ALLIANCE-PROTECTIVE AND SELF-PROTECTIVE BEHAVIOR STRATEGIES AS ADAPTIVE RESPONSES TO SOCIAL ANXIETY

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June 2006

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctor of Philosophy

Your file Votre référence
ISBN: 978-0-494-27833-8
Our file Notre référence
ISBN: 978-0-494-27833-8

to Gabriel

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ACKNOWLEDGEMENTS

The supervision of Debbie Moskowitz has been invaluable and deeply appreciated throughout my graduate studies. She has fostered my independence, guided my thinking, and inspired my strong commitment to the clear, precise, and disciplined measurement and conceptualization of investigative constructs. Her own research reflects a level of elegance and sophistication by which I will judge my future endeavours as the independent researcher she has so adeptly prepared me to become. David Zuroff has granted me access to his considerable statistical expertise, offered insightful comments on my work, and served as a true example of academic excellence. I am very grateful to David, and feel both honoured and privileged to have received his guidance and input. The students and research assistants of the Moskowitz lab have contributed tremendously to this research by offering insightful comments that helped me to gain valuable perspective, assisting with the development and execution of research projects, and providing a stimulating environment that has been a pleasure to work in. I am particularly thankful to E. J. Suh for instructing me in the finer points of event-contingent recording, to Marc Fournier for introducing me to the wonders of SAS and setting the standard of excellence to which I aspire, and to Elizabeth Foley for her highly valued insight, encouragement, and friendship. David Paul has been a true pleasure to work with, and Michael Quek will always be fondly remembered as a treasured member of our academic family. I would like to extend my appreciation to Elizabeth Foley, Ella Vanderbilt, Carolina Pansera, Melissa Levesque, and David Paul for their assistance with data collection. Special thanks are offered to

David Zuroff, Simon Young, Gilbert Pinard, and Pierre Bleau for their contribution to the development of the second study, and to Gilbert Pinard and Pierre Bleau for conducting the psychiatric evaluations of research participants. I am also very grateful to Giovanna LoCascio and Chantale Bosquet, who have been an invaluable source of assistance.

On a more personal note, the love and support of my friends and family has been essential to the realization of my academic goals. I extend my deepest thanks and heartfelt appreciation to my parents for their unwavering support and encouragement. Mom, you have inspired me with your warmth, patience, and unshakable faith in me. Dad, I aspire to emulate your keen intellect, your sense of humour, and your determination that anything can be accomfixed with persistence and the right set of tools. Shelby, I am thankful to you for always believing in me; you are both a wonderful sister and a cherished friend. Jennifer-June, you have been a never-ending source of encouragement and friendship; thank you for making Montreal feel like home and for always being on my team. Simon, thank you for your stimulating, insightful, and creative comments on my work, your ability to relieve my stress with kindness and humour, and your steadfast devotion and support. Finally, thank you to Gabe for brightening my days and for being a constant source of both motivation and inspiration. You are as angelic as your name and I am so incredibly proud to be your mom.

This research was supported by grants from the Social Sciences and Humanities Research Council of Canada, Fonds québécois de la recherche sur la société et la culture, and GlaxoSmithKline.

ABSTRACT

The social implications of anxiety have received little empirical attention. Moreover, the continuity of interpersonal processes associated with clinical and non-clinical levels of chronic social anxiety has not been systematically investigated. The relation between interpersonal behavior and anxiety reported during naturally occurring social interactions was examined in two studies; the first examined community volunteers exhibiting a range of chronic social anxiety levels, while the second compared individuals with generalized social anxiety disorder (GSAD) to a matched sample of non-clinical controls. Unique patterns were expected to emerge with respect to state versus chronic levels of social anxiety. State social anxiety was conjectured to predict an alliance-protective response characterized by increased levels of agreeable behavior and decreased levels of quarrelsome behavior. Chronic social anxiety was hypothesized to predict a self-protective interpersonal style characterized by increased levels of submissive behavior and decreased levels of dominant behavior. Event-level appraisals of inferiority were expected to moderate this self-protective orientation; socially anxious individuals were expected to report enhanced levels of submission and reduced levels of dominance during interactions in which subjective inferiority was elevated. As predicted, increased state social anxiety was associated with decreased levels of quarrelsome behavior. Elevated state anxiety was also associated with increased levels of submissive behavior. This pattern was observed across all levels of chronic social anxiety, although participants with GSAD displayed an even greater tendency to increase

submissiveness in response to state social anxiety compared to controls. As predicted, elevated levels of chronic social anxiety were associated with increased submissive behavior and decreased dominant behavior across all levels of state social anxiety. Subjective appraisals of inferiority enhanced levels of submission and reduced levels of dominance among socially anxious individuals. The results illustrated separate patterns of behavior for state and chronic social anxiety and were consistent with the proposition that situational elevations in social anxiety are associated with alliance-protective behavior strategies while chronic elevations are associated with a self-protective orientation that is amplified by sensitivity to negative social cues. The findings also supported the contention that social anxiety is a continuous construct associated with similar interpersonal processes across clinical and non-clinical populations.

RÉSUMÉ

Les implications sociales découlant du trouble de l'anxiété ont reçu très peu d'attention au point de vue de données empiriques. De plus, la continuité des processus interpersonnels associés avec les niveaux cliniques et non cliniques d'anxiété sociale chronique n'a pas été étudiée de façon systématique. La relation entre le comportement interpersonnel et l'anxiété, rapportée durant des interactions sociales dans un environnement naturel, a été examinée dans deux études. La première étude a examiné des volontaires en milieu communautaire exhibant différents niveaux d'anxiété sociale chronique, alors que la deuxième étude a comparé des individus ayant un trouble d'anxiété généralisée avec un échantillon de sujets contrôles non cliniques appariés. Il était prévu que des structures uniques allaient apparaitre par rapport aux niveaux d'anxiété sociale générale (de trait) de celle situationnelle (d'état). Nous avons conjecturé que l'anxiété sociale situationnelle allait prédire une réponse de protection d'alliance caractérisée par une augmentation des niveaux de comportements agréables et une réduction des niveaux de comportements querelleurs. Nous avons émis l'hypothèse que l'anxiété sociale chronique allait prédire un style interpersonnel de protection du soi caractérisé par une augmentation des niveaux de comportements soumis et une diminution des niveaux de comportements dominants. Nous avions prévu que l'évaluation momentanée d'infériorité allait modérer cette tendance protectrice du soi; les individus souffrant d'anxiété sociale seront plus disposés à rapporter une augmentation des niveaux de soumission et une réduction des niveaux de dominance durant les interactions où l'infériorité

subjective serait élevée. Comme prévu, une augmentation de l'anxiété sociale situationnelle fut associée à des niveaux plus bas de comportements querelleurs. L'anxiété situationnelle plus élevée fut aussi associée avec des niveaux plus élevés de comportements soumis. Ce phénomène fut observé à travers tous les niveaux d'anxiété sociale chronique, même si les participants ayant un trouble d'anxiété généralisée démontrèrent une tendance encore plus marquée par une hausse de leur soumission en réponse à l'anxiété sociale situationnelle comparés aux sujets contrôles. Comme prévu, les niveaux plus élevés d'anxiété sociale chronique furent associés avec une augmentation des comportements soumis et avec une diminution des comportements dominants à travers tous les niveaux d'anxiété sociale situationnelle. Les évaluations subjectives d'infériorité augmentèrent les niveaux de soumission et réduisirent les niveaux de dominance parmi les individus souffrant d'anxiété sociale. Ces résultats illustrent des modèles de comportements séparés pour l'anxiété situationnelle et générale. Ces modèles sont logiques par rapport à la proposition que les augmentations situationnelles de l'anxiété sociale sont associées avec des stratégies comportementales de nature à protéger les alliances, alors que les augmentations chroniques de l'anxiété sociale sont associées avec une tendance à protéger le soi qui est amplifiée par une sensibilité par rapport aux signaux sociaux négatifs. Ces découvertes amènent aussi un support à l'affirmation que l'anxiété sociale est un concept continu associé avec des processus interpersonnels similaires chez les populations cliniques et non cliniques.

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CHAPTER 1 - INTRODUCTION

Anxiety is a fundamental emotional state that can be observed across individuals and cultures, occurring with variable frequency and intensity in response to a range of perceived threat cues. Historically, the topic of anxiety has been a recurrent theme in the fields of philosophy, theology, and literature. Since emerging as a scientific construct in Charles Darwin's treatise on *The Expression of the Emotions in Man and Animals* (1872), it has also been the focus of much research and theory in the biological and psychological sciences. Decades of human and animal research have investigated the affective, physiological, motivational, and cognitive aspects of anxiety, both as a discrete construct and as a component of broader models of emotion. Research has also examined the impact of anxiety on phenomena such as learning, task performance, and decision-making, and explored the clinical implications of chronically elevated anxiety levels. The potential for this universal emotion to exert profound effects on diverse aspects of the human experience is widely acknowledged. Yet to date, there is a paucity of research linking anxiety to patterns of human social interaction. The aim of the present research was to apply contemporary theory concerning the adaptive function of anxiety and the mechanisms governing chronic social anxiety to the investigation of relations between anxiety and interpersonal behavior.

Anxiety and Behavior

Although the social implications of anxiety have received little empirical attention, many theorists and researchers have discussed associations between

anxious arousal and behavior. Early emotion theorists such as James and Cannon (Cannon, 1929; James, 1894) commented on the relation between anxiety and "fight-or-flight" reactions. In the psychoanalytic tradition, anxiety has been considered central to neurosis and viewed as a signal or cue that elicits defensive reactions (Fenichel, 1945; Freud, 1936, 1943). Learning theorists have regarded anxiety as a drive state, comparable to primary drives such as hunger and thirst, that serves to motivate behavior and plays a key role in conditioning (Spence, 1956, 1958; Hilgard, 1956; Miller, 1948; Mowrer, 1940; for reviews, see Akutagawa, 1968; Eysenck, 1973; Wilson, 1973).

More recently, various authors have argued that emotions can be conceptualized and differentiated from one another with regards to action tendencies or dispositions to engage in particular forms of behavior (e.g., Arnold, 1960; De Rivera, 1977; Frijda, 1986; Lang, 1993; Lazarus, 1991; Levenson, 1994; Oatley & Jenkins, 1996; Scherer, 1984). This view holds that emotions serve to generate appropriate action in the face of events relevant to an individual's goals, motives, or concerns. For example, fear may predispose an individual to seek safety by engaging in defensive or escape behaviors. The action patterns triggered by emotional states may include innate bodily displays (e.g., facial expressions) and gross behavior modes (e.g., flight, attack) as well as learned behaviors, supported or facilitated by physiological components of the emotional response such as autonomic arousal (Frijda, Kuipers, & ter Schure, 1989). Frijda and colleagues (1989) demonstrated that emotions can be reliably distinguished from one another with regards to unique action tendencies and that anxiety is

specifically associated with self-protection, avoidance, and increased attentiveness. This characterization is consistent with the broadly held view that anxiety plays a key role in defense under threatening conditions (e.g., Bindra, 1978; Bolles & Fanselow, 1980; Fanselow & Lester, 1988; Marks & Nesse, 1994; Masterson & Crawford, 1982; McAllister & McAllister, 1991; Nesse, 1990).

The notion that anxiety serves a primarily protective or defensive function has perhaps been most clearly articulated from the evolutionary perspective, which views emotions as innate psychological adaptations that have evolved to address specific, ancestrally recurrent problems of survival and reproduction (Buss, 1991; Nesse, 1990; Öhman & Mineka, 2001; Plutchik, 1994, 2000; Tooby & Cosmides, 1990). Within this framework, emotional responses are viewed not as static entities, but as dynamic processes that are triggered by specific environmental cues and which generate adaptive physiological and behavioral responses. Evolutionary theorists conceptualize anxiety as a state of defensive arousal, a response pattern offering distinct advantages in dangerous situations that are threatening to reproductive and survival resources. These resources may include "not only life and health, but also relationships, property, status, reputation, skill, and anything else that could increase Darwinian fitness" (Marks & Nesse, 1994, p. 248). The ethological conceptualization of anxiety as a threat-aversion mechanism associated with specific environmental triggers and operating across a range of situational contexts is consistent with evidence that fear is more easily linked to certain stimuli than to others (Marks, 1987; Mineka, Keir, & Price, 1980; Ruse, 1988; Seligman, 1970) and with research indicating that

anxiety is associated with both increased perceptions of threat and risk-aversive decision making (Lerner & Keltner, 2000, 2001; Raghunathan & Pham, 1999).

The adaptive benefits of anxiety are purported to stem from its influence in three primary domains: attention, physiology, and behavior. First, anxiety-provoking stimuli, particularly fear-related cues (e.g., phobic objects) and those deemed evolutionarily significant (e.g., snakes, spiders, angry faces), tend to reflexively and automatically capture both attentional and information processing resources (Hansen & Hansen, 1988; Logan & Goetsch, 1993; Öhman, 1979; Öhman, Flykt, & Esteves, 2001; Öhman, Lundqvist, & Esteves, 2001; Öhman & Mineka, 2001). This anxiety-directed attention prompts the further processing of situational cues to identify the source of threat, evaluate the potential danger posed, and assess the need for further action. Second, the physiological arousal associated with anxiety (e.g., increased heart rate, muscular tone, blood clotting, and glucogenesis) prepares the individual for increased energy expenditures and offers protective benefits in the event of injury (Cannon, 1929; McEwen, 1998; Munck, Guyre, & Holbrook, 1984). Finally, and key to the present investigation, anxiety activates defensive behavioral responses characterized by protective and threat-evasive strategies combined with the inhibition of risk-promoting behaviors.

Anxiety is associated with several categories of defensive behavior, including avoidance, attack, freezing, and submission (Marks, 1987; Marks & Nesse, 1994). The specific behavioral response generated by anxiety is dependent upon numerous factors, including the source and proximity of threat cues, the

nature of the resource being threatened, the context under which threat occurs, and the extent of danger posed. For example, the threat of falling may induce freezing, while predatory attack may provoke flight. Thus, various subtypes of both normal and pathological anxiety are presumed to exist, differentiated with regards to eliciting cues, adaptive functions, and behavioral outcomes (Marks & Nesse, 1994; Nesse, 1990, 1999). It has been suggested that as these subtypes of defensive arousal evolved, variations in neural pathways may also have developed to cope with specific types of threat and to elicit particular responses (Nesse, 1999). This proposition is supported by evidence that at least two forms of anxious arousal, fear and panic, have divergent neural mediating mechanisms (Panksepp, 1998) and by research concerning the regulation of anxiety by several distinct neurochemicals and pharmacological agents (Blanchard, Yudko, Rodgers, & Blanchard, 1993). To address the specific question of how anxious arousal may be related to interpersonal behavior then, it is necessary to focus more directly on that subtype of anxiety which manifests in the social realm.

Social Anxiety and Interpersonal Behavior

Social group membership confers numerous advantages, providing increased protection, improved access to potential mating partners and sources of social support, and enhanced opportunities for the cooperative acquisition and utilization of resources. Social exclusion therefore poses a significant threat to safety, reproduction, and general well-being, restricting access to the immediate benefits of group membership and leaving individuals vulnerable to a host of associated risk factors. Consequently, it has been argued that individuals are

strongly motivated to form and maintain social connections and are susceptible to negative psychological and physical consequences when this fundamental "need to belong" is not met (Baumeister & Leary, 1995; MacDonald & Leary, 2005). In support of this position, social exclusion has been associated with a range of negative outcomes, including a heightened tendency to engage in self-defeating behaviors and decrements in self-regulation and cognitive performance (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Twenge & Baumeister, 2005). Moreover, research evidence has consistently indicated that social isolation and deficits in social support have negative implications for both psychological and physical health outcomes (Murberg, 2004; Steptoe, Owen, Kunz-Ebrecht, & Brydon, 2004; Zuroff & Blatt, 2002). In short, membership has its privileges. Consequently, individuals are motivated to promote and safeguard their own inclusive status.

Given the importance of social group membership and the role of anxious arousal in threat evasion, the emergence of anxiety in social situations may represent a defensive response to threatened social exclusion (Baumeister & Tice, 1990; Leary & Kowalski, 1995). In support of this assertion, evidence suggests that social stressors such as loss and rejection are powerful anxiety triggers (Kirschbaum, Pirke, & Hellhammer, 1993). Recalling that the adaptive benefits of anxiety include the elicitation of threat-evasive behaviors, it follows that anxiety occurring in response to threatened social exclusion may promote alliance-protective behavioral strategies. More specifically, this line of reasoning suggests that social anxiety may serve to encourage both the avoidance of interpersonal

conflict and the promotion of affiliative bonds. This proposition is consistent with recent work by Shelley Taylor and her colleagues (Taylor, Klein, Gruenewald, Gurung, Fernandes-Taylor, 2003; Taylor, Klein, Lewis, Gruenewald, Gurung, & Updegraff, 2000), who suggest that affiliative strategies represent a key component of the human stress response and have put forward the notion of "tending-and-befriending" as a complement to the traditional fight-or-flight model of defensive behavior. While much evidence supports the basic premises upon which this argument is based (see Taylor et al., 2003 and Taylor et al., 2000 for a review), the question of whether individuals exhibit affiliative behavioral responses to social anxiety has not been examined empirically.

A more complex view proposes that social affiliation and social dominance may both be relevant to the understanding of relations between social anxiety and interpersonal behavior. Consistent with evolutionary theory, Gilbert and Trower (Gilbert, 2001; Gilbert & Trower, 2001) argue that human interaction is frequently organized around cooperative alliances and that most individuals place primary importance on the acquisition of affiliative social resources. In addition, these authors assert that social anxiety occurs in response to threatened rejection or disapproval and that social anxiety mobilizes the individual toward socially desirable behaviors and away from hostile-disaffiliative actions that may lead to social sanction or exclusion. Of particular relevance to the present discussion, Gilbert and Trower also argue that chronically elevated levels of social anxiety interfere with the ability to engage affiliative aspects of social

interaction. Consequently, they suggest that unique behavioral patterns are associated with high versus low levels of chronic social anxiety.

According to Gilbert and Trower (Gilbert, 2001; Gilbert & Trower, 2001), individuals who experience pervasively elevated levels of social anxiety typically regard themselves as particularly vulnerable in social situations. For example, socially anxious individuals tend to view others as inherently critical (Leary, Kowalski, & Campbell, 1988), doubt their own social competence (Alden & Wallace, 1995; Stopa & Clark, 1993), and perceive themselves as inferior relative to interaction partners (Leary & Kowalski, 1995; Trower, Sherling, Beech, Harrop, & Gilbert, 1998). They further argue that this subjective sense of vulnerability deters socially anxious individuals from utilizing behavioral strategies aimed at the acquisition of affiliative gains. Gilbert and Trower propose that chronically socially anxious individuals are highly attentive to relative rank appraisals and more frequently enact submissive appeasement toward dominant others. Attention to relative status and submission to dominant others reflects an ethologically based strategy designed to protect subordinates from attack by dominant group members by preemptively signaling lower status to prevent rank conflict. The interpersonal style of socially anxious individuals may therefore be conceptualized as defensive and self-protective, rather than proactive and alliance-protective. In sum, Gilbert and Trower propose a distinction between the interpersonal behavior associated with high and low levels of chronic social anxiety; socially anxious individuals are presumed to exhibit self-protective appeasement behavior that minimizes the risk of social exclusion and other

negative social outcomes (e.g., disapproval), while individuals with low levels of chronic social anxiety are presumed to exhibit alliance-protective behavior that promotes affiliative ties and the acquisition of social rewards (e.g., approval).

In a direct test of this distinction, Oakman, Gifford, and Chlebowsky (2003) compared the interpersonal behavior of socially anxious and non-socially anxious individuals with respect to both submissive appeasement and social affiliation. Oakman and his colleagues conducted a series of three studies using the Leary Interaction Anxiousness Scale (Leary, 1983) to distinguish between high and low levels of chronic social anxiety in separate samples of university undergraduates. Two of the three studies specifically evaluated the interpersonal behavior of participants to explore the association of social anxiety with submissive and affiliative behaviors. In the first study, the authors reported that elevated social anxiety predicted self-reported difficulty with the expression of both interpersonal dominance and interpersonal warmth as measured by the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C; Alden, Wiggins, & Pincus, 1990). Moreover, while individuals with high levels of chronic social anxiety described themselves as characteristically cold and submissive, individuals with low levels of chronic social anxiety tended to describe themselves as characteristically warm and dominant on the IIP-C. The second study examined the self-rated, partner-rated, and observer-rated behavior of female undergraduates who engaged in two laboratory-based social interaction tasks. All ratings of behavior were measured with The Social Behavior Inventory (Moskowitz, 1994). Results indicated that socially anxious participants perceived

their own behavior as less dominant and less warm relative to participants with low levels of chronic social anxiety. In contrast, ratings collected from both interaction partners and neutral observers suggested that socially anxious participants were less dominant, but no less warm, than the non-socially anxious participants. Oakman and his colleagues concluded that the findings provided mixed support for both the contention that social anxiety is associated with submissive appeasement as a means of avoiding negative social outcomes and the proposition that social anxiety is associated with affiliative strategies as a means of securing social inclusion.

The theoretical formulations and empirical evidence described previously implicate both alliance-protective affiliation concerns and self-protective appeasement concerns in relations between social anxiety and interpersonal behavior. However, the more detailed investigation of these associations may require a refinement of both hypothesis development and research methodology. It is possible that alliance-protective affiliation and self-protective appeasement responses are uniquely related to social anxiety at different levels of analysis. More specifically, the distinction between affiliative and defensive responses to anxious arousal in social contexts may parallel the distinction between situational and chronic elevations in social anxiety. Social anxiety may be conceptualized as occurring at two levels, corresponding to the division of state and trait anxiety (Cattell & Scheier, 1961; Spielberger, 1966). In the context of the present research, state social anxiety refers to the transitory experience of anxiety within social interaction episodes, fluctuating in both occurrence and intensity from one

interaction to another. In contrast, chronic social anxiety refers to individual differences in overall susceptibility to experience anxiety across multiple social settings and events and reflects the relative persistence of elevated anxiety levels during social interactions.

In line with the assertion that social anxiety represents an adaptive response to perceived social exclusion threats, the present research tested the proposition that state social anxiety is associated with immediate alliance-protective behavioral responses characterized by affiliative behavior and the inhibition of interpersonal hostility. In contrast, elevated chronic social anxiety was presumed to have more wide-ranging implications. High levels of chronic social anxiety, reflecting the persistent activation of social exclusion concerns, may promote global perceptions of the self as particularly vulnerable to negative social outcomes such as rejection. This association may be circular and self-perpetuating, such that repeated experiences with threatened or actual rejection increase subjective perceptions of the self as vulnerable to social exclusion, while self-perceived vulnerability promotes increased attention to negative social cues and consequently increases the frequency with which social threat is perceived. This combination of chronically activated social inclusion concerns and self-perceived vulnerability to social rejection may foster a general interpersonal style that is self-protective in nature and motivated by the desire to avoid both the threat of negative social outcomes and the anxiety that accompanies such threats. More concretely, the repeated occurrence of social anxiety across multiple social settings may prompt individuals to adopt behavioral styles that preemptively

reduce the risk of possible rejection and thereby guard against the emergence of anxiety. This conceptualization is in line with the framework articulated by Gilbert and Trower (Gilbert, 2001; Gilbert & Trower, 2001) and the theoretical association between chronic anxiety and threat-evasive safety behaviors (Salkovskis, 1991). It is also consistent with evidence indicating that socially anxious individuals tend to report elevated probability estimates of negative social outcomes (Foa, Franklin, Perry, & Herbert, 1996), engage in the anticipatory processing of feared social events (Vassilopouplos, 2004), endorse self-protective motivational goals (Alden & Beiling, 1998), doubt their own social competence (Alden & Wallace, 1995; Ashbaugh, Antony, McCabe, Schmidt, & Swinson, 2005), and exhibit a pronounced fear of negative evaluation (Collins, Westra, Dozois, & Stewart, 2005).

Individuals with high chronic levels of social anxiety might endeavor to protect themselves from the risk of negative interpersonal outcomes by avoiding social interaction altogether. While this tactic circumvents the possibility of manifest social rejection, it also precludes the satisfaction of basic social connection needs and is difficult to accomplish given that people live in social groups. Consequently, chronic social anxiety would be expected to promote both increased social avoidance and the use of behavioral strategies that allow anxious individuals to interact with others while simultaneously guarding against exclusion. Evidence from self-report and laboratory-based investigations suggests that socially anxious individuals maintain a passive interpersonal stance characterized by submissive, inhibited behavior and decreased assertion (Alden,

Beiling, & Meleshko, 1995; Leary, Knight, & Johnson, 1987; Oakman et al., 2003). For example, social anxiety has been associated with tendencies to spend less time speaking, make fewer utterances, defer to others, and offer a reduced number of factual statements (Leary et al., 1987). This interaction style has been described as innocuous, in that it enables the socially anxious individual to "remain in the conversation while contributing as little substantive information as possible" (Schlenker & Leary, 1985, pp. 182-183).

The inhibited behavior patterns associated with social anxiety are consistent with the submissive appeasement strategies described by Gilbert and Trower (Gilbert, 2001; Gilber & Trower, 2001). Gilbert and Trower's model further specifies that the use of this defensive behavior strategy by socially anxious individuals reflects a specific predisposition to engage in relative rank judgments and view themselves as inferior relative to interaction partners. This suggests that inhibited behavior among socially anxious individuals may be closely tied to subjective inferiority appraisals, such that individuals with high chronic levels of social anxiety would exhibit particularly inhibited interpersonal behavior during interactions in which self-perceived inferiority is elevated.

In a broader sense, this line of reasoning suggests that the inhibited behavior patterns associated with social anxiety may reflect self-protective strivings to guard against social exclusion. Arkin (1981) distinguished between two primary forms of social motivation: a protective orientation motivated toward the avoidance of social disapproval and an acquisitive orientation motivated toward the pursuit of positive social attention. The adoption of a protective versus

acquisitive orientation is presumed to depend upon salient characteristics of the interaction, such that individuals are more likely to take a protective stance when the possibility of negative outcomes is made apparent, while increasing the salience of potential approval promotes an acquisitive stance. This implies that, while socially anxious individuals may be generally motivated toward innocuous interpersonal behavior, this will be enhanced by situational appraisals that activate perceptions of the self as vulnerable to social exclusion and thereby increase awareness of the potential for negative outcomes. Judgments of relative inferiority have been associated with behavioral responses to social threat perception (Fournier, Moskowitz, & Zuroff, 2002) and linked to both decreased security and greater fear of negative outcomes in close relationships (Murray et al., 2005). Moreover, the ethological perspective suggests that inferiority increases the risk of social exclusion, as access to both resources and group membership is largely determined according to relative rank standing (Gilbert, Price, & Allan, 1995). This evidence offers further support for the hypothesis that engaging in negative social comparison may increase perceived rejection risk and motivate increased passivity among socially anxious individuals. However, the relation of situational inferiority appraisals to the interpersonal patterns of socially anxious individuals has not previously been examined.

In sum, the present work is based on the distinction between two forms of interpersonally based anxiety with unique motivations and behavioral outcomes. Acute increases in state social anxiety, as direct responses to threatened social exclusion, would be expected to elicit immediate alliance-protective behavioral

responses characterized by proactive affiliative behavior and the inhibition of hostility. In contrast, chronically elevated levels of social anxiety may promote global perceptions of the self as vulnerable to social exclusion and foster a general, passive interpersonal style intended to reduce the risk of rejection. This behavior would be characterized by interpersonal submission combined with the inhibition of dominant acts and oriented toward the avoidance of negative social outcomes, rather than the pursuit of affiliative social rewards. Consequently, this self-protective orientation would be activated through increased sensitivity to contextual features, such as relative inferiority appraisals, that suggest a heightened risk of negative social outcomes. This implies that individuals with high levels of chronic social anxiety may engage in particularly increased submissive behavior and particularly decreased levels of dominant behavior during interactions in which subjective inferiority appraisals are elevated.

The Social Anxiety Continuum and Social Anxiety Disorder

The emergence of state anxiety in some social situations, often accompanied by physiological symptoms such as increased heart rate and trembling of the voice or hands, is familiar to most people. Various terms are used to describe this experience, including embarrassment, shyness, public speaking anxiety, dating anxiety, test anxiety, and stage fright, depending on the number and type of environmental contexts that elicit distress. As previously noted, the propensity to experience state social anxiety varies widely, such that individual differences may be observed with respect to both the frequency and intensity of

anxious arousal experienced in social settings. This variability in the chronicity of social anxiety extends across both normal and clinical populations.

In the clinical literature, differences between normal and disordered anxiety states are increasingly viewed as more quantitative than qualitative in nature (e.g., Rosen & Schulkin, 1998). Social anxiety is widely viewed as a continuum ranging from transitory social discomfort to shyness to the pathological fear of social interaction (Brown, Heimberg, & Juster, 1995; Heimberg, 1996). At its most extreme, chronic and severe social anxiety can become debilitating, interfering significantly with interpersonal functioning and often leading to the avoidance of situations that are likely to elicit distress. Many individuals who experience social anxiety at this level of intensity would qualify for a diagnosis of social anxiety disorder, alternatively known as social phobia.

Although the term "social phobia" was consistently in use by the mid-1960s (e.g., Marks & Gelder, 1966), the disorder it describes was not officially recognized as a clinical syndrome until the publication of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980). The substantial body of literature that has amassed since that time, in combination with broader psychological research in such areas as shyness and embarrassment, has greatly expanded upon the rather limited description of social phobia provided in DSM-III. It has recently been argued that the alternate label "social anxiety disorder" replace "social phobia" as the primary name for this diagnostic category. The term social anxiety disorder clearly differentiates this condition from specific phobia and is viewed as better reflecting

the disorder's pervasiveness and degree of associated impairment (Liebowitz, Heimberg, Fresco, Travers, & Stein, 2000).

The fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) defines the essential feature of social anxiety disorder as "a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others" (p. 416). The diagnostic criteria further specify that this fear typically concerns the possibility of engaging in humiliating or embarrassing behavior and is usually associated with both anxious arousal and deliberate avoidance. The generalized subtype is specified when these fears apply to most social situations. Individuals with social anxiety disorder commonly fear such activities as interactions with strangers, attending social gatherings, public speaking, communicating with authority figures, and behaving assertively (Rapee, 1995; Turner & Beidel, 1989). When these individuals do engage in feared activities, the experience is associated with marked subjective distress, intense anxiety, and somatic features such as sweating, shaking, hot flushes, palpitations, and nausea (Rapee, 1995). Anticipatory anxiety may also occur well in advance of upcoming social or performance situations (Beck, Emery, & Greenberg, 1985). Lifetime prevalence has been estimated at 13.3% (Kessler et al., 1994), with onset usually occurring in middle to late adolescence (Hazen & Stein, 1995; Scholing & Emmelkamp, 1990). Social anxiety disorder exhibits a high degree of comorbidity with other anxiety disorders, depression, and substance abuse (Lépine & Pélissolo, 1996;

Tyrer, 1996) and is thought to increase vulnerability to these disorders (Scholing & Emmelkamp, 1990). Social anxiety disorder is a chronic and prevalent diagnosis often associated with substantial impairment, decreased quality of life, and considerable long-term morbidity (Bech & Angst, 1996; Davidson, Hughes, George, & Blazer, 1993; Kessler et al., 1994; Reich, Goldenberg, Vasile, Goisman, & Keller, 1994; Safren, Heimberg, Brown, & Holle, 1997; Schneier et al., 1994; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Wittchen & Beloch, 1996).

Several clinical models of social anxiety disorder have been proposed and elaborated upon since the diagnosis was first described in DSM-III (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997; Schlenker & Leary, 1982; Trower & Gilbert, 1989; Trower, Gilbert, & Sherling, 1990). Primary to most theoretical conceptualizations is the assumption that individuals with social anxiety disorder place tremendous importance on conveying favorable impressions of themselves to those with whom they interact, resulting in extreme sensitivity to potential negative evaluation. Furthermore, such individuals are believed to view others as fundamentally critical and thus prone to forming and holding negative impressions. Finally, socially anxious individuals are theorized to hold low expectancies of their own ability to perform adequately in social situations and may therefore view themselves as particularly vulnerable to garnering social disapproval.

Cognitive-behavioral and interpersonal models of social anxiety disorder suggest that the previously identified characteristics, in combination with various

affective and cognitive processes, create a self-perpetuating cycle that maintains and often exacerbates clinical symptoms (e.g., Alden, 2001; Alden & Taylor, 2004; Clark, 2001; Clark & Wells, 1995; Rapee & Heimberg, 1997; Turk, Lerner, Heimberg, & Rapee, 2001). According to these clinical formulations, individuals with social anxiety disorder approach social interactions with a pre-existing set of negative self-perceptions, social expectations, and relational schema (i.e., beliefs about the self in relation to others, see Baldwin, 1992). These cognitive structures, which are presumed to develop in response to past social experiences, are mutually reinforcing; for example, the activation of negative relational schema impacts subjective self-perception and fosters pessimistic expectations for the outcome of interpersonal events. Negative assumptions about the self and the social world also predispose socially anxious individuals to exhibit particularly heightened vigilance for signals of social threat. This selective attention both increases the likelihood that they will notice negative social cues and leaves them prone to interpreting ambiguous cues as signs of disapproval or rejection, fueling maladaptive situational appraisals of themselves, their own ongoing behavior, and the impression they are conveying to others. The emergence of anxiety and its attendant somatic features further enhances perceived danger and critical self-evaluation. This leads to increasing preoccupation with negative self-appraisals and the monitoring of both anxiety symptoms and social performance, which interferes with the ability to notice and respond appropriately to the social cues of interaction partners. Ultimately, the withdrawn and inhibited behavior of individuals with social anxiety disorder, in conjunction with this failure to

effectively process social cues, may elicit negative reactions from those with whom they interact and thereby reinforce negative relational schema, critical self-perceptions, and social anxiety. Finally, socially anxious individuals engage in extensive and negatively biased post-event processing, mentally reviewing the social interaction with an emphasis on detecting evidence for their own social ineptitude. In sum, this conceptualization of social anxiety disorder describes a vicious cycle of interrelated and mutually reinforcing cognitive, affective, attentional, and interpersonal processes which may culminate in the realization of precisely those outcomes that the individual is striving to prevent.

Findings from research with both clinical and non-clinical samples are generally consistent with the above formulation of social anxiety disorder. For example, evidence indicates that socially anxious individuals are particularly likely to endorse both critical self-evaluations (Dodge, Hope, Heimberg, & Becker, 1988; Stopa & Clark, 1993) and pessimistic social expectations (Foa, Franklin, Perry, & Herbert, 1996; Poulton & Andrews, 1994) and supports the role of relational schema in activating and maintaining these negative perceptions (Baldwin & Main, 2001). Research also confirms that social anxiety is associated with selective attention to social threat cues (Gilboa-Schechtman, Foa, & Amir, 1999; Veljaca & Rapee, 1998) and the biased interpretation of ambiguous social events (Amir, Foa, & Coles, 1998; Stopa & Clark, 2000). Finally, there is some evidence that socially anxious individuals tend to elicit negative responses from their interaction partners (Alden & Beiling, 1998; Papsdorf & Alden, 1998) and to

engage in repetitious, negatively biased post-event processing of interpersonal events (Rachman, Grüter-Andrew, & Shafran, 2000).

Despite this convergence of research evidence, several issues remain to be addressed in the social anxiety literature, particularly with respect to the association between social anxiety and interpersonal behavior. For example, although the dimensional nature of social anxiety has been widely acknowledged and discussed, there is a dearth of research examining the continuity of interpersonal patterns among clinical and non-clinical samples of socially anxious individuals using comparable research designs. More importantly, the existing research has relied exclusively on the use of laboratory observation and self-report instruments. Naturalistic investigation is required to examine the generalizability of past findings and to clarify the nature of interpersonal processes in the everyday lives of socially anxious individuals. Finally, there is a lack of clarity with regards to details of the association between social anxiety and inhibited social behavior. Some authors refer to this inhibition as a "behavioral symptom" of anxiety, suggesting that innocuous behavior styles emerge as a direct response to elevated state social anxiety (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). Others have described this interpersonal style as a self-protective strategy activated by social cues (e.g., Arkin, Lake, & Baumgardner, 1986), suggesting that inhibited behavior may emerge only in the presence of particular contextual factors (Alden & Taylor, 2004). There is some evidence in support of the latter conceptualization. For example, Alden and Bieling (1998) reported that socially anxious individuals who were primed to appraise their

interaction partners as potentially critical engaged in more safety behaviors than did non-anxious controls in the same condition. When participants were led to appraise interaction partners as potentially accepting, no behavioral differences were observed between the anxious and non-anxious groups. Despite some empirical support for the situational activation of dysfunctional behavior styles among socially anxious individuals, this topic is in need of further and more detailed investigation.

The present investigation was designed to address these gaps in the social anxiety literature. Naturalistic, repeated measures data was collected from both community and clinical samples, allowing for the detailed examination of ongoing interpersonal patterns among multiple samples of individuals exhibiting varying degrees of chronic social anxiety. The simultaneous investigation of state social anxiety, chronic social anxiety, and situational appraisals also allowed for the direct assessment of whether, and to what extent, event-level anxiety and cognitive cues may be implicated in the activation of inhibited behavioral styles among socially anxious individuals. The extant theory in the literature on social anxiety disorder suggests that the inhibited behavior of socially anxious individuals is directly activated by either increases in state social anxiety or specific negative contextual cues. The framework examined in the present investigation is consistent with the latter formulation. The present research postulated that state social anxiety occurs as a direct response to the perceived threat of social exclusion, and may therefore prompt the use of alliance-protective affiliative behavior strategies in an effort to preserve social ties. This effect was

hypothesized to be observable across all participants, including individuals with social anxiety disorder. Chronic social anxiety, on the other hand, was presumed to be associated with a self-protective behavioral style that is particularly apparent in the presence of situational appraisals that make salient the potential for negative social outcomes. In other words, inhibited interpersonal styles were hypothesized to be observable across both individuals with social anxiety disorder and non-clinical participants reporting high levels of chronic social anxiety; this behavior was expected to be moderated by the presence of situational appraisals such as negative social comparison.

The Empirical Investigation of Anxiety-Behavior Relations

The circumplex model of interpersonal behavior (Figure 1.1; Carson, 1969; Kiesler, 1983; Leary, 1957; Wiggins, 1979, 1982, 1991) provides a framework within which to investigate hypotheses concerning behavioral responses to elevated levels of state and chronic social anxiety. The circumplex organizes social behavior around a circle defined by two primary axes, sometimes labeled as status and love or control and affiliation. These axes have also been described in terms of agency and communion, two metaconstructs that refer to modes of relating to the world (Wiggins, 1991). Wiggins has defined agency as strivings for self-differentiation, mastery, and power, and communion as strivings for intimacy, union, and solidarity. Agentic behavior, which is represented as a bipolar dimension ranging from dominant to submissive behavior, can therefore be conceptualized as behavior that asserts status relative to others. Communal behavior, which is represented as a bipolar dimension ranging from agreeable to

quarrelsome behavior, can be conceptualized as behavior that promotes interpersonal ties. In interpersonal circumplex terms, the alliance-protective behavioral strategies presumed to be associated with state social anxiety (i.e., the avoidance of interpersonal conflict and the promotion of affiliative bonds) would be reflected in decreased quarrelsomeness and increased agreeableness, while the self-protective behavioral strategies presumed to be associated with increased chronic social anxiety (i.e., submissive passivity and decreased assertion) would be reflected in increased submissiveness and decreased dominance.

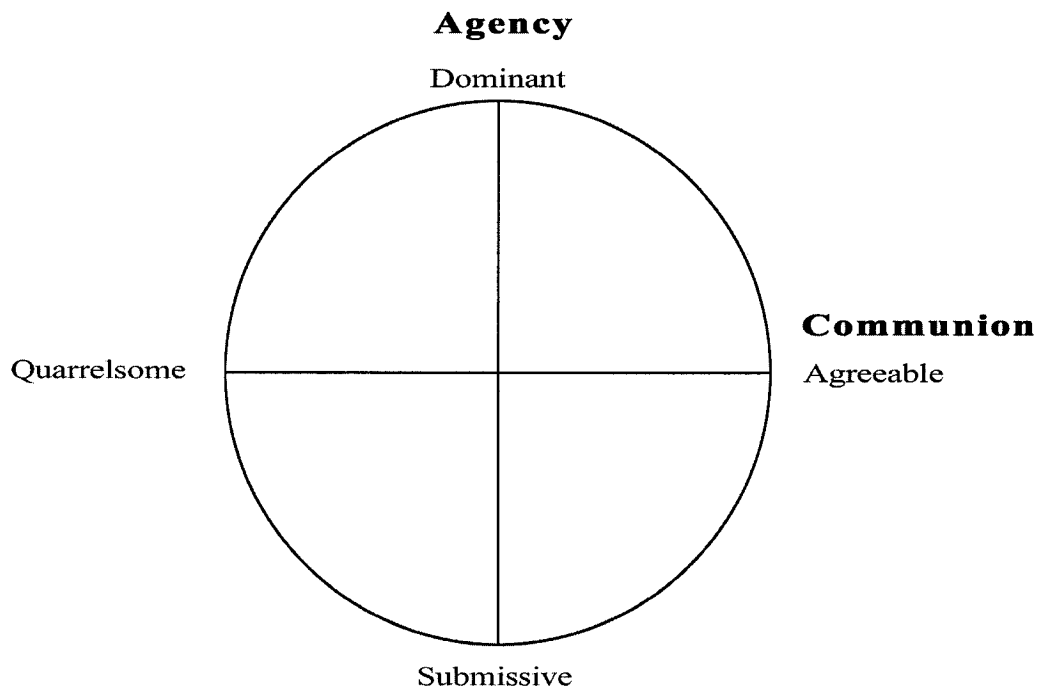

Figure 1.1. The interpersonal circumplex.

The two axes of human social behavior, as well as various affective, cognitive, and contextual elements of social interaction, can be studied using an event-contingent recording method. This research method assesses social

behavior as it occurs in natural environments by collecting data from individuals subsequent to each significant social interaction engaged in over the course of their everyday lives. Abundant evidence has accumulated demonstrating the reliability and validity of this method for assessing both affective experience and social behavior (Csikszentmihalyi & Larson, 1987; Diener & Emmons, 1984; McAdams & Constantian, 1983; Moskowitz, 1994). Furthermore, this data collection procedure offers several advantages over traditional laboratory research. Interpersonal situations are sampled throughout the day, providing reports of behavior and affect across a range of social and occupational settings. Collecting these observations across several days permits the examination of intraindividual processes and enables the examination of affective and behavioral variables both within interactions on an event-by-event basis (i.e., at the state level) and aggregated over time (i.e., at the chronic level). Reports of behavior, affect, and situational appraisal are also recorded close in time to their occurrence, thus minimizing the impact of retrospective biases and reconstructive memory processes. This is a particularly important consideration with respect to the collection of data from individuals with social anxiety disorder, who may tend to report increasing distorted versions of social interaction episodes over time due to the negatively biased post-event processing of interpersonal events.

The Present Studies

Two separate studies examined the relation of intraindividual fluctuations in state social anxiety and between-individual differences in chronic social anxiety to ongoing patterns of naturally occurring interpersonal behavior. Both

studies also investigated the impact of event-level fluctuations in negative situational appraisals on the interpersonal patterns of socially anxious individuals. The first study, reported in Chapter 2, was conducted with a community sample of working adults who displayed a range of chronic social anxiety levels. An event-contingent recording procedure was employed to test hypotheses based on the framework presented previously. This study examined the specific relations of state social anxiety and chronic social anxiety to interpersonal circumplex behaviors, controlling for the effects of other (i.e., non-anxious) negative affective states. The moderation of relations between chronic social anxiety and behavior by event-level appraisals of inferiority, representing situational fluctuations in negative social comparison, was also examined.

The second study, reported in Chapter 3, examined a sample of individuals with generalized social anxiety disorder and a matched group of non-anxious community controls using an identical event-contingent recording procedure. This study compared the interpersonal behavior of individuals with social anxiety disorder to that of control group members and examined the role of event-level inferiority appraisals in the enhancement of between-group behavioral disparities. Associations between event-level fluctuations in state social anxiety and interpersonal behavior were also examined; as in Study 1, other forms of negative affect were statistically controlled in these analyses. The similarity of research methodology and statistical procedures across studies permitted the examination of continuity between findings for the socially anxious members of the community sample included in Study 1 and findings for the sample of individuals

with generalized social anxiety disorder included in Study 2. In addition, the study of individuals with social anxiety disorder extended the investigation of situational associations between state social anxiety and interpersonal behavior across both clinical and non-clinical levels of the chronic social anxiety spectrum.

CHAPTER 2 – STATE AND TRAIT SOCIAL ANXIETY

INTRODUCTION

The first study examined the relation of social anxiety to interpersonal behavior in a community sample of working adults. Social anxiety was conceptualized as occurring at two discrete levels: state social anxiety, as evidenced by event-level fluctuations in anxiety from one social interaction episode to another, and trait social anxiety, operationalized as individual differences in the mean level of anxiety reported across many social interactions. The primary aim of this investigation was to determine whether these two distinct forms of social anxiety display unique associations with interpersonal behavior.

As outlined previously, social anxiety may be regarded as an adaptive response to threatened social exclusion that both orients individuals toward the risk of negative social outcomes and promotes threat-evasive behavioral strategies. This framework suggests that acute elevations in state social anxiety occur as a direct response to threatened social exclusion, and may therefore elicit immediate alliance-protective behavioral responses. This event-level behavioral response is presumed to occur across all levels of trait social anxiety. In contrast, trait social anxiety may increase self-perceived vulnerability to social exclusion, foster self-protective appeasement behavior intended to reduce the risk of rejection, and increase sensitivity to situational appraisals that suggest a heightened risk of negative social outcomes. Thus, individuals with high chronic levels of trait social anxiety might be expected to engage in particularly high

levels of inhibited interpersonal behavior during interactions in which specific contextual features such as negative social comparison are elevated.

An event-contingent recording procedure was utilized to examine hypotheses derived from this framework. Participants completed structured record forms subsequent to social interactions occurring across a range of contexts (e.g., work, home, recreational settings) over a 20-day data collection period. For each interaction recorded, participants provided information concerning behaviors they engaged in for each of the four poles of the interpersonal circumplex (i.e., dominance, submissiveness, agreeableness, quarrelsomeness), affect they experienced during the social interaction (including anxiety as well as other forms of both negative and positive affect), and the extent to which they appraised themselves as inferior during the interaction in question. This research design enabled the investigation of both state social anxiety (i.e., anxiety experienced within each interaction on an event-by-event basis) and trait social anxiety (i.e., mean level of anxiety experienced across all interactions reported).

Social anxiety was conjectured to display differential associations with interpersonal behavior at the state versus trait level. State social anxiety was expected to predict an alliance-protective behavioral strategy characterized by decreased quarrelsomeness and increased agreeableness. Across all levels of trait anxiety, individuals were expected to display lower levels of quarrelsome behavior and higher levels of agreeable behavior during interactions in which increased state social anxiety was reported. Trait social anxiety, reflecting the more chronic activation of social exclusion concerns, was hypothesized to predict

a self-protective interpersonal style characterized by increased submission and decreased dominance across all social interactions. It was further predicted that this self-protective orientation would be enhanced by situational appraisals of inferiority. Individuals high on trait social anxiety were expected to exhibit particularly increased levels of submissive behavior and particularly decreased levels of dominant behavior during interactions in which elevated inferiority was reported.

METHOD

Participants

Newspaper advertisements recruited individuals holding paid employment to take part in a study of social interaction. A total of 130 individuals agreed to participate after a telephone orientation and introductory session; nine of these individuals did not complete the event-contingent recording procedure. Of the 121 individuals who completed the study, 113 participants (87%) provided usable data. The two primary reasons for exclusion of a participant's data were: (1) data arriving in "clumps" rather than arriving daily, and (2) incorrect completion of forms.

The sample was almost evenly divided between men (56) and women (57). Participants ranged in age between 22 and 70 years ($M = 40.88$, $SD = 11.35$). There were 88 participants (78%) whose first language was English, 24 participants (21%) whose first language was not English, and 1 participant for whom this information was unavailable. With respect to educational background, 1 individual (1%) had not completed high school, 13 individuals (12%) had

completed high school or trade school, 35 individuals (31%) had completed at least one year of college, 43 individuals (38%) had graduated from university with a bachelor's degree, 21 individuals (19%) had a postgraduate degree, and educational information was missing for one individual. Research participants held a variety of occupations (e.g., engineer, teacher, data analyst, and secretary).

Procedure

First, participants attended a meeting during which procedures for the study were explained, their consent to participate was obtained, and a battery of questionnaires was administered. Participants then completed a 1-page record form as soon as possible following each social interaction of at least 5 minutes duration, every day for 20 days. Participants were provided with 10 forms per day, and were asked to use as many or as few as their natural day-to-day social activity dictated. Forms were mailed to the researchers on the first day subsequent to recording. Participants completed an average of 132 forms, or approximately 6-7 forms per day.

Measures

Event-contingent recording. Event-contingent record forms requested information about characteristics of the social interaction (e.g., time, environment, interaction partners) and included measures of interpersonal behavior, affect, and social comparison.

Behavior. Interpersonal behavior was measured using 46 items developed by Moskowitz (1994) to assess the poles of the interpersonal circumplex. Each dimension was represented by 12 items, with one item used for both the

dominance and quarrelsomeness scales (i.e., "I criticized the other"), and one item used for both the submissiveness and agreeableness scales (i.e., "I went along with the other"). Agreeable behavior was represented by items such as "I expressed affection with words or gestures" and "I smiled and laughed with others." Items measuring quarrelsome behavior included "I did not respond to the other's questions or comments" and "I made a sarcastic comment." Examples of items measuring dominant behavior were "I took the lead in planning/organizing a project or activity" and "I assigned someone to a task." Submissive behavior was measured with items such as "I gave in," and "I avoided taking the lead or being responsible." See Moskowitz (1994) for the complete list of behavioral statements, information concerning the development of the item pool, and initial reliability and validity studies. Further research has demonstrated the reliability, convergent validity, and discriminant validity of these items as behavioral measures of the four interpersonal circumplex dimensions (Mongrain, Vettese, Shuster, & Kendal, 1998; Moskowitz & Côté, 1995; Moskowitz, Suh, & Desaulniers, 1994; Sadler & Woody, 2003).

The event-contingent record form asked participants to endorse all of the behavior items they had engaged in during the social interaction being recorded. Each form contained a subset of the 46 behavioral statements to guard against the tendency for participants to adopt a response set when presented with the same form daily. Four different versions of the form were used, with items representing dominant, agreeable, submissive, and quarrelsome behavior divided equally among them. Thus, each version of the form contained three items representing

each of the four circumplex dimensions. On the basis of previous work (Moskowitz, 1994), the items were distributed onto the four forms to balance frequency of endorsement and item-total correlation with the behavior scale. Participants completed Form 1 on Day 1, Form 2 on Day 2, Form 3 on Day 3, and Form 4 on Day 4, returning to Form 1 following each 4-day cycle.

Affect. The event-contingent record form asked participants to rate how they felt during the interaction, on a scale ranging from 0 (*not at all*) to 6 (*extremely*), for each of nine items previously used by Diener and Emmons (1984) to assess affect valence. Pleasant affect items included happy, pleased, enjoyment/fun and joyful, while unpleasant affect was represented by the items worried/anxious, frustrated, angry/hostile, unhappy, and depressed/sad. These represent each half of the pleasant/unpleasant dimension on circumplex models of emotion (Larsen & Diener, 1992; Russell, 1980). The unpleasant affect items were further subdivided into three discrete affective categories, based on their consistency with items previously used by Diener, Smith, and Fujita (1995) to assess anxiety, anger, and sadness. Anxiety was represented by the item worried/anxious; anger was indicated by the items frustrated and angry/hostile; and sadness was assessed by the items unhappy and depressed/sad. Affect adjectives were embedded in a list that included several additional items not used in the present research.

Inferiority. For each social interaction, participants were asked to indicate the extent to which they felt inferior to the other, on a scale ranging from 0 (*not at all*) to 6 (*extremely*). Scores on this item represented event-level appraisals of

inferiority. As this index was not normally distributed, the scale underwent a log transformation prior to analysis.

Construction of event-specific behavior scale scores. For each participant, a score for each behavior scale was calculated for each interaction episode reported. There were three steps in the construction of this scale score. First, event-specific raw scores were constructed by calculating the mean number of items endorsed for each behavioral scale. Then, event-specific ipsatized scores were constructed by subtracting the mean score for all scales within an event from each raw score for that event. Finally, the event-specific ipsatized scores were multiplied by 100 for ease of presentation. The ipsatized scores, therefore, represented the frequency with which the behaviors corresponding to a behavioral dimension were checked within a given episode, adjusted for the participant's overall rate of responding (cf. Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). The ipsatizing procedure controls for response sets (e.g., the tendency to check many items or few items). Validity evidence for the behavior scales has been established based on the ipsatized scores.

Construction of event-specific affect scores. Three affect scores were constructed for each participant for each episode: anxiety, anger, and sadness. The event-level anxiety score consisted of intensity ratings on the item worried/anxious for each interaction reported. Scores for anger were calculated by averaging the intensity ratings of the items frustrated and angry/hostile, and event-level sadness scores were constructed by averaging the intensity ratings of the items unhappy and depressed/sad. As these indices of discrete negative affect

were not normally distributed, each scale underwent a log transformation prior to analysis.

Construction of mean-level anxiety scores. To construct anxiety scores aggregated across the 20 days of the study, log transformed intensity ratings of the worried/anxious affect item were averaged across all events for each participant.

Statistical Analyses

Multilevel modeling was employed for data analyses examining the main and interactive effects of state anxiety, trait anxiety, and self-perceived inferiority on interpersonal behavior during social interactions. This statistical procedure permits the analysis of unbalanced data (e.g., from subjects who provide unequal numbers of data points due to varying rates of social interaction) and the simultaneous investigation of between-subject and within-subject effects. Analyses were conducted using PROC MIXED, Version 8.1 (SAS Institute, 2000) and maximum likelihood estimation. The degrees of freedom for *F* tests were determined by dividing the residual degrees of freedom into between-subjects and within-subjects portions, following Singer's (1998) recommendation.

Event-level anxiety, anger, sadness, and appraisals of inferiority were centered within participants. Thus, an individual participant's score on each of these within-person predictor variables represented the extent to which that individual fluctuated, or deviated, about their own mean during a given interaction (Kreft & De Leeuw, 1998). The centered variables were denoted "state anxiety," "state anger," "state sadness," and "inferiority." Mean scores for anxiety were centered across participants. Thus, an individual participant's score on

mean-level anxiety reflected how much social anxiety that individual reported across all interactions, relative to the mean for all participants in the study. This between-subjects predictor was denoted "trait anxiety."

Multilevel analysis allowed for the comparison of between-person and within-person slopes, where slopes indicated the strength and direction of the predictive relation between affective experience and interpersonal behavior. Between-person variance described how individuals differed with respect to mean anxiety levels. Within-person variance described deviations from individual means in anxiety, anger, and sadness within a particular interaction at a single point in time. Cross-level interactions indicated whether the relation of behavior to state anxiety and/or inferiority varied across individuals as a function of trait anxiety levels.

Model development employed a sequential strategy (Wallace & Green, 2002). The fixed-effects portion of each model was examined first, assuming an unstructured variance-covariance matrix and random effects for the intercept and all event-level (i.e., state) predictors. The inclusion of these random effects allowed for individual differences in both the intercepts and the slopes of event-level predictors to be taken into account in the analysis of overall patterns across the sample. A hierarchical approach was used to test the fixed effects; main effects were examined first, followed by the addition of interaction terms. Alternate specifications of the variance-covariance structure, including both autoregressive and heterogeneous compound symmetry, were then explored. These modifications did not improve the fit of any model as assessed by the AIC

and BIC criteria. Hence, the random component was left unchanged, and simple random effects models were reported. All models were also examined including sex and all interactions between sex, trait anxiety, and state anxiety. None of the effects including sex were significant.

Separate analyses investigated the event-level scores for dominance, submissiveness, agreeableness, and quarrelsomeness as outcome variables. All models included state anxiety and trait anxiety as predictors, along with main effect terms for state anger and state sadness to control for relations between behavior and negative affect in general. The cross-level interaction between state and trait anxiety was then added to the main effects models to determine whether the relation of state anxiety to behavior differed as a function of trait anxiety. Thus, the final model for each of the four behaviors included main effects for trait anxiety, state anxiety, state sadness, and state anger, as well as the state anxiety X trait anxiety interaction. The role of self-perceived inferiority in relations between trait anxiety and behavior was then examined by adding a main effect for inferiority along with the trait anxiety X inferiority interaction term.

Significant interaction effects were interpreted by calculating slope estimates for individuals with relatively high (i.e., one standard deviation above the sample mean) and relatively low (i.e., one standard deviation below the sample mean) levels of trait anxiety. Point estimates for graphing purposes were calculated for individuals with trait anxiety scores that were ± 1 *SD* from the sample mean, during interactions in which self-perceived inferiority was high (+ 1 *SD*) or low (- 1 *SD*) relative to individual within-subject means. The pooled

within-subject standard deviation was used in the calculation of point estimates for event-level predictors. Significance tests of slopes, differences between slopes, and differences between point estimates were calculated using estimate statements in PROC MIXED.

RESULTS

The results are presented in three sections. Descriptive statistics are reported first, followed by an examination of the main and interactive effects of state anxiety, trait anxiety, and subjective inferiority on interpersonal behavior within interactions. Subsequent analyses concerning the relation of inferiority to state and trait anxiety and the potential role of chronic inferiority in the prediction of interpersonal behavior are then presented.

Descriptive Statistics

Means and standard deviations for the event-level behavior scales and uncentered event-level affect, event-level inferiority appraisal, and aggregated anxiety scores are presented in Table 2.1. Agreeableness and dominance were the most common event-level behaviors, while submissiveness and quarrelsomeness were relatively infrequent; this is consistent with findings from past event-contingent recording studies of interpersonal behavior. The negative values for submissive and quarrelsome behavior are the result of the ipsatizing process, and indicate that the mean level of each of these behaviors across all events was lower than the mean level of all four interpersonal behaviors combined.

Table 2.1. *Descriptive Statistics for Interpersonal Behavior and Affect*

Variable	*M*	*SD*
Event-level dominant behavior	9.88	22.60
Event-level submissive behavior	-7.42	21.63
Event-level agreeable behavior	15.28	22.74
Event-level quarrelsome behavior	-17.74	19.76
Event-level anxiety	.48	.58
Aggregated anxiety	.49	.31
Event-level anger	.42	.52
Event-level sadness	.29	.44
Event-level inferiority	.20	.44

Note. N (participants) = 113. N (observations, for event-level variables) = 14,897.

Dominant Behavior

Covariates. Significant main effects were found for the covariate variables. State sadness was inversely related to dominant behavior, such that individuals reported higher levels of dominance during interactions in which sadness was low than they did when sadness was high (b = -3.35), t (14781) = -4.96, $p < .0001$ (est. M = 11.20 ± 0.66 and 8.52 ± 0.60, respectively). Conversely, individuals engaged in more dominant behavior when event-level anger was high than they did when low anger was reported (b = 3.04), t (14781) = 4.22, $p < .0001$ (est. M = 11.23 ± 0.69 and 8.49 ± 0.62).

Effects of state and trait anxiety on dominance. It was hypothesized that increased levels of trait anxiety, but not state anxiety, would be associated with decreased levels of dominant behavior. Consistent with this prediction, a significant main effect emerged for trait anxiety. Individuals reporting high levels

of trait anxiety across the 20 days of observation reported lower levels of dominant behavior than did individuals exhibiting low trait anxiety (b = -1.20), t (111) = -2.17, $p < .05$ (est. M = 8.66 ± 0.79 and 11.05 ± 0.80). As expected, state anxiety was not predictive of dominant behavior (b = 0.87), F (1, 14781) = 2.80, *ns*. The cross-level interaction between state and trait anxiety was also not significant (b = 0.46), F (1, 14780) = 0.89, *ns*.

Inferiority and anxiety-dominance relations. A main effect for inferiority was added to the model, as well as the trait anxiety X inferiority interaction term. No main effect of inferiority on dominant behavior was found (b = -0.74), F (1, 14778) = 0.83, *ns*. Event-level dominant behavior was, however, significantly predicted by the interaction of trait anxiety and inferiority (b = -2.75), F (1, 14778) = 14.57, $p < .0001$.

Figure 2.1 illustrates the interaction of trait anxiety and subjective inferiority in the prediction of dominant behavior. As event-level inferiority appraisals were centered within participants, "low inferiority" indicates the level of dominant behavior during interactions in which reported inferiority was reduced relative to individuals' mean levels, while "high inferiority" refers to interactions in which inferiority was elevated relative to individuals' mean levels. It was hypothesized that individuals high on trait social anxiety would display particularly decreased levels of dominant behavior during interactions in which self-perceived inferiority was elevated. Consistent with this prediction,

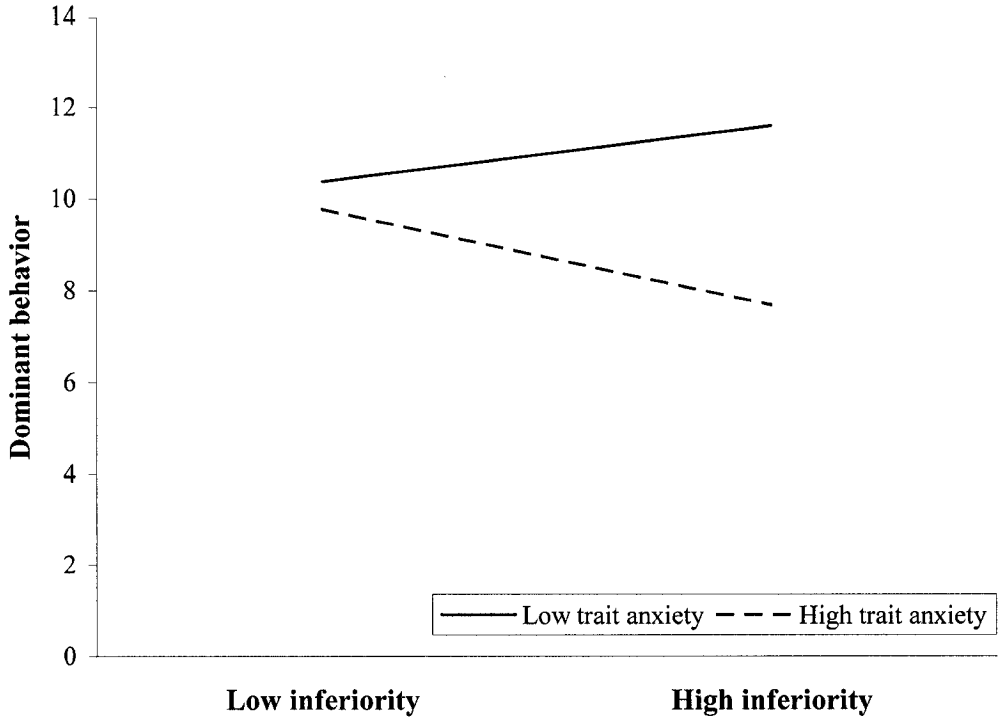

Figure 2.1. Prediction of dominant behavior by trait anxiety and inferiority.

examination of the interaction between trait anxiety and inferiority revealed that individuals high on trait anxiety engaged in significantly lower levels of dominant behavior during interactions in which high appraisals of inferiority were reported than they did when reported inferiority was low, slope = -3.49, t (14778) = -3.98, $p < .0001$. Conversely, the dominant behavior of low trait-anxious individuals during high inferiority and low inferiority interactions did not differ significantly, slope = 2.01, t (14778) = 1.60, *ns.* Subsequent investigation of the point estimates for this effect further revealed that the difference between high and low trait-anxious individuals in overall levels of dominant behavior was not significant during interactions in which low levels of subjective inferiority were reported,

t (14778), = -0.50, *ns* (est. $M = 9.77 \pm 0.86$ and 10.39 ± 0.92). During interactions with high inferiority, individuals with elevated trait social anxiety engaged in significantly lower levels of dominant behavior than low trait-anxious individuals, t (14778) = -3.42, $p < .001$ (est. $M = 7.68 \pm 0.80$ and 11.59 ± 0.85). Thus, heightened inferiority appraisals decreased levels of dominant behavior in individuals with high trait social anxiety.

Submissive Behavior

Covariates. Significant main effects were found for the covariate variables. State sadness was positively related to submissive behavior, such that individuals reported higher levels of submissiveness during interactions in which sadness was high than they did when sadness was low ($b = 2.53$), t (14781) = 4.00, $p < .0001$ (est. $M = -6.39 \pm 0.55$ and -8.42 ± 0.59). Conversely, individuals engaged in more submissive behavior when event-level anger was low than they did when high anger was reported ($b = -2.47$), t (14781) = -3.25, $p < .01$ (est. $M =$ -6.29 ± 0.59 and -8.51 ± 0.64).

Effects of state and trait anxiety on submissiveness. It was hypothesized that increased levels of trait anxiety, but not state anxiety, would be associated with increased levels of submissive behavior. Consistent with this prediction, a significant main effect emerged for trait anxiety. Individuals with elevated trait anxiety scores reported higher levels of submissive behavior than did individuals low on trait anxiety ($b = 1.79$), t (111) = 3.57, $p < .001$ (est. $M = -5.62 \pm 0.71$ and -9.19 ± 0.72). Contrary to the hypothesis, elevated state anxiety was also predictive of increased submissive behavior ($b = 1.14$), t (14781) = 2.17, $p < .05$

(est. M = -7.96 ± 0.56 and -6.84 ± 0.59). The cross-level interaction between state and trait anxiety was not significant (b = 0.42), F (1, 14780) = 0.63, *ns*.

Inferiority and anxiety-submissiveness relations. Terms for inferiority and trait anxiety X inferiority were added to the model. The main effect of inferiority on submissive behavior was significant and indicated that individuals engaged in higher levels of submissive behavior when appraisals of inferiority were high than they did during interactions in which reported inferiority was low (b = 2.82), t (14778) = 3.16, $p < .01$ (est. M = -6.56 ± 0.56 and -8.25 ± 0.60). The cross-level interaction between trait anxiety and inferiority was also significant (b = 2.63), F (1, 14778) = 10.20, $p < .01$.

It was hypothesized that individuals high on trait social anxiety would display particularly increased levels of submissive behavior during interactions in which self-perceived inferiority was elevated. Consistent with this prediction, examination of the interaction between trait anxiety and inferiority (Figure 2.2) revealed that participants with elevated trait anxiety engaged in significantly greater levels of submissive behavior during interactions in which high appraisals of inferiority were reported than they did when inferiority was low, slope = 5.45, t (14778) = 5.34, $p < .0001$. For the low trait-anxious group, submissive behavior during high inferiority and low inferiority interactions did not differ significantly, slope = 0.19, t (14778) = 0.14, *ns*. Subsequent investigation of the point estimates for this effect further revealed that the difference between high and low trait-anxious individuals in overall levels of submissive behavior was not significant during interactions in which low levels of subjective inferiority were reported, t

(14778), = 1.79, *ns* (est. M = -7.21 ± 0.81 and -9.29 ± 0.86). During interactions in which subjective inferiority was high, individuals with elevated trait social anxiety were more submissive than low-anxious individuals, t (14778) = 4.84, $p <$ .0001 (est. M = -3.94 ± 0.74 and -9.18 ± 0.81). Thus, the increased levels of submissive behavior observed in individuals with high trait anxiety were enhanced by heightened inferiority appraisals.

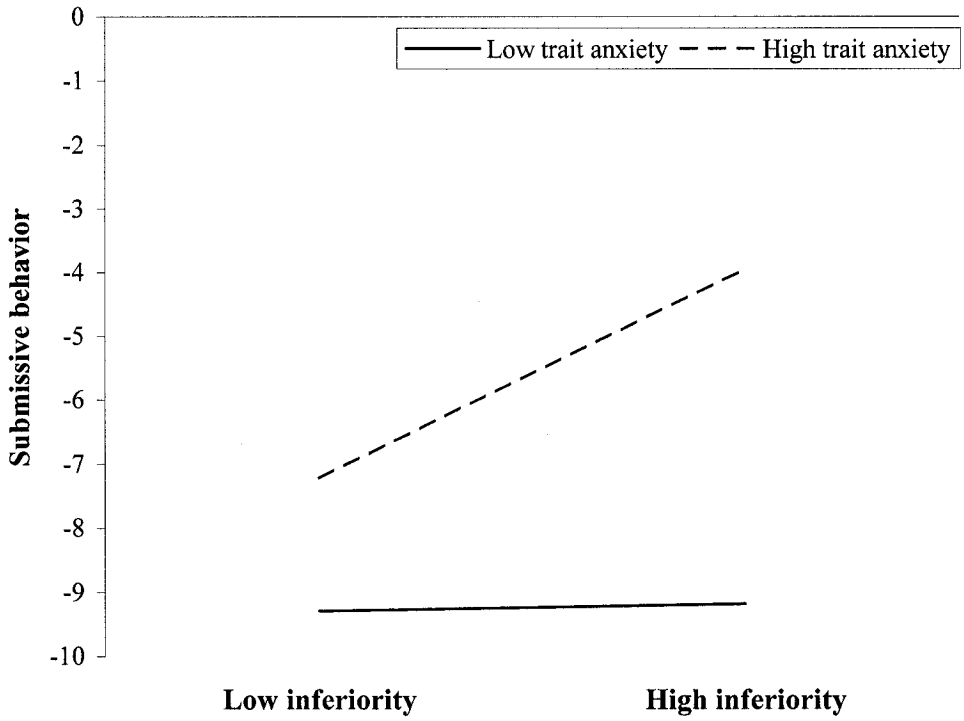

Figure 2.2. Prediction of submissive behavior by trait anxiety and inferiority.

Agreeable Behavior

Covariates. Significant main effects were found for the covariate variables. State sadness was negatively related to agreeable behavior, such that individuals reported lower levels of agreeableness during interactions in which sadness was higher than average than they did when sadness was low (b = -2.71),

t (14781) = -4.15, p < .0001 (est. M = 14.07 ± 0.61 and 16.24 ± 0.67). Similarly, individuals engaged in less agreeable behavior when event-level anger was high than they did when low anger was reported (b = -12.59), t (14781) = -17.53, p < .0001 (est. M = 9.49 ± 0.65 and 20.83 ± 0.68).

Effects of state and trait anxiety on agreeableness. It was hypothesized that increased levels of state anxiety, but not trait anxiety, would be associated with increased levels of agreeable behavior in the main effects model. As expected, trait anxiety was not significantly related to agreeableness (b = -0.10), F (1, 111) = 0.03, *ns*. Contrary to prediction, the main effect for state anxiety also failed to attain significance (b = 0.98), F (1, 14781) = 2.75, *ns*. Thus, neither state anxiety nor trait anxiety predicted agreeable behavior. The cross-level interaction between state and trait anxiety was also not significant (b = -0.33), F (1, 14780) = 0.38, *ns*.

Inferiority and anxiety-agreeableness relations. Terms for inferiority and trait anxiety X inferiority were added to the model. No main effect of inferiority on agreeable behavior was found (b = -0.14), F (1, 14778) = 0.06, *ns*, and the interaction between trait anxiety and inferiority was not significant (b = 0.47), F (1, 14778) = 0.90, *ns*. Thus, inferiority did not directly impact agreeable behavior, nor did it moderate relations between agreeableness and trait anxiety.

Quarrelsome Behavior

Covariates. Significant main effects were found for the covariate variables. State sadness was positively associated with quarrelsome behavior, such that individuals reported higher levels of quarrelsomeness during

interactions in which sadness was high than they did when sadness was low (b = 3.54), t (14781) = 6.32, p < .0001 (est. M = -16.20 ± 0.59 and -19.04 ± 0.64). Individuals also engaged in more quarrelsome behavior when event-level anger was higher than average than they did when low anger was reported (b = 12.04), t (14781) = 16.72, p < .0001 (est. M = -12.20 ± 0.64 and -23.04 ± 0.68).

Effects of state and trait anxiety on quarrelsomeness. It was hypothesized that increased levels of state anxiety, but not trait anxiety, would be associated with decreased levels of quarrelsome behavior. Consistent with this prediction, a significant main effect was found for state anxiety; individuals engaged in less quarrelsome behavior during interactions in which anxiety was higher than average than they did when low levels of anxiety were reported (b = -2.81), t (14781) = -5.66, p < .0001 (est. M = -19.00 ± 0.63 and -16.24 ± 0.61). Also as predicted, trait anxiety was unrelated to levels of quarrelsome behavior (b = -0.54), F (1, 111) = -0.97, *ns*. The cross-level interaction between state and trait anxiety was not significant (b = -0.33), F (1, 14780) = .38, *ns*.

Inferiority and anxiety-quarrelsomeness relations. Terms for inferiority and trait anxiety X inferiority were added to the model. The main effect of inferiority on quarrelsome behavior was significant, and indicated that individuals engaged in lower levels of quarrelsome behavior when appraisals of inferiority were high than they did during interactions in which subjective inferiority was low (b = -2.32), t (14778) = -3.40, p < .001 (est. M = -18.32 ± 0.61 and -16.93 ± 0.61). The cross-level interaction between trait anxiety and inferiority was not significant (b = 0.02), F (1, 14778) = 0.00, *ns*. Thus, elevated inferiority

appraisals were associated with decreased levels of quarrelsome behavior, but did not moderate relations between quarrelsomeness and trait anxiety.

Inferiority and Anxiety

In the present investigation, event-level perceptions of inferiority interacted with trait anxiety to predict two of the four interpersonal behaviors examined. The pattern of results indicated that the behavior of individuals with elevated trait anxiety was particularly impacted by heightened inferiority appraisals; during interactions in which individuals with high trait social anxiety reported subjective inferiority levels that were greater than those they usually experienced, they engaged in significantly reduced levels of dominant behavior and significantly elevated levels of submissive behavior. It was previously suggested that social anxiety is associated with perceptions of the self as vulnerable to social exclusion and that relative inferiority may be one marker of perceived exclusion risk. Consequently, individuals with high levels of trait social anxiety may report elevated levels of subjective inferiority relative to individuals with low trait social anxiety. Additional analyses were performed to examine this hypothesis.

A multilevel model was constructed using uncentered event-level inferiority appraisals as the dependent variable and state anxiety, trait anxiety, state anger, and state sadness as the predictor variables. As with all previous models, an unstructured variance-covariance matrix was assumed and random effects for the intercept and all event-level (i.e., state) predictors were included. The event-level sadness covariate was significant. Participants reported higher

appraisals of inferiority during interactions in which state sadness was elevated (b = 0.11), t (14781) = 5.28, p < .0001 (est. M = 0.25 ± 0.02 and 0.16 ± 0.02). There was no significant main effect for the covariate of state anger on event-level inferiority (b = 0.02), F (1, 14781) = 2.86, *ns*.

Event-level inferiority was predicted by both trait and state anxiety. As expected, individuals high on trait anxiety generally reported higher levels of self-perceived inferiority than did low-anxious individuals (b = 0.14), t (111) = 7.46, p < .0001 (est. M = 0.35 ± 0.03 and 0.06 ± 0.03). In addition, individuals appraised themselves as more inferior during interactions in which state anxiety was elevated (b = 0.06), t (14781) = 5.10, p < .0001 (est. M = 0.24 ± 0.02 and 0.17 ± 0.02). The cross-level interaction between state and trait anxiety was then added to the main effects model. The interaction was not significant (b = 0.01), F (1, 14780) = 0.76 *ns*, indicating that the increase in self-perceived inferiority associated with elevated state anxiety did not differ as a function of trait social anxiety.

Trait Anxiety, Chronic Inferiority, and Behavior

The association between trait anxiety and self-perceived inferiority could raise interpretive difficulties, as the behavioral patterns observed among individuals with high trait social anxiety may result from chronically elevated inferiority appraisals, rather than from trait anxiety itself. To explore this possibility, inferiority appraisals were aggregated across the 20 days of data collection and centered across individuals; this person-level variable was denoted "chronic inferiority" and entered as a predictor in all previous models examining

the relation of state and trait anxiety to interpersonal behavior. Main effect models were examined first. Chronic inferiority was associated with decreased levels of agreeable behavior (b = -1.41), t (110) = -2.13, $p < .05$ (est. M = 13.76 ± 0.87 and 16.59 ± 0.88). Chronic inferiority did not significantly predict levels of dominant behavior (b = 0.60), F (1, 110) = 0.82, *ns*, submissive behavior (b = 0.49), F (1, 110) = 0.67, *ns*, or quarrelsome behavior (b = 0.30), F (1, 110) = 0.20, *ns*. Importantly, all previously reported main effect findings for state and trait anxiety in the prediction of interpersonal behavior remained intact with the addition of the chronic inferiority term. Thus, chronic inferiority did not appear to underlie any of the previously reported findings for the effects of state and trait anxiety on interpersonal behavior.

Next, the main effect for chronic inferiority, as well as the interaction between state inferiority and chronic inferiority, was added to all models examining the role of inferiority appraisals in anxiety-behavior relations. Chronic inferiority did not significantly interact with state inferiority to predict levels of dominant behavior (b = 0.44), F (1, 14777) = 0.33, *ns*, submissive behavior (b = -1.65), F (1, 14777) = 3.63, *ns*, agreeable behavior (b = 0.13), F (1, 14777) = 0.06, *ns*, or quarrelsome behavior (b = 0.83), F (1, 14777) = 1.60, *ns*. Furthermore, all previously reported main effect findings for state inferiority and interactions between trait anxiety and state inferiority in the prediction of interpersonal behavior remained significant with the addition of chronic inferiority and the chronic inferiority x state inferiority interaction. In sum, despite the strong association between trait social anxiety and chronic inferiority,

results of these analyses indicate that the previously reported main and interactive effects of trait anxiety on interpersonal behavior were not due to chronically elevated levels of inferiority among high trait-anxious participants. Instead, individuals with high levels of trait social anxiety exhibit heightened behavioral responsivity to increases in self-perceived inferiority during particular events.

DISCUSSION

The present investigation separated the within-subjects and between-subjects variance components of social anxiety to examine their unique associations with naturally occurring interpersonal behavior. The overall pattern of results is consistent with the broader state-trait model of anxiety (Spielberger, 1966, 1972) and offers specific evidence for the differentiation of state and trait anxiety within the domain of human social interaction. As predicted, and in further support of this distinction, state social anxiety and chronic social anxiety were associated with distinct patterns of interpersonal behavior.

As expected, individuals quarreled less during interactions in which state anxiety was elevated. However, the hypothesis that state anxiety would be associated with increased levels of agreeable behavior was not supported. Agreeableness and quarrelsomeness together define the broader dimension of communion, characterized by strivings for intimacy and solidarity (Bakan, 1966; Wiggins, 1991). Given the absence of a significant association between state anxiety and agreeable behavior, the results do not suggest that individuals pursued greater interpersonal connectedness when they experienced increased anxiety levels during social interaction episodes. Instead, the present findings associate

state social anxiety with behavior that may safeguard, but not necessarily promote, interpersonal ties. The additional, unpredicted finding of a significant association between state anxiety and submissive behavior suggests that situational elevations in social anxiety are related to the exhibition of behavior characterized by interpersonal passivity and the inhibition of hostile gestures. Notably, state and trait social anxiety did not interact to predict any of the four interpersonal behaviors, indicating that this pattern was consistent across all participants, regardless of trait social anxiety level.

As predicted, elevated trait anxiety was significantly related to increased submission and decreased dominance but unrelated to levels of agreeable and quarrelsome behavior. Also as expected, this behavioral difference was moderated by self-perceived inferiority. Individuals with elevated trait social anxiety exhibited a significant increase in submissiveness and a significant decrease in dominance as a function of increased inferiority levels. In contrast, situational appraisals were not systematically related to the dominant and submissive behavior of individuals low on trait social anxiety. Moreover, the results indicated that individuals with high trait social anxiety did not display higher levels of submissive behavior and lower levels of dominant behavior than their low-anxious counterparts during interactions in which relatively low appraisals of inferiority were reported. Subsequent analyses confirmed that, despite a strong association between trait social anxiety and chronic inferiority appraisals, the behavioral patterns observed among individuals reporting high levels of trait social anxiety were not due to chronically elevated levels of self-perceived

inferiority. Instead, higher levels of trait social anxiety appeared to be associated with both a heightened sensitivity to subjective inferiority and an increased tendency to respond to inferiority appraisals with self-protective behavior strategies.

In sum, results of the present investigation were largely consistent with the general framework. Analyses of the relation between state social anxiety and interpersonal behavior associated situational elevations in anxiety with submissiveness and the inhibition of interpersonal hostility. This pattern was observed across all levels of trait social anxiety and suggests that state social anxiety is related to alliance-protective, but not necessarily alliance-seeking, social behavior. Examination of relations between trait social anxiety and interpersonal behavior indicated that individuals reporting elevated mean levels of social anxiety across the data collection period engaged in significantly higher levels of submissive behavior and significantly lower levels of dominant behavior as a function of situational increases in self-perceived inferiority. This is consistent with the proposition that increased levels of chronic social anxiety are associated with a self-protective interpersonal style that is enhanced by contextual cues such as negative social comparison. Prior to discussing these findings in further detail, it is of interest to examine whether these interpersonal patterns also apply to a sample of individuals with clinically elevated levels of chronic social anxiety.

CHAPTER 3 – SOCIAL ANXIETY DISORDER

INTRODUCTION

The second study examined the continuity of anxiety-behavior relations across a broader range of the social anxiety spectrum by investigating a sample of individuals diagnosed with generalized social anxiety disorder (SAD group) and a matched group of non-anxious controls (control group). A primary aim of Study 2 was to evaluate the degree of correspondence between the interpersonal patterns reported by individuals with social anxiety disorder and findings for socially anxious members of the community sample examined in Study 1. In addition, the study of individuals with social anxiety disorder permitted the examination of whether previously observed situational associations between state social anxiety and interpersonal behavior would be consistent across both clinical and non-clinical levels of the chronic social anxiety continuum.

An event-contingent recording procedure identical to that of Study 1 was employed to facilitate the comparison of findings across investigations. Participants completed structured record forms subsequent to social interactions occurring in various contexts over a 20-day data collection period. For each interaction recorded, participants provided information concerning behaviors engaged in for each of the four poles of the interpersonal circumplex, affect experienced during the social interaction, and event-specific appraisals of subjective inferiority.

State social anxiety and social anxiety disorder were expected to display differential associations with interpersonal behavior, in accordance with both the

hypotheses framed in Chapter 1 and the results of the first study. Based on the results of Study 1, it was hypothesized that state social anxiety would be associated with an alliance-protective behavioral pattern characterized by decreased quarrelsomeness and increased submission. Both individuals with generalized social anxiety disorder and non-clinical controls were expected to display lower levels of quarrelsome behavior and higher levels of submissive behavior during interactions in which increased state social anxiety was reported.

Consistent with both the research framework and the results of Study 1, it was hypothesized that the behavioral reports of individuals with generalized social anxiety disorder would reflect a self-protective interpersonal style characterized by increased submission and decreased dominance relative to non-clinical controls. This self-protective orientation was expected to be enhanced by situational appraisals of inferiority, such that SAD group participants would report particularly increased levels of submissive behavior and particularly decreased levels of dominant behavior during interactions in which elevated inferiority was reported. No association was expected between inferiority appraisals and interpersonal behavior for members of the control group.

METHOD

Participants

SAD group. Newspaper advertisements listed the core features of social anxiety disorder and recruited individuals who recognized these symptoms as characteristic of themselves to take part in a study of daily activities. There were 67 individuals who met initial screening criteria and expressed interest after a

brief telephone orientation. These individuals were invited to attend an introductory session, which included a more thorough psychiatric screening.

A total of 49 individuals attended the initial appointment, where they were interviewed by an experienced research psychiatrist to assess for the presence of inclusion and exclusion criteria. All individuals between the ages of 18 and 65 who met DSM-IV (American Psychiatric Association, 1994) criteria for generalized social anxiety disorder and were not currently receiving pharmacotherapeutic or psychotherapeutic treatment were invited to participate. Comorbid diagnoses of similar or lesser severity were allowed, with the exception of bipolar disorder, psychotic disorder, major depressive disorder, current substance abuse, current alcohol abuse, and/or suicidality. The psychiatric evaluation of diagnostic status was based on both an unstructured clinical interview and diagnoses derived from the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). To establish criteria for the generalized subtype of social anxiety disorder, additional probing of the MINI items was conducted to ensure that the symptoms applied across most social situations rather than being specific to particular activities or contexts (e.g., dating or public speaking).

There were 40 individuals who met research criteria and agreed to participate in the study; all of these individuals completed the event-contingent recording procedure and provided usable data. The sample was evenly divided between men (20) and women (20). Participants ranged in age between 18 and 56 years ($M = 29.23$, $SD = 8.88$). There were 27 participants (67.5%) whose first

language was English and 13 participants (32.5%) whose first language was not English. With respect to educational background, 1 individual (2.5%) had not completed high school, 4 individuals (10%) had completed high school or trade school, 21 individuals (52.5%) had completed at least one year of college, 12 individuals (30%) had graduated from university with a bachelor's degree, and 2 individuals (5%) had a postgraduate degree. During the 6 months prior to study participation, a total of 15 individuals (37.5%) had been employed at least 30 hours per week and 22 individuals (55%) had been employed fewer than 30 hours per week. Employment information was not available for the remaining 3 individuals (7.5%).

Rates of psychiatric comorbidity within the SAD group, as established by the MINI diagnostic interview, were relatively low. Of the 40 SAD group participants, 1 individual (2.5%) was diagnosed with concurrent dysthymic disorder and 1 individual (2.5%) was diagnosed with antisocial personality disorder. A total of 15 individuals (37.5%) were diagnosed with 1 or more concurrent anxiety disorders; 2.5% of the sample was diagnosed with panic disorder, 10% with agoraphobia, 5% with obsessive-compulsive disorder, 2.5% with post-traumatic stress disorder, and 27.5% with generalized anxiety disorder. The degree of heterogeneity observed within the present sample is consistent with relatively high documented rates of psychiatric comorbidity between social anxiety disorder and other anxiety disorders, particularly generalized anxiety disorder (e.g., Mennin, Heimberg, & Jack, 2000; Wittchen & Fehm, 2003).

Control group. The control group was matched for age, gender, and education level with the SAD group. Potential participants were recruited through newspaper advertisements seeking individuals to take part in a study of daily activities. The 95 telephone respondents who expressed interest after hearing a detailed description of the study were then placed on a waiting list. Individuals from the waiting list were individually invited to participate as required according to matching criteria.

A total of 50 potential control participants were invited to attend an introductory session, where they were interviewed by the collaborating psychiatrist. Individuals who did not meet criteria for social anxiety disorder or any other psychiatric disorder, as established by the MINI diagnostic interview, and who were not currently receiving pharmacotherapeutic or psychotherapeutic treatment were invited to participate. There were 5 individuals who failed to meet the research criteria, and an additional 5 who did not complete the event-contingent recording procedure, resulting in a final sample of 40 control group participants.

The sample was evenly divided between men (20) and women (20). Participants ranged in age between 19 and 59 years ($M = 28.98$, $SD = 9.65$). There were 30 participants (75%) whose first language was English and 10 participants (25%) whose first language was not English. With respect to educational background, 2 individuals (5%) had completed high school or trade school, 22 individuals (55%) had completed at least one year of college, 15 individuals (37.5%) had graduated from university with a bachelor's degree, and 1

individuals (2.5%) had a postgraduate degree. During the 6 months prior to study participation, a total of 14 individuals (35%) had been employed at least 30 hours per week and 22 individuals (55%) had been employed fewer than 30 hours per week. Employment information was not available for the remaining 4 individuals (10%). The control group did not differ significantly from the SAD group with regards to age, t (78) = -.12, *ns*, first language, chi-square (1, N = 80) = .55, *ns*, education level, chi-square (4, N = 80) = 2.36, *ns*, or recent work history, chi-square (1, N = 73) = .02, *ns*.

Procedure

First, participants attended a meeting during which procedures for the study were explained, their consent to participate was obtained, the psychiatric assessment was conducted, and a battery of questionnaires was administered. Participants were then asked to complete a 1-page record form as soon as possible following each social interaction of at least 5 minutes duration, every day for 20 days. Participants were provided with 10 forms per day, and asked to use as many or as few as their natural day-to-day social activity dictated. Forms were returned to the researchers by mail on the first day subsequent to recording.

SAD group participants completed an average of 80.88 forms (SD = 40.77), or approximately 4 per day, while control group subjects completed an average of 119.05 forms (SD = 46.45), or approximately 6 per day. The difference between the groups was significant, t (78) = -3.91, $p < .001$. The significantly lower number of forms completed by individuals with social anxiety disorder

reflects fewer social interactions among members of this group and is consistent with impaired social functioning.

Measures

Mini-International Neuropsychiatric Interview. The MINI (Sheehan et al., 1998) is a short structured diagnostic interview based on psychiatric disorders described in DSM-IV (American Psychiatric Association, 1994) and the International Classification of Diseases, 10th Revision (World Health Organization, 1992). It provides diagnostic screening for the 19 most prevalent psychiatric disorders, as indicated by data from recent epidemiological studies (e.g., the National Comorbidity Survey; Kessler et al., 1994). Diagnostic classifications included in the MINI include major depressive disorder, dysthymic disorder, suicidality, mania, panic disorder, agoraphobia, social anxiety disorder, specific phobia, obsessive-compulsive disorder, generalized anxiety disorder, alcohol dependence, alcohol abuse, drug dependence, drug abuse, psychotic disorder, anorexia nervosa, bulimia, posttraumatic stress disorder, and antisocial personality disorder.

Research has supported the interrater and test-retest reliability of the MINI, as well as the correlation of MINI-based diagnoses with diagnoses derived from the Structured Clinical Interview for DSM-III-R, Patient Edition (SCID-P; Spitzer, Williams, Gibbon, & First, 1990), the Composite International Diagnostic Interview (World Health Organization, 1990), and expert professional opinion (Lecrubier et al., 1997; Sheehan et al., 1998; Sheehan et al., 1997). For the social anxiety disorder scale, Sheehan and his colleagues (1998) reported a Cohen's

kappa value of .94 for interrater reliability, sensitivity of .72 and specificity of .88 when evaluated against the SCID-P, and sensitivity of .83 and specificity of .95 when compared to expert diagnoses.

Liebowitz Social Anxiety Scale. The Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987) was designed to assess a range of situations feared and/or avoided by individuals with social anxiety disorder. The LSAS is a 24-item clinician-rated measure containing two subscales, one concerning social interaction (11 items) and the other concerning performance situations (13 items). Sample items from the social interaction subscale include: "Talking with people you don't know very well" and "Going to a party." Sample items from the performance subscale include: "Working while being observed" and "Taking a test." Fear and avoidance are rated separately on a 0-3 Likert-type scale.

The LSAS provides six separate subscale scores: total fear, fear of social interaction, fear of performance, total avoidance, avoidance of social interaction, and avoidance of performance. Summing the total fear and total avoidance scores yields an overall score which can range from 0 to 144. The utility of the LSAS for identifying the presence of social anxiety disorder has been widely documented, with evidence suggesting that total scale cutoff scores of 30 for social anxiety disorder and 60 for generalized social anxiety disorder offer the best balance of specificity and sensitivity (Mennin, Fresco, Heimberg, Schneier, Davies, & Liebowitz, 2002). Scores between 52 and 89 are conventionally viewed as describing "moderate" social anxiety symptoms, while scores of 90 or greater are placed in the "severe" range (Liebowitz, 1999).

Research evaluating the psychometric properties of the LSAS has established its internal consistency, convergence with other self-report and clinician-rated measures of social anxiety and avoidance, discriminant validity in terms of low correlations between the LSAS and measures of general anxiety and depression, and treatment sensitivity (e.g., Heimberg et al., 1999; Liebowitz, 1999). Coefficient alpha for the LSAS total score in the present investigation was .97.

Social Phobia Scale. The Social Phobia Scale (SPS; Mattick & Clarke, 1998) is a 20-item self-report scale designed to measure fears of being scrutinized by others while engaging in routine activities (e.g., eating, drinking, writing, etc.). Sample items include: "I become anxious if I have to write in front of other people" and "I would find it difficult to drink something if in a group of people." All items are rated on a scale of 0 (not at all characteristic of me) to 4 (extremely characteristic or true of me). Total scores range from 0 to 80, with higher scores indicating greater anxiety about being observed by others. Evidence suggests that a score of 24 or greater on the SPS indicates clinically severe social anxiety (Brown, Turovsky, Heimberg, Juster, Brown, & Barlow, 1997; Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992).

Research has demonstrated that the SPS discriminates well between socially anxious patients and those with other anxiety disorders, and is psychometrically sound with regards to test-retest reliability, internal consistency, convergence with other self-report measures of social anxiety, and discriminant validity as indicated by low correlations between the SPS and measures of

depression and social desirability (Brown et al., 1997; Heimberg et al., 1992; Mattick & Clarke, 1998; Safren, Turk, & Heimberg, 1998). In the present study, coefficient alpha for the SPS total score was .96.

Social Interaction Anxiety Scale. The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998) is a 19-item self-report scale assessing general social interaction fears. It is typically administered in conjunction with the SPS, and the two measures have been conceptualized as subscales of a larger social anxiety measure (Brown et al., 1997). Sample items include: "I have difficult making eye-contact with others" and "I have difficulty talking with other people." Like the SPS, all items are on a scale of 0 (not at all characteristic of me) to 4 (extremely characteristic or true of me). Total scores range from 0 to 80, with higher scores indicating higher levels of social interaction anxiety. Research using a previous version of the SIAS containing 1 additional item suggested that a score of 34 or greater indicates clinically severe social anxiety (Brown et al., 1997; Heimberg et al., 1992).

Research has demonstrated that the SIAS discriminates well between socially anxious patients and those with other anxiety disorders and is psychometrically sound with regards to test-retest reliability, internal consistency, convergence with other self-report measures of social anxiety, and discriminant validity as indicated by low correlations between the SIAS and measures of depression and social desirability (Brown et al., 1997; Heimberg et al., 1992; Mattick & Clarke, 1998; Safren et al., 1998). Coefficient alpha for the SIAS in the present investigation was .93.

Event-contingent recording. Event-contingent record forms requested information about characteristics of the social interaction (e.g., time, environment, interaction partners) and included measures of interpersonal behavior, avoidance, affect, and situational appraisal.

Behavior. Interpersonal behavior was measured using 46 items developed by Moskowitz (1994) to assess the poles of the interpersonal circumplex. Each dimension was represented by 12 items, with one item used for both the dominance and quarrelsomeness scales (i.e., "I criticized the other"), and one item used for both the submissiveness and agreeableness scales (i.e., "I went along with the other"). Agreeable behavior was represented by items such as "I expressed affection with words or gestures" and "I smiled and laughed with others." Items measuring quarrelsome behavior included "I did not respond to the other's questions or comments" and "I made a sarcastic comment." Examples of items measuring dominant behavior were "I took the lead in planning/organizing a project or activity" and "I assigned someone to a task." Submissive behavior was measured with items such as "I gave in," and "I avoided taking the lead or being responsible." See Moskowitz (1994) for the complete list of behavioral statements, information concerning the development of the item pool, and initial reliability and validity studies. Further research has demonstrated the reliability, convergent validity, and discriminant validity of these items as behavioral measures of the four interpersonal circumplex dimensions (Mongrain et al., 1998; Moskowitz & Côté, 1995; Moskowitz et al., 1994; Sadler & Woody, 2003).

The event-contingent record form asked participants to endorse all of the behavior items they had engaged in during the social interaction being recorded. Each form contained a subset of the 46 behavioral statements to guard against the tendency for participants to adopt a response set when presented with the same form daily. Four different versions of the form were used, with items representing dominant, agreeable, submissive, and quarrelsome behavior divided equally among them. Thus, each version of the form contained three items representing each of the four circumplex dimensions. On the basis of previous work (Moskowitz, 1994), the items were distributed onto the four forms to balance frequency of endorsement and item-total correlation with the behavior scale. Participants completed Form 1 on Day 1, Form 2 on Day 2, Form 3 on Day 3, and Form 4 on Day 4, returning to Form 1 following each 4-day cycle.

Affect. The event-contingent record form asked participants to rate how they felt during the interaction, on a scale ranging from 0 (*not at all*) to 6 (*extremely*), for each of nine items previously used by Diener and Emmons (1984) to assess affect valence. Pleasant affect items included happy, pleased, enjoyment/fun and joyful, while unpleasant affect was represented by the items worried/anxious, frustrated, angry/hostile, unhappy, and depressed/sad. These represent each half of the pleasant/unpleasant dimension on circumplex models of emotion (Larsen & Diener, 1992; Russell, 1980). The unpleasant affect items were further subdivided into three discrete affective categories, based on their consistency with items previously used by Diener, Smith, and Fujita (1995) to assess anxiety, anger, and sadness. Anxiety was represented by the item

worried/anxious; anger was indicated by the items frustrated and angry/hostile; and sadness was assessed by the items unhappy and depressed/sad. Affect adjectives were embedded in a list that included several additional items not used in the present research.

Inferiority. For each social interaction, participants were asked to indicate the extent to which they felt inferior to the other, on a scale ranging from 0 (*not at all*) to 6 (*extremely*). Scores on this item represented event-level appraisals of inferiority. As this index was not normally distributed, the scale underwent a log transformation prior to analysis.

Construction of event-specific behavior scale scores. For each participant, a score for each behavior scale was calculated for each interaction episode reported. There were three steps in the construction of this scale score. First, event-specific raw scores were constructed by calculating the mean number of items endorsed for each behavioral scale. Then, event-specific ipsatized scores were constructed by subtracting the mean score for all scales within an event from each raw score for that event. Finally, the event-specific ipsatized scores were multiplied by 100 for ease of presentation. The ipsatized scores, therefore, represented the frequency with which the behaviors corresponding to a behavioral dimension were checked within a given episode, adjusted for the participant's overall rate of responding (cf. Horowitz et al., 1988). The ipsatizing procedure controls for response sets (e.g., the tendency to check many items or few items). Validity evidence for the behavior scales has been established based on the ipsatized scores.

Construction of event-specific affect scores. Three affect scores were constructed for each participant for each episode: anxiety, anger, and sadness. The event-level anxiety score consisted of intensity ratings on the item worried/anxious for each interaction reported. Scores for anger were calculated by averaging the intensity ratings of the items frustrated and angry/hostile, and event-level sadness scores were constructed by averaging the intensity ratings of the items unhappy and depressed/sad. As these indices of discrete negative affect were not normally distributed, each scale underwent a log transformation prior to analysis.

Construction of aggregated anxiety scores. To construct anxiety scores aggregated across the 20 days of the study, log transformed intensity ratings of the worried/anxious affect item were averaged across all events for each participant.

Statistical Analyses

Multilevel modeling was employed for data analyses examining the main and interactive effects of group membership (i.e., SAD versus control), state anxiety, and self-perceived inferiority on interpersonal behavior during social interactions. This statistical procedure permits the analysis of unbalanced data (e.g., from subjects who provide unequal numbers of data points due to varying rates of social interaction) and the simultaneous investigation of between-subject and within-subject effects. Analyses were conducted using PROC MIXED, Version 8.1 (SAS Institute, 2000) and maximum likelihood estimation. The degrees of freedom for F tests were determined by dividing the residual degrees

of freedom into between-subjects and within-subjects portions, following Singer's (1998) recommendation.

Model development employed a sequential strategy (Wallace & Green, 2002). The fixed-effects portion of each model was examined first, assuming an unstructured variance-covariance matrix and random effects for the intercept and all event-level predictors. The inclusion of these random effects allowed for individual differences in both the intercepts and the slopes of event-level predictors to be taken into account in the analysis of overall patterns across the sample. A hierarchical approach was used to test the fixed effects; main effects were examined first, followed by the addition of interaction terms. Alternate specifications of the variance-covariance structure, including both autoregressive and heterogeneous compound symmetry, were then explored. These modifications did not improve the fit of any model as assessed by the AIC and BIC criteria. Hence, the random component was left unchanged, and simple random effects models were reported. All models were also examined including sex and all interactions between sex, group membership, and state anxiety. None of the effects including sex were significant.

Event-level anxiety, anger, sadness, and appraisals of inferiority were centered within participants. Thus, an individual participant's score on each of these within-person predictor variables represented the extent to which that individual fluctuated, or deviated, about their own mean during a given interaction (Kreft & De Leeuw, 1998). The centered variables were denoted "state

anxiety," "state anger," "state sadness," and "inferiority." Group membership was a class variable with two levels (i.e., SAD and control).

Multilevel analysis allowed for the comparison of between-person and within-person slopes, where slopes indicated the strength and direction of the predictive relation between diagnostic status, affective experience, situational appraisal, and interpersonal behavior. Between-person variance described how individuals differed according to membership in the SAD versus control sample. Within-person variance described deviations from individual means in anxiety, anger, sadness, and inferiority within a particular interaction at a single point in time. Cross-level interactions indicated whether the relation of behavior to state anxiety and/or inferiority varied across individuals as a function of group membership.

Significant interaction effects were interpreted by calculating slope estimates for individuals with and without social anxiety disorder. Point estimates for graphing purposes were calculated separately for individuals in the SAD group and individuals in the control group, during interactions in which the event-level predictor of interest was high (+ 1 *SD*) or low (- 1 *SD*) relative to individual within-subject means. The pooled within-subject standard deviation was used in the calculation of point estimates for event-level predictors. Significance tests of slopes, differences between slopes, and differences between point estimates were calculated using estimate statements in PROC MIXED.

RESULTS

Preliminary Analyses

Preliminary analyses examined differences between the SAD and control groups with respect to aggregated levels of anxiety and inferiority across the event-contingent recording period and one-occasion clinical measures of social anxiety. In Chapter 2, the mean level of anxiety reported by each individual was denoted "trait anxiety" and entered into multilevel models as a between-subjects predictor. Trait anxiety was presumed to reflect individual differences in the chronicity of social anxiety across interaction episodes. In line with this conjecture, it was expected that members of the SAD group in the present study would exhibit higher aggregated levels of anxiety than members of the control group. As predicted, the mean level of anxiety reported by SAD group participants across the recording period ($M = .70$, $SD = .36$) was significantly greater than the mean for the control group ($M = .33$, $SD = .26$), $t\ (78) = 5.24$, $p < .0001$.

In Chapter 2, individuals exhibiting elevated levels of trait social anxiety were found to report higher levels of subjective inferiority than individuals with low trait social anxiety. To examine whether individuals with generalized anxiety disorder would also report elevated inferiority appraisals, a multilevel model was constructed using uncentered event-level inferiority appraisals as the dependent variable and group as the predictor. As expected, SAD group participants generally reported higher levels of self-perceived inferiority than did members of

the control group ($b = 0.58$), $t\ (78) = 4.51$, $p < .0001$ (est. $M = 0.77 \pm 0.09$ and 0.18 ± 0.09).

The SAD and control group participants were also compared with respect to social anxiety symptoms as measured by the LSAS, SPS, and SIAS. Descriptive statistics and between-group comparisons for these clinical measures are presented in Table 3.1. The SAD group was significantly elevated relative to the control group on all measures of socially anxious symptomotology. Moreover, mean scores for the SAD group exceeded clinical cutoffs for all three measures, while scores for the control group were well below the established thresholds.

Table 3.1. *Group Differences for Clinical Measures of Social Anxiety*

	SAD group		Control group		Group differences	
Measure	*M*	*SD*	*M*	*SD*	*df*	*t*
LSAS total score	61.53	24.61	12.48	12.22	78	11.29***
SPS	34.80	14.45	7.53	7.52	78	10.59***
SIAS	45.08	13.16	13.40	11.16	78	11.61***

Note. N (participants) = 40 for SAD group, 40 for control group. *** $p < .0001$.

State Anxiety and Interpersonal Behavior

To investigate the relation of event-level anxiety to interpersonal behavior, state anxiety and group membership were entered as predictors. Main effect terms for state anger and state sadness were also included to control for relations between behavior and negative affect in general. The cross-level interaction between state anxiety and group membership was then added to the main effects models to determine whether the relation of state anxiety to behavior differed as a

function of diagnostic status. Thus, the final model for each of the outcome variables included main effects for group membership, state anxiety, state sadness, and state anger, as well as the state anxiety X group interaction.

Covariates. Significant main effects were found for the covariate variables. State sadness predicted levels of both dominant and submissive behavior. Individuals reported higher levels of dominance during interactions in which sadness was low than they did when sadness was high (b = -3.47), t (7604) = -2.80, $p < .01$ (est. M = 6.26 ± 0.74 and 4.04 ± 0.78, respectively) and engaged in more submissive behavior when event-level sadness was high than they did when low sadness was reported (b = 3.60), t (7604) = 2.38, $p < .05$ (est. M = -3.12 ± 0.96 and -5.42 ± 0.92). State sadness was not significantly related to levels of agreeable behavior (b = -.77), F (1, 7604) = .38, *ns*, or quarrelsome behavior (b = 1.36), F (1, 7604) = 1.43, *ns*.

State anger was significantly associated with levels of agreeable and quarrelsome behavior. Individuals reported higher levels of agreeableness during interactions in which anger was low than they did when anger was high (b = -13.48), t (7604) = -11.18, $p < .0001$ (est. M = 19.25 ± 0.82 and 8.74 ± 0.86), and engaged in more quarrelsome behavior when event-level anger was high than they did when low anger was reported (b = 13.38), t (7604) = 12.63, $p < .0001$ (est. M = -10.10 ± 0.94 and -20.54 ± 0.80). State anger was not significantly related to levels of dominant behavior (b = 1.13), F (1, 7604) = 1.09, *ns*, or submissive behavior (b = -.09), F (1, 7604) = .01, *ns*.

State anxiety. It was hypothesized that increased levels of state anxiety would be associated with decreased levels of quarrelsome behavior and increased levels of submissive behavior. Consistent with this prediction, individuals engaged in lower levels of quarrelsome behavior during interactions in which anxiety was elevated than they did when anxiety was low (b = -2.80), t (7604) = -5.33, $p < .0001$ (est. M = -16.64 ± 0.79 and -14.00 ± 0.82). Also as predicted, individuals were more submissive during interactions in which anxiety was elevated than they were when low anxiety was reported (b = 4.52), t (7604) = 5.34, $p < .0001$ (est. M = -2.15 ± 0.90 and -6.40 ± 0.90). As expected, state anxiety did not predict levels of dominant behavior (b = -1.37), F (1, 7604) = 2.99, *ns*, or agreeable behavior (b = -1.18), F (1, 7604) = 3.19, *ns*.

The cross-level interaction between group and state anxiety did not predict dominant behavior (b = -2.23), F (1, 7603) = 2.30, *ns*, agreeable behavior (b = -.32), F (1, 7603) = .06, *ns*, or quarrelsome behavior (b = -1.42), F (1, 7603) = 1.73, *ns*. However, event-level submissive behavior was significantly predicted by the interaction of state anxiety and diagnostic status (b = 3.94), F (1, 7603) = 6.83, $p < .01$. Examination of this interaction (Figure 3.1) revealed that while individuals in both the SAD and control groups displayed a significant increase in submissive behavior during interactions in which state anxiety was elevated (slope = 6.13 and 2.43, respectively), this increase was significantly greater among individuals with generalized social anxiety disorder, t (7603) = 2.61, $p <$ .01.

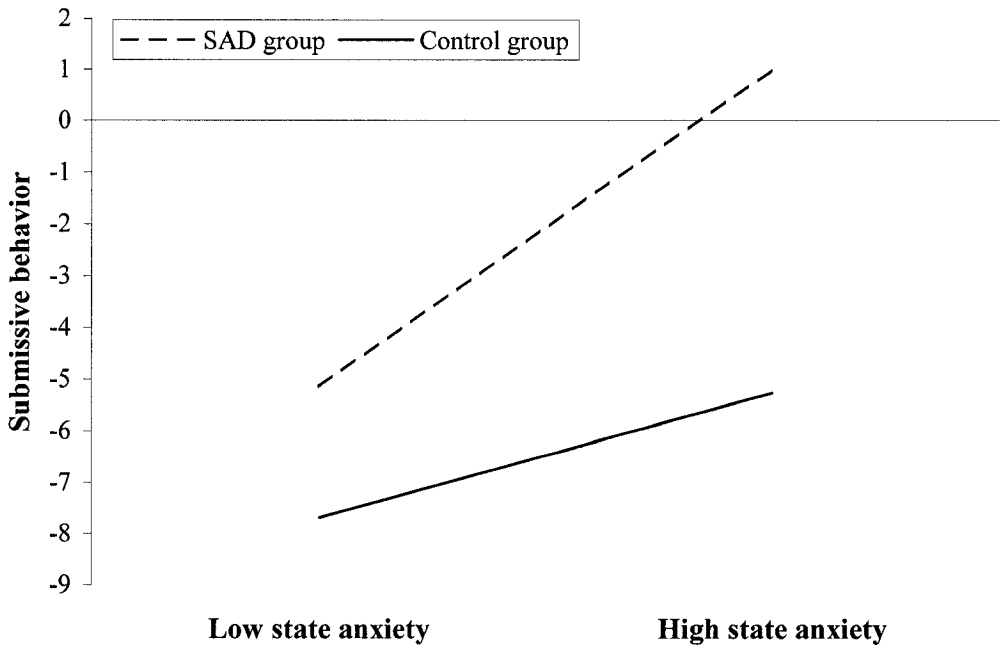

Figure 3.1. Prediction of submissive behavior by group and state anxiety.

Generalized Social Anxiety Disorder and Interpersonal Behavior

Descriptive statistics and between-group comparisons for the event-level behavior scales are presented in Table 3.2. Consistent with past event-contingent recording studies and the Study 1 results, agreeableness and dominance were the most common event-level behaviors, while submissiveness and quarrelsomeness were relatively infrequent. The negative values for submissive and quarrelsome behavior are the result of the ipsatizing process, and indicate that the mean level of each of these behaviors across all events was lower than the mean level of all four interpersonal behaviors combined.

Separate analyses investigated the ipsatized scores for each of the four behavior scales as event-level outcome variables. Group membership was

included as the predictor variable. As expected, individuals with social anxiety disorder were less dominant and more submissive than control group participants. Also as predicted, there were no group differences with respect to either agreeable or quarrelsome interpersonal behavior.

Table 3.2. *Group Differences for Interpersonal Behavior*

	SAD group		Control group		Group differences	
Event-level variable	*M*	*SD*	*M*	*SD*	*b*	*F*
Dominant behavior	3.77	23.36	6.81	22.04	-3.31	6.49*
Submissive behavior	-2.73	25.81	-6.46	22.16	4.31	7.27**
Agreeable behavior	14.75	22.85	12.51	23.07	1.72	1.52
Quarrelsome behavior	-16.14	21.26	-13.48	19.62	-2.27	2.23

Note. N (participants) = 40 for SAD group, 40 for control group. N (observations) = 3163 for SAD group, 4538 for control group. df for between group effects = 1, 78. * $p = .01$. ** $p < .01$.

Inferiority, Social Anxiety Disorder, and Interpersonal Behavior

To investigate whether inferiority appraisals moderated the relation of generalized social anxiety disorder to interpersonal behavior, inferiority and group membership were entered as predictors. The cross-level interaction between self-perceived inferiority and group membership was then added to the main effects model. The final model for each outcome variable thus included main effects for group membership and inferiority as well as the inferiority X group interaction.

Inferiority significantly predicted levels of dominant behavior, submissive behavior, and agreeable behavior. Individuals reported lower levels of dominance during interactions in which appraisals of inferiority were elevated than they did

when inferiority was low (b = -3.80), t (7584) = -3.61, $p < .001$ (est. M = 4.01 ± 0.72 and 6.29 ± 0.73) and engaged in more submissive behavior during interactions in which self-perceived inferiority was high (b = 8.03), t (7584) = 5.92, $p < .0001$ (est. M = -1.82 ± 0.90 and -6.64 ± 0.90). Participants were less agreeable when inferiority was elevated than they were when appraisals of inferiority were low (b = -4.18), t (7584) = -3.67, $p < .001$ (est. M = 12.76 ± 0.74 and 15.26 ± 0.81). There was no main effect of inferiority on quarrelsome behavior (b = .35), F (1, 7584) = .10, *ns*.

As predicted, self-perceived inferiority interacted with group membership to predict levels of dominant behavior (b = -4.78), F (1, 7583) = 5.13, $p < .05$, and submissive behavior (b = 7.36), F (1, 7583) = 7.61, $p < .01$. Also as expected, the cross-level interaction between diagnostic status and inferiority did not predict agreeable behavior (b = -3.33), F (1, 7583) = 2.13, *ns*, or quarrelsome behavior (b = .12), F (1, 7583) = .00, *ns*.

It was hypothesized that individuals with social anxiety disorder would display particularly decreased levels of dominant behavior during interactions in which self-perceived inferiority was elevated. Consistent with this prediction, examination of the interaction between group and inferiority (Figure 3.2) revealed that individuals with social anxiety disorder engaged in significantly lower levels of dominant behavior during interactions in which high appraisals of inferiority were reported than they did when reported inferiority was low, slope = -5.61, t (7583) = -4.32, $p < .0001$. For control group participants, dominant behavior during high inferiority and low inferiority interactions did not differ significantly,

slope = -0.83, t (7583) = -0.50, *ns*. Subsequent investigation of the point estimates for this effect further revealed that the difference between SAD and control group participants in overall levels of dominant behavior was not significant when low levels of inferiority were reported, t (7583) = -1.27, *ns* (est. M = 5.21 ± 1.01 and 7.04 ± 1.03). During interactions in which subjective inferiority was elevated, SAD group participants were significantly less dominant than members of the control group, t (7583) = -3.20, $p < .01$ (est. M = 1.84 ± 1.03 and 6.54 ± 1.05). Thus, heightened inferiority appraisals decreased levels of dominant behavior in individuals with social anxiety disorder.

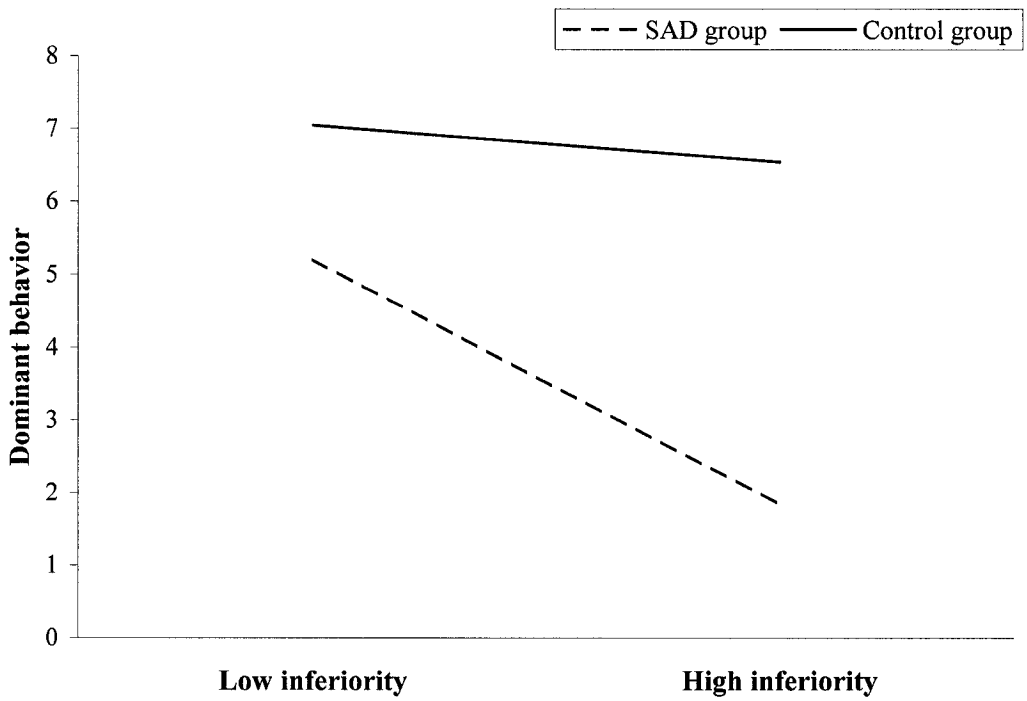

Figure 3.2. Prediction of dominant behavior by group and inferiority.

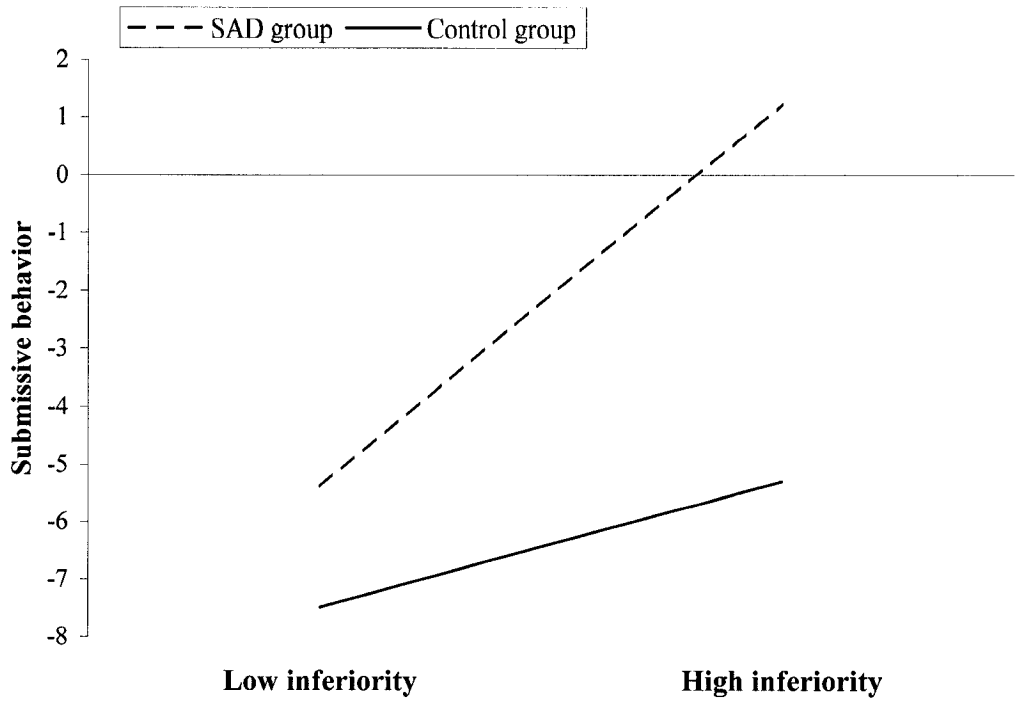

Figure 3.3. Prediction of submissive behavior by group and inferiority.

It was predicted that individuals with social anxiety disorder would display particularly increased levels of submissive behavior during interactions in which self-perceived inferiority was elevated. Consistent with this expectation, examination of the interaction between group and inferiority (Figure 3.3) revealed that individuals with social anxiety disorder engaged in significantly higher levels of submissive behavior during interactions in which high appraisals of inferiority were reported than they did when reported inferiority was low, slope = 11.02, t (7583) = 6.53, $p < .0001$. For control group participants, submissive behavior during high inferiority and low inferiority interactions did not differ significantly, slope = 3.66, t (7583) = 1.77, *ns*. Subsequent investigation of the point estimates for this effect further revealed that the difference in overall levels of submissive behavior between SAD and control group participants was not significant during

interactions in which low levels of inferiority were reported, t (7583) = 1.18, *ns* (est. M = -5.37 ± 1.25 and -7.48 ± 1.27). During interactions in which subjective inferiority was elevated, individuals with social anxiety disorder were more submissive than non-clinical control participants, t (7583) = 3.62, $p < .001$ (est. M = 1.23 ± 1.26 and -5.29 ± 1.28). Thus, the increased levels of submissive behavior observed in individuals with social anxiety disorder were enhanced by heightened inferiority appraisals.

DISCUSSION

As in the first study, results for this second investigation indicated that intraindividual fluctuations in state social anxiety and between-individual differences in chronic social anxiety were associated with unique patterns of interpersonal behavior. Similar results emerged across the two studies for both levels of analysis, and findings were generally consistent with the hypotheses framed in Chapter 1. Overall, the results of both investigations support a conceptualization of state and chronic social anxiety as distinct but related constructs that demonstrate substantial continuity across clinical and non-clinical samples.

State Social Anxiety and Interpersonal Behavior

As expected, participants in the second study engaged in lower levels of quarrelsome behavior and higher levels of submissive behavior during interactions in which state social anxiety was elevated. These findings replicate the results of the first investigation, and provide further evidence of an association between situational increases in social anxiety and interpersonal behavior

characterized by submission and the inhibition of hostility. The strength of the association for quarrelsomeness was strikingly similar across both studies (b = -2.81 in Study 1 and -2.80 in Study 2). State social anxiety did not interact with chronic social anxiety to predict quarrelsome behavior in either investigation, indicating that this association was consistent across all levels of the social anxiety continuum, including individuals with social anxiety disorder. The strength of the association for submissive behavior was greater in Study 2 than in Study 1 (b = 1.14 in Study 1 and 4.52 in Study 2). This difference may be due to an interaction between state social anxiety and diagnostic status in Study 2; individuals with social anxiety disorder displayed a much sharper increase in submissive behavior as a function of elevations in state social anxiety than did control group participants.

In Chapter 1 it was proposed that elevated anxiety within a given social interaction serves as an indication of potential threats to social approval and inclusion, prompting the promotion and safeguarding of affiliative ties through warm, friendly gestures and the inhibition of hostility. The strong association between elevated state social anxiety and decreased quarrelsome behavior that was replicated across both of the present investigations offers partial support of this proposition. The present findings suggest that state social anxiety may prompt the safeguarding, but not necessarily the promotion or pursuit, of affiliative connections with others. In other words, situational elevations in social anxiety may lead individuals to inhibit overtly quarrelsome or hostile acts in an effort to protect communal alliances and avoid conflict or social disapproval. However,

state social anxiety may not promote explicitly warm, friendly, or outgoing behaviors that serve to strengthen existing alliances or lead to the formation of new ones. This is consistent with the conceptualization of state social anxiety as an adaptive response to threatened social exclusion that encourages alliance-protective behavior strategies as a means of safeguarding communal ties and reducing or eliminating immediate rejection risk.

The initial framework did not predict an association between state social anxiety and submissive behavior. However, this relation did emerge in the first study and was replicated in the second, indicating that alliance-protective behavioral responses to elevated state social anxiety may involve passivity and deference as well as inhibited hostility. Submissive responses to state social anxiety were most pronounced among individuals with social anxiety disorder, although the same general pattern was observed across all levels of chronic social anxiety. While this link was not initially predicted, the emergence of a significant association between state social anxiety and submissive behavior is not particularly surprising. Submissive gestures in response to anxious arousal are well documented in both humans and animals, and submission is widely regarded as an anxiety-provoked defensive strategy that is preferentially employed in response to social or aggressive threats posed by members of the same species (e.g., Gilbert, 2000; Marks & Nesse, 1994). Although submissive displays may not protect against all forms of threat (e.g., predatory attack), they do facilitate group cohesion and the de-escalation of conflict. Therefore, submission is generally considered an adaptive response to conspecific threat.

While the interpersonal circumplex model regards submissiveness as orthogonal to communal forms of behavior, it has been argued that submissive behavior in humans may be employed in an affiliative or ingratiating manner in addition to its more traditional defensive role (Gilbert, 2000; Scott, 1990). Gilbert (2000) notes that individuals may submit to elicit positive social attention, maintain alliances, avoid negative social attention, demonstrate rank inferiority, and avoid conflict. Several of the items measuring submissive behavior on the event-contingent record forms used in the present investigations reflect the inhibition of particular behaviors (e.g., I did not say how I felt, I did not state my own views, I gave in). While the items themselves do represent submissive acts, the motivations underlying these behaviors may vary from one context to another, or from one relationship to another. For example, an individual may give in to their boss because they feel constrained by the status differential and wish to avoid conflict and negative social attention, but give in to their friend to elicit positive social attention and maintain the communal alliance. In sum, several authors have proposed that submission in response to social threat facilitates group cohesion, de-escalates conflict, and may involve both defensive and affiliative motivations. Consequently, the increased levels of submissive behavior observed in response to elevated state social anxiety across both studies may reflect alliance-protective behavior strategies.

Contrary to the initial hypothesis, increased state social anxiety was not significantly associated with agreeable behavior in either investigation. Various factors may have contributed to the failure for this finding to emerge. A simple

explanation stems from the observation that affiliative behavior may be generally regarded as a socially prescribed component of human interaction; in most social situations, it is expected that individuals will maintain an agreeable demeanor. This assertion is supported by both the present investigations and past event-contingent recording data indicating that levels of agreeable behavior are generally higher than levels of dominant, submissive, and quarrelsome behavior (e.g., Moskowitz & Côté, 1995). Given the observation that individuals tend to report generally high levels of agreeable behavior, it is possible that affiliative behavior in the present studies approached ceiling levels. This would limit the potential for state social anxiety to increase affiliative behaviors far enough beyond baseline levels to yield statistically significant findings.

An equally compelling explanation is that elevated state social anxiety and related concerns about the threat of negative interpersonal outcomes interfere with the ability to engage in affiliative behavioral strategies. Warm, prosocial gestures require at least a modicum of assertive reciprocity and the confident pursuit of interpersonal connection (Argyle, 1991; Baumeister, 1982). If state social anxiety occurs as a direct response to the perceived risk of social exclusion, as was suggested in Chapter 1, it may be that individuals are reluctant to proactively seek out social affiliation for fear that the impending threat of rejection will be realized. At a more basic level, situational elevations in social anxiety reflect an increase in negative affect and general distress that simply may not foster increased interpersonal warmth.

Chronic Social Anxiety and Interpersonal Behavior

As expected, generalized social anxiety disorder in this second study was significantly related to increased submission and decreased dominance, but unrelated to levels of agreeable and quarrelsome behavior. The pattern of findings for the comparison of diagnostic groups in the second investigation replicated results for the comparison of high and low trait-anxious individuals in the first study. Recalling that dominance and submissiveness anchor the broader dimension of agency, defined as strivings for status, power, and self-differentiation (Bakan, 1966; Wiggins, 1991), the main effect findings for trait social anxiety in Study 1 and for diagnostic status in Study 2 suggest that elevated levels of chronic social anxiety were generally associated with a decreased tendency to pursue positions of social dominance. In other words, individuals with higher levels of chronic social anxiety exhibited an interpersonal style that was characterized by submissive, inhibited behavior and a disinclination to assert status or power over social interaction partners. This characterization is consistent with the proposition that socially anxious individuals tend to adopt innocuous behavior patterns (Schlenker & Leary, 1985) that reduce social visibility and may preemptively guard against the emergence of social exclusion threats.

Also as predicted, the relation of diagnostic status to both forms of agentic behavior was moderated by event-level appraisals of subjective inferiority; SAD group participants engaged in particularly increased levels of submissive behavior and particularly decreased levels of dominant behavior during interactions in which inferiority was elevated relative to the individual's mean level. For

members of the control group, levels of dominant and submissive behavior were not systematically associated with self-perceived inferiority. Again, findings for the comparison of diagnostic groups in this second investigation replicated results for the comparison of high and low trait-anxious individuals in the first study. The framework presented in Chapter 1 proposed that inhibited interpersonal behavior among socially anxious individuals may be conceptualized as a self-protective appeasement strategy that guards again social exclusion. Based on Arkin's (1981) distinction between protective and acquisitive forms of social motivation, it was hypothesized that situational elevations in subjective inferiority would increase the salience of potential rejection and thereby potentiate innocuous behavior patterns among socially anxious individuals. The overall pattern of findings concerning relations among chronic social anxiety, inferiority, and inhibited behavior across both of the present investigations is consistent with this formulation.

The replication of results across both Study 1 and Study 2 also supports the conceptualization of chronic social anxiety as a dimensional construct that operates according to similar principles across clinical and non-clinical populations. To demonstrate the continuity of findings across the two studies, figures illustrating the effects for Study 1 participants with high trait social anxiety, Study 1 participants with low trait social anxiety, the SAD group, and the non-clinical control group were prepared. Figure 3.4 illustrates the interaction of chronic social anxiety with subjective inferiority appraisals in the prediction of dominant behavior for both of the present studies. Overall levels of dominant

behavior appear to be greatest among participants from the first study who reported low aggregated levels of social anxiety, while dominant behavior appears lowest among the sample of individuals with generalized social anxiety disorder examined in the second study. The significant negative slopes for Study 1 participants with high levels of trait social anxiety and the SAD group in Study 2 are similar, although SAD group participants appeared to display a somewhat sharper decrease in dominant behavior as a function of increased inferiority appraisals. Individuals in the control group for Study 2 appeared to have a lower mean level of dominant behavior than high and low trait-anxious individuals in Study 1, possibly because Study 1 participants were required to hold full-time employment and dominant behavior may be more common in workplace settings.

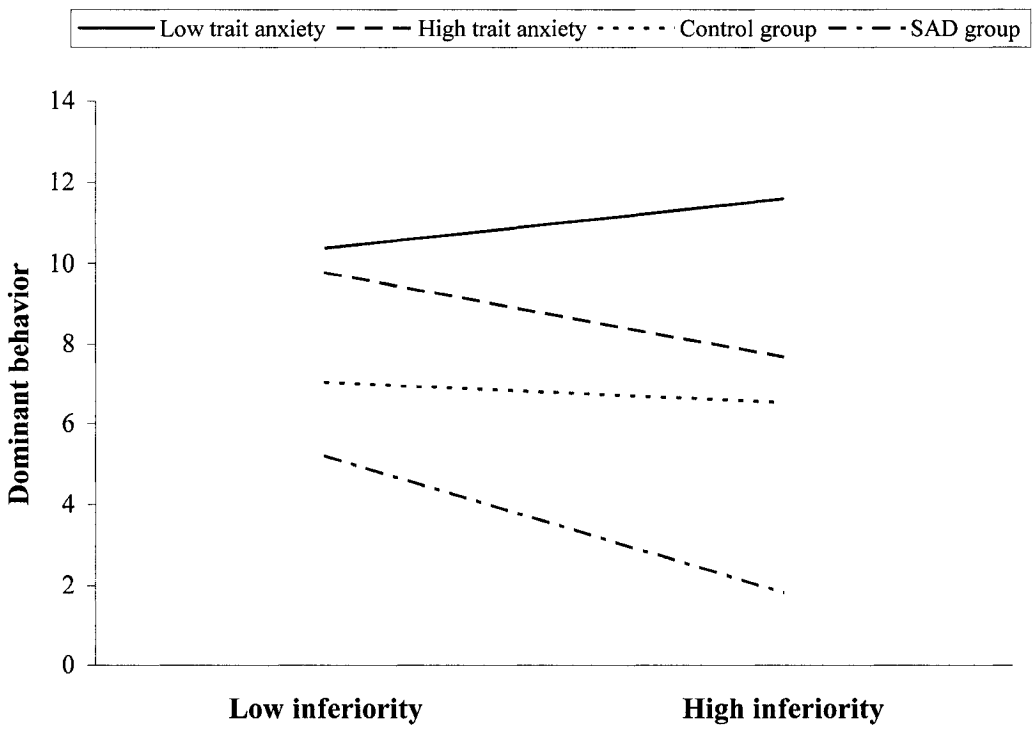

Figure 3.4. Prediction of dominant behavior by chronic social anxiety and subjective inferiority across both studies.

Figure 3.5 illustrates the interaction of chronic social anxiety with subjective inferiority appraisals in the prediction of submissive behavior for both of the present studies. Overall levels of submissive behavior appear to be least elevated among participants from the first study who reported low levels of trait social anxiety, while submissive behavior appears greatest among the sample of individuals with generalized social anxiety disorder examined in the second study. The significant positive slopes for high trait-anxious participants in Study 1 and the SAD group in Study 2 are comparable, although the slope appears steeper for individuals with generalized social anxiety disorder.

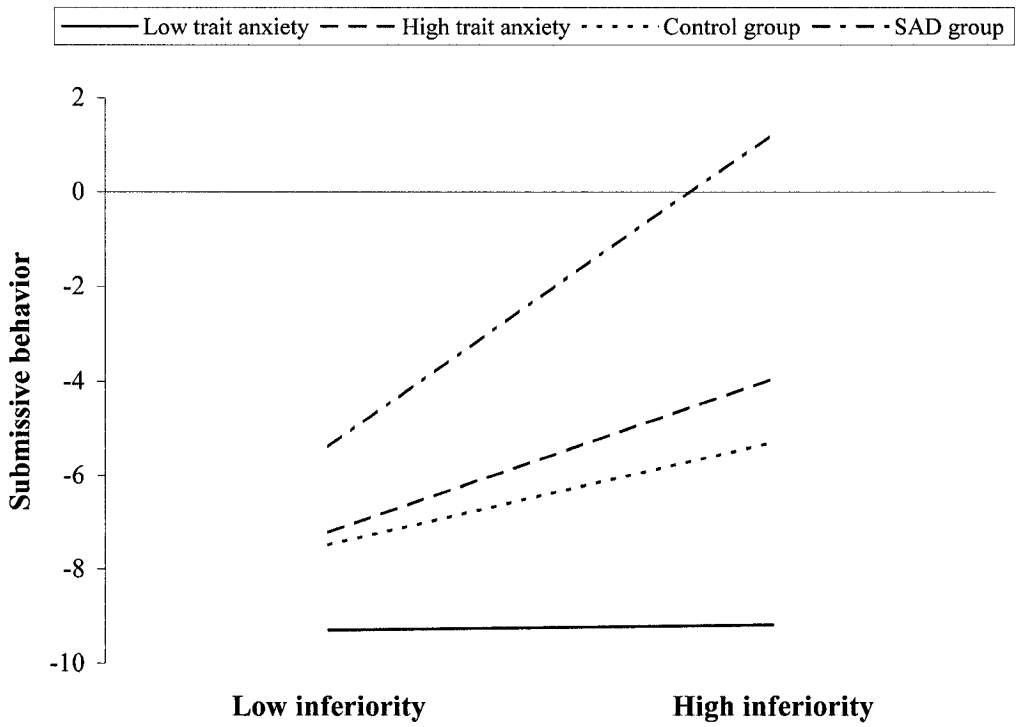

Figure 3.5. Prediction of submissive behavior by chronic social anxiety and subjective inferiority across both studies.

Closer investigation of point estimates for these interaction effects provided further evidence of continuity across the two studies. In the first investigation, individuals with high versus low levels of trait social anxiety did not display significantly different level of either dominant or submissive behavior during interactions in which self-perceived inferiority was low. Likewise, the SAD and control groups examined in Study 2 did not display significantly different levels of either dominant or submissive behavior during interactions in which low levels of subjective inferiority were reported. Across both studies then, the agentic behavior of socially anxious individuals did not differ from that of their respective comparison samples when situational appraisals of inferiority were low. This pattern of findings offers further support for the proposition that the inhibited interpersonal style associated with chronic social anxiety is closely related to negative situational appraisals and is consistent with laboratory-based research suggesting that socially anxious individuals do behave in a manner more similar to that of their low-anxious counterparts under certain social conditions (Alden & Beiling, 1998).

CHAPTER 4 – GENERAL DISCUSSION

The purpose of the present research was to explore the relation of situational and chronic elevations in social anxiety to interpersonal behavior. A repeated measurement technique was employed to examine event-specific records of mood, cognitive appraisal, and interpersonal behavior sampled from naturally occurring social interaction episodes. This approach allowed for a detailed examination of both intrapersonal and interpersonal manifestations of social anxiety, advancing the understanding of core behavioral patterns associated with social anxiety and situating these patterns with respect to both clinical and non-clinical levels of the social anxiety continuum.

In Chapter 1, I proposed a distinction between event-level fluctuations in social anxiety and chronically elevated levels of social anxiety with respect to both underlying processes and interpersonal outcomes. Acute increases in state social anxiety were presumed to reflect immediate responses to the perceived threat of social exclusion and to be associated with the situational activation of alliance-protective behavioral responses. Across all levels of chronic social anxiety, it was suggested that individuals respond to elevated state social anxiety with behaviors that promote and safeguard affiliative ties with others.

It was further argued that the chronic elevation of social anxiety across interaction episodes might have broader implications. If situational elevations in state social anxiety are conceptualized as adaptive responses to the immediate threat of social exclusion and chronic social anxiety is viewed as the increased propensity to experience this distress, then individuals who report elevated levels

of chronic social anxiety are individuals for whom the threat of social exclusion is a regular feature of social interaction. For these individuals, the social world may be perceived as a dangerous place in which they are frequently faced with social exclusion risks. These individuals may come to view themselves as particularly vulnerable to rejection and social disapproval, which may in turn increase their sensitivity to social threat signals and further strengthen their propensity to experience state social anxiety. As a result, individuals with elevated levels of chronic social anxiety may take a defensive approach to social interaction and display a generally inhibited interpersonal style. This behavioral inhibition can be conceptualized as self-protective in that it may be intended to preemptively reduce the risk of experiencing social rejection and state elevations in social anxiety. It was further presumed that this self-protective orientation would be characterized by increased behavioral responsivity to negative social cues such as elevations in subjective inferiority. More specifically, it was proposed that the inhibited behavior patterns of socially anxious individuals are activated through increased sensitivity to contextual features that suggest a heightened risk of negative social outcomes, rather than occurring as direct responses to the immediate threat of rejection once state social anxiety has emerged.

Hypotheses drawn from this framework were examined in two separate studies utilizing virtually identical event-contingent recording procedures. The first study was conducted with a community sample of working adults exhibiting a range of chronic social anxiety levels, while the second examined a sample of individuals with generalized social anxiety disorder and a matched group of non-

clinical community volunteers. The overall pattern of findings was generally consistent with the framework across both investigations and supports the conceptualization of state and chronic social anxiety as distinct but related constructs.

State Social Anxiety and Interpersonal Behavior

Situational elevations in social anxiety were associated with decreased levels of quarrelsome behavior and increased levels of submissive behavior across both investigations, suggesting that the emergence of social anxiety within particular events is related to immediate, alliance-protective behavioral responses. The absence of a significant relation between state social anxiety and agreeable behavior in both studies indicates that this alliance-protective behavior may be specifically associated with the safeguarding, rather than pursuit, of communal ties with interaction partners. As discussed in Chapter 3, submissive behavior may be conceptualized as involving affiliative as well as defensive motivations in that it serves to facilitate group cohesion and prevent interpersonal conflict. Consequently, the overall pattern of results for state social anxiety was viewed as consistent with the proposition that event-level social anxiety occurs in response to the immediate threat of social exclusion and fosters adaptive behavioral responses intended to safeguard affiliative ties and promote continued social inclusion.

In Chapter 1, it was suggested that increased communal strivings in response to elevated state anxiety may reflect the "tend-and-befriend" stress response, recently proposed as a complement to the more traditional fight-or-

flight model of defensive behavior (Taylor et al., 2000). Taylor and her colleagues have argued that nurturance and affiliation are adaptive responses to threat that serve to shield offspring from harm and enhance the protection afforded by group membership. These authors have further proposed that, while fight-or-flight may represent the prototypic male stress response, tend-and-befriend is specifically characteristic of females and operates through the attachment-caregiving system (Taylor et al., 2000; Taylor, Lewis, Gruenewald, Gurung, Updegraff, & Klein, 2002). Geary and Flinn (2002) have suggested an elaboration of this model, arguing that parental investment and coalitional behavior represent key components of the male stress response as well, although sex differences likely exist in the form taken by nurturing and affiliative behaviors and the threat contexts under which tend-and-befriend versus fight-or-flight responses are elicited.

The present research found no evidence of tend-and-befriend responses to anxiety experienced during everyday social interactions. Significant associations between agreeable behavior and social anxiety did not emerge at either level of analysis, suggesting that individuals did not proactively affiliate in response to social anxiety. Moreover, although the possibility of sex differences was explored for each statistical model presented, analyses indicated that the associations of state and chronic social anxiety to interpersonal behavior did not vary as a function of participant gender. Taken together, these findings may suggest that social threat stressors do not elicit tend-and-befriend responses. However, the present analyses were based on social interactions occurring across a range of

interpersonal contexts. It may be that tend-and-befriend responses are more likely to be exhibited in response to social anxiety occurring in specific locations (e.g., at home rather than at work) or in the presence of particular individuals (e.g., with close friends rather than with the boss). Moreover, past research findings have indicated that sex differences in the tendency to seek out social connectedness may emerge in response to particular forms of interpersonal stress, such as coping with divorce (Belle, 1987). Future research that more closely investigates the role of contextual features in behavioral responses to state social anxiety could clarify whether affiliative responses to anxiety do emerge under particular social conditions and whether there are specific interpersonal contexts under which sex differences in the tend-and-befriend stress response do and do not emerge.

Chronic Social Anxiety and Interpersonal Behavior

Heightened chronic social anxiety was significantly related to increased levels of submissive behavior and decreased levels of dominant behavior across both of the present investigations. Situational appraisals of inferiority had a moderating influence on this association; both community volunteers exhibiting high trait social anxiety and individuals with generalized social anxiety disorder reported significant increases in submissive behavior and significant decreases in dominance during interactions in which subjective inferiority was elevated. In contrast, self-perceived inferiority was not systematically related to the interpersonal behavior of either participants with low trait social anxiety in Study 1 or non-clinical control group members in Study 2. Despite a strong association between trait social anxiety and chronic inferiority appraisals, subsequent

analyses also confirmed that the behavioral patterns of high trait-anxious individuals in the first study were not due to consistently elevated levels of self-perceived inferiority.

The overall pattern of findings for the relation of chronic social anxiety to interpersonal behavior and the moderation of this association by situational inferiority appraisals was consistent with the hypotheses framed in Chapter 1. Chronic social anxiety was associated with both a heightened sensitivity to self-perceived inferiority and an increased tendency to respond to situational elevations in subjective inferiority with inhibited behaviors. This is consistent with the proposition that chronically elevated levels of social anxiety are associated with a self-protective interpersonal style that is situationally activated by negative contextual cues. The inhibited behavior patterns of socially anxious individuals may reflect attempts to remain innocuous during social interaction and thereby preemptively guard against the negative interpersonal outcomes (e.g., exclusion, disapproval) that these individuals feel particularly vulnerable to experiencing. Rather than wait for state social anxiety to increase, indicating an immediate threat of exclusion, these individuals may anticipate that they are generally at risk for rejection and behave in a manner that is intended to protect them from the emergence of social threat. This self-protective appeasement stance may be activated through heightened sensitivity to contextual cues that indicate an increased risk of negative social outcomes, such that socially anxious individuals are particularly motivated to exhibit innocuous interpersonal behavior during interactions in which risk-relevant situational elements (e.g. negative social

comparison) are elevated. In sum, the general behavior pattern of socially anxious individuals may be conceptualized as defensive and self-protective, characterized by inhibited-innocuous interpersonal behavior that is activated by negative contextual cues and intended to protect the individual from experiencing the direct threat of negative interpersonal outcomes.

The theoretical formulation of social anxiety articulated by Gilbert and Trower (Gilbert, 2001; Gilbert & Trower, 2001) offers a more specific interpretation of heightened sensitivity to subjective inferiority among socially anxious individuals. This ethological model postulates that chronic social anxiety is associated with the utilization of behavioral strategies that are specifically designed to evade and defend against social threat in competitive, hierarchical environments. The theory further argues that the tendency for individuals with social anxiety disorder to exhibit inhibited interpersonal behaviors stems from a predisposition to approach social situations with competitive and defensive, rather than cooperative and affiliative, expectations and to typically regard themselves as holding a subordinate position during social encounters. Gilbert and Trower suggest that the inhibited behavior of socially anxious individuals specifically represents an ethologically based strategy that is automatically activated and designed to prevent challenge or aggression from dominant group members. In sum, this theory proposes that socially anxious individuals approach most social situations as competitive, engage in rank appraisals to determine their relative status position, and automatically engage in submissive appeasement to protect

themselves from dominant individuals when they appraise themselves as holding a subordinate position.

In support of Gilbert and Trower's formulation (Gilbert, 2001; Gilbert & Trower, 2001), Hope, Sigler, Penn, and Meier (1998) reported that socially anxious undergraduates perceived social interactions with a confederate as more competitive (i.e., rank related), were more likely to perceive themselves as holding a subordinate position, and engaged in more submissive appeasement behaviors than non-socially anxious participants. The results of the present research also offer support for this proposition, indicating that socially anxious individuals engage in particularly submissive behavior during interactions in which they perceive themselves as subordinate to interaction partners. These findings encourage the further empirical examination of hypotheses based on Gilbert and Trower's (Gilbert, 2001; Gilbert & Trower, 2001) ethological model. Subsequent research could investigate the extent to which individuals exhibiting high levels of chronic social anxiety do in fact display a heightened tendency to perceive naturally occurring social interactions as inherently competitive in nature. Moreover, it would be of interest to examine whether increased emphasis on the competitive aspects of social interaction interacts with subjective appraisals of inferiority to predict the interpersonal behavior of socially anxious individuals.

The present research offered a significant contribution to knowledge by directly examining the continuity of interpersonal patterns among individuals exhibiting clinical versus non-clinical levels of chronic social anxiety using comparable research methods, measurement tools, and statistical procedures.

Results of the present research were consistent with past evidence of inhibited behavior patterns among socially anxious individuals (e.g., Alden et al., 1995; Leary et al., 1987; Oakman et al., 2003), and provide empirical documentation of this interpersonal style during naturally occurring social interactions. The present research suggests that this inhibited interpersonal style is consistent across clinical and non-clinical levels of the social anxiety spectrum and supports the generalizability of past findings based on laboratory observation and self-report methods. The moderating influence of subjective inferiority on submissive and dominant behavior was also consistent across both community volunteers exhibiting elevated levels of chronic social anxiety and individuals with generalized social anxiety disorder, suggesting that the interpersonal patterns associated with social anxiety operate according to similar principles across the chronic social anxiety continuum. Overall, the findings documented a substantial degree of correspondence between the clinical and community samples of socially anxious individuals, providing empirical support for the conceptualization of chronic social anxiety as a dimensional construct that is associated with similar interpersonal processes across both normal and pathological levels. The present findings encourage the future investigation of continuity between the interpersonal processes of individuals with clinically and non-clinically elevated levels of chronic social anxiety.

The present research also extended the understanding of interpersonal processes among socially anxious individuals by examining the relation of inhibited behavior patterns to elevations in both state social anxiety and event-

level cognitive appraisal. The results indicated that the activation of interpersonal passivity among individuals with high levels of chronic social anxiety was more closely tied to situational elevations in negative social comparison than to event-level fluctuations in state social anxiety. These findings are consistent with cognitive-behavioral and interpersonal formulations of social anxiety disorder and with the proposition that inhibited behavior among socially anxious individuals represents a self-protective strategy activated by social cues (e.g., Alden & Taylor, 2004; Arkin et al., 1986), rather than simply reflecting a behavioral symptom of state social anxiety. The finding that behavioral differences between individuals reporting disparate levels of chronic social anxiety were not apparent during interactions in which subjective inferiority levels were particularly low is consistent with laboratory-based research indicating that the inhibited behavior of socially anxious individuals may emerge only in the presence of particular contextual features (Alden & Bieling, 1998). This pattern suggests that individuals with chronic social anxiety use contextual cues to classify some social situations as safe environments that do not necessitate the use of self-protective, innocuous behavior as a preemptive risk-reduction strategy. More concretely, these findings indicate that socially anxious individuals do not exhibit inhibited interpersonal behavior in the absence of negative social cues.

In the present research, inferiority appraisals were selected as one example of a negative social cue that may moderate self-protective behavior among socially anxious individuals. The present findings encourage future research into other situational appraisals that might augment or inhibit the self-protective

behavior patterns of individuals exhibiting high levels of chronic social anxiety. Clinical formulations suggest that socially anxious individuals monitor many aspects of social interaction, evaluating themselves, their interaction partners, and how they are being perceived (e.g., Rapee & Heimberg, 1997). Contextual features of social interactions may also impact the inhibited behavior of socially anxious individuals. For example, individuals with elevated levels of chronic social anxiety may be more or less likely to engage in innocuous interpersonal behavior during interactions with particular individuals (e.g., with family members, with supervisors) or in particular social settings (e.g., at home, at work). Future research could investigate the extent to which event-level cognitive appraisals and contextual elements of social interaction have a moderating influence on the interpersonal behavior of socially anxious individuals. In addition, it would be of interest to examine whether these social cues have consistent influences across individuals with chronic social anxiety, whether they are specifically linked to the behavior of individuals with clinical versus non-clinical levels of chronic social anxiety, or whether there are individual differences in level of sensitivity to specific social cues. Such research could also address the question of whether the inhibited behavior of socially anxious individuals represents a specific sensitivity to relative rank placement, as suggested by the theoretical formulation of Gilbert and Trower (Gilbert, 2001; Gilbert and Trower, 2001), or a more general sensitivity to social cues that suggest a heightened risk of negative interpersonal outcomes.

The present research directly addressed the under-studied question of whether state and chronic levels of social anxiety are associated with similar versus disparate behavioral outcomes. Results for both studies indicated that intraindividual fluctuations in state social anxiety and individual differences in chronic social anxiety predicted distinct patterns of interpersonal behavior. The similar pattern of results replicated across studies further reinforced this conclusion, suggesting that the unique contribution of state social anxiety to variance in interpersonal behavior is consistent across the chronic social anxiety continuum. Findings of the present research did not, however, indicate that state and chronic social anxiety are entirely independent. State social anxiety displayed a unique relation to inhibited quarrelsome behavior, while chronic social anxiety exhibited a specific association with decreased dominant behavior. Conversely, both levels of social anxiety predicted increased levels of submissive behavior. These findings suggest that submissive displays may represent one point of intersection between state and chronic social anxiety and highlight the need for future research into unique versus overlapping relations of state and chronic social anxiety to patterns of interpersonal behavior.

Analyses of the interaction between state and chronic social anxiety yielded only one significant finding. Diagnostic status and state social anxiety interacted to predict levels of submissive behavior in Study 2; submissive responses to situational elevations in anxiety were more pronounced among individuals with generalized social anxiety disorder than among non-clinical controls. This finding suggests particularly heightened sensitivity to state social

anxiety among SAD group participants, and may provide evidence of discontinuity between clinical and non-clinical levels of chronic social anxiety. The state social anxiety experienced by individuals with generalized social anxiety disorder may be particularly severe relative to that experienced by members of non-clinical samples. For example, individuals with social anxiety disorder may experience panic attacks in conjunction with elevated state social anxiety (Hazen & Stein, 1995). Consequently, the particularly increased levels of submissive behavior associated with elevated state social anxiety among SAD group members may reflect the use of interpersonal withdrawal as a means of coping with intensely elevated levels of anxiety during social interactions. Notably, state social anxiety and chronic social anxiety did not interact to predict levels of submissive behavior in Study 1, nor did they interact to predict levels of any other interpersonal behavior in either of the present investigations. In other words, behavioral responses to elevations in state social anxiety were generally consistent across all participants, regardless of chronic social anxiety level.

Limitations

The present research contributed to the understanding of intrapersonal and interpersonal processes associated with social anxiety in several key ways. Ecologically valid, naturally occurring interactions were sampled across a range of social and occupational contexts, enhancing the generalizability of findings and extending the study of social anxiety beyond traditional laboratory-based investigation. Reports of affect, appraisal, and behavior were gathered immediately, thus minimizing the impact of retrospective distortion and

reconstructive memory processes that may influence one-occasion self-report instruments and are of particular relevance to the study of socially anxious individuals given their documented tendency to engage in the negatively biased post-event processing of interpersonal events (Rachman et al., 2000). The application of an identical event-contingent recording procedure involving the simultaneous investigation of state social anxiety, chronic social anxiety, and situational appraisal across both of the present studies also offered several advantages. This longitudinal, repeated measures approach permitted the present investigations to explore the unique association of state and chronic social anxiety to interpersonal behavior, to examine and compare ongoing interpersonal patterns among individuals exhibiting varying degrees of chronicity across the social anxiety continuum, and to investigate the question of whether, and to what extent, situational fluctuations in both social anxiety and cognitive appraisal are associated with the behavioral patterns of socially anxious individuals. Nevertheless, several limitations of the present investigations may be noted.

While the event-contingent recording procedure employed in the present research offered several advantages to traditional one-occasion measurement, it should be noted that the methodology employed relies on subjective self-reports and therefore does not allow for control over or the direct observation of behavioral and situational factors. Moreover, causal inferences based on the present data are not warranted given that event-specific behavioral, affective, and cognitive variables were measured concurrently. For the purposes of the present research, statistical models and the discussion of findings assumed the prediction

of behavior by event-level affect and cognitive appraisal. However, the temporal sequence of and causal relations between these variables are not discernible given the naturalistic nature of the data. Individuals may engage in particular forms of behavior because they feel anxious or inferior. However, an alternate explanation would be that individuals feel anxious and/or inferior after engaging in particular forms of behavior. Relations among behavior, affect, and cognition within a given social interaction may also be bi-directional; for example, behavioral responses to affective states may impact subsequent affect and affective responses to interpersonal behavior may impact subsequent behavioral patterns. Given these limitations, the present findings would be augmented by research profiting from the greater experimental control and observational possibilities of laboratory-based investigation.

In the first of the present studies, "trait" social anxiety was operationalized as the mean level of anxiety an individual reported across all social interactions recorded over the 20-day data collection period. For conceptual and illustrative purposes, individuals whose score on this continuous variable fell one standard deviation above the group mean were designated as exhibiting "high" levels of trait social anxiety, while individuals with scores located one standard deviation below the group mean were designated as exhibiting "low" levels of trait social anxiety. In other words, elevated and decreased levels of trait social anxiety were defined relative to levels of this aggregate variable in the sample as a whole. While it is conceptually plausible to assume that individuals with high trait levels of social anxiety would report more frequently elevated levels of state social

anxiety across multiple social interactions, it is less clear that a 20-day observation period is extensive enough to sufficiently reflect truly dispositional characteristics. For example, it was not possible to ascertain whether the mean level of anxiety reported by a given participant during the 20-day data collection period over which they were observed accurately represents the mean level of social anxiety experienced by that individual over extended periods of time. Moreover, it was not possible to determine how representative the mean level of anxiety reported by this particular sample was of mean social anxiety levels in the general population. Study 1 participants who exhibited high or low levels of trait social anxiety relative to the sample mean may not have displayed particularly elevated or decreased levels of trait social anxiety relative to individuals in general. The replication of parallel findings across both of the present studies, combined with the significant association between generalized social anxiety disorder and aggregated event-level anxiety in Study 2, offers some support for the validity of this approach. Nevertheless, it would be of interest to explore whether similar patterns of interpersonal behavior are associated with non-clinical levels of trait social anxiety as measured by more traditional one-occasion measures (e.g., the SIAS; Mattick & Clarke, 1998).

In a similar vein, the present investigations defined state social anxiety as the extent to which an individual reported feeling "worried/anxious" while engaged in a particular interaction. More specifically, the research design presumed that the level of anxiety experienced during a given social interaction was related to social features of the interaction being recorded. However, other

possibilities exist and should be acknowledged. For example, individuals may have entered into social interactions with elevated levels of anxiety that were pre-existing and which persisted throughout the event. Alternatively, levels of anxiety may have increased during a given social interaction due to non-social factors such as distressing news relayed by an interaction partner. Consequently, future replication using a more specific measure of event-level social anxiety would augment the present results.

Directions for Future Research

The results of the present research establish the utility of event-contingent recording as a valuable tool for the investigation of interpersonal processes associated with both state and chronic social anxiety. Numerous possibilities exist for the future application of this investigative technique to the study of social anxiety. For example, both the interpersonal patterns of socially anxious individuals and specific behavioral responses to event-level elevations in social anxiety may vary according to elements of the social environment such as location, activity, and interaction partner. Research examining the role of contextual features in relations between social anxiety and interpersonal behavior is therefore recommended. While data collection in the present study occurred subsequent to all types of social interactions, future research could also investigate other events of interest, such as interactions occurring within specific types of relationships (e.g., with romantic partners, with supervisors), in certain locations (e.g., at home, at work), or at specific points in time (e.g., to track therapeutic response among individuals with social anxiety disorder). This

methodology could also be used to record other variables of potential relevance to the mood and behavior of individuals with social anxiety disorder, such as avoidance, panic attacks, and substance use. Finally, while the second of the present studies compared individuals with generalized social anxiety disorder to non-clinical controls, this procedure could also be used to differentiate individuals with social anxiety disorder from members of other clinical populations with regards to patterns of interpersonal behavior.

The present investigation utilized the circumplex model of interpersonal behavior to examine hypotheses concerning the relation of state and chronic social anxiety to interpersonal behavior. This approach benefited from the application of an established behavioral framework and the use of validated procedures for the measurement of circumplex constructs. However, both the present findings and the broader literature indicate a need for the more refined examination of discrete components within each category of behavior, particularly with regards to quarrelsomeness and submission.

As noted previously, it has been suggested that submissive behavior may have both affiliative and defensive aspects (Scott, 1990). This is in line with Gilbert's (2000) distinction between voluntary and involuntary submission strategies, which proposes that individuals may submit voluntarily in order to elicit positive social attention and maintain alliances or involuntarily in order to avoid negative social attention, demonstrate rank inferiority, and avoid conflict. Likewise, the inhibition of quarrelsomeness is relevant to both affiliation and social defense. Interpersonal hostility interferes with the formation and

preservation of communal ties; hence, decreased quarrelsome behavior is an essential affiliative strategy. However, quarrelsome behavior has also been implicated by rank theorists in the escalation of rank contests (Fournier et al., 2002; Gilbert, 1992), indicating that that the inhibition of hostility may also be a self-preservation tactic which serves to appease others and disengage status conflict.

In the present investigation, chronic social anxiety was associated with lower levels of dominant behavior and higher levels of submissive behavior. This behavioral pattern was conceptualized as representing a self-protective interpersonal orientation, particularly given the observed moderating influence of subjective inferiority appraisals. Across all levels of chronic social anxiety, individuals were found to exhibit increased submission and reduced quarrelsomeness in response to elevated state social anxiety. This pattern was conceptualized as alliance-protective in nature. However, without direct assessment of motivation the possibility remains that the behavioral responses of individuals with high levels of chronic anxiety to heightened state social anxiety were in fact motivated by self-protection rather than alliance-protection.

Individuals who experience chronically high levels of social anxiety may submit and inhibit hostility in order to appease others and avoid negative attention, while individuals who report low levels of social anxiety may submit and inhibit hostility in order to attract others and gain positive attention. Moreover, these behavioral strategies may be perceived as involuntary and defensive by socially anxious individuals, but voluntary and affiliative by

individuals with low levels of chronic social anxiety. In future research, it might be possible to differentiate between affiliative and defensive elements of submission and quarrelsomeness to investigate the extent to which the behavioral patterns of individuals exhibiting varying degrees of chronic social anxiety in response to elevated state anxiety are equivalent with regards to both form and intended function.

Both the extant literature and the present findings suggest that social cognition plays a key role in the behavioral patterns of socially anxious individuals. As mentioned previously, inferiority appraisals were selected for examination in the present research as one example of a contextual cue that may make salient the potential for negative social outcomes and thereby activate self-protective behaviors among socially anxious individuals. However, there are many additional types of cognitive appraisal that may augment or inhibit the self-protective behavior of individuals with high levels of chronic social anxiety. Examples would include subjective states (e.g., confidence, sexual attraction), perceptions of interaction partners (e.g., of the other's behavior, of what the other is thinking or feeling, of the other's attractiveness), and appraisals of the interaction itself (e.g., whether the interaction is competitive versus cooperative in nature). Broader social cognitive constructs may also be involved in the activation of interpersonal behaviors among socially anxious individuals. As discussed in Chapter 1, for example, relational schema have been implicated in the vicious cycle presumed to exacerbate and maintain social anxiety disorder. Moreover, some research evidence has supported the role of relational schema in activating

both social anxiety and negative self-perceptions among socially anxious individuals (Baldwin & Main, 2001). Future research examining the relation of both specific situational appraisals and broader cognitive constructs such as relational schema to associations between interpersonal behavior and chronic social anxiety is clearly warranted.

In Chapter 1, it was proposed that socially anxious individuals may exhibit heightened sensitivity to negative social cues because the repeated experience of state social anxiety fosters perceptions of the self as particularly vulnerable to social disapproval and rejection. Although the present research did not directly investigate the existence of such global self-perceptions among individuals exhibiting elevated levels of chronic social anxiety, findings concerning the specific situational appraisal selected for analysis may imply the presence of such beliefs about the self. Both individuals exhibiting high levels of chronic social anxiety in Study 1 and individuals with generalized social anxiety disorder in Study 2 reported significantly higher levels of subjective inferiority during social interaction than the two comparison samples. In other words, socially anxious individuals were more likely to engage in negative social comparison across multiple social interactions occurring across a variety of interpersonal contexts, frequently viewing themselves as particularly one-down with respect to their interaction partners.

Situational appraisals of subjective inferiority might be a marker of broader constructs associated with negative self-perception. For example, researchers in the field of social cognition have developed a model of rejection

sensitivity which proposes that repeated experiences with interpersonal rejection may lead individuals to anxiously anticipate the presence of, selectively attend to, and strongly react to signs of social disapproval (Downey & Feldman, 1996; Pietrzak, Downey & Ayduk, 2005). Heightened sensitivity to interpersonal rejection, characterized by feelings of personal inadequacy and inferiority, has also been a topic of interest to clinical researchers. Although the clinical construct of interpersonal sensitivity is sometimes presumed to represent a dispositional marker of vulnerability to depression (Boyce & Parker, 1989; Wilhelm, Boyce, & Brownhill, 2004), evidence indicates that interpersonal sensitivity may also be related to social anxiety disorder (Harb, Heimberg, Fresco, Schneier, & Liebowitz, 2002). This construct reflects the self-perceived vulnerability to negative social outcomes that is described in some theoretical accounts of social anxiety (e.g., Gilbert & Trower, 2001) and that was presumed in the present research to be fostered by increased levels of chronic social anxiety. Consequently, interpersonal rejection sensitivity may account for the heightened sensitivity to self-perceived inferiority observed among socially anxious participants in the present studies. Future research incorporating one-occasion measures of rejection sensitivity (e.g., The Rejection Sensitivity Questionnaire; Downey & Feldman, 1996) or interpersonal sensitivity (e.g., The Interpersonal Sensitivity Measure; Boyce & Parker, 1989) would permit the investigation of relations between individual differences in rejection sensitivity, individual differences in chronic social anxiety, and situational appraisals of subjective inferiority.

The sociometer theory of self-esteem may also be of particular relevance to the present findings. Leary and his colleagues (Leary, 1990, 1999; Leary, Tambor, Terday, & Downshave, 1995b) have proposed that self-esteem plays a key role in relational processes by serving as a subjective indication of inclusionary status, gauging the degree to which others include and accept versus exclude and reject the individual. According to sociometer theory, self-esteem is the output of a system that continually monitors the social environment for cues indicative of impending social exclusion. Signs of disapproval or rejection are thought to elicit a negative affective state (i.e., low self-esteem) that the individual is motivated to alleviate by engaging in behaviors designed to increase social acceptance and thereby restore threatened inclusionary status (Leary, Schreindorfer, & Haupt, 1995a; Leary et al., 1995b). The implication is that the self-esteem motive functions to minimize the likelihood of exclusion and maintain interpersonal relations, rather than to maintain self-esteem per se. In other words, this model views self-esteem as a motivational tool in the quest for interpersonal connectedness. Leary (1990, 1999) has further argued that the basis for associations between low self-esteem and elevated social anxiety may be attributed to deficits in perceived inclusionary status (e.g., a lack of perceived social acceptance). The present research documented clear associations between the interpersonal patterns of socially anxious individuals and situational fluctuations in inferiority, which may be one marker of self-esteem. Consequently, the observed behavioral responsivity of socially anxious individuals to situational appraisals of subjective inferiority may indicate

heightened sensitivity to fluctuations in state self-esteem among these individuals. Future research investigating links between situational fluctuations in self-esteem and the activation of self-protective interpersonal patterns among socially anxious individuals would extend the present results to incorporate this broader psychological construct.

Clinical implications

The present findings are consistent with the assertion that social anxiety is dimensional rather than categorical, and have clear implications for the study and treatment of social anxiety disorder. For example, the results of the present research support the contention that chronic social anxiety is associated with inhibited behavior strategies and suggest that heightened sensitivity to self-perceived inferiority plays a key role in this interpersonal style. In fact, the findings indicate that socially anxious individuals may be more reactive to situational fluctuations in inferiority than to situational fluctuations in state social anxiety. This draws attention to a specific need for the more detailed investigation of links between contextual features of the social environment and the interpersonal behavior of individuals with social anxiety disorder. For example, clinical evidence indicates that there is much variability among socially anxious individuals with respect to the specific situations and types of interaction partners that elicit maladaptive behavior and symptoms of distress (e.g., Eng, Heimberg, Coles, Schneier, & Liebowitz, 2000). The present results suggest that social comparison may be fundamental to this distinction, such that "safe" individuals and situations correspond to those that are least likely to generate subjective

perceptions of inferiority. Future research should seek to identify other situational factors that activate inhibited behavior among socially anxious individuals and may therefore be crucial to the deconstruction of self-perpetuating interpersonal cycles that maintain clinical symptoms.

With regards to clinical practice, the present findings highlight the centrality of cognitive appraisal in the interpersonal patterns of socially anxious individuals and are therefore supportive of cognitive and cognitive-behavioral approaches to the treatment of social anxiety disorder. The present results encourage the therapeutic use of training and practice in assertiveness skills and therapeutic intervention directed at the reduction of negative self-focused social cognition, the challenging of situational inferiority appraisals, and the reconceptualization of social situations as opportunities for, rather than threats to, social acceptance. The findings further suggest that intervention should not be limited to the discussion of situations likely to provoke state social anxiety but should also focus on the general interpersonal style of socially anxious individuals and the types of contextual features that may heighten perceived rejection risk.

Conclusion

Anxiety is widely conceptualized as a state of defensive arousal offering adaptive benefits under threatening conditions. Yet the social implications of anxiety have received little empirical attention, particularly within non-clinical populations. The present research contributed to the understanding of links between social anxiety and interpersonal behavior in several key respects. The investigation of ecologically valid data concerning naturally occurring social

interactions offers a generalization of previous findings based on laboratory research and one-occasion self-report measures. The replication of results across separate samples of individuals exhibiting clinical and non-clinical levels of chronic social anxiety using identical measurement procedures suggests that the present findings are robust and provides empirical documentation of continuity across the social anxiety continuum. The simultaneous investigation of state social anxiety, chronic social anxiety, and event-level cognitive appraisal permitted the direct assessment of questions concerning the activation of interpersonal patterns displayed by socially anxious individuals by event-level elevations in state social anxiety versus situational fluctuations in social cognition. In sum, the present research addressed important methodological and theoretical issues noted in the extant social anxiety literature.

The present research formulated specific hypotheses based on the integration of concepts drawn from research and theory in the field of social anxiety. The circumplex model of interpersonal behavior was employed to examine these predictions. Results indicated that high levels of chronic social anxiety were associated with a general behavioral style characterized by inhibited behavior and a heightened sensitivity to self-perceived inferiority. These global behavior patterns were observed across all levels of state anxiety and are consistent with the use of self-protective behavior strategies among socially anxious individuals. Elevations in state social anxiety were associated with the situational employment of alliance-protective strategies characterized by the coordination of inhibited interpersonal hostility with increased interpersonal

submission. This pattern was observed across both clinical and non-clinical levels of chronic social anxiety, although participants with generalized social anxiety disorder displayed a significantly heightened tendency to increase submissive behavior in response to situational elevations in state social anxiety. In conclusion, the overall pattern of results illustrates the unique contributions of state social anxiety and chronic social anxiety to the prediction of interpersonal behavior, supports the contention that social anxiety is a dimensional construct relevant to interpersonal processes across both normal and clinical populations, and offers a more detailed understanding of the processes through which socially anxious individuals engage their social worlds.

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APPENDICES

Appendix A: Social interaction forms (1-4) used in Study 1

ID DAY PARTNER ID FORM DAY OF WEEK S M T W T F S

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Start of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME ( ) WORK ( ) RECREATION ( ) OTHER ( )

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? ____

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
( )	( )	_____	( )	( )	( )	( )	( )	( )	( )

If more than one person was present, fill in this bracket ( )

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I listened attentively to the other(s)..... ( )
2. I spoke in a clear firm voice..... ( )
3. I let other(s) make plans or decisions..... ( )
4. I confronted the other(s) about something I did not like..... ( )
5. I expressed affection with words or gestures..... ( )
6. I took the lead in planning/organizing a project or activity..... ( )
7. I did not say how I felt..... ( )
8. I withheld useful information..... ( )
9. I compromised about a decision..... ( )
10. I tried to get the others to do something else..... ( )
11. I avoided taking the lead or being responsible..... ( )
12. I ignored the other(s)' comments..... ( )

How did you feel?

	Not at all 0	1	2	3	4	5	Extremely 6
1. happy.....	( )	( )	( )	( )	( )	( )	( )
2. worried/anxious.....	( )	( )	( )	( )	( )	( )	( )
3. proud.....	( )	( )	( )	( )	( )	( )	( )
4. frustrated.....	( )	( )	( )	( )	( )	( )	( )
5. pleased.....	( )	( )	( )	( )	( )	( )	( )
6. angry/hostile.....	( )	( )	( )	( )	( )	( )	( )
7. joyful.....	( )	( )	( )	( )	( )	( )	( )
8. depressed/sad.....	( )	( )	( )	( )	( )	( )	( )
9. grateful.....	( )	( )	( )	( )	( )	( )	( )
10. inferior to the other(s).....	( )	( )	( )	( )	( )	( )	( )
11. enjoyment/fun.....	( )	( )	( )	( )	( )	( )	( )
12. unhappy.....	( )	( )	( )	( )	( )	( )	( )
13. enthusiastic.....	( )	( )	( )	( )	( )	( )	( )
14. embarrassed.....	( )	( )	( )	( )	( )	( )	( )
15. self-confident.....	( )	( )	( )	( )	( )	( )	( )
16. guilty.....	( )	( )	( )	( )	( )	( )	( )
17. lonely.....	( )	( )	( )	( )	( )	( )	( )
18. distressed.....	( )	( )	( )	( )	( )	( )	( )
19. elated.....	( )	( )	( )	( )	( )	( )	( )
20. emotionally secure with the other(s).....	( )	( )	( )	( )	( )	( )	( )

see reverse side

ID 0 1 2 3 4 5 6 7 8 9 | DAY 0 1 2 3 4 5 6 7 8 9 | PARTNER ID 0 1 2 3 4 5 6 7 8 9 | FORM 1 2 3 4 | DAY OF WEEK S M T W T F S

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Start of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME ( ) WORK ( ) RECREATION ( ) OTHER ( )

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
( )	( )	_____	( )	( )	( )	( )	( )	( )	( )

If more than one person was present, fill in this bracket ( )

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I criticized the other(s)..... ( )
2. I smiled and laughed with the other(s)..... ( )
3. I spoke softly..... ( )
4. I made a sarcastic comment..... ( )
5. I expressed an opinion..... ( )
6. I complimented or praised the other person..... ( )
7. I did not express disagreement when I thought it..... ( )
8. I gave incorrect information..... ( )
9. I got immediately to the point..... ( )
10. I made a concession to avoid unpleasantness..... ( )
11. I did not state my own views..... ( )

How did you feel?

	Not at all 0	1	2	3	4	5	Extremely 6
1. happy.....	( )	( )	( )	( )	( )	( )	( )
2. worried/anxious.....	( )	( )	( )	( )	( )	( )	( )
3. proud.....	( )	( )	( )	( )	( )	( )	( )
4. frustrated.....	( )	( )	( )	( )	( )	( )	( )
5. pleased.....	( )	( )	( )	( )	( )	( )	( )
6. angry/hostile.....	( )	( )	( )	( )	( )	( )	( )
7. joyful.....	( )	( )	( )	( )	( )	( )	( )
8. depressed/sad.....	( )	( )	( )	( )	( )	( )	( )
9. grateful.....	( )	( )	( )	( )	( )	( )	( )
10. inferior to the other(s).....	( )	( )	( )	( )	( )	( )	( )
11. enjoyment/fun.....	( )	( )	( )	( )	( )	( )	( )
12. unhappy.....	( )	( )	( )	( )	( )	( )	( )
13. enthusiastic.....	( )	( )	( )	( )	( )	( )	( )
14. embarrassed.....	( )	( )	( )	( )	( )	( )	( )
15. self-confident.....	( )	( )	( )	( )	( )	( )	( )
16. guilty.....	( )	( )	( )	( )	( )	( )	( )
17. lonely.....	( )	( )	( )	( )	( )	( )	( )
18. distressed.....	( )	( )	( )	( )	( )	( )	( )
19. elated.....	( )	( )	( )	( )	( )	( )	( )
20. emotionally secure with the other(s).....	( )	( )	( )	( )	( )	( )	( )

see reverse side

ID 0 1 2 3 4 5 6 7 8 9 | DAY 0 1 2 / 3 4 5 6 7 8 9 | PARTNER ID 0 1 2 3 4 5 6 7 8 9 | FORM 1 2 3 4 | DAY OF WEEK S M T W T F S

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Start of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME ( ) WORK ( ) RECREATION ( ) OTHER ( )

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
( )	( )	_____	( )	( )	( )	( )	( )	( )	( )

If more than one person was present, fill in this bracket ( )

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I waited for the other person to act or talk first..... ( )
2. I stated strongly that I did not like or that I would not do something..... ( )
3. I assigned someone to a task..... ( )
4. I exchanged pleasantries..... ( )
5. I did not say what was on my mind..... ( )
6. I did not respond to the other(s)' questions or comments..... ( )
7. I made a suggestion..... ( )
8. I showed sympathy..... ( )
9. I did not say what I wanted directly..... ( )
10. I discredited what someone said..... ( )
11. I asked the other(s) to do something..... ( )
12. I spoke favorably of someone who was not present..... ( )

How did you feel?

	Not at all 0	1	2	3	4	5	Extremely 6
1. happy.....	( )	( )	( )	( )	( )	( )	( )
2. worried/anxious.....	( )	( )	( )	( )	( )	( )	( )
3. proud.....	( )	( )	( )	( )	( )	( )	( )
4. frustrated.....	( )	( )	( )	( )	( )	( )	( )
5. pleased.....	( )	( )	( )	( )	( )	( )	( )
6. angry/hostile.....	( )	( )	( )	( )	( )	( )	( )
7. joyful.....	( )	( )	( )	( )	( )	( )	( )
8. depressed/sad.....	( )	( )	( )	( )	( )	( )	( )
9. grateful.....	( )	( )	( )	( )	( )	( )	( )
10. inferior to the other(s).....	( )	( )	( )	( )	( )	( )	( )
11. enjoyment/fun.....	( )	( )	( )	( )	( )	( )	( )
12. unhappy.....	( )	( )	( )	( )	( )	( )	( )
13. enthusiastic.....	( )	( )	( )	( )	( )	( )	( )
14. embarrassed.....	( )	( )	( )	( )	( )	( )	( )
15. self-confident.....	( )	( )	( )	( )	( )	( )	( )
16. guilty.....	( )	( )	( )	( )	( )	( )	( )
17. lonely.....	( )	( )	( )	( )	( )	( )	( )
18. distressed.....	( )	( )	( )	( )	( )	( )	( )
19. elated.....	( )	( )	( )	( )	( )	( )	( )
20. emotionally secure with the other(s).....	( )	( )	( )	( )	( )	( )	( )

see reverse side

ID 0 1 2 3 4 5 6 7 8 9 | DAY 0 1 2 3 4 5 6 7 8 9 | PARTNER ID 0 1 2 3 4 5 6 7 8 9 | FORM 1 2 3 4 | DAY OF WEEK S M T W T F S

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Start of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME [ ] WORK [ ] RECREATION [ ] OTHER [ ]

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? ____

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
[ ]	[ ]	_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

If more than one person was present, fill in this bracket [ ]

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I showed impatience [ ]
2. I asked for a volunteer [ ]
3. I went along with the other(s) [ ]
4. I raised my voice [ ]
5. I gave information [ ]
6. I expressed reassurance [ ]
7. I gave in [ ]
8. I demanded that the other(s) do what I wanted [ ]
9. I set goals for the other(s) or for us [ ]
10. I pointed out to the other(s) where there was agreement [ ]
11. I spoke only when I was spoken to [ ]

How did you feel?

	Not at all 0	1	2	3	4	5	Extremely 6
1. happy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2. worried/anxious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3. proud	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4. frustrated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5. pleased	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6. angry/hostile	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7. joyful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8. depressed/sad	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9. grateful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10. inferior to the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11. enjoyment/fun	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12. unhappy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13. enthusiastic	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14. embarrassed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15. self-confident	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16. guilty	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17. lonely	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18. distressed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19. elated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20. emotionally secure with the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

see reverse side

Appendix B: Social interaction forms (1-4) used in Study 2

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 1

What time did the interaction begin? _____ am / pm Length of the interaction :_____minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ____home ____work ____recreation ____other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M F Supervisor Co-worker Supervisee Casual Aquaint Friend Romantic Partner Parent Sibling Other

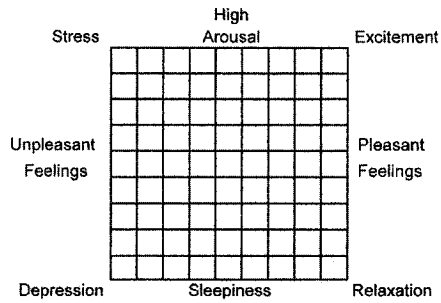
If more than one person was present, check here____ Please indicate the initials of the primary person _____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I listened attentively to the other(s)	[ ]
2	I tried to get the other(s) to do something else	[ ]
3	I let other(s) make plans or decisions	[ ]
4	I tried to get away or cut the interaction short	[ ]
5	I did not say how I felt	[ ]
6	I confronted the other(s) about something I did not like	[ ]
7	I expressed affection with words or gestures	[ ]
8	I spoke in a clear firm voice	[ ]
9	I withheld useful information	[ ]
10	I compromised about a decision	[ ]
11	I took the lead in planning/organizing a project or activity	[ ]
12	I avoided taking the lead or being responsible	[ ]
13	I ignored the other(s) comments	[ ]

How did you feel?	Not at all 0	1	2	3	4	5	Extremely 6
1 happy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 emotionally secure with the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 angry/hostile	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 criticized by the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 self-confident	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 unhappy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 joyful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 depressed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 self-conscious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 frustrated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 inferior to the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 enjoyment/fun	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 pleased	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed/ashamed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 fearful/afraid	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how you were feeling during the social interaction.



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 2

What time did the interaction begin? _____ am / pm Length of the interaction :_____minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ____home ____work ____recreation ____other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M F Supervisor Co-worker Supervisee Casual Aquaint Friend Romantic Partner Parent Sibling Other

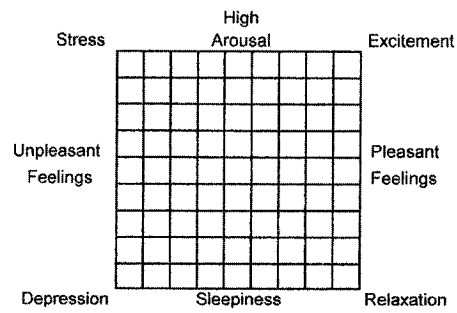
If more than one person was present, check here____ Please indicate the initials of the primary person _____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I criticized the other(s)	[ ]
2	I smiled and laughed with the other(s)	[ ]
3	I spoke softly	[ ]
4	I made a sarcastic comment	[ ]
5	I expressed an opinion	[ ]
6	I complimented or praised the other person	[ ]
7	I did not express disagreement when I thought it	[ ]
8	I gave incorrect information	[ ]
9	I got immediately to the point	[ ]
10	I made a concession to avoid unpleasantness	[ ]
11	I did not state my own views	[ ]
12	I tried to get away or cut the interaction short	[ ]

How did you feel?	Not at all 0	1	2	3	4	5	Extremely 6
1 happy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 emotionally secure with the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 angry/hostile	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 criticized by the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 self-confident	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 unhappy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 joyful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 depressed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 self-conscious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 frustrated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 inferior to the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 enjoyment/fun	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 pleased	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed/ashamed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 fearful/afraid	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how you were feeling during the social interaction.



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 3

What time did the interaction begin? _____ am / pm Length of the interaction :_____minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ____home ____work ____recreation ____other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M F Supervisor Co-worker Supervisee Casual Aquaint Friend Romantic Partner Parent Sibling Other

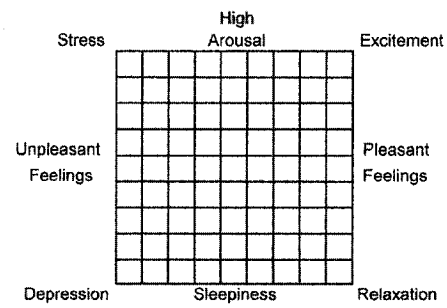
If more than one person was present, check here____ Please indicate the initials of the primary person _____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I waited for the other person to talk or act first	[ ]
2	I stated strongly that I did not like or that I would not do something	[ ]
3	I assigned someone to a task	[ ]
4	I exchanged pleasantries	[ ]
5	I did not say what was on my mind	[ ]
6	I did not respond to the other(s) questions or comments	[ ]
7	I made a suggestion	[ ]
8	I tired to get away or cut the interaction short	[ ]
9	I showed sympathy	[ ]
10	I did not say what I wanted directly	[ ]
11	I discredited what someone said	[ ]
12	I asked the other(s) to do something	[ ]
13	I spoke favorably of someone who was not present	[ ]

How did you feel?	Not at all 0	1	2	3	4	5	Extremely 6
1 happy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 emotionally secure with the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 angry/hostile	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 criticized by the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 self-confident	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 unhappy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 joyful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 depressed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 self-conscious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 frustrated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 inferior to the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 enjoyment/fun	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 pleased	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed/ashamed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 fearful/afraid	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how you were feeling during the social interaction.



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION **4**

What time did the interaction begin? _____ am / pm Length of the interaction :_____minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ____home ____work ____recreation ____other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M F Supervisor Co-worker Supervisee Casual Aquaint Friend Romantic Partner Parent Sibling Other

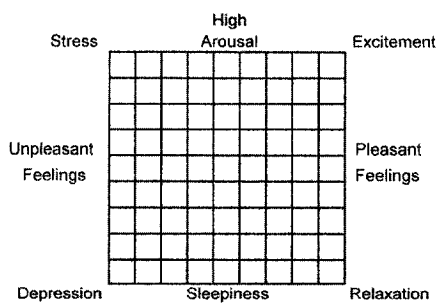
If more than one person was present, check here____ Please indicate the initials of the primary person _____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I tried to get away or cut the interaction short	[ ]
2	I showed impatience	[ ]
3	I asked for a volunteer	[ ]
4	I went along with the other(s)	[ ]
5	I raised my voice	[ ]
6	I gave information	[ ]
7	I expressed reassurance	[ ]
8	I gave in	[ ]
9	I demanded that the other(s) do what I wanted	[ ]
10	I set goals for the other(s) or for us	[ ]
11	I pointed out to the other(s) where there was agreement	[ ]
12	I spoke only when I was spoken to	[ ]

How did you feel?	Not at all 0	1	2	3	4	5	Extremely 6
1 happy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 emotionally secure with the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 angry/hostile	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 criticized by the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 self-confident	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 unhappy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 joyful	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 depressed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 self-conscious	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 frustrated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 inferior to the other(s)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 enjoyment/fun	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 pleased	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed/ashamed	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 fearful/afraid	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how you were feeling during the social interaction.



Appendix C: Ethics approval for Study 1 and Study 2