to

determine whether the health risk behaviors actually occurred on the same day that the interpersonal events were experienced. In the current study, participants reported on the interpersonal events experienced early that day and reported their health risk behaviors on the following day. For alcohol consumption, it is reasonable to assume that this behavior occurred the same day that the interpersonal events were experienced, as research indicates that most drinking behavior occurs in the evening (e.g., Armeli et al., 2000). However, for the other dependent variables (i.e., sexual behavior, marijuana use) it is possible that these behaviors occurred on the day after the interpersonal events were experienced. In addition, data was only collected about interpersonal experiences that occurred during the day, and not those that occurred in the evening. It is possible that interpersonal experiences that occurred after completion of the daily survey influenced health risk behavior later that evening. Requiring participants to complete multiple surveys per day would have addressed both of these limitations. However, it was ultimately decided that this would present too much of a burden to participants.

Future Directions

Contrary to the hypotheses of this study, trait self-esteem did not moderate the influence of negative interpersonal experiences on health risk behavior for the majority of behaviors assessed in this study. It is possible that the explicit sociometer system is not sensitive to the interpersonal rejections that are likely to occur on a daily basis. Recent research by DeHart et al. (2009) investigated whether implicit self-esteem (i.e., unconscious and automatic self-evaluation) moderated the influence of daily interpersonal experiences on alcohol consumption. Results suggested that while explicit self-esteem did not moderate the effects of interpersonal events on alcohol consumption,

implicit self-esteem did moderate the effects of negative events on alcohol consumption. More specifically, participants with low implicit self-esteem drank more on days when they experienced a greater number of negative interpersonal experiences. It is possible that the implicit self-esteem system is more sensitive to the kind of small interpersonal rejections that occur in everyday life (e.g., feeling excluded or left out by friends). Future research should investigate whether implicit self-esteem moderates the effects of daily negative interpersonal events on the health risk behaviors investigated in this study.

The findings of this study suggest that individuals with high trait social anxiety were more likely to engage in a number of health risk behaviors on days when they experienced relatively more positive interpersonal experiences. Given the sensitivity of individuals with high trait social anxiety to social rejection, it was hypothesized that on days when these individuals experienced a greater number of negative interpersonal experiences that they would be more likely to engage in health risk behavior. Further research is necessary to understand why individuals with high trait social anxiety were more likely to engage in health risk behaviors on days when they experienced positive events. One potential explanation is that experiencing a greater number of positive interpersonal events in a given day reduced socially anxious individuals' concerns with social rejection, making them more likely to socialize with others. Once socializing with others, socially anxious individuals may be more likely to engage in health risk behaviors as a means of fitting in with others or because they have poor refusal skills. As previously mentioned, it could also be the case that a fear of positive evaluation by socially anxious individuals is related to their increased likelihood of engaging in health risk behaviors on days when they experience relatively more positive interpersonal experiences.

Clearly more research is necessary to explain the finding that socially anxious individuals were more likely to engage in a broad range of health risk behaviors when they experienced positive interpersonal experiences. One possibility would be to include a measure assessing the amount of time spent interacting with others, as this would provide information as to whether socially anxious individuals are spending more time socializing on days that they experience positive events. Future research could also assess state social anxiety, which would shed light on whether socially anxious individuals experiences reductions or increases in state social anxiety on days when they experience more positive events and whether this is related to increased health risk taking.

In future research it may be important to take a different analytic approach to investigating the influence of daily interpersonal experiences on health risk taking. In the current study, the total number of negative and positive interpersonal events experienced each day were calculated and included in all models. Thus, the effects of negative and positive interpersonal experiences were examined separately from one another. A better approach to examining the influence of daily interpersonal experiences on health risk taking may be to instead view positive and negative daily interpersonal experiences on a continuum. Such an approach to data analysis may better account for the possibility that positive and negative interpersonal experiences interact with one another to predict engagement in health risk behaviors. The current study also did not account for the possibility that some interpersonal experiences (e.g., rare events) may have a greater impact on health risk taking than other types of interpersonal experiences (e.g., more frequent events). Future research may benefit from taking an item response theory approach to investigating the influence of interpersonal experiences on health risk taking,

as this would account for the possibility that rare interpersonal events are more difficult to cope with and therefore may have a greater impact on health risk taking. Finally, in future research it may be useful to analyze aggregate data. This could be accomplished by creating a total score for interpersonal events experienced during the week and examining whether these events influence health risk behaviors engaged in over the weekend. Given the possibility that individuals may not engage in health risk behaviors on the same day that interpersonal events are experienced, it is possible that significant relationships may be found at the aggregate level that were not discovered at the daily level. Analyzing data at the aggregate level was attempted in this study, however was not possible due to the large amount of missing data.

Implications

The findings of this study are inconsistent with previous experimental research on the influence of trait self-esteem and interpersonal rejection on health risk behavior. In the current study, trait self-esteem did not moderate the relationship between negative interpersonal experiences and health risk behavior. With the exception of marijuana use, low trait self-esteem individuals were no more likely to engage in health risk behaviors on days when a greater number of negative interpersonal interactions were experienced. There are a number of potential explanations for this inconsistent finding. First, it is possible that the level of perceived rejection that participants experienced following negative interpersonal events was lower than the levels of rejection that are induced with experimental manipulations of rejection (e.g., Leary et al., 1995; Vohs & Heatherton, 2001). In studies that manipulate feelings of belonging, participants are commonly given feedback informing them that they will end up alone later in life (e.g., Twenge, Catanese,

& Baumeister, 2002). Manipulations of this type may have a greater impact on one's sense of belonging than the type of negative interpersonal experiences assessed in the current study (e.g., showed an interest in someone and they ignored or rejected me). It is possible that the sociometer system may only become activated in response to interpersonal events that involve high levels of rejection, which were not assessed in this study.

Second, because the current study investigated the influence of both positive and negative events on health risk behavior, it is possible that this influenced the ability to detect the moderating effect of trait self-esteem on negative interpersonal events. In comparison, laboratory studies only consider how interpersonal rejection influences subsequent thoughts, feelings and behaviors. If only the effects of negative interpersonal experiences were considered in the current study, it is possible that a similar pattern of results to those reported in laboratory studies would have been discovered. However, this ignores a reality of daily life, that individuals may experience a variety of negative events and positive events in the same day and would therefore provide an incomplete picture of how negative interpersonal events influence behavior. This suggests that in everyday life, where people experience a mixture of positive and negative events, that the moderating role of trait self-esteem on the relationship between interpersonal rejection and health behaviors looks somewhat different than when this relationship has been explored in laboratory studies.

In addition, the types of manipulations commonly used in experimental research are very different from the negative interpersonal events examined in this study. In fact, many studies examining the influence of threats to the self involve manipulations that

provide participants with negative feedback on their personality characteristics or abilities (Leary, Terry, Allen, & Tate, 2009). For example, in many studies self esteem is threatened by giving participants negative feedback on an intelligence test by informing participants that they scored in the bottom 20% of students on the measure of intelligence (e.g., Stucke & Sporer, 2002) or by giving participants an easy anagram task to complete that is in fact very difficult complete (e.g., Trope & Pomerantz, 1998). Manipulations of this sort likely threaten self-esteem in the domain of intellect. The negative events assessed in this study were specific to interpersonal interactions, which likely threaten participants' sense of belonging, rather than their sense of intellect. This distinction between the type of threats assessed in the current study and the manipulations used in laboratory studies may help explain why the current study did not find evidence of the predicted relationship between trait self-esteem and negative events.

Finally, in many experimental studies of the impact of interpersonal rejection on behavior, the impact of the interpersonal rejection manipulation is assessed relatively soon after the manipulation occurs. In the current study, the impact of negative interpersonal experiences on health behaviors that occurred later that day was assessed. It is possible that immediate reactions to interpersonal rejection are quite different from more delayed reactions to interpersonal rejection. Thus, while low trait self esteem individuals may be more likely to immediately respond to interpersonal rejection with maladaptive response, it may be the case that such a relationship does not exist when distal responses to interpersonal rejection are considered.

Thus, there are a variety of reasons for why the findings of this study are inconsistent with previous research on trait self-esteem, interpersonal rejection and health

risk behaviors. For drinking behaviors in particular, participants were more likely to engage in health risk behaviors on days that they experienced relatively more negative interpersonal experiences or when they consistently reported experiencing more negative interpersonal experiences. Based on these findings, it is clear that, at least for some health behaviors, negative interpersonal experiences increase the likelihood of engaging in health risk behaviors. What remains unclear is whether or not trait self-esteem moderates the influence of negative interpersonal experiences on engagement in health risk behaviors. Retesting the hypotheses of this study with populations that experience a greater number or greater severity of daily negative interpersonal experiences or that have lower trait self-esteem may help to determine if differences in trait self-esteem do indeed predict engagement in health risk behaviors in response to negative interpersonal experiences.

The findings of this study also have implications for research on social anxiety and health risk behaviors. Research by Kashdan et al. (2009) suggests that the majority of socially anxious individuals display a pattern of risk aversion. However, Kashdan et al. reported that for a small subset of socially anxious individuals, higher levels of aggression, sexual impulsivity and substance abuse were observed. This is somewhat inconsistent with the findings of this study, as social anxiety did not significantly predict engagement in the health risk behaviors assessed in this study. The participants in Kashdan et al. met DSM-IV criteria for social anxiety disorder, and it could be that the relationship between social anxiety and health risk taking in college student populations is somewhat different than the relationship that exists between these variables among

adults who meet DSM-IV criteria for social anxiety. This possibility should be explored in future research.

The current study found that socially anxious individuals are more likely to engage in a number of health risk behaviors on days when they experience relatively more positive interpersonal experiences. This finding suggests that socially anxious individuals may engage in health risk behaviors as a way of enhancing positive interpersonal experiences. However, this is inconsistent with research suggesting that socially anxious individuals are more likely to discount positive events that they experiences (Alden & Wallace, 1995). Research by Kashdan and Steger (2006) suggests that socially anxious individuals report experiencing more positive events on days when they are not feeling socially anxious and are accepting of emotional experiences. This finding suggests that day to day changes in social anxiety may influence the number of positive events experienced, and it is possible that such fluctuations in state social anxiety have implications for how socially anxious individuals respond to positive events. By including a measure of state social anxiety, future research could explore whether fluctuations in state social anxiety have implications for how socially anxious individuals respond to positive daily events. In addition, it could be that socially anxious individuals differ from individuals with low social anxiety in terms of their expectancies or motives related to engagement in health risk behavior. Examining whether socially anxious individuals differ from individuals with low social anxiety on expectancies and motives related to engagement in health risk behavior and whether these differences predict engagement in health risk behavior following positive events would assist in examining this possibility. In addition, future research should explore whether a similar relationship

between positive interpersonal experiences and risk taking occurs among individuals with clinical levels of social anxiety.

The current findings related to social anxiety and positive interpersonal experiences are consistent with research on motivational models of health risk taking (e.g., Cooper et al., 1995). Participants with high trait social anxiety were more likely to engage in health risk behaviors on days when they experienced more positive interpersonal interactions, presumably as a way to enhance their positive experiences. It is important to note that the consequences associated with health risk behaviors vary as a function of the motives that underlie that behavior. For example, engaging in alcohol consumption in response to negative interpersonal experiences is associated with problematic drinking, while drinking to enhance positive experiences is not (e.g., Cooper et al., 1988). Therefore, as individuals with high trait social anxiety are binge drinking in response to positive experiences, rather than negative experiences, their behavior may not put them at risk for problematic drinking and other negative consequences. In comparison, research on sex motives suggests that engaging in sexual activity to enhance positive events is associated with more negative consequences than engaging in sexual activity to cope with negative events or feelings. The difference in negative consequences associated with these distinct motives for sexual activity is largely because enhancement sex motives are associated with both unprotected sex and sex with casual partners, while coping sex motives are associated only with sex with a casual partner (Cooper et al., 1998). If socially anxious individuals in this study were engaging in sexual activity to enhance positive experiences, this motive for sexual behavior may place them at risk for negative consequences. Future research should examine whether engaging in health risk

behavior in response to positive interpersonal experiences places socially anxious college students at risk for negative consequences, and whether these consequences are associated with their motives for engaging in the behavior.

Towards a Theory of Daily Health Risk Behavior

Overall, the findings of this study are inconsistent with research on sociometer theory that suggests that individuals with low trait self-esteem (e.g., Leary et al., 1995) or high trait social anxiety (e.g., Leary, 2001) are particularly vulnerable to the threat of social rejection and because of this are more likely to engage in health risk behaviors as a way of coping with the negative feelings that often follow interpersonal rejection. In addition, the findings are inconsistent with prior research suggesting that interpersonal rejection leads to decreases in state self-esteem and that such decreases motivate behavior change to increase one's sense of social inclusion (Leary & Downs, 1995). Given that the findings of this study are inconsistent with sociometer theory's explanation of health risk taking this suggests that perhaps an alternative theory to explain engagement in daily health risk behaviors is necessary.

For alcohol and marijuana use behaviors, experiencing positive interpersonal events appeared to function as a protective factor for engagement in health risk behaviors, suggesting that participants in this study were not using health risk behavior to enhance positive interpersonal experiences. However, the effects of positive interpersonal experiences were moderated by trait social anxiety. For social anxious individuals, it appears as though positive interpersonal experiences, rather than negative experiences, play an important role in health risk taking. This unexpected finding suggests the need to develop a theory of daily health risk taking that accounts for the possibility that

individuals who are generally thought of as being vulnerable to negative interpersonal experiences may in fact be more likely to engage in health risk behavior on days when they experience positive interpersonal experiences.

The Stress-Vulnerability Model (SVM) of alcohol consumption provides a framework for understanding how negative events interact with dispositional traits to predict drinking behavior. According to the SVM model, dispositional characteristics play an important role in determining an individuals' ability to manage stressful life events. The SMV model posits that an individuals' knowledge about the effects of alcohol consumption (i.e., alcohol expectancies) and their ability to manage stressful events are key determinants in the development of maladaptive drinking patterns, such as drinking to cope with negative events (Bandura, 1969; Maisto, Carey, & Bradizza, 1999).

It is possible that such a model could be adapted to provide a useful framework for understanding health risk taking in response to positive events. It may be the case that expectancies related to engagement in health risk taking and an individuals' ability to regulate the positive emotions are important determinants of health risk taking in response to positive events. More specifically, individuals who expect health risk taking to result in positive outcomes or who in general are motivated to enhance positive events may be more likely to engage in health risk taking following positive interpersonal experiences. Furthermore, it is possible that the moderating effect of trait social anxiety on positive interpersonal events reported in this study are mediated by differences in the expectancies and motives associated with health risk taking. In future research it would be important to determine if expectancies and motives for health risk taking play an important role in predicting engagement in health risk behaviors following daily positive

interpersonal experiences. In addition, future research should examine if expectancies and motives interact with trait social anxiety to explain the increased likelihood of socially anxious individuals to engage in health risk behaviors on days when relatively more positive interpersonal events are experienced.

Summary

This study sought to clarify mixed findings regarding the association between trait self-esteem and social anxiety and engagement in health risk behaviors among college students by using a daily diary methodology. Daily diary studies provide a strong method for investigating how health risk behaviors and dispositional characteristics may be related by examining interactions between these characteristics and interpersonal experiences that occur in everyday life. In the current study, the main effects for trait self esteem and social anxiety did not significantly predict the likelihood of engaging in health risk behaviors. Across a variety of health risk behaviors, negative interpersonal interactions appeared to increase the likelihood of risk behaviors, while positive events tended to decrease the likelihood of health risk behavior. The effects of negative interpersonal experiences appeared to depend upon trait self-esteem when marijuana use was considered, such that individuals with low trait self-esteem were more likely to use marijuana on days when relatively more negative interpersonal events were experienced. In addition, the effects of positive interpersonal experiences on engagement in a number of health risk behaviors depended upon levels of trait self-esteem and social anxiety. For example, individuals with high trait self-esteem were more likely to engage in vaginal sex with a new partner on days when relatively more positive interpersonal events were experienced. In addition, socially anxious individuals were more likely to engage in a

number of health risk behaviors on days when more positive interpersonal events were experienced. Overall, this study provides a unique glimpse into how people with low versus high trait self-esteem and low versus high social anxiety differ in terms of their reactions to positive interpersonal experiences.

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Table 1

Model predicting the likelihood of vaginal sex from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.520(.196)	.04(.03-.06)	-17.94***
Gender	.002(.197)	1.05(.82-1.35)	0.01
Relationship status	1.065(.183)	2.81(2.18-3.62)	5.83***
Daily negative events	-.159(.072)	1.01(.89-1.14)	-2.21*
Daily positive events	.011(.057)	.99(.87-1.13)	-0.18
Daily state self-esteem	.006(.007)	1.01(.99-1.02)	0.96
Negative events mean	.088(.194)	1.02(.79-1.31)	0.45
Positive events mean	.112(.173)	1.03(.82-1.29)	0.65
State self-esteem mean	.012(.008)	1.01(.99-1.02)	1.45
Trait self-esteem	-.038(.025)	.97(.94-.99)	-1.51
Daily negative events x self-esteem	.004(.017)	1.00(.98-1.03)	0.26
Daily positive events x self-esteem	-.032(.013)	.97(.95-.99)	-2.48*
Negative events mean x self-esteem	-.067(.056)	.94(.87-1.00)	-1.21
Positive events mean x self-esteem	.041(.043)	1.05(1.00-1.11)	.96

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	22861.36

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio; CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 2

Model predicting the likelihood of unprotected vaginal sex from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.888(.267)	.02(.01-1.01)	-14.54***
Gender	-.548(.277)	.58(.33-1.39)	-1.98*
Relationship status	1.153(.244)	3.17(1.96-7.11)	4.72***
Daily negative events	.024(.080)	1.02(.87-2.39)	0.30
Daily positive events	.048(.082)	1.05(.89-2.44)	0.59
Daily state self-esteem	.002(.009)	1.00(.98-2.67)	0.17
Negative events mean	.021(.254)	1.02(.62-1.71)	0.08
Positive events mean	-.158(.237)	.85(.53-1.71)	-0.67
State self-esteem mean	.008(.011)	1.01(.99-2.68)	0.75
Trait self-esteem	-.021(.033)	.98(.92-2.50)	-0.64
Daily negative events x self-esteem	-.010(.019)	.99(.95-2.60)	-0.51
Daily positive events x self-esteem	-.023(.018)	.99(.94-2.57)	-1.27
Negative events mean x self-esteem	-.028(.073)	.98(.84-2.32)	-0.38
Positive events mean x self-esteem	.065(.057)	1.06(.95-2.59)	1.14

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	24550.13

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio, CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 3

Model predicting the likelihood of vaginal sex with a new partner from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.041(.621)	.05(.01-1.01)	-4.90***
Gender	-.151(.216)	.86(.55-1.75)	-0.70
Relationship status	1.528(.204)	4.61(3.06-21.53)	7.51***
Daily negative events	-.211(.291)	.81(.45-1.57)	-0.73
Daily positive events	.595(.276)	1.81(1.04-2.84)	2.15*
Daily state self-esteem	.016(.010)	1.02(1.00-2.71)	1.52
Negative events mean	1.02(1.385)	2.77(.17-1.57)	0.74
Positive events mean	-1.43(1.060)	.24(.03-1.03)	-1.35
State self-esteem mean	.018(.009)	1.02(1.00-2.72)	1.95†
Trait self-esteem	-.036(.0217)	.96(.91-2.49)	-1.33
Daily negative events x self-esteem	.008(.013)	1.01(.98-2.67)	0.64
Daily positive events x self-esteem	-.024(.012)	.98(.95-2.59)	-1.96*
Negative events mean x self-esteem	-.051(.061)	.95(.84-2.32)	-0.83
Positive events mean x self-esteem	.069(.047)	1.07(.98-2.65)	1.46

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	23141.20

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio; CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 4

Model predicting the likelihood of vaginal sex from daytime interpersonal experiences, state self-esteem and trait social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.514(.196)	.03(.02-1.02)	-17.92***
Gender	-.027(.201)	1.98(.65-1.92)	-0.14
Relationship status	1.060(.184)	2.89(2.01-7.48)	5.75***
Daily negative events	-.158(.072)	.85(.74-2.10)	-2.02*
Daily positive events	.011(.057)	1.01(.90-2.47)	0.20
Daily state self-esteem	.007(.007)	1.01(.99-2.70)	1.00
Negative events mean	.041(.208)	1.04(.69-1.99)	0.20
Positive events mean	.086(.177)	1.09(.77-2.16)	0.48
State self-esteem mean	.008(.008)	1.01(.99-2.70)	1.06
Trait social anxiety	.002(.009)	1.00(.98-2.68)	0.19
Daily negative events x social anxiety	.004(.006)	1.00(.99-2.70)	0.68
Daily positive events x social anxiety	.012(.004)	1.01(1.00-2.73)	2.78**
Negative events mean x social anxiety	-.013(.019)	.99(.95-2.59)	-0.71
Positive events mean x social anxiety	.019(.016)	1.02(.99-2.68)	1.19

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	22872.46

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio; CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 5

Model predicting the likelihood of unprotected vaginal sex from daytime interpersonal experiences, state self-esteem and trait social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-4.257(.253)	.03(.02-.04)	-16.82***
Gender	-.735(.315)	.67(.48-.94)	-1.74†
Relationship status	1.203(.270)	3.04(2.21-4.18)	4.46***
Daily negative events	-.094(.091)	.96(.73-1.25)	-1.03
Daily positive events	.051(.060)	.82(.63-1.08)	0.85
Daily state self-esteem	-.001(.011)	1.00(.99-1.02)	-0.02
Negative events mean	.015(.302)	1.11(.65-1.89)	0.05
Positive events mean	-.137(.281)	1.11(.64-1.92)	-0.52
State self-esteem mean	.005(.266)	1.01(1.00-1.02)	0.47
Trait social anxiety	-.004(.011)	1.01(.99-1.02)	-0.33
Daily negative events x social anxiety	.009(.008)	1.00(.99-1.02)	1.20
Daily positive events x social anxiety	.013(.004)	1.01(1.00-1.02)	2.94**
Negative events mean x social anxiety	-.011(.027)	.99(.96-1.02)	-0.42
Positive events mean x social anxiety	-.007(.024)	.99(.96-1.01)	-0.28

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	24926.23

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio; CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 6

Model predicting the likelihood of vaginal sex with a new partner from daytime interpersonal experiences, state self-esteem and trait social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.722(.206)	.05(.04-.06)	-18.09***
Gender	-.187(.216)	1.01(.78-1.30)	-0.86
Relationship status	1.476(.201)	2.78(2.16-3.58)	7.33***
Daily negative events	-.116(.070)	1.01(.89-1.15)	-1.64
Daily positive events	.069(.056)	.99(.88-1.12)	1.23
Daily state self-esteem	.012(.007)	1.01(.99-1.02)	1.84†
Negative events mean	-.121(.225)	1.03(.79-1.35)	-0.54
Positive events mean	.034(.191)	1.01(.80-1.27)	0.18
State self-esteem mean	.014(.005)	1.01(.99-1.02)	1.74†
Trait social anxiety	.002(.008)	1.01(1.00-1.02)	0.21
Daily negative events x social anxiety	.001(.006)	1.00(.99-1.01)	0.25
Daily positive events x social anxiety	.008(.008)	1.01(1.00-1.02)	1.75†
Negative events mean x social anxiety	-.010(.020)	1.00(.97-1.02)	-0.48
Positive events mean x social anxiety	.010(.017)	1.00(.98-1.02)	.59

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	23216.71

Note. Gender (Female = 0, Male = 1), Relationship status (0 = Single, 1 = In a relationship). OR = odds ratio; CI = confidence interval; † $p < .10$; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 7

Model predicting the likelihood of evening alcohol consumption from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-2.494(.162)	.08(.06-1.06)	-15.36***
Gender	.181(.198)	1.20(.81-2.24)	0.91
Daily negative events	.118(.053)	1.13(1.02-2.76)	2.25*
Daily positive events	-.151(.055)	.86(.77-2.16)	-2.73**
Daily state self-esteem	.005(.006)	1.01(.99-2.70)	.85
Negative events mean	.759(.189)	2.14(1.46-4.33)	4.02***
Positive events mean	-.407(.174)	.67(.47-1.60)	-2.34*
State self-esteem mean	.006(.008)	1.01(.99-2.70)	.77
Trait self-esteem	-.012(.024)	.99(.94-2.56)	-.48
Daily negative events x trait self esteem	-.013(.014)	.99(.96-2.62)	-.93
Daily positive events x trait self esteem	-.017(.013)	.98(.96-2.61)	-1.29
Negative events mean x trait self esteem	.021(.055)	1.02(.91-2.50)	.37
Positive events mean x trait self esteem	.003(.045)	1.00(.91-2.49)	-.06
Fit statistics		Value	
-2 Residual Log Pseudo-Likelihood		21257.09	

Note. Gender (Female = 0, Male = 1). OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 8

Model predicting the likelihood of evening binge drinking from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.348(.206)	.04(.02-1.02)	-16.22***
Gender	.349(.224)	1.42(.91-2.48)	1.56
Daily negative events	.087(.064)	1.09(.96-2.62)	1.36
Daily positive events	-.142(.070)	.87(.76-2.13)	-2.01*
Daily state self-esteem	.012(.008)	1.01(1.00-2.71)	1.42
Negative events mean	1.23(.219)	3.43(2.21-9.15)	5.63***
Positive events mean	-.731(.201)	.48(.32-1.38)	-3.63***
State self-esteem mean	.005(.010)	1.00(.99-2.68)	0.46
Trait self-esteem	.008(.029)	1.01(.95-2.59)	0.27
Daily negative events x trait self esteem	-.008(.018)	.99(.96-2.61)	-0.42
Daily positive events x trait self esteem	.027(.018)	.97(.94-2.56)	-1.51
Negative events mean x trait self esteem	-.006(.066)	.99(.87-2.39)	-0.09
Positive events mean x trait self esteem	-.014(.054)	.99(.88-2.42)	-0.25
Fit statistics		Value	
-2 Residual Log Pseudo-Likelihood		23244.69	

Note. Gender (Female = 0, Male = 1. OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 9

Model predicting the likelihood of evening alcohol consumption from daytime interpersonal experiences, state self-esteem and social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-2.73(.215)	.06(.04-1.04)	-12.75***
Gender	.127(.197)	1.14(.78-2.16)	0.65
Daily negative events	.127(.092)	1.15(.96-2.62)	1.54
Daily positive events	-.290(.100)	.75(.61-1.85)	-2.90**
Daily state self-esteem	.006(.006)	1.96(.99-2.70)	0.86
Negative events mean	.954(.338)	1.98(1.33-3.78)	2.82**
Positive events mean	-.820(.338)	.44(.23-1.25)	-2.43**
State self-esteem mean	.010(.008)	1.01(.99-2.70)	1.24
Trait social anxiety	.014(.008)	1.01(.99-2.71)	1.70†
Daily negative events x social anxiety	-.001(.004)	1.00(.99-2.69)	-0.27
Daily positive events x social anxiety	.008(.004)	1.01(1.00-2.69)	1.72†
Negative events mean x social anxiety	-.008(.017)	1.00(.96-1.04)	-0.46
Positive events mean x social anxiety	.019(.016)	1.02(.99-2.69)	1.23

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	21269.48

Note. Gender (Female = 0, Male = 1). OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 10

Model predicting the likelihood of evening binge drinking from daytime interpersonal experiences, state self-esteem and social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-3.360(.207)	.035(.02-1.02)	-16.25***
Gender	.328(.225)	1.39(.89-2.43)	1.46
Daily negative events	.083(.065)	1.09(.96-2.60)	1.27
Daily positive events	-.137(.071)	.87(.76-2.14)	-1.94†
Daily state self-esteem	.012(.008)	1.01(1.00-2.71)	1.44
Negative events mean	1.233(.228)	3.43(2.19-8.91)	5.44***
Positive events mean	-.747(.204)	.47 (.32-1.37)	-3.66***
State self-esteem mean	.008(.009)	1.01(.99-2.69)	0.82
Trait social anxiety	.003(.010)	1.00(.98-2.68)	0.32
Daily negative events x social anxiety	-.004(.006)	1.00(.98-2.68)	-0.61
Daily positive events x social anxiety	.017(.006)	1.02(1.00-1.03)	2.77**
Negative events mean x social anxiety	.001(.021)	1.00(.96-2.61)	0.05
Positive events mean x social anxiety	.026(.019)	1.03(.99-2.69)	1.35
Fit statistics		Value	
-2 Residual Log Pseudo-Likelihood		23206.93	

Note. Gender (Female = 0, Male = 1). OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 11

Model predicting the likelihood of marijuana use from daytime interpersonal experiences, state self-esteem and trait self-esteem.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-4.076(.264)	.02(.01-1.01)	-15.43***
Gender	. 646(.451)	1.91(.78-2.17)	1.43
Daily negative events	.075(.081)	1.08(.92-2.51)	0.92
Daily positive events	.059(.051)	1.06(.96-2.61)	1.16
Daily state self-esteem	.003(.006)	1.00(.99-2.70)	0.55
Negative events mean	.824(.446)	2.28(.94-2.51)	1.86†
Positive events mean	-.676(.400)	.51(.23-1.26)	-1.69†
State self-esteem mean	-.013(.019)	.99(.95-2.27)	-0.58
Trait self-esteem	-.085(.057)	.92(.82-2.27)	-1.49
Daily negative events x self-esteem	-.040(.20)	.96(.92-2.52)	-2.00*
Daily positive events x self-esteem	-.010(.011)	.99(.97-2.64)	-1.01
Negative events mean x self-esteem	-.130(.131)	.88(.68-1.97)	-0.99
Positive events mean x self-esteem	.034(.106)	1.03(.84-2.32)	0.32

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	25993.05

Note. Gender (Female = 0, Male = 1). OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Table 12

Model predicting the likelihood of marijuana use daytime interpersonal experiences, state self-esteem and trait social anxiety.

Variables	B (SE)	OR (95% CI)	*t*
Intercept	-4.048(.263)	.97(.72-2.05)	-15.41***
Gender	.433(.452)	1.08(.92-2.51)	0.96
Daily negative events	.077 (.082)	1.08(.92-2.51)	0.94
Daily positive events	.084(.050)	1.09(.98-2.67)	1.66†
Daily state self-esteem	.003(.003)	1.00(.99-2.70)	0.59
Negative events mean	.874(.449)	2.40(.99-2.70)	1.95†
Positive events mean	-.886(.403)	.41(.19-1.21)	-2.22*
State self-esteem mean	-.010(.018)	.99(.96-2.60)	-0.52
Trait social anxiety	.025(.019)	1.03(.99-2.68)	1.31
Daily negative events x social anxiety	.007(.007)	1.00(.99-2.70)	1.14
Daily positive events x social anxiety	-.003(.004)	1.00(.99-2.69)	-0.91
Negative events mean x social anxiety	-.023(.039)	.98(.91-2.47)	-0.59
Positive events mean x social anxiety	.061(.036)	1.06(.99-2.69)	1.71†

Fit statistics	Value
-2 Residual Log Pseudo-Likelihood	26007.89

Note. Gender (Female = 0, Male = 1). OR = odds ratio; CI = confidence interval; † $p <$ .10; *$p < .05$; ** $p < .01$; ***$p < .001$.

Figure Caption

Figure 1. Trait self-esteem as a moderator of the relationship between daily positive interpersonal experiences and vaginal sex.

Figure 2. Predicted probability of vaginal sex from trait self-esteem and daily positive interpersonal experiences

Figure 3. Trait self-esteem as a moderator of the relationship between mean positive interpersonal experiences and vaginal sex with a new partner

Figure 4. Predicted probability of vaginal sex with a new partner from trait self-esteem and mean positive interpersonal experiences

Figure 5. Trait social anxiety as a moderator of the relationship between daily positive interpersonal experiences and vaginal sex

Figure 6. Predicted probability of vaginal sex from trait social anxiety and daily positive interpersonal experiences

Figure 7. Trait social anxiety as a moderator of the relationship between daily positive interpersonal experiences and unprotected vaginal sex

Figure 8. Predicted probability of unprotected vaginal sex from trait social anxiety and daily positive interpersonal experiences

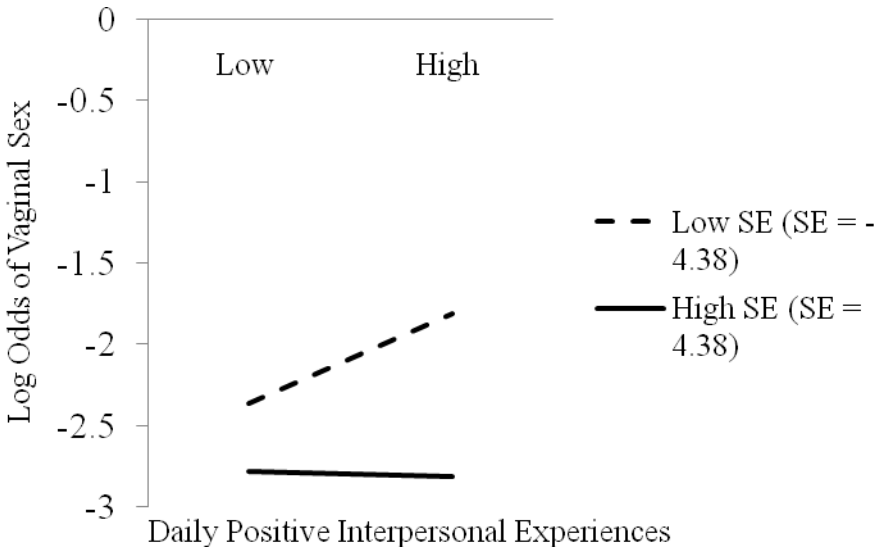
Figure 9. Social anxiety as a moderator of the relationship between daily positive interpersonal experiences and evening binge drinking

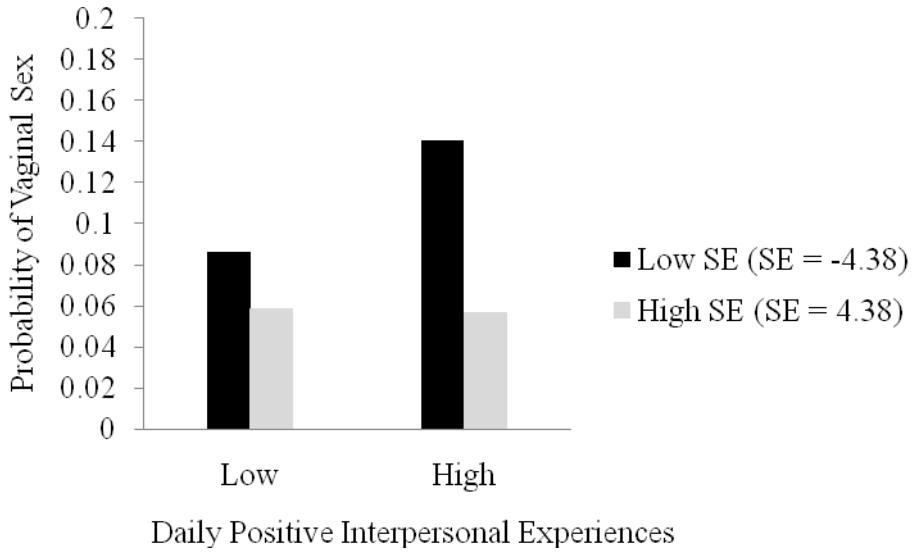
Figure 10. Predicted probability of evening binge drinking from trait social anxiety and daily positive interpersonal experiences

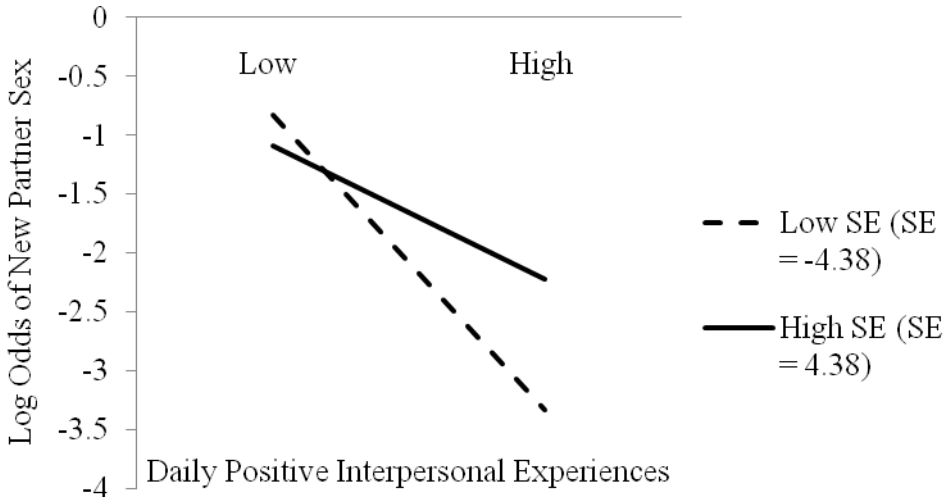
Figure 11. Trait self-esteem as a moderator of the relationship between daily negative interpersonal experiences and marijuana use.

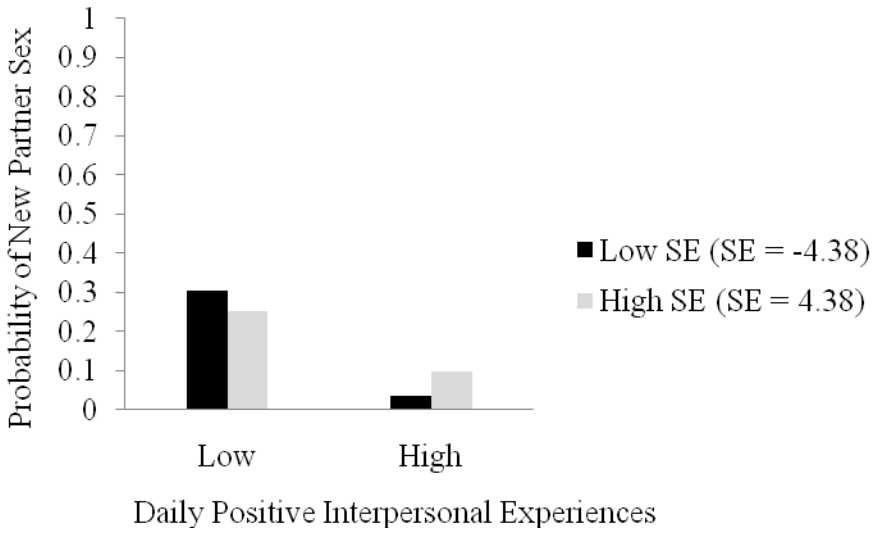
Figure 12. Predicted probability of marijuana use from trait social anxiety and daily negative interpersonal experiences

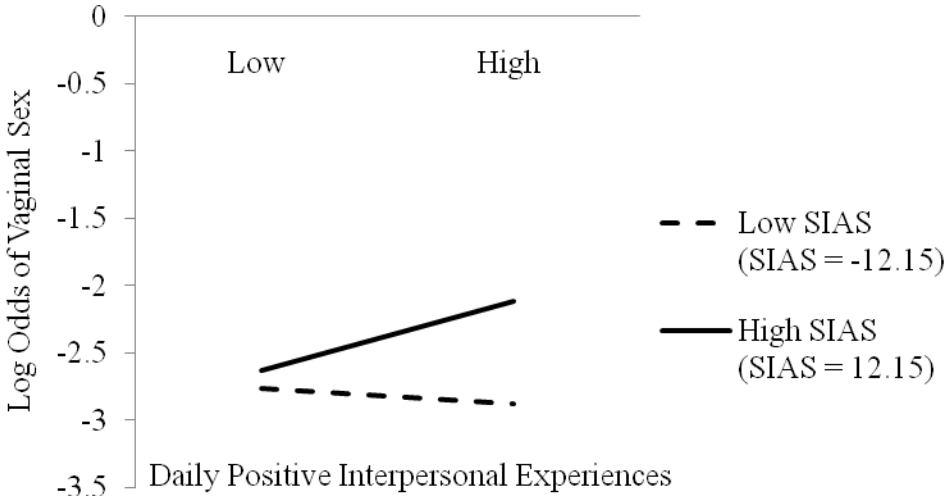
Figure 13. Overall model of the relationship between trait self-esteem, social anxiety, daily events and health risk taking.

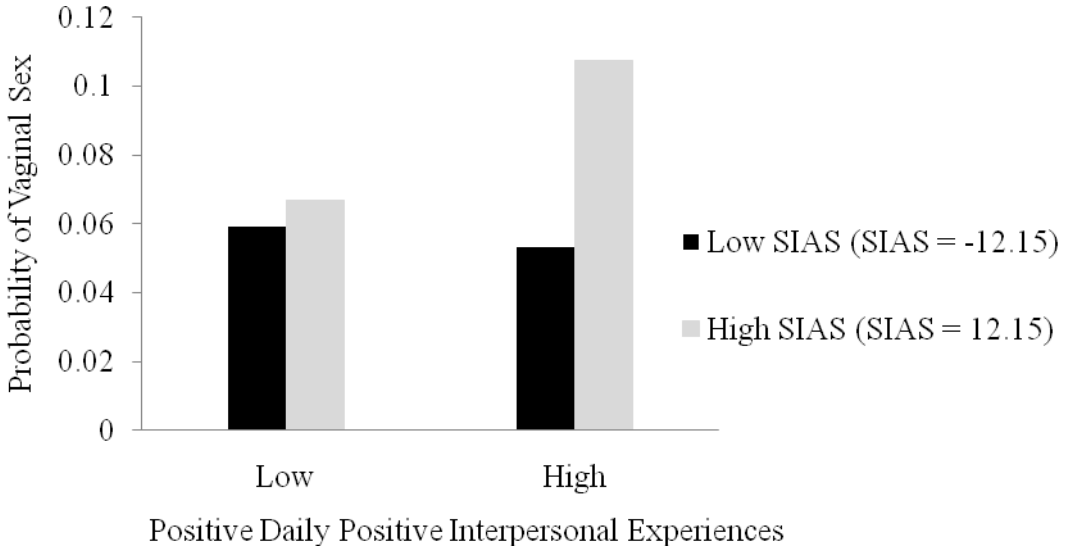

0
-0.5
-1
-1.5
-2
-2.5
-3
Low
High
Log Odds of Vaginal Sex
Daily Positive Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)

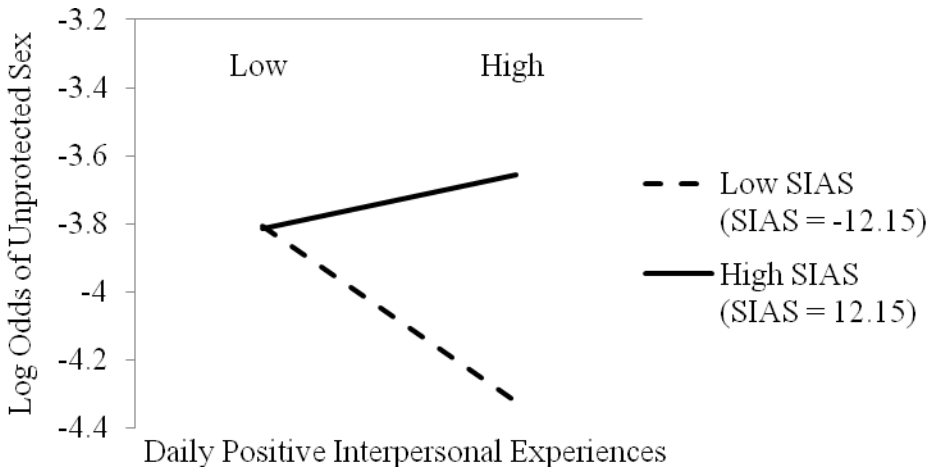

0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Probability of Vaginal Sex
Low
High
Daily Positive Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)

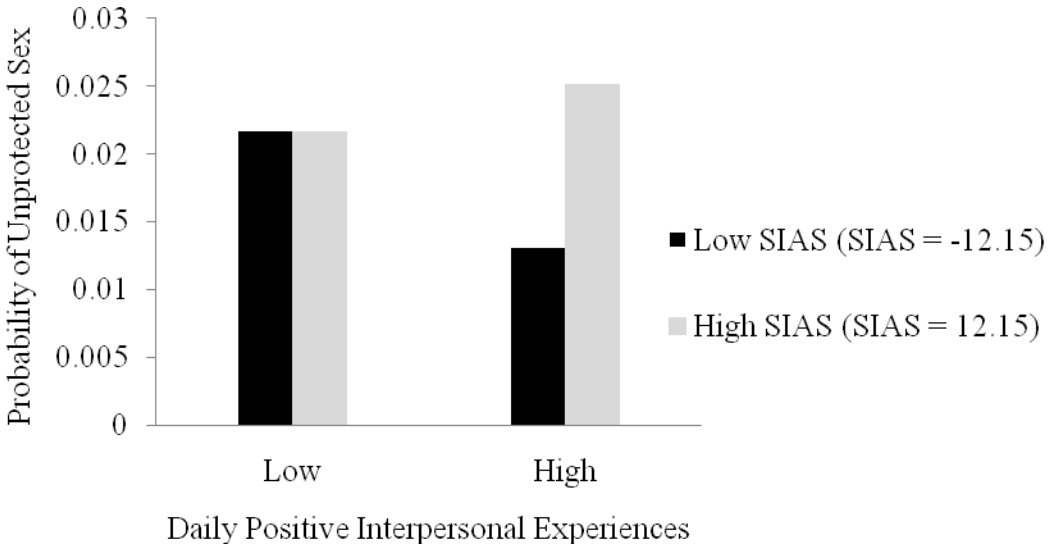

0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
Log Odds of New Partner Sex
Low
High
Daily Positive Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)

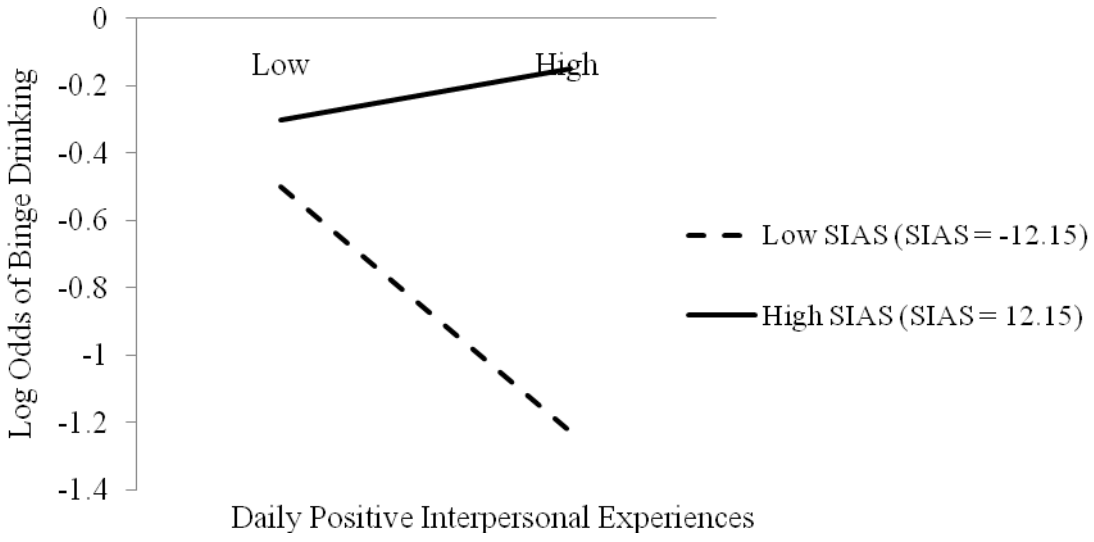

Probability of New Partner Sex
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Low
High
Daily Positive Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)

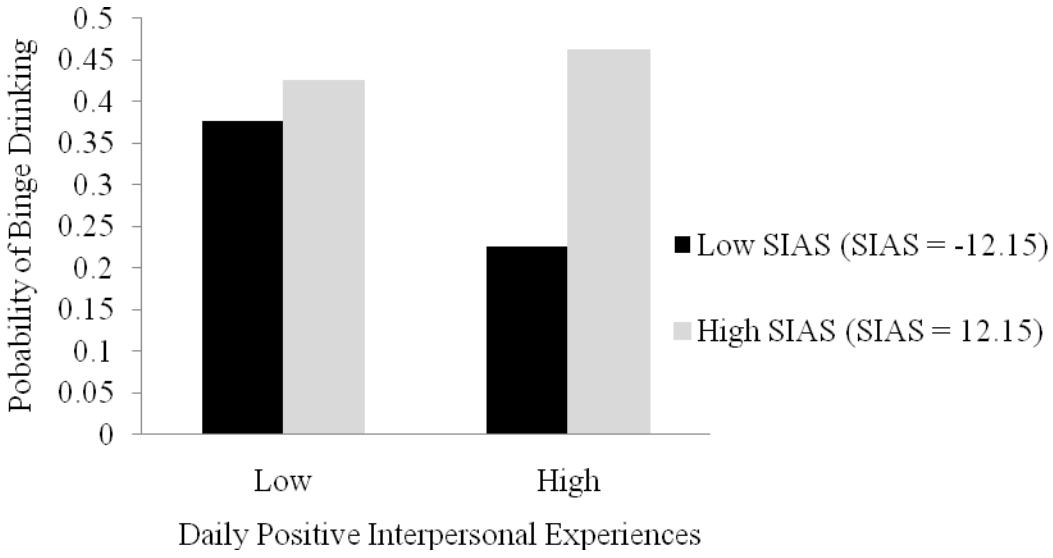

0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
Log Odds of Vaginal Sex
Low
High
Daily Positive Interpersonal Experiences
Low SIAS
(SIAS = -12.15)
High SIAS
(SIAS = 12.15)

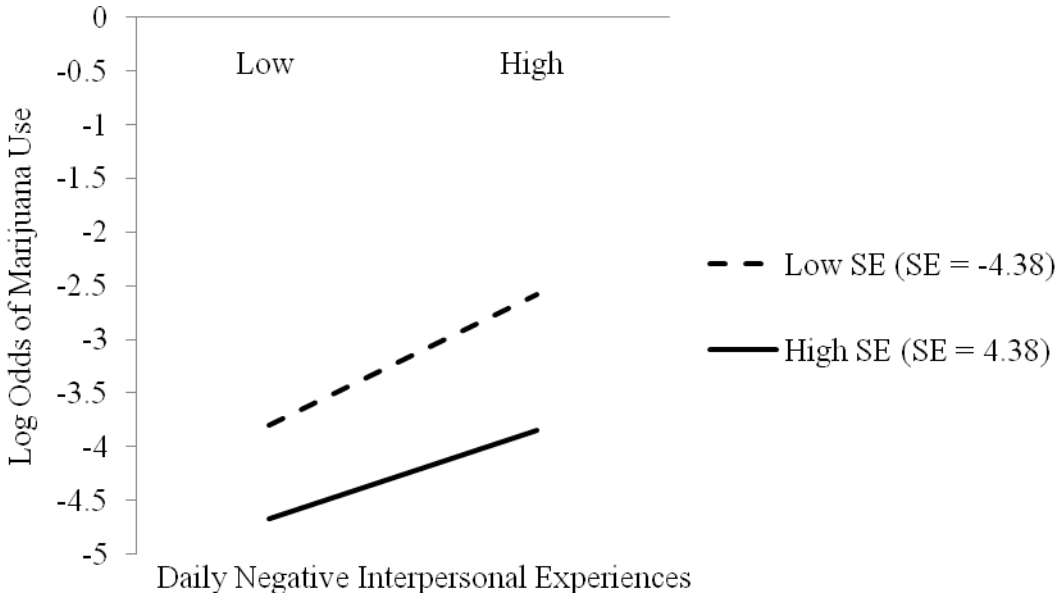

0.12
0.1
0.08
0.06
0.04
0.02
0
Probability of Vaginal Sex
Low SIAS (SIAS = -12.15)
High SIAS (SIAS = 12.15)
Low
High
Positive Daily Positive Interpersonal Experiences

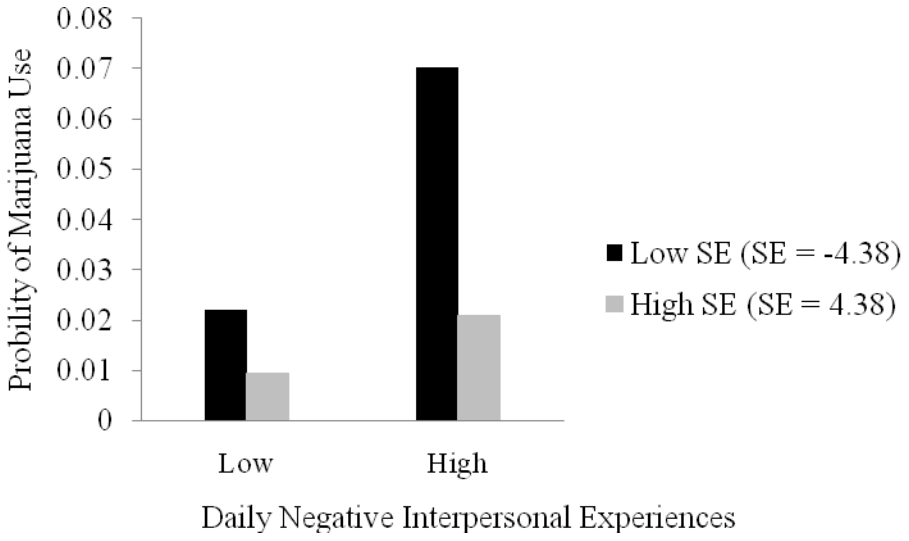

-3.2
-3.4
-3.6
-3.8
-4
-4.2
-4.4
Log Odds of Unprotected Sex
Low
High
Daily Positive Interpersonal Experiences
Low SIAS
(SIAS = -12.15)
High SIAS
(SIAS = 12.15)

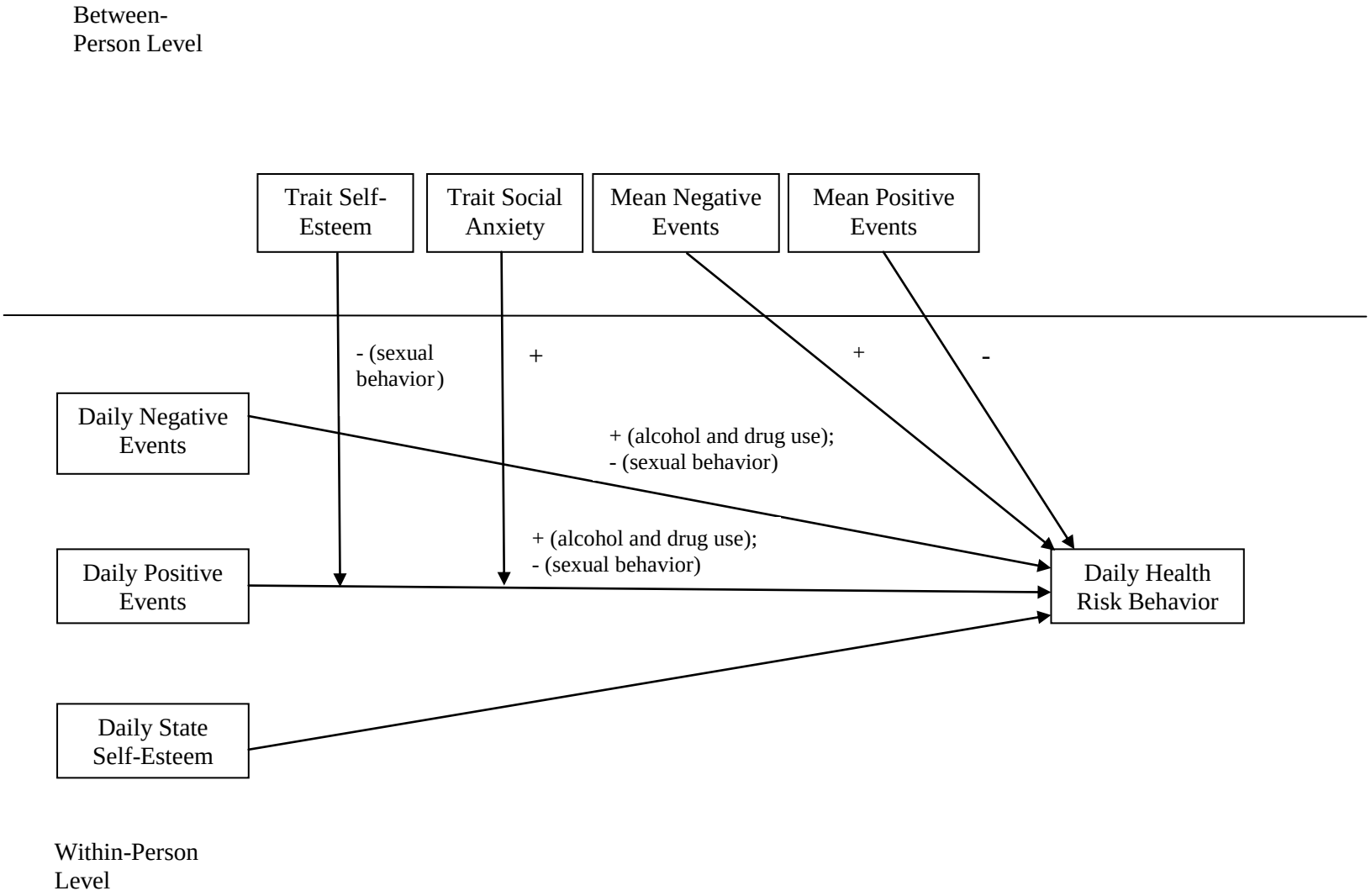

0.03
0.025
0.02
0.015
0.01
0.005
0
Probability of Unprotected Sex
Low
High
Daily Positive Interpersonal Experiences
Low SIAS (SIAS = -12.15)
High SIAS (SIAS = 12.15)


0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
Log Odds of Binge Drinking
Low
High
Daily Positive Interpersonal Experiences
Low SIAS (SIAS = -12.15)
High SIAS (SIAS = 12.15)


Pobability of Binge Drinking
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Low
High
Daily Positive Interpersonal Experiences
Low SIAS (SIAS = -12.15)
High SIAS (SIAS = 12.15)


0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
Log Odds of Marijuana Use
Low
High
Daily Negative Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)


0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Probility of Marijuana Use
Low
High
Daily Negative Interpersonal Experiences
Low SE (SE = -4.38)
High SE (SE = 4.38)


Between-
Person Level
Trait Self-Esteem
Trait Social Anxiety
Mean Negative Events
Mean Positive Events
- (sexual behavior)
+
+
-
Daily Negative Events
+ (alcohol and drug use);
- (sexual behavior)
+ (alcohol and drug use);
- (sexual behavior)
Daily Positive Events
Daily Health Risk Behavior
Daily State Self-Esteem
Within-Person
Level

APPENDIX A

Consent Form

Consent to Participate in a Research Study
Colorado State University

Project Title: Health Behavior, Social Processes and Personality

Principle Investigator: Jennifer J. Harman
Phone: 491-1529
Office: B225 Clark Building
Email: jjharman@colostate.edu

Co-Investigator: Kristina Wilson
Phone: 491-5013
Office: C17 Clark Building
Email: krwilson@colostate.edu

Introduction:
This is a research study about factors that influence the types of health behaviors that male and female undergraduate students engage in. The Social Relationships Lab within the Department of Psychology at Colorado State University is conducting this study. **Please read this form carefully** and ask the investigator any questions you may have before making a decision whether or not to participate.

Study purpose:
This study examines the types of health behaviors that college students engage in and how different factors such as personality and events that occur in daily life influence health behavior. As a participant in this study, you will be asked to complete surveys on the Internet. We are examining these processes only among college students because we are particularly interested in understanding factors that influence the health behaviors college students.

Study procedure:
As a participant in this study you will be asked to do the following:
1) You will attend an orientation session and complete a background survey on the internet. 2) You will complete a web-based survey everyday for 28 days that will take you approximately 10 minutes per day to complete. The daily surveys will ask you about your daily behaviors, interactions and health related behaviors. The daily surveys will ask you to report on your health related behaviors since completion of the last survey. More specifically, each day you will be asked to report on your sexual behaviors and use of alcohol and other illegal drugs. You will be asked to report on these behaviors each day that you participate in the study. You will be able to complete these web-based surveys on the computer of your choice and you must complete them during the hours of 2:30pm to 7pm. 3) At the end of the 28 days, you will return for debriefing appointment and to receive compensation. The total time commitment for this study is approximately 6 hours.

Reasons for exclusion from volunteering for this study or why your participation may end early:

- You must be over 18 years of age, or if under 18 you must get parental permission to participate in this study.
- You must be sexually active to participate in this study.
- If you miss more than 2 daily Internet surveys per week you will not be able to complete the study and the researcher will inform you that you have been dropped from the study. The researcher will contact you to schedule a debriefing appointment, which you must attend to receive compensation for your participation in the study. You will receive compensation according to how long you remained in the study (see compensation below).

Possible risks of participation:

- The only foreseeable risk from participating in this study includes the possibility of slight emotional distress if you answer emotionally uncomfortable questions.
- It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks.
- In the case that your participation in this study has raised any personal issues that you would like to discuss further, please contact Dr. Jennifer Harman for further assistance and referrals if appropriate. You will be responsible for any fees associated with any services you receive from the referral we provide for you. Many services on campus are free or available to students at a low cost.

Possible benefits of participation:

- There are no direct benefits from participating in this study, besides learning about how social psychological research is conducted at the end of the study. However, your participation will help us to understand the nature of how personality and everyday events affect health behavior and will contribute to important research in this area.

Liability statement:

- Should you become injured because of this research the Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of injury.

Voluntary Participation:

- Your participation in this research study is voluntary. If you decide to participate in this study, you may withdraw your consent and stop participating at any time without penalty or loss of the benefits to which you are otherwise entitled.

Compensation:

For participating in and completing this entire study, you will receive 6 credits toward your participation in the Psychology Research Pool. If you do not complete this entire study and end at any point, you will be compensated as follows:

- Orientation session and background survey: 1 credit
- Week 1 (completion of at least 5daily surveys): 1 credit
- Week 2 (completion of at least 5 daily surveys): 1 credit
- Week 3 (completion of at least 5 daily surveys): 1 credit
- Week 4 (completion of at least 5 daily surveys): 1 credit
- Debriefing appointment: 1 credit

Also, if you complete 80% of your total daily surveys (22/28) you will be entered into a raffle for 1 of 10 $20 gift certificates to the CSU bookstore.

Confidentiality:

- All research records that identify you will be kept private to the extent allowed by law.
- All information collected via Internet surveys will be saved on secure servers and the information will be encrypted.
- The researchers will maintain a document that lists each participant's name, participant ID and email address. The purpose of this document is to allow the researchers to track the number of daily surveys you complete during the study to ensure that you receive the correct amount of compensation for your participation in the study. This document will also allow the researchers to send you reminder emails on a daily basis. This list will be kept in a locked file cabinet in the Primary Investigator's research lab and only research team members will have access to the list.
- Your information will be combined with information from other people taking part in this study. When we write about the study to share it with other researchers, we will write about the combined information that we gathered. You will not be identified in these written materials.
- This study is **confidential**. That means that members of the research team will be able to link your name to your survey responses during the period of data collection. Once data collection for this study is complete, all identifying information will be destroyed and there will no longer any record linking your name to your responses.

Before you decide to accept this invitation to take part in the study, please ask one of the investigators any questions you have. If you have any questions after you begin, please contact the investigators, Jennifer J. Harman (970)-491-1529 jjharman@colostate.edu or Kristina Wilson (970)-491-5013 krwilson@colostate.edu. If you have any questions about you rights as a volunteer in this study, Please contact Janelle Barker, Human Research Administrator, at (970)-491-1655.

Your signature here acknowledges that you have read the information stated and willingly sign this consent form and agree to participate in this study. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing 4 pages.

_____ _____
Signature of person agreeing to take part in the study Date

_____
Printed name of person agreeing to take part in the study

_____ _____
Name of person providing information to participant Date

_____
Signature of Research Staff

Parental Signature for Minor

As a parent or guardian I authorize _____ (print name) to become a participant for the described research. The nature and general purpose of the project have been satisfactorily described to me by _____ and I am satisfied that proper precautions will be observed.

_____
Minor's date of birth

_____
Parent/Guardian name (printed)

_____ _____
Parent/Guardian signature Date

APPENDIX B

Recruitment Materials

Study Description for Research Pool

This is a research study about factors that influence college students' health behavior. As a participant in this study you will be asked to do the following: 1) Attend an orientation session and complete an internet based survey that will you about your personality, social behavior and health behavior. You will receive 1 research credit for attending this session and completing the background survey. 2) For the next 28 days, you will complete a web-based survey everyday that will take you approximately 10 minutes per day to complete. The daily surveys will ask you about your daily behaviors, interactions and health risk behaviors. You will be able to complete these web-based surveys on the computer of your choice and you must complete them during the hours of 2:30pm to 7pm. For each week that you take part in this study you will earn 1 additional research credit. 3) At the end of the 28 days, you will return for a debriefing appointment. You will receive 1 research credit for attending this appointment. The total time commitment for this study is approximately 6 hours and you can earn up to a total of 6 research credits. In order to participate in this study you must be sexually active and over the age of 18. If you are under the age of 18 and wish to participate in this study parental consent is required.

APPENDIX C

Study Questions

Background Measures

Demographics

1. What is your age?
2. What is your sex?
3. What is your ethnicity?
4. What is your relationship status?
5. If you are currently dating someone, how long have you been dating that person?
6. How many people are you currently dating?

Sexual demographics

1. Who do you have sex with? Only men/ Mostly men/ Mostly women/ Only women
2. Have you ever had penetrative sex (sex in which the penis penetrates the vagina or anus)? Yes/ No
3. If yes, what age did you first have penetrative sex?
4. What is the total number of sexual intercourse partners you have ever had?
5. Have you ever had unprotected penetrative sex (penetrative sex without a condom)? Yes/ No
6. The following questions refer to your last sexual encounter
7. How long ago was your last sexual encounter? Please circle.
   - less than a week ago
   - between one week and a month ago
   - between one month and three months ago
   - between three months and six months ago
   - between six months and one year ago
   - more than one year ago
8. What kind(s) of sex did you have on this occasion? Please answer yes or no to the following activities:
   - Unprotected vaginal sex Yes/No
   - Vaginal sex with a condom Yes/No
   - Unprotected anal sex: Yes/No
   - Anal sex with a condom: Yes/No
   - Oral sex: Yes/No
   - Other forms of nonpenetrative sex (such as massage and mutual masturbation): Yes/No
9. What gender was your partner on this occasion? Male/Female
10. On this occasion did you or your partner mention using a condom?
    - you
    - your partner
    - neither
11. On this occasion did you or your partner mention practicing nonpenetrative sex?
    - you
    - your partner
    - neither
12. Was s/he a regular sexual partner (a partner with whom you have had sex with more than once? Yes/No
13. If yes, have you discussed practicing safer sex with this partner? (using condoms, latex barriers, or having nonpenetrative sex) Yes/No

14. If you had penetrative sex on this occasion, did you use a form of contraception? Please circle one or more.
    - the condom
    - the pill
    - the diaphragm or cap
    - the IUD (coil)
    - spermicidal sponge or creams
    - the rhythm (calendar) method
    - the withdrawal method
    - other (please specify) _____
    - none
15. Have you had any sexual encounters over the last month? Yes/No
16. In the last month how many sexual partners have you had?
17. How many of these were regular partners (people with whom you have had sex more than once)?
18. How many times have you had sex with a regular partner in the last month?
19. On how many of these occasions did you have penetrative sex?
20. On how many of these occasions did you use a condom?
21. How many times have you had sex with other partners in the last month?
22. On how many of these occasions did you have penetrative sex?
23. On how many of these occasions did you use a condom?
24. How much at risk do you consider yourself from HIV/AIDS?
25. Have you ever had an HIV antibody test?
26. Did you get the result of this test?
27. When was this test?
28. Have you had unprotected sex since then?
29. Have you ever had or been treated for an STD?
30. Which one?
31. Have you ever thought that you were pregnant (or that your partner was)?

<u>Rosenberg's self-esteem scale</u>

Instructions: Below is a list of statements dealing with you general feelings about yourself. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Social interaction anxiety scale

Instructions: Indicate the degree to which you feel the statement is characteristic or true of you.

Response format: 0 = Not at all, 4 = Extremely

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.)
2. I have difficulty making eye contact with others
3. I become tense if I have to talk about myself or my feelings
4. I find difficulty mixing comfortably with the people I work with
5. When mixing socially I am uncomfortable
6. I feel tense if I am alone with just one other person
7. I am at ease meeting people at parties, etc.
8. I have difficulty talking with other people
9. I find it easy to think of things to talk about
10. I worry about expressing myself in case I appear awkward
11. I find it difficult to disagree with another's point of view
12. I have difficulty talking to attractive persons of the opposite sex
13. I find myself worrying that I won't know what to say in social situations
14. I am nervous mixing with people I don't know well
15. I feel I will say something embarrassing when talking
16. When mixing in a group I find myself worrying I will be ignored
17. I am tense mixing in a group
18. I am unsure whether to greet someone I know only slightly

Daily measures:

State self-esteem

Instructions: This is a questionnaire designed to assess what you are thinking at this moment. There is, of course, no right or wrong answer for any statement. The best answer is what you feel is true for yourself at this moment. Be sure to answer all of the items. Again, answer these questions as they are true for you right now.

Response format: 1 = not at all, 5 = extremely

1. I feel confident about my abilities
2. I am worried about whether I am regarded as a success or a failure
3. I feel satisfied with them way that my body looks like right now
4. 4. I feel frustrated or rattled about my performance.
5. I feel that I am having trouble understanding things that I read
6. I feel that others respect and admire me.
7. I am dissatisfied with my weight
8. I feel self-conscious
9. I feel as smart as others
10. I feel displeased with myself
11. I feel good about myself
12. I am pleased with my appearance right now
13. I am worried about what other people think of me

14. I feel confident that I understand things
15. I feel inferior to others at this moment
16. I feel unattractive
17. I feel concerned about the impression I am making
18. I feel that I have less scholastic ability right now than others
19. I feel like I'm not doing well
20. I am worried about looking foolish

Sexual behavior questions

1. Have you had any sexual experiences (masturbation, anal, oral, or vaginal sex) since yesterday? Yes/No
2. Did your sexual experience/s include masturbation? Yes/No
3. How often did you masturbate since yesterday? 1-2 times/3-4 times/5-6 times/7 or more times
4. Did your sexual experience/s since yesterday include oral sex? Yes/No
5. How many times total have you had oral sex since yesterday? 1/2/3/4/5/6 or more
6. What percentage of the time did you use condoms during oral sex? 0%-100%
7. Did you plan to have a sexual experience with this partner/partners before it happened? Yes/No
8. Have you had a sexual experience with this partner/partners before? Yes/No/Don't know
9. About how long have you known your oral sex partner/s? 1 day|1 week/several weeks/several months/over a year
10. Were you and/or your partner under the influence of drugs/alcohol during this/these sexual experiences? Yes, me/Yes, my partner/Yes, both of us/No, neither of us/Don't know if partner was
11. Did your sexual experience/s since yesterday include vaginal sex? Yes/No
12. How many times total have you had vaginal sex since yesterday? 1/2/3/4/5/6 or more
13. What percentage of the time did you use condoms during vaginal sex since yesterday? 0%-100%
14. Did you plan to have a sexual experience with this partner/partners before it happened? Yes/No
15. Have you had a sexual experience with this partner/partners before? Yes/No/Don't know
16. About how long have you known your vaginal sex partner/s? 1 day/1 week/Several weeks/Several months/Over a year
17. Were you and/or your partner under the influence of drugs/alcohol during sexual intercourse? Yes, me/Yes, my partner/Yes, both of us/No, neither of us/Don't know if partner was
18. Did your sexual experiences since yesterday include anal sex? Yes/No
19. How many people have you had anal sex with since yesterday?1/2/3/4/5/6 or more
20. How many times total have you had anal sex since yesterday?1/2/3/4/5/6 or more
21. What percentage of the time did you use condoms during anal sex since yesterday? O%-100%

22. Did you plan to have a sexual experience with this partner/partners before it happened? Yes/No
23. Have you had a sexual experience with this partner/s before? Yes/No/Don't know
24. About how long have you known your anal sex partner/s? 1 day/1 week/several weeks/several months/over a year
25. Were you and/or your partner often under the influence of drugs/alcohol during these experiences? Yes, me/Yes, my partner/Yes, both of us/No, neither of us/Don't know if partner was.

Alcohol consumption

1. What is the total number of standard alcoholic drinks you have consumed since completion of the previous day's survey? One drink equals one 12 ounce can or bottle of beer, one 4 ounce wine cooler, or 1 ounce of liquor straight or in a mixed drink.

Substance use

1. Since yesterday, have you smoked marijuana? Yes/No
2. Since yesterday, have you used stimulants (e.g., cocaine, crystal meth)? Yes/No
3. Since yesterday, have you used heroin? Yes/No
4. Since yesterday, have you used ecstasy? Yes/No
5. Since yesterday, have you used illegal prescription drugs? Yes/No

Daily event checklist

1. Went out socializing with friends/date (e.g., party, dance, club)
2. Flirted with someone or arranged a date
3. Did something special for a friend/steady date that was appreciated
4. Had especially good interaction with friends, boyfriend/girlfriend, or acquaintances
5. Made a new friend or nice acquaintance
6. Did something special for a friend/steady date which was appreciated
7. A disagreement with a close friend or steady date was left unresolved
8. Was excluded or left out by my group of friends
9. Tried to share something important and other acted disinterested
10. Showed interest in someone and they ignored or rejected me
11. Something happened to me that made me feel awkward or embarrassed in public
12. Friend or steady date let me down (didn't call, meet, or do as promised)

APPENDIX D

Debriefing Forms

Debriefing Information
Department of Psychology
Colorado State University

Project Title: Health Behavior, Social Processes and Personality

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Purpose of study:
The current study investigated the daily events of college students to determine how positive and negative interpersonal experiences interact with characteristics of the individual to predict daily health risk behavior. Specifically, this study investigates how daily interpersonal interactions (e.g., having a fight with a close friend or relationship partner), self-esteem and social anxiety interact to predict daily health risk behavior (such as alcohol use, illegal substance use and risky sex). As a participant, you have been asked a variety of questions about your personality, daily interpersonal interactions and health risk behaviors. These questions will allow us to determine factors that may increase health risk behavior among college students. Specifically, it is hypothesized that individuals with low self-esteem or who are social anxious may be more likely to engage in health risk behaviors on days when they experience negative interpersonal interactions.

There has been considerable attention focused on understanding factors that contribute to college students' engagement in health risk behaviors. Sexual risk behaviors, alcohol abuse and illegal drug use are health risk behaviors that are typically of greatest concern. Recent health statistics suggest that sexually transmitted infections (STIs) disproportionately affect young adults (Paul, McManus, & Hayes, 2000), with 15-24 year olds accounting for nearly half of all new cases of STIs (Weinstock, Berman, & Cates, 2004). Additionally, it is estimated that approximately 25% of sexually experienced adolescents acquire an STI (von Sadovsky et al., 2002). Sexually active young adults also appear to be at risk for HIV infection as well. For example, it is estimated that approximately 15% of all new HIV infections in the U.S. are among people under the age of 25, and that the majority of young people are infected through sexual contact (Centers for Disease Control and Prevention, 2005). In addition, it is estimated that as many as 1 in 500 college students could be infected with HIV (Lance, 2001). Alcohol consumption among college students is also an area of concern as it is associated with a wide range of negative consequences (National Institutes of Health (NIH), 2007; Perkins, 2002). The negative consequences that can occur as a result of problematic drinking include; blackouts, hangovers, drunk driving, poor academic performance, disruption of sleep, damage to the brain, violence, unintentional injuries, property damage and death from alcohol poisoning. These statistics clearly indicate that college students engage in health risk behavior that puts them at risk for negative consequences and the purpose of this study is to examine the underlying factors that lead to engagement in health risk behaviors.

Methods/Procedure

As a participant in this study you were asked to complete a background survey and internet based surveys on a daily basis. Many studies in the past have only studied people at one time point. However, but studying participants over a longer time period as was done in this study, we can begin to understand actual behavior engaged in by individuals in their everyday life. As discussed above, the questions you answered, will help us to learn more about interpersonal processes and health behavior, specifically how daily events and personality characteristics interact to predict health risk behavior.

Use of the data

All the responses you gave in this study are confidential, and can't be traced to you in any way. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we gathered. You will not be identified in these written materials.

Implications and applications

While there are no direct benefits from participation in this study, your participation will help us to understand the nature of how people's interpersonal interactions may affect their own health behavior and will contribute to important research in this area.

How does this apply to what I have learned in my psychology courses:

Please refer to Chapter 18 in the David G. Myers General Psychology Book, 8th edition for more information about the topics covered in this study.

We would like to thank you for participating in this study. If you are interested in learning about the results of this study once the data has been collected, analyzed and interpreted, please notify the researchers. Since we are currently running this study with more people, we would like to ask that you don't tell others about the specific content of the study because they may answer questions differently based on this knowledge.

Resources

The questions you have been asked to respond to in this study can bring out distressing emotions and if you are experiencing such emotions, this is a normal response. If your participation in this study has led you to feel emotionally distressed, please contact one of the resources listed below. **There may be fees associated with receiving services from many of the resources listed below and you will be financially responsible for paying for any services you receive.** If you haven't used your student health services free sessions, services from on-campus resources may be free.

On-Campus

Hartshorn Health Services- 970-491-7121
Offers STD testing and treatment, physical exams, women's and men's health

Health Promotion Department (in the Hartshorn Health Center)- 970-491-1702
Offers information and services in sexual health, STIs, AIDS and HIV.

Wellness Zone (in the Lory Student Center)- 970-491-2634
Provides different health information and services.

Counseling Center (in the basement of Clark building)- 970-491-6053
Therapy, counseling, stress management, self-help resources.

Off-campus

Planned Parenthood- 970-493-0281
http://www.planned parenthood.org/rocky-mountains/our-health-services.htm.
Condoms and other birth control aids, HIV testing, STD testing and treatment, provides services to women and men.

Northern Colorado AIDS Project- 970-484-4469
Offers HIV testing and counseling.

Larimer County Health Department- 970-498-6767
http://www.co.larimer.us/health/cd/std.asp. STD testing.