Social Anxiety: Perceptions of Impressions, Anxiety and Anxious Appearance

by

Khushnuma Amaria

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Doctor of Philosophy
in
Psychology

Waterloo, Ontario, Canada, 2008

AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.
I understand that my thesis may be made electronically available to the public.

Abstract

Schlenker and Leary (1982) and Clark and Wells (1995) each propose two highly influential models of social anxiety disorder with important implications for theory and treatment. In the current study, overlapping and competing cognitive components of these theories were tested with a focus on understanding the socially anxious (SA) individual's mental representation of self, and its relation to the experience of anxiety in a social situation. Unacquainted pairs of non-socially anxious individuals (n = 61 pairs) and mixed pairs of highly SA and non-socially anxious (NSA) individuals (n = 101 pairs) participated in a "get acquainted" and a structured problem-solving task. All participants rated both their expectations for making specific impressions as well as the importance of making those impressions. All participants also rated how anxious they felt, how anxious they thought they appeared, and how anxious their partners appeared during the interaction. While all participants believed it was important to make a positive impression, SA individuals expected they would make an overall less positive impression than NSA participants. All individuals reported increased anxiety when ratings of impression importance were higher than expectation ratings (test of Schlenker and Leary's [1982] model). While self-ratings of anxious appearance were similarly influenced by interoceptive information for both SA and NSA individuals (test of Clark and Wells' [1995] model), for NSA individuals who had a high tendency to attend to publicly observable aspects of their body, the relation between arousal and self-reported appearance was particularly robust in comparison with that for SA individuals. SA individuals as a group were rated by partners as appearing more anxious than NSA participants. Overall, NSA participants' ratings of a desire for future interaction

with SA and NSA partners were comparable. Implications for theory, measurement concerns

of key anxiety constructs, treatment implications and need for further investigation are

discussed.

Acknowledgements

My sincere thanks are given to a wonderful mentor and research supervisor, Dr. Jonathan Oakman, and to the members of my dissertation committee, Drs. Pam Sadler and Joanne Wood. I would also like to thank Dr. Erik Woody for his insight and review of earlier drafts of this work. My gratitude also extends to the University of Waterloo's Clinical Psychology department, friends and faculty alike, for their remarkable influence and guidance during my graduate training. Finally, I wish to convey my appreciation and give credit to my husband Vik and my family for their support, encouragement and pride in me throughout the years.

Table of Contents

List of Figures

List of Tables

Table 1. Factor Structure for SA, NSA and Combined Groups

Table 2. Combinations of Impression Factors used in Regression of Anxious Arousal

Table 3. Regression Models Examining Clark and Wells' (1995) Interoceptive Hypothesis

Table 4. Regression Models Examining Self-awareness in the Prediction of Self-reported Anxious Appearance from Arousal

Chapter 1

Introduction

1.1 Social Anxiety Disorder

Social phobia or social anxiety disorder is one of the most prevalent mental health disorders and the most commonly experienced anxiety disorder (Pollack, 1999). Characterized by an intense and persistent fear of social and performance situations (American Psychiatric Association, 2000), the individual with social phobia fears behaving in a humiliating way (Wells, 2000). Not surprisingly, the fear of being appraised negatively by others often leads these individuals to avoid evaluative and social events (Strahan & Conger, 1998). If the socially anxious (SA) individual tends to fear most social situations, he or she is likely to be experiencing the *generalized* sub-type of social phobia. Fear of a specific situation (e.g., eating in public places, public speaking) characterizes the second more specific sub-type of this disorder. In either case exposure to the feared social or performance situation almost always results in intense anxiety (American Psychiatric Association, 2000). This anxious reaction likely includes physical symptoms, such as sweating, blushing, or heart palpitations. The socially phobic individual is in an unenviable position: he or she fears being embarrassed and looking anxious in social settings, yet invariably experiences intense anxiety in such situations. The SA individual's reaction results in added fear that anxious arousal will be noticed which in turn may lead to more embarrassment, further negative evaluation, or loss of status (Scholing & Emmelkamp, 1990).

Most people fear being embarrassed when meeting a new individual or while performing a public speech. While these experiences may result in similar anxious reactions,

such as trembling or blushing, the non-social phobic's experience is unlikely to be of the same degree as the individual with social phobia (Wells, 2000). In addition to the anxious arousal and avoidance of feared situations, the socially phobic individual has marked distress about having the phobia itself. Adults with social phobia are aware that their fear is excessive or unreasonable, and experience clinically significant disruption to their social, occupational or daily routine (American Psychiatric Association, 2000). Without treatment, this disorder is associated with considerable lifetime distress and disability (Chapman, Mannuzza, & Fyer, 1995; Pollack, 1999).

1.2 Cognitive Models of Social Anxiety

One of the most influential cognitive models of social anxiety is that of Clark and Wells (1995). Clark and Wells describe their model of social phobia as a unique synthesis of earlier models including the theories of Beck, Emery, and Greenberg (1985), Leary (1983b) and Salkovskis (1991). As a result of previous experiences and innate behavioural predispositions, SA individuals are believed to develop specific assumptions about themselves and others which are then activated during social interactions. Moreover, during these interactions Clark and Wells suggest that socially phobic individuals are inclined to shift their attention inward and use self-monitoring of interoceptive information—that is, bodily sensations and feelings—to infer how they appear to others. The SA individual is primarily worried about looking anxious; he or she is concerned that the other person with whom he or she is interacting will see him or her as being anxious. Clinical observations suggest that these individuals commonly report the belief that looking anxious is equal to being incompetent or stupid. Not surprisingly, this tendency for a negatively biased

perspective and self-focused attention leads individuals to become increasingly vigilant about looking anxious (i.e., more self-focused).

In Clark and Wells' (1995) cognitive model of social anxiety, they suggest that "the core of social phobia appears to be a strong desire to convey a particular favorable impression of oneself to others and marked insecurity about one's ability to do so" (p. 69). In an earlier self-presentation model of social anxiety, first outlined by Schlenker and Leary (1982, p. 645; also presented in Leary, 1995), it is suggested that *social anxiety* occurs when individuals "are motivated to make a desired impression on others but doubt they will do so." Clark and Wells briefly recognize the role of impression expectations in their model, yet do not recognize the precise contribution of Schlenker and Leary!

In the Schlenker and Leary (1982) model, individuals are considered to be fearful of or worried about not being able to "pull off" their desired social impressions. Anxiety occurs in a social situation when people do not expect to meet desired impressions. To clarify, this model does not imply that individuals always want to make "good" impressions or expect to make negative impressions, as often misinterpreted (Leary & Kowalski, 1995). Individuals can experience social anxiety even when they are making good impressions (or not appearing anxious), if it is not the desired or particular impression they expect to convey. The main issue is a discrepancy between how important it is to appear a certain way and the expectations for such an appearance.

1.3 Impressions: Importance and Expectations

What type of impressions do SA individuals *want to* make and what type of impression do they *expect to* make? DePaulo, Epstein and LeMay (1990) showed that SA individuals

engage in "innocuous sociability" (Schlenker & Leary, 1982, p. 655) in socially evaluative situations. This behaviour typically includes nodding, smiling, expressing agreement, rarely interrupting, asking questions of others, and seldom volunteering information about oneself. Oakman, Gifford and Chlebowsky (2003) found that highly SA individuals do want to come across as warm and submissive, consistent with an innocuously sociable presentation. During an interaction, SA individuals appear to act in this manner with a newly acquainted individual, but Oakman et al. report that highly SA individuals think they appear cold and submissive during such a task. Similarly, Leary, Kowalski and Campbell (1988) showed that SA individuals expected to make more negative impressions than non-socially anxious (NSA) controls during brief and short interactions (for example, after split-second, a 5-minute get-acquainted task and following a 15-minute interaction). Specifically, SA participants expected to be judged as less friendly, socially skilled, warm, open, well-adjusted and interesting than NSA participants. The goal of the SA individual in an interpersonal situation might be to avoid making a bad impression, rather than actively making a good impression on interactants (Schlenker & Leary, 1982; 1985). This suggests that irrespective of the type of impressions, SA individuals do not expect to meet their own goals.

Wallace and Alden (1991) also demonstrated that SA individuals expected their performance to fall short of the expectations of others; despite the fact that they believed their abilities were equal to the abilities of most individuals. In this study, men low and high in social anxiety were asked to rate their ability to meet or exceed three standards of performance—their own, the performance of the average subject, and experimenter's

4

standards—only men low in social anxiety expected they would exceed all three standards. In comparison, highly SA men expected to meet their own personal standards and match the standards of the average subject, yet fail to meet the standards of the experimenter and others. It is important to emphasize that the highly SA men's and low SA men's ratings of the average person's achievement ability and experimenter standard were not significantly different. Rather, highly SA men rated their personal standard as significantly lower than the experimenters' in comparison to low SA men. On the surface, this finding implies that SA individuals are "harsh critics" of themselves, likely endorsing biased internal standards of performance, and the belief that they cannot meet others' standards. It is also possible that individuals at the low end of a social anxiety dimension hold standards that are "out-of-tune" with the standards that most other people hold for themselves—a positivity bias! In particular, these individuals with low levels of social anxiety believe that their ability to succeed in an interaction exceeds all other standards, even that of the average person.

There are a number of reasons why SA individuals may be concerned with making a negative impression. Leary (1983b) argues that avoiding social exclusion, one of the most important human drives, is responsible for this behaviour. Avoiding disapproval could also explain why individuals with social anxiety may behave in a withdrawn or *innocuous* way in socially evaluative situations (DePaulo et al., 1990). The strong desire to convey a particular impression may result from a belief that one is in danger of behaving in an incompetent and unacceptable fashion. More importantly, the individual with social anxiety believes that unskilled behaviour would result in disastrous consequences such as loss of status and worth, embarrassment and ultimately, rejection (Scholing & Emmelkamp, 1990). Appearing

anxious to others is feared by the SA person, since visibility of anxiety is believed to convey incompetence in social situations. Purdon, Antony, Monteiro and Swinson (2001) examined how the judgments of personal characteristics (e.g., intelligence, attractiveness) are affected by the perception of anxiety in others. Purdon et al. found that in general participants' perception of a target individuals' intelligence, ambition, reliability or mental health was not affected by his or her anxious appearance. However, highly SA participants judged individuals with visible signs of anxiety as less attractive and as having less strength of character than non-anxious individuals. Clearly, to the individual with SA making a negative impression has dire consequences for likeability overall.

Not surprisingly, concerns about making a negative impression or behaving in an unskilled manner also influence the SA individual's level of anxiousness and consequently, socially relevant behaviours (Otto, 1999). For example, if an individual with social anxiety believes he or she will say something inappropriate during a conversation, he or she may be so deeply engaged in monitoring his or her own thoughts before speaking that attending to the partner's speech is unmanageable. This belief results in additional anxious arousal, likely increases the risk of making "social" mistakes (e.g., forgetting what a conversational partner said!) and perpetuates the fear of making unfavourable impressions. DePaulo et al. (1990) have shown that SA individuals are more likely to speak about themselves in pallid and boring ways, and this tendency makes them less interesting to others. Undoubtedly, the importance one puts on making a particular impression can influence the actual impression he or she makes on others.

Attempts to curb anxiety in social interactions, or "safety behaviours," can also have further deleterious effects on impression formations. The process of monitoring one's thoughts could be considered a type of safety behaviour. Other safety behaviours include, for example, avoiding eye contact, rehearsing sentences before speaking or talking only briefly with the intention of preventing oneself from behaving awkwardly (Alden & Bieling, 1998). Although safety behaviours serve to lessen anxiety during anxiety-provoking social situations, in the long run they are believed to upkeep negative expectations by serving as what Otto (1999) describes as "lucky escapes" (p. 15). To illustrate, if Sally is concerned about her hands shaking during a conversation; she may clench a cup to disguise the trembling. Nonetheless, her underlying negative beliefs—that an unsteady hand is a sign of appearing anxious and that appearing anxious is equivalent with incompetence—still exist. Such experiences also lead to further avoidance of social interactions on the whole, as well as the continued use of other safety behaviours during social encounters.

Without a doubt, understanding the role of impression importance and expectations is essential in appreciating cognitive models of social anxiety. Two key models, Schlenker and Leary's (1982) and Clark and Wells' (1995), make distinctive predictions about the role of expectations for and importance of social impressions in this disorder. Schlenker and Leary's model implies that social anxiety will occur whenever a person's expectations for making an important impression are discrepant from their beliefs about making that impression. Therefore, many individuals are likely to experience anxious symptoms during social situations whenever an incongruity occurs between these beliefs and their expectations. Clark and Wells' model, on the other hand, suggests that only highly SA

individuals believe that they are likely to act in an unskilled and unacceptable manner before entering a social situation. That is, they hold a negatively-biased expectation of themselves prior to an interaction. Although these predictions vary, it is possible to empirically test the role of impression importance and expectations, and the implications for these both models.

Ultimately, to understand social anxiety disorder, the role of impression importance and expectations must be explored. This need would be in addition to understanding the role one's actual experience—that is one's beliefs about how they presented during an interaction plays in this disorder. Schlenker and Leary make few predictions about the role of anxiety during an interaction and subsequent influence on future expectations. In contrast, Clark and Wells' (1995) theorize that individuals with SA hold negatively biased expectations and that these views are then believed to be exacerbated by the invariable presence of somatic symptoms of anxiety—that is interoceptive information—in a social encounter. Again, these differences are testable and exploring these concepts will assist in explaining key features of a cognitive model of social anxiety.

1.4 Investigating Clark and Wells' (1995) Model

At the time of publication, Clark and Wells (1995) reported that no studies directly investigated whether social phobics use interoceptive information when developing an impression of how they are viewed. To date, there is *indirect* evidence consistent and inconsistent with this model from studies of attentional, perspective-taking and memory biases in SA individuals.

1.4.1 Indirect Evidence for Clark and Wells' (1995) Model

1.4.1.1 Self-Focused Attention

Heightened self-focused attention in SA individuals has been repeatedly cited as evidence for Clark and Wells' (1995) model (Spurr & Stopa, 2002). If individuals with high levels of social anxiety can be shown to have a tendency to be more self-focused (often implied by the absence of other-awareness), Clark and Wells' interoceptive hypothesis would be supported. However, an important distinction can be made between two kinds of self-focused attention. Private self-consciousness refers to a person's tendency to focus internally and reflect on inner thoughts and feelings (Fenigstein, Scheier & Buss, 1975). In contrast, public self-consciousness is associated with a tendency to be concerned about making a good impression on others (Fenigstein et al., 1975). According to the Clark and Wells' model, social anxiety should be clearly associated with a tendency to be concerned about how others view oneself *and* a tendency to be more internally self-focused (i.e. both public and private self-consciousness). Fenigstein et al. (1975) found that social anxiety correlates with public self-consciousness ($r[452] = .21$, $p < .01$), but not private self-consciousness ($r[452] = .11$, *ns*). Likewise, Hope and Heimberg (1988) demonstrated that public, not private, self-consciousness is associated with social anxiety ($r[44] = .68$, $p < .00$ and $r[44] = -.12$, $p > .05$, respectively). Of note, Hope and Heimberg showed that there were individual differences in levels of public self-consciousness among their highly SA sample, suggesting that high public self-consciousness is not a "prerequisite" for social anxiety disorder.

9

Understanding the role of heightened self-focused attention in social anxiety research becomes increasingly muddled given the possibility that being in a state of anxiety or distress causes heightened self-focused attention (e.g., Wood, Saltzberg, Neale, Stone & Rachmeil, 1990), rather than self-focused attention bringing about anxiety—as Clark and Wells (1995) would predict. Woody (1996) appears to have completed one of the first studies examining the causal role of self-focused attention in social anxiety disorder (Brown & Stopa, 2007). Participants were asked to give a speech about themselves or about another participant standing before an audience. She found that self focus increased visible anxiety (rated by individuals with social phobia and non-anxious observers), consistent with the Clark and Wells' (1995) model, but this only occurred when participants were in a passive role during the task. Self-focused attention did not affect social performance as might be expected. Bogels and Lamers (2002) criticized Woody's study noting a lack of a control group, leaving it unclear if a similar result would be found for individuals with moderate or low levels of social anxiety also.

Following Woody (1996), Bogels and Lamers (2002) conducted a study examining self-focused attention with the inclusion of a control group. They showed that increased self-awareness led to higher reports of social anxiety for both individuals high and low on a fear of blushing scale. (Interestingly, increased task-focused attention was shown to reduce subjective social anxiety). Bogels and Lamers also examined whether the effects of attentional focus would mediated by trait levels of social anxiety and the type of social feedback information provided. Specifically, they expected that increased self-focused attention would lead to higher anxiety symptoms when there is positive social feedback and

only for those individuals with high trait levels of social anxiety. According to Clark and Wells (1995) such a mediation relation should exist for SA individuals only, as it is believed that excessive self-focused attention leads to ignorance of positive social feedback. In contrast, Bogels and Lamers found that self focus alone led to negative social evaluations and this was independent of trait levels of social anxiety. In sum, the studies of Woody (1996) and Bogels and Lamer (2002) do not provide strong support of Clark and Wells' predictions of a *unique* and *unfavourable* role of self-focused attention for individuals with social anxiety.

1.4.1.2 Negative Attentional Biases

Another avenue of empirical investigations for Clark and Wells' (1995) model comes from studies examining attentional biases away from negative social cues in highly SA and social phobic individuals. Clark and Wells suggest that SA individuals' tendency for self-focused attention leads to the use of interoceptive information to judge oneself, at the expense of attending to the behaviour of others (e.g., audience members, interaction partners). They suggest that individuals with SA would hold a bias away from attending to "threatening" negative social cues in experimental and real-world paradigms. However, the literature examining such attentional biases is inconclusive and susceptible to external validity concerns (Amir & Foa, 2001).

Studies in support of a negativity bias have compared attention to threatening and non-threatening words using "emotional" Stroop tests and dot-probe paradigms (for reviews

see Mathews, 1997 and Williams, Watts, MacLeod, & Mathews, 1988).[1] For example, Yuen

(1994 as cited in Clark & Wells, 1995) used a modified version of MacLeod, Mathews and

Tata's (1986) dot-probe task with emotional faces to demonstrate that high social anxiety is

associated with an attentional bias away from negative social cues—consistent with Clark

and Wells (1995) predictions.   Subsequently, Mansell, Clark, Ehlers and Chen (1999)

replicated and extended Yeun's (1994 as cited in Clark & Wells, 1995) findings, suggesting

that SA individuals show an attentional bias away from positive *and* negative emotional

stimuli. Finally, using a similar paradigm, Bradley, Mogg and Lee (1997, experiment 1)

failed to find any attentional bias in individuals scoring high on the Fear of Negative

Evaluation scale (FNE; Watson and Friend, 1969). These key studies demonstrate the

inconsistent support for Clark and Wells' beliefs about attentional biases away from negative

cues in such experimental attention tasks.

　　　　Similar inconsistent evidence for attentional biases is also found with other visual

search tasks believed to more closely replicate real-word scenarios (yet with weak external

validity). Recently, Eastwood et al. (2005) gave a face-in-the-crowd visual search task to

individuals with generalized social phobia. Participants were asked to find the unique face

image (either positive or negative) in an array of images as accurately and quickly as

possible. Individuals with social phobia tended to locate negative faces faster than positive

---

[1] *Both Stroop and dot-probe tests are widely used measures of interference and allocation of
attention. An emotional Stroop test involves the presentation of emotional words in place of the
typical colours, with slowness in response times to emotion words believed to be a result of emotional
relevance of the target presented. A typical dot-probe test would involve the brief presentation of two
targets one above the other, followed by a dot in one of the spatial locations of the targets. An
emotional dot-probe task would use faces depicting emotions, and differences in reaction times to
detecting the dot indicative of emotional biases.*

faces, suggesting a bias towards detecting negative information is present. In contrast, Horley, Williams, Gonsalvez and Gordon (2003) examined the visual attention of individuals with and without social phobia. Participants' patterns of eye movements and fixations to face stimuli were examined. In comparison with controls, individuals with social phobia tended to avoid fixating on salient facial features, such as targets' eyes, and overall spent less time fixated on any specific features. Again, these studies do not make clear conclusions in understanding the role of attentional biases in social anxiety disorder.

Finally, attentional biases have also been studied in experimental paradigms with stronger external validity, yet with similarly inconsistent support for Clark and Wells' (1995) model. For example, Veljaca and Rapee (1998) report that individuals with social anxiety are more accurate at detecting negative audience behaviours than individuals with low social anxiety. Seventeen SA participants and 14 individuals low in social anxiety (all female) were asked to present a 5-minute speech to an audience composed of confederates and the experimenter. Audience members were trained to behave in a friendly but reserved manner and exhibit specific positive and negative socially evaluative behaviours, such as smiling or yawning at a rate of one behaviour per minute. While presenting the speeches, participants indicated when they detected positive or negative behaviours with hand-held devices. In comparison to low SA participants, high SA individuals were better at detecting negative social response from an audience. Overall, all these studies of biases highlight the uncertainty in understanding the role of self-focused attention in this disorder.

13

1.4.1.3 Perspective-taking

Perspective-taking studies are typically used to examine the presence of biases in SA

individuals' memory of social encounters, providing another way in which self-focused

attention can be indirectly examined. According to the Clark and Wells' (1995) model, SA

individuals are likely to remember social events from an observer perspective that is from an

external point of view (rather than "through their own eyes") because they are not attending

to external events. A number of studies have been shown to provide support for this aspect

of Clark and Wells' model. For example, Wells, Clark and Ahmed (1998) asked 12 social

phobics and 12 normal controls to recall an image from a recent social situation and non-

social situation in a counterbalanced manner. Participants were asked to rate the degree of

observer versus field perspective in their images, that is, whether they were entirely looking

out through their own eyes (i.e., field perspective) to entirely observing themselves from an

external point of view (i.e., observer perspective). In comparison to normal controls, socially

phobic individuals were more likely to take an observer perspective in social situations and a

field perspective in non-social situations. Wells and Papageorgiou (1999) extended these

findings using a similar procedure, but with anxious controls (i.e., patients with blood/injury

phobia). Again, only participants with social phobia used the observer perspective when

recalling an image of a recent anxiety-provoking social situation. In general, these findings

suggest that SA individuals are not attending to information outside of themselves, but seeing

themselves as an outsider in the field would (i.e., perspective of the observer rather than of

the field). Overall, the presence of such perspective taking biases is considered indirect

evidence that the SA individual is focused on the self (i.e., internally self-focused) during a social interaction.

The role of the observer and field perspective during an in vivo rather than recalled event has also been examined. Coles, Turk, Heimberg and Fresco (2001) examined the use of the observer versus field perspective on anxious arousal and self-ratings of performance. High and low SA participants completed a 2-minute speech either while being asked to take either a field or observer perspective. For both groups, using an observer perspective was associated with more safety behaviours, more frequent negative thoughts and worse self-evaluation compared to using the field perspective. Although not significant, there was a trend indicating that only the observer perspective was related to increased anxious arousal. Coles et al. were unable to compare self evaluations of performance with independent ratings (due to low inter-rater reliability); however, they predicted that in comparison to NSA participants, SA individuals' self-ratings would be worse than *true* "observer" ratings. In combination with evidence indicating that people with social phobia are also prone to spontaneous images of social situations from the observer perspective (e.g., Hackmann, Surawy, & Clark, 1998), this suggest that individuals with social phobia are not paying attention to, and thus not recalling, external information.

1.4.1.4 Memory Biases

Tests of memory for details of social interactions has also been reported by Clark and Wells (1995) to serve as support that SA individuals tend to focus inwardly during a social event. Once again though, the findings are inconsistent across similar studies. Hope, Heimberg, and

Klein (1990) showed that highly SA individuals' memory for details of social interactions was poorer than low SA individuals. Kimble and Zehr (1982) and Daly, Vangelisti and Lawrence (1989 as cited in Wells, 2000) found similar results. In contrast, Stopa and Clark (1993) found no differences in memory for the social environment for SA individuals, anxious controls and normal controls. Following an interaction with a confederate, participants were asked to freely recall the conversation and were presented with a recognition memory test of stimuli present during the interaction (e.g., an umbrella in room, the number of rings on confederate). If SA individuals were engaging in increased self-focused attention, they were expected to have memory deficits in their recall of the conversation or environment in comparison to control participants. No differences emerged between groups on either the free recall or recognition tests. Similarly, Rapee, McCallum, Melville and Ravenscroft (1994) failed to find any biases for negative/threatening information in a series of four studies examining recall and recognition memory. Clark and Wells' model predicts that SA individuals focus inwardly during interactions and that this tendency affects their memories for information in such interactions. However, this brief summary of studies of memory biases emphasizes the difficulty in finding non-equivocal support for the inward-focus aspect of the Clark and Wells' model.

To reiterate, at the time of publication, Clark and Wells' (1995) cited numerous studies that *indirectly* support their view that social phobics use interoceptive information when developing an impression of how they are viewed. However, a review of studies since that time—specifically examining attentional bases, perspective taking, and memory biases studies—repeatedly demonstrates inconsistencies with this literature.

16

1.4.2 Direct Evidence for Clark and Wells' (1995) Model

To adequately examine how SA individuals experience and judge themselves in social

situations, we have to *directly* examine the development of self-perceptions. Typically, this

type of research compares the self-ratings made by SA and NSA individuals, or compares the

SA individuals' rating of themselves with the ratings made of them by an interactant or

observer during a social interaction. Clark and Wells' (1995) model proposes that the SA

individuals' self-perspective is distorted in comparison with the ratings made by others.

They suggest that distortion is the result of invariably heightened level of anxious symptoms

experienced by the SA individual, and use the distortion literature to support their argument

that attention to anxiety leads to an inaccurate perspective. A brief review of studies with

direct evidence for Clark and Wells' (1995) model is described below. Again, the direct

evidence in support of Clark and Wells' model is mixed.

One of the earliest studies in support of Clark and Wells' (1995) model comes from

Clark and Arkowitz (1975). In their study, Clark and Arkowitz compared the self-

evaluations of high and low SA men following an open-ended conversation with a female

confederate. The conversations were audio-taped and trained judges rated performances in

terms of (visible) social anxiety and social skills for participants and confederates (note, that

the same dimensions were used in self-evaluation ratings). Discrepancy scores between

judges' mean ratings and participants' mean ratings were calculated. In comparison to low

anxious individuals and confederates, participants high in social anxiety tended to

overestimate the level of anxiety visible in their performance in comparison to judges'

ratings; however, the one-tailed *t*-test results only approached significance ($t[12] = 1.60$, $p <$

.10). Social skills were underestimated in comparison with judges' ratings for high SA individuals, while low anxious controls overestimated their social skills. Consistent with Clark and Wells' model, highly SA participants felt and believed they presented as more anxious than as judge by others. Of note, the judges' ratings were based only on audiotapes of the conversations, and therefore, inform us of discrepancies in self-ratings of verbal performance, and not visibility of anxious appearance per se. For the most part, Clark and Wells' model seems to include a more broad view of self-perspectives of anxious appearance.

A study by Rapee and Lim (1992) examined visibility of anxiety and has repeatedly been cited as evidence for distorted perception of social performance (e.g., Alden, Mellings & Ryder, 2001; Clark & Wells, 1995). Rapee and Lim examined self and observer-ratings of performance in individuals with social phobia in comparison with non-clinical controls. Twenty-eight people with social phobia and 33 non-clinical controls presented an unrehearsed speech in front of an audience composed of social phobic and non-social phobic controls. Participants and audience members rated speech performance specifically (e.g., kept eye contact with audience) and globally (e.g., generally spoke well). Social phobics tended to have greater discrepancies between self- and observer-ratings in comparison with controls, yet this difference was only detected for global, not specific, ratings of performance. It is important to highlight that all participants' self-ratings were worse (i.e., more negative) than observer-ratings rather than only those ratings from SA individuals. The role of experiencing anxiety in the development of self-perceptions remains unclear.

Another study in support of Clark and Wells' (1995) discrepancy theory was a study by Alden and Wallace (1995). They demonstrated that social phobics overestimated the visibility of their anxiety following a 5-minute interaction with a confederate in comparison with non-social phobic controls. Behavioural ratings of the participants' non-verbal signs of anxiety, positive non-verbal behaviours, verbal behaviours, and likeability, were completed by the participant, confederate and experimenter. Alden and Wallace found that in comparison with the experimenter ratings, both SA and control participants overestimated the visibility of their anxiety and underestimated their likeability regardless of the way the interactant presented (e.g., warm and friendly versus cold and unfriendly). In addition, social phobic individuals overestimated their anxious behaviour more than control subjects. As with the previously described studies, the artificial nature of the interaction (e.g., use of a confederate), plus the use of only one independent observer, clearly limits the external validity of the study.

The above three studies suggest that SA individuals may hold a pervasive tendency to be negative in their self-evaluations; yet, there is also evidence to the contrary. For example, in Strahan and Conger's (1998) study, high and low SA men were videotaped while being interviewed by an attractive woman. There was no difference in self-ratings of content, fluency, nonverbal competence, and global competence between high SA and low SA groups. Woody and Rodriguez (2000) also failed to find evidence of distorted self-perception. In their study, SA participants' ratings were similar to observer-ratings, in comparison with control participants' overestimates of how well they performed during an interaction. This latter finding suggests that SA individuals may not hold a pervasive

negativity bias; rather NSA individuals may hold a tendency for a positive bias in their self-evaluations! Similar evidence for NSA individuals to make positive interpretations in ambiguous situations has been produced (see Hirsch, Mathews & Clark, 2007 for recent review).

To this point, the studies described focus on understanding the SA individuals' self-perceptions relative to outside perspectives or in comparison to NSA individuals. In one way, Clark and Wells (1995) might argue that SA individuals' experience of interoceptive anxiety is so overwhelming that they expect it to "leak out" and be readily visible to others—more so than actually judged by observers in a situation—leading to discrepancies in perspectives.   However, the evidence to date serves as only indirect correlational evidence indicating that SA individuals' self-perspectives may be the result of using interoceptive information. There are some studies that do examine self-perspectives and the particular role of anxious arousal in the development of these views. Once again, the evidence in support of the Clark and Wells' model is inconclusive.

McEwan and Devins (1983) examined the role of anxious arousal, self-ratings and observer-ratings in what they believed to be more naturalistic settings than most studies. Highly SA and NSA participants were asked to rate how publicly noticeable they believed their anxiety was to others. Friends of the participants were also contacted and asked to rate visibility of anxiety of the participants in everyday settings. The sample of highly SA participants were also divided into those experiencing low and high somatic symptoms (as measured by the Bodily Change Form; Tyrer, 1976). Only individuals who reported a tendency to experience a high number of somatic symptoms during social situations tended

20

to overestimate visibility of their anxiety in comparison with judgments made by friends. This finding suggests that SA individuals who experience high arousal and awareness of somatic symptoms may be relying on their internal arousal to make estimates of their level of visible anxiety. SA individuals who experience low arousal are expected to make more accurate predictions of their visibility of anxiety. It is important to note that individuals were reporting on anxiety in everyday interactions, and the tendency to believe anxiety was visible was not directly measured during a controlled social encounter.

Mansell and Clark (1999) attempted a similar investigation of interoceptive awareness during controlled experimental encounters. In Mansell and Clark's study, high and low SA individuals made global and specific self-judgments about their appearance and performance following a 2-minute speech to a video camera. These judgments were compared with observer-ratings of the taped speech. Participants also rated the degree to which they noticed bodily sensations (using the Autonomic Performance Questionnaire; Bergman & Johnson, 1971) during the speech. The results indicate that highly SA participants overestimated the degree to which they appeared anxious. Moreover, self-ratings were correlated with the degree to which participants noticed body sensations for only the high SA group. These results are consistent with Clark and Wells' (1995) hypothesis that highly SA individuals use interoceptive information to make global judgments about how they appear. Interestingly, participants also made specific ratings about their behaviour during the speech (e.g., left long gaps during conversation). Correlations between specific negative ratings and perception of body sensations were similar for high and low SA individuals (r = .69 and .67, respectively).

This suggests that SA individuals and those low in social anxiety equally attend to interoceptive information when making judgments about specific negative behaviours.

Mellings and Alden (2000) also found evidence that SA individuals overestimated the degree to which they appeared anxious in comparison with observer-ratings, likely as a consequence of increased self-focused attention and decreased external focus. In their study, individuals either high or low in social anxiety were involved in a conversation with a confederate. Participants completed measures of anxious appearance (i.e., eye contact, pauses in speech, fidgeting), self-focused attention, anxiety-related physiological symptoms, and open-ended and structured recall of information from the conversation. Highly SA individuals were found to be more self-focused and to report significantly more anxiety-related sensations than their low SA counterparts. In comparison with objective ratings of their anxious appearance, all individuals were found to overestimate the appearance of anxiety-related behaviour (e.g., fidgeting)—although the overestimation bias was greater for high SA than low SA participants. The difference between subjects' self-ratings and objective ratings of anxiety was positively correlated with self-focused attention scores and negatively correlated with recall of information from the conversation. In sum, only participants who reported more self-focused attention were likely to judge themselves as more anxious than reported by observers and to recall less information about their partner. Mellings and Alden argue that the increase in self-focused attention likely makes anxiety-related behaviours more salient than external information. Although the finding is consistent with Clark and Wells' (1995) predictions, the contributing role of anxiety-related physiological symptoms in these judgments was unclear. In addition, the overestimation bias

shown by SA individuals was in comparison to individuals at the extreme low end of a social anxiety measure.

In a similar study, Alden and Mellings (2004) examined sources of information in individuals' ratings of their performance during a conversation. Twenty-five individuals with generalized social phobia and community controls interacted with a confederate for five minutes and then made ratings of their global performance. They were also asked to rate the degree to which they used self-related information (verbal behaviour, anxiety-related behaviour, pro-social behaviour and subjective anxiety) and partner-related information (partner interest, partner comfort) to arrive at their decisions. In comparison with the control group, participants with social phobia reported that their self-judgments derived heavily from self-related, rather than partner-related information. Specifically, individuals with social phobia used inner emotions (subjective anxiety) and how anxious they believed they appeared (anxiety-related information) when making judgments. These sources of anxiety are consistent with the interoceptive hypothesis of Clark and Wells (1995) suggesting that SA individuals largely ignore information from others when deriving how they appear.

As shown above, the tendency for SA individuals to overestimate appearance of anxiety relative to observer-ratings has been demonstrated repeatedly with mostly correlational studies. Papageorgiou and Wells (1997 as cited in Mansell & Clark, 1999) presented findings at the British Association for Behaviour and Cognitive Psychotherapy that included an experimental manipulation. High and low SA participants were told that their heart rate had increased prior to engaging in a socially evaluative conversation. Low SA individuals made accurate estimates about how they appeared to others, while high SA

23

individuals underestimated how well they came across. Papageorgiou and Wells suggest that either the increased awareness of or attention to somatic symptoms (viz., heart rate) leads highly SA individuals to make distortions in self-perception relative to the views of others. However, the inference from this study is provisional, as we do not know what type of ratings participants would make without the experimental manipulation in place.

In a follow up study, Wells and Papageorgiou (2001) once again attempted to demonstrate experimentally that interoceptive information affects the SA individuals' self-perceptions. Eight individuals diagnosed with social phobia were asked to converse with a confederate. Prior to the conversation, subjects were told that their pulse rate had either increased or decreased. Participants who were told that their pulse rate increased experienced more anxiety and more self-focused attention than participants in the decreased pulse-rate condition. The participants in the increased pulse rate group also reported more idiosyncratically derived negative beliefs, such as "I'll blush and people will think that I am anxious" during the conversation. Observers rated participants in the decreased condition as less visibly anxious than participants in the increased pulse rate group. Despite the small sample size, these findings initially appear to lend support to Clark and Wells' (1995) model. However, it should be noted that Wells and Papageorgiou did not measure *actual* increases or decreases in participant pulse rates. According to the Clark and Wells' hypothesis SA individuals are believed to be using current interoceptive information in their self-ratings; that is, individuals who have lower levels of anxious arousal should report less visible anxiety. In this experiment, it is not clear if the explicit manipulation caused an increase or

24

decrease in participants' heart rates, nor how this may have affected their perceived level of anxious arousal and subsequently their self-perceptions.

In 2002, Papageorgiou and Wells repeated this study while monitoring heart rates to control for potential effects of the feedback manipulation on actual arousal, using individuals low and high on social anxiety (i.e., bottom and top quartile of selection measure). They showed that there were no effects of feedback from the manipulation. Papageorgiou and Wells report that these results were consistent with Clark and Wells' (1995) model, such that individuals provided with information stating their heart rate increased reported worse performance than individuals who did not receive this manipulation. It should be stressed that this study shows that the *belief* that one's heart rate increased, that is an overt shift in attention to internal information—not the presence of interoceptive arousal per se—was associated with the development of self-appearance judgments. The latter finding would be consistent with Clark and Wells' model as they argue that individuals with social anxiety use their arousal in making erroneous judgments.

1.5 Role of Self- and Body-Consciousness in Self-ratings of Appearance

A number of the studies described above imply either that SA individuals may be more sensitive than NSA individuals to interoceptive information when making self judgments of performance or that SA individuals may hold beliefs that internal information (such as thoughts and feelings) is readily available for others to detect. The question of whether SA individuals are more aware of internal sensations in comparison with NSA individuals remains unexamined. More importantly, the basic question of whether sensitivity to

interoceptive information is related to judgments about anxious appearance has also not been explored.

Individuals high in private body-consciousness are inclined to focus on internal sensations, and attend to this information more than individuals low in this trait (Miller, Murphy & Buss, 1981). In contrast, individuals high on public body-consciousness are inclined to focus on observable aspects of body (e.g., appearance, manner, style of behaviour). As an aside, private body-consciousness is moderately correlated with *private self-consciousness* (r = .37 to .45 for men and women respectively, p < .01), and considered to be a distinct personality disposition. On the other hand, public body-consciousness and *public self-consciousness* are more strongly correlated (r = .71 and .66 for men and women respectively, p < .01), suggesting these scales are measuring similar personality constructs (Miller et al., 1981). Miller et al. demonstrated that individuals who are high on private body-consciousness are more sensitive to changes in their bodily state (following caffeine ingestion) than individuals low on this trait.

In harmony with Clark and Wells' (1995) model, one might suspect that highly SA individuals are prone to focusing on internal sensations. That is, we would expect that SA individuals would be predisposed to focus on appearance and outward behaviour (viz., public body-consciousness) *and* inclined to focus on internal sensations (viz., private body-consciousness). On the contrary, Miller et al. (1981) note that private and public body-consciousnesses traits are unrelated to social anxiety (r ranges from .1 to .15, *ns*). Using a larger sample (n = 266), Leary and Kowalski (1993) found a significant correlation (p < .01) between social anxiety and body-consciousness; yet, the strength of the correlation was weak

(r = .16). The above findings do not support the view that SA individuals are predisposed to be more aware of internal sensations, although it is possible that SA individuals only have a tendency to focus on internal sensations *during* social interactions (as addressed below).

To understand the role tendencies to focus on external and internal information may play in Clark and Wells' (1995) model, a review of often confusing terms and literature related to self focus is required. Self focus can be public or private and situational (a.k.a., in-situation) or trait-like (i.e., dispositional; Govern & Marsch, 2001). *Public self-awareness* is a situational tendency to focus one's attention on observable aspects of self, akin to private self- and body-consciousness, but examined in the moment (Govern & Marsch, 2001). Similarly, while private self- and body-consciousness are considered dispositional features (Fenigstein et al., 1975), *private self-awareness* is the situational tendency to focus on internal (non-observable) information (Buss, 1980). Public self-awareness has been repeatedly shown to be induced through various manipulations, such as presence of a video camera (e.g., Alden, Teschuk & Tee, 1992) or full-length mirror (e.g., Webb, Marsh, Schneiderman & Davis, 1989 as cited in Govern & Marsch, 2001).   Private self-awareness is typically induced when individuals are asked to speak about themselves and focus on thoughts and feelings (e.g., Webb et al., 1989 as cited in Govern & Marsch, 2001). [2]

---

[2] *The literature on self-awareness becomes increasingly difficult to disentangle as many of the key variables as mentioned are both dispositionally and situationally measured, as well as identified by outwardly different scales that have only marginal differences (Govern & Marsch, 2001). The overlap between self-focused attention, body- and self-consciousness, and awareness will become clear as an example of this problem. In the current study, we use the term 'self-awareness' to refer in general to the collective tendencies to experience body- or self-consciousness.*

Ostensibly, these private and public self-awareness states and traits (i.e., self- and body-consciousness) are important factors contributing to Clark and Wells' (1995) model, as it is believed that SA individuals experience increased self focus during social interactions, simultaneously developing negative self-impressions. George and Stopa (in press, as cited in Brown & Stopa, 2007) showed that public self-awareness increased for both high and low SA individuals following two types of self focus manipulations (mirror and video) during a conversation with a stooge. As well, private self-awareness decreased for the low SA individuals and was unchanged for the high SA group during the interaction.

Social psychology provides two concepts that may provide insight into how SA individuals develop these impressions: illusion of transparency and spotlight effect. The illusion of transparency phenomenon suggests that people tend to overestimate the extent to which others can read their internal states (Gilovich, Medvec & Savitsky, 1998). This systematic bias—believing that one's thoughts, feelings, and emotions are detectable by others—is demonstrated in studies examining distortions between self- and observer-ratings of performance (Brown & Stopa, 2007). Lederman, Savitsky and Gilovich (1998) note that individuals recognize that internal information is not readily available to others, yet continue to hold the belief that their thoughts and emotions are visible. Gilovich et al. suggest that individuals "anchor" their judgments of how they appear to others based on their own subjective experience. Although individuals try to take the perspective of others when making these judgments, they remain egocentrically biased (Gilovich and Savitsky, 1999). Spotlight effect refers to one's tendency to overestimate how much others attend to one's own external appearance (Gilovich, Medvec & Savitsky, 2000). This could, for example,

include believing that everyone will notice your awkward haircut or stained clothes, and overestimating how often this would actually happen.

Both the illusion of transparency and spotlight effect phenomena are usually measured by comparing individuals' estimates of internal or external states to an observers' rating (quite similar to the Clark and Wells' [1995] discrepancy literature; Brown and Stopa, 2007). It is important to stress that these phenomena are not specific to individuals with high levels of social anxiety; rather they are shown to affect all individuals. Brown and Stopa report that they provide the only study examining the spotlight effect and illusion of transparency for individuals with moderate to high social anxiety. Overall they found that these individuals experienced more spotlight effect in high social-evaluation (i.e., high evaluative threat) than low social-evaluation (i.e., low evaluative threat) conditions, and that the experience of the spotlight effect was *not* positively associated with trait social anxiety levels (as expected). Illusion of transparency effects were also present, but surprisingly not influenced by type of social-evaluation. They compared this latter finding to those shown for NSA individuals by Vorauer and Ross (1999), noting that illusion of transparency increased under high socially threatening conditions. Given the consistency in illusion of transparency levels across evaluative conditions for SA individuals, Brown and Stopa suggest illusion of transparency phenomenon may be a more *trait-like* feature of social anxiety disorder. They add that self-awareness leads to illusion of transparency effects and imply that self-awareness is also more trait-like than believed. Finally, Brown and Stopa conclude that the Clark and Wells' model may provide a reasonable framework to determining the type of internal information that is required to develop a representation of how anxious one looks. However,

29

they state that Clark and Wells' model would likely benefit from inclusion of internal and external focusing of attention tendencies (such as spotlight effect and illusion of transparency); factors that have been neglected in their theory. Nevertheless, these studies alert us to consider that attentional processes, such as a tendency to focus on internal information, may not be exclusive to only highly SA individuals.

In sum, to develop a strong understanding of the kinds of mental representations individuals with SA hold about themselves, we need to investigate the role anxious arousal plays in developing these representations and explore the role of trait-like features that might influence anxious symptomatology. As reviewed, indirect studies (viz., perspective-taking, memory biases) and direct studies of self-perception have yielded mixed support for Clark and Wells' (1995) model of social anxiety. Although the role of anxious arousal has been explored in limited studies, there is little known about how other trait-like individual differences in self-awareness might affect the relation between interoceptive information and self-perceptions. The influence of trait-like symptoms on anxious arousal has not necessarily been examined with other investigations of self-perspectives. Clearly, further investigation that integrates these key areas is required.

1.6 Limitations with Current Studies

The preceding review of studies highlights a number of methodological limitations with the existing literature. These limitations include the widespread use of only confederates (e.g., Alden and Wallace, 1995), control groups composed of individuals very low on social anxiety (e.g., Clark and Arkowitz, 1975), scripted "unnatural" interactions (e.g., Mellings and Alden, 2000) and small sample sizes (e.g., Wells and Papageorgiou, 2001). As well,

participants' self-ratings are frequently compared to the ratings made by others in the interaction or blind observers (e.g., McEwan & Devins, 1983; Woody & Rodriguez, 2000), but rarely are comparisons made by both parties within and outside of the direct interaction. Finally, while visibility of anxious appearance of others is believed to have dire consequences, the role of the raters' own anxiety when making judgments is commonly overlooked (e.g., with the use of blind observers only).

1.6.1 Operational Definitions and Levels of Measurement

One major obstacle to understanding self-perspectives remains. Concise and consistent operational definitions of fundamental concepts do not exist. The operational definitions of the important constructs such as *performance*, *appearance* and *impression* are muddled. For example, there is no widely agreed upon criteria for "performance"—as this term has been used to describe anything from speech dysfluencies (e.g., Mansell & Clark, 1999) to social skills (e.g., Clark & Arkowitz, 1975). Anxious appearance may include signs of visible anxiety, such as blushing or shakiness or simply "appearing anxious" (e.g., Mellings & Alden, 2000). In addition, the term impression is inherently vague and loosely defined (e.g., DePaulo et al., 1990; Purdon et al., 2001).

The interchangeability and muddling of key constructs in determining one's mental representation of self is further complicated by the use of global ratings (e.g., "success in interaction," "appeared nervous") and/or specific ratings (e.g., fidgety, frequency of pauses in speech) that vary in their definitions across studies (Rapee & Lim, 1992). Although one might expect specific ratings to be accurately reflected by composites of "global" or overall ratings, our understanding of the empirical relation between relevant global and specific

31

ratings is generally assumed, but largely untested. Without acknowledgement of the difficulties in defining the nature of one's "mental representation" of anxiety, we risk further challenges in comparing studies and developing conclusive support for any model.

1.6.2 Role of Partners in Interactions

To fully understand the type of impression the individual with social anxiety wants to make, expects to make, and role of anxiety in the development of this impression during an interaction, we need to examine the impression made on the "others" in the interaction. Blind observers of experimental situations are often included in studies to address this concern. However, the observers' impressions of participants are undeniably different than those individuals within the interaction—that is, individuals who come with their own biases and anxieties, and are experiencing the interaction first hand. The informative and pivotal role partners play in social interactions is repeatedly overlooked in many studies given the difficulty in controlling partners' behaviours. Nonetheless, this control is at the expense of truly being able to generalize the results for individuals with social anxiety to "real life" situations. We know individuals with social anxiety are concerned about being evaluated and suspect that such worries have a costly impact on the impression made on others (e.g., DePaulo et al., 1990). Furthermore, SA individuals may fear rejection by others, yet the question of whether they are "rejected" by others is unconfirmed. Again, a comprehensive test of impression and mental representation development for the SA individual must include an assessment of the others experiencing the social interaction.

1.7 Current Study

The present study addresses both Schlenker and Leary (1982) and Clark and Wells' (1995) models by examining the SA individual's mental representation of self, and its relation to the experience of anxiety in a social situation. Highly SA individuals were compared to individuals who had within normal levels of social anxiety, what we refer to as non-socially anxious (NSA; note, these individuals are explicitly not individuals extremely low in social anxiety). These unacquainted pairs of NSA individuals and mixed pairs of highly SA and NSA individuals participated in an unstructured "get acquainted" task and a structured problem-solving task. In general, we expected that an unstructured familiarity task would draw for affiliative behaviour from participants, while structured tasks may provide opportunities for leadership or behaviour related to dominance to also emerge. The main variables of interest were participants' impression expectations, ratings of how anxious they felt in the situation, how anxious they believe they appeared to their partner, and how they were actually viewed by others in the situation and those observing (via videotapes of the interaction).

This study was designed to answer a number of questions. First, Schlenker and Leary's (1982) prediction was tested, that is, whether anxious arousal occurs when individuals desire to make a particular impression but doubt their ability to do so. It was expected that individuals report increased anxiety when there is a discrepancy between their ratings of impression importance and expectations. This model is tested without distinction between SA and NSA individuals; however, the role of trait social anxiety was also examined in an exploratory way. Unlike Schlenker and Leary's model, the Clark and Wells'

model *does* make different predictions for SA individuals and NSA individuals. Specifically, they expect that SA individuals (by definition) experience more anxiety in social situations than NSA individuals and that, unlike NSA individuals, SA individuals rely heavily on this anxious experience when deriving how they appear to others. This component of the Clark and Wells' model was tested, and role of *trait* levels of self-awareness in individuals' development of mental representation of self were investigated. It was predicted that self-reports of arousal and appearance should be associated with a tendency to be concerned about how others view oneself *and* a tendency to be more internally self-focused (i.e., public and private self-consciousness) during an interaction that would seemingly increase both public and private situational focus tendencies. Finally, the types of impressions SA individuals actually make on others in an interaction and on those uninvolved and observing the social situation were examined. It was suspected that SA individuals would be judged as appearing more anxious than NSA individuals by both partners and observers, and that anxious behaviour (i.e., more observable anxious appearance) would be associated with rejection by others (while controlling for raters' own anxious arousal levels).

Although many studies have examined SA individuals' self-perceptions of appearance, the current study provides a number of methodological improvements on past research. Many studies use interactions that are artificially scripted (as with many "back-and-forth" reciprocal-task paradigms), while the current study did not. Rather, both an unstructured and structured task was used allowing for the opportunity to naturally draw for different behaviours during a brief interaction. Moreover, all partners were NSA individuals (i.e., not stooges or confederates) with the intention of improving external validity. Further,

the experience and arousal level of partners during the interaction and the impact on key study variables were examined. Unlike many previous studies, the comparison group was composed of NSA individuals who scored close to the mean on a scale of interaction anxiety, rather than participants with low levels of social anxiety. It is expected that most people find getting-to-know-you interactions with a stranger somewhat anxiety-provoking and hope to make a positive (or at minimum, non-negative impression); however, it is suspected that low SA controls may experience interactions in a manner unlike NSA or SA individuals (e.g., low SA individuals might not care about the impression made or hold unreasonably high confidence about making good impressions). In addition to having NSA partners examine the anxious appearance of participants, ratings from trained observers blind to the study hypotheses were obtained. Unlike many other studies, this design provides the opportunity to examine participants' self-perceptions while controlling for the perspectives of partners and outside observers. Finally, in this study anxious arousal and appearance from a global and more specific viewpoint was examined along with the relation between these often muddled constructs.

Chapter 2

Method

2.1 Participants

In total, 430 university students (270 female, 160 male) were invited to participate in this study over the course of four terms. The participants were enrolled in introductory psychology at the University of Waterloo and received partial course credit for their participation. Participants completed a measure of their trait interaction anxiety (IAS; Leary, 1983a, Table A1 in Appendix A) in a mass-testing context separated from the laboratory study. Socially anxious participants were selected from those who scored more than one standard deviation above the mean ($M = 43$, $SD = 12$) on the IAS (i.e., > 55), and participants were considered NSA if they scored within one-half standard deviation of the mean (37 to 49). While we did not make specific predictions about participants' gender, we hoped to minimize anxiety due to "attractiveness" by using same sex couples, and all pairs consisted of same-gendered NSA individuals or one SA and one NSA individual. Pairs of SA individuals were not included in the study design because there was concern that interactions between pairs of SA individuals would provide limited information (e.g., insufficient verbal exchange). Furthermore, all participants were rated by their partners, and the current design ensured that all partners were NSA individuals.

Although we invited over 400 students to participate in the study, the study sample excluded a number of participants at various levels of analysis. A subset of 16 pairs scheduled to participate did not appear as expected; however, we retained their IAS

information (used in examining IAS psychometric properties). One of the participants in 26 of the scheduled pairs did not appear as expected. We obtained pre-interaction measures for the present participant (and these measures were included where appropriate in the pre-interaction analyses), and used IAS information for the missing partner. In addition, for two of the scheduled dyads the camera was not functioning at the time of the interaction. One of these pairs completed the pre-interaction measures only and were included in pre-interaction analyses, while the other pair was dismissed from the study prior to completing any additional measures and excluded from all but IAS psychometric analyses. Upon completion of the study, we discovered that one pair of individuals was already acquainted and nine pairs were composed of both SA individuals. These participants were not fully eliminated from the study sample; rather they were included in any pre-interaction analyses and excluded from any (post-interaction) dyad analyses.

Further, for 11 participants, scores on the IAS did not fall into one of the two ranges identified above as a result of experimental error in selection. Six of these participants had IAS scores within the middle range (between 51 and 55) with partners who had IAS scores that fell in the NSA range. These individuals were categorized as SA participants, kept in the study sample and flagged for evidence of deviance in further analyses. For two pairs, the IAS score for one participant in the pair was below the IAS range for NSA (i.e., IAS scores of 34 and 35)—these participants were included in the NSA group and also flagged for evidence of deviance from normality (described further in Normality and Outlier Analyses sections below). In one case, social anxiety status was unclear for both participants, as IAS scores fell between 51 and 55. In addition, for one participant the IAS score (i.e., 22) was

more than two standard deviations outside of the NSA range. In effort to simplify analyses, the latter two pairs of cases were included in some analyses (e.g., psychometrics of pre-interaction measures), but excluded from most analyses that required categorization of social anxiety status (i.e., group comparisons).

Finally, 124 participants (28.8% of original sample) from one term of the study were videotaped without audio; and thus were not included in any analyses requiring observations from observers. In sum, the final "complete" sample or effective N consisted of 101 pairs (63.6% female) of SA-NSA individuals (including 58 pairs with observations from coders) and 61 pairs (36.4% female) of NSA-NSA individuals (including 43 pairs with observations from coders). Overall, our goal was to minimize the number of cases that needed to be eliminated in particular analyses without compromising study design.

2.2 Measures

Although we collected a number of measures (e.g., social skills, degree of self-disclosure) in the study, we were primarily interested in examining the relation between impressions expectations, anxious arousal and judgments of appearance. Therefore, the descriptions below are limited to measures used in the current study. Additional measures included in the study are outlined in the Procedure section.

2.2.1 Descriptive Measures

2.2.1.1 Trait Social Anxiety

Participants were selected based on their social anxiety score as assessed by the Interaction Anxiousness Scale (IAS; Leary, 1983a; Table A1 in Appendix A) distributed during mass

testing. The IAS is a self-report measure of dispositional social anxiety, which demonstrates high test-retest stability over a two-month period and high internal consistency (Leary and Kowalski, 1993). We found high internal consistency, with Cronbach's alpha rating of .82, for the full sample of SA and NSA participants combined.

2.2.1.2 Private and Public Self- and Body-Consciousness

Four measures of trait self-awareness were included. The private and public items of the Self-Consciousness Scale (SCS; Fenigstein et al., 1975; Table A2 in Appendix A) were administered to assess individual differences in private and public self-consciousness (i.e., tendency to be more internally self-focused and a tendency to be concerned about how others view oneself, respectively). The 10 items on the private scale and seven items on the public scale load above .40 with their appropriate factor (Fenigstein et al., 1975). The test-retest reliabilities over a two-week interval were .79 and .84 for the public and private subscales, respectively (Fenigstein et al., 1975). Participants were asked how well each statement (e.g., "I reflect a lot about myself") describes them on a 5-point Likert scale.

Items from the private and public subscales of the Body-Consciousness Scale (BCS; Miller et al., 1981; Table A2 in Appendix A) were combined with the SCS since the instructions for each measure were identical. Individuals who score high on public body-consciousness are inclined to focus on observable aspects of body, while those high in private body-consciousness are inclined to focus on internal sensations. The items for the private and public factors on the BCS have factor loadings above .39 with their respective factors. The two-month test-retest reliability for the private BCS is .69 and .73 for the public

BCS subscale (Miller et al., 1981). In our sample, we found internal consistency reliabilities (Cronbach's alpha) ranging from .61 to .85 for the group of participants across all subscales. Table B1 in Appendix B lists reliabilities for subscales of BCS and SCS for SA and NSA participants.

2.2.1.3 Impression Importance and Expectations Scale

Prior to meeting their partners, participants were asked to rate how important it was for them to make a positive impression during the interaction on a 6-point scale ranging from 1 ("Not at all important") to 6 ("Extremely important"; adapted from Leary et al., 1998). In addition to this global impression rating, participants were asked to make detailed specific impression ratings based on 10 general descriptors adapted from Leary et al. (1998) and Stopa and Clark (1993). That is, participants were asked how important it was for them to appear, warm, assertive, courteous, humourous, polite, (not appear) embarrassed, (not appear) awkward, comfortable, interesting, and secure using a 6-point scale ranging from 1 ("Not at all important") to 6 ("Extremely important"). Participants were also asked to rate the extent to which they believed they would display these 10 characteristics during the interaction using a 6-point scale ranging from 1 ("Not at all") to 6 ("Extremely"). Instructions and items are listed in Table A3 in Appendix A. Internal consistency reliabilities ranged between .71 and .86 for these scales, and can be found for SA and NSA participants in Table B1 in Appendix B.

2.2.2 Dependent Measures

2.2.2.1 Self-report of Anxious Arousal and Appearance.

Participants made global (1-item) and specific (i.e., multi-item) ratings about their anxious symptoms and appearance during the interaction. At the global level, participants were asked to rate how anxious they felt during the interaction and how anxious they believed they appeared, on a 6-point scale ranging from 1 ("Not at all anxious") to 6 ("Extremely anxious").

Specific Anxiety Symptoms (SAS; Table A4 in Appendix A) and Overt Signs of Anxiety (OSA-Self; Table A5 in Appendix A) scales were developed for the study. The SAS asked participants to indicate to what extent they experienced 31 common physiological symptoms of anxiety and agoraphobia (adapted from Wells, 1997; Papsdorf & Alden, 1998; American Psychiatric Association, 2000). The self-reported OSA asked participants to rate to what extent they believed they displayed 20 overt or visible signs of anxiety, such as "low eye contact," and "repeating words" on a 6-point scale (adapted from Clark and Arkowitz, 1975; Papsdorf & Alden, 1998; Stopa & Clark, 1993).

2.2.2.2 Partner- and Observer-report of Anxious Appearance

Partners and observers also made global and specific ratings about participants' anxious appearance during the interaction. At the global level, partners and observers were asked to rate how anxious they believed the participant appeared, on a 6-point scale ranging from 1 ("Not at all anxious") to 6 ("Extremely anxious"). Observers made the global rating of appearance immediately after watching the first 5-minute "get-acquainted" task. A partner-

41

and observer-version of the OSA (OSA-*by* Partner and OSA-*by* Observer, respectively) scale was also developed, using the same items as the self-report version, with modifications in instructions (e.g., "Please rate how anxious your partner/participant appeared during the interaction according to the following descriptors").

2.2.2.3 Desire for Future Interaction

The participant's willingness to engage in future interaction with his or her partner was assessed with the Desire for Future Interaction Scale (DFI; Coyne, 1976; Table A6 in Appendix A). This 8-item scale reflects a participant's degree of liking of their interaction partner and has been shown to have high internal consistency (Papsdorf & Alden, 1998). Cronbach's alpha rating was .91 for the combined group. Internal consistency reliabilities for SA and NSA participants can be found in Table B2 in Appendix B.

2.3 Procedure

Participants were contacted by telephone and pairs of unacquainted participants of the same gender were invited to the lab to participate in a problem-solving task with a partner. They were informed that they would solve a problem with another first-year psychology student and that the interaction would be videotaped.

Each participant was met in the waiting room and individually invited to one of the laboratory rooms to complete a series of pre-interaction descriptive measures. These included a trait measure of interpersonal behaviour, private and public body- and self-consciousness, and a depression screener. Participants also rated how important it was for

them to make a positive impression during the upcoming interaction and their expectations

for making a positive impression.

The pre-interaction questionnaires were collected and participants were introduced to

one another in the following manner:

> "[Participant 1 name], I would like to introduce you to your partner for
>
> today's task [Participant 2 name].[3] [Participant 2 name] is also a student in
>
> first year psychology. Please take the next five minutes to become more
>
> familiar with each other. If you are not sure what you should talk about, you
>
> could discuss, for example, your family, friends, program at school or any
>
> other interests."

The videotape recorder, which was placed in the corner of the room, was turned on. The

experimenter informed the participants that she would return in five minutes and left the

room.

After the familiarity task was complete, the experimenter returned and asked the

participants to spend the next 10 minutes solving a desert-survival task (Phipps, 1991)

together. The task consists of reading a short passage in which participants are asked to

imagine that they are stranded in the desert following a bus crash. As two of eight members

of a geology club, the participants are asked to make two decisions: whether to stay or

attempt to leave the isolated crash site and whether or not to hunt for food. Participants were

also required to rank order a list of items that were salvaged from the crash site. The

---

[3] *Participant order (i.e., 1 or 2) was based on which of the participants was already seated in the experiment room.*

43

experimenter left the participants to solve the task and record their answers together, while the videotape recorder continued to record the interaction.

When 10 minutes had passed, the experimenter returned and collected the answers. Participants were informed that they would now be separated to complete a number of questionnaires about themselves and each other. Participants were reminded that any ratings made would not be shared with one another. They were asked to fill in the questionnaires in the order in which they were given, and to avoid going back and changing their answers. Once separated, participants were provided with a series of questionnaires to complete. Although not all questionnaires were used in the current study, this questionnaire package included global ratings of how anxious they felt, they thought they appeared, and believe their partner appeared during the interactions. Participants also made global ratings about the success of the tasks and overall social skills of themselves and their partners (not used in current study). Participants rated the degree to which they experienced a number of anxious symptoms, and also rated the visibility of these symptoms (latter rating was not used in current study). A list of characteristics related to social performance was provided, and participants were asked to rate how well the adjectives described themselves and their partners (on separate scales, neither were used in current study). A list of overt signs of anxiety was also included, and participants were asked to rate to what extent they and their partner displayed these qualities during the interaction. Participants then completed a situational measure of their interpersonal style and their partners' interpersonal style (not used in current study). The degree to which participants liked their partner, felt similar to

their partner and felt included during the interaction were also assessed (latter two ratings were not used in current study). Both participants completed all measures.

The level of familiarity between the two participants was assessed at the end of the study. Participants were asked to rate how familiar they were with their partner prior to meeting during the experiment (e.g., roommate, acquaintance, stranger).

Two groups of six observers who were blind to participants' trait social anxiety and the experimental hypotheses viewed the recorded interactions and independently assessed participants' anxious appearance, social skills, level of self-disclosure, and degree to which participants made a positive impression and performed successfully during the tasks. Observers rated the extent to which participants displayed overt signs of anxiety. Social skills and situational interpersonal behaviour was also assessed. All observers received 10 to 12 hours of training for coding, which included reviewing measures, practicing coding and discussing and revising discrepancies amongst coders. The observers were upper-year undergraduate psychology students and were paid for their services. The first group of observers completed coding for 44 pairs of participants (29 SA-NSA dyads, 15 NSA-NSA dyads); the remaining participants were coded by a second group of coders (29 SA-NSA dyads, 28 NSA-NSA dyads).

2.4 Statistical Analyses

The sample was naturally divided into three groups—SA participants, NSA participants who interacted with other NSA participants (NSA_{NSA}), and NSA participants who interacted with SA participants (NSA_{SA}). We completed comparisons of descriptive and dependent

measures across these groups using one-way ANOVAs. An alpha level of $p < .05$ was used for these analyses with Bonferroni adjusted p values to avoid inflation of Type I error.

To examine the relation between anxious arousal and self- and other-reported appearance, we compared correlations and used moderated multiple regressions. All regressions were completed with SPSS Version 14. While it was possible to distinguish the participants in the mixed SA-NSA dyads, the participants in the NSA-NSA pairs were non-distinguishable, and therefore, interchangeable. That is, both members of the NSA-NSA pair were from the same category (Griffin & Gonzalez, 1995) and each person served as both a "participant" and "partner of a participant" in the study. Given the interchangeability of the NSA-NSA group, we adjusted the development of the correlation matrix used in the regression analyses to account for dependencies (Gonzalez & Griffin, 1997). This is discussed further in the Distinguishable and Non-distinguishable Dyads section of the Results.

Chapter 3

Results

3.1 Data Screening and Preparation

The following sections summarize the data screening and preparation measures. This includes an examination of incomplete and missing data, departures from normality, outlier analyses and reliability of measures. We also examined the factor structure of our core dependent measures in an attempt to reduce the number of variables and succinctly describe the structure of these measures.

3.1.1 Incomplete and Missing Data

Given the discrepancy between the number of participants initially invited to participate in the study and those who completed the study, we examined the IAS scores and ages for potential differences across these groups. Participants in the "did not show" category were on average the same age as participants who completed the study ($t = .21$, $p > .8$). We did not find any differences in the IAS scores for SA or NSA absent participants when compared, respectively, to SA or NSA participants who were present (both $t = 1.9$, $p > .24$). Further, the percentage of participants who were SA was similar across the missing and present samples of participants (32.7 and 35.0%, respectively).

Next, we examined missing data at the global (1-item) level for participants who completed the interaction. Participants completed four global measures (impression importance, self-rating of anxious feeling, self-rating of anxious appearance and a rating of

partner's anxious appearance). The percentage of missing items was examined together for

SA and NSA participants because the frequency of missing global items did not vary across

groups (all $t < .57$, *ns*). The global impression rating was missing for over 13% of the

participants who completed the interactions. The missing data was likely due to poor

placement of the item on the page, as the item was difficult to distinguish from the

instructions on the page.[4] We did not find any difference in the trait social anxiety scores for

participants missing global impression ratings ($t = .29$, *ns*) and therefore, chose to keep this

variable in the analysis. Post-interaction global measures were present for all participants

who completed the study with the exception of two participants for whom the package of

measures was missing a number of scales. Observers completed one global measure

(anxious appearance) and the percentage of missing scores was less than 1.5% in total when

observers were examined independently; however, we used an average of the observers'

scores in all analyses (as described below).

For multi-item measures, we developed averaged composite scores based on the sum

of items in each scale if 90% of the items were completed. We examined the percentage of

missing values for the pre-interaction scale totals (IAS, BCS, SCS, impression importance

and expectation scales) and post-interaction scale sums (SAS, OSA-Self, OSA-Partner). The

percentage of missing items was less than 1% for pre-interaction scales and less than 1.6%

---

[4] *We could do additional investigations to see if the missing impression global rating was related to other variables such as trait social anxiety, impression and expectations total scores or missing completely at random (i.e., MCAR analysis). As we did not expect this variable to be missing for reasons other than poor placement, we excluded such an analysis. Moreover, we were usually interested in the specific total score for impression ratings, rather than this 1-item global measure.*

for the post-interaction scales completed by participants. There were no incomplete scales at

the observer level for the overt signs of anxiety scales (i.e., OSA-Observer). Given that the

percentage of missing data was within normal limits (Tabachnick & Fidell, 2007) we did not

complete any further adjustments to the sample data.

3.1.2 Normality and Outlier Analyses

3.1.2.1 Univariate Normality

Univariate normality was explored by examining absolute values of univariate skew and

kurtosis and the Kolmogorov-Smirnov test of normality (i.e., as a goodness-of-fit test of the

sample distribution). Guidelines provided by Kline (1998) suggest that absolute skew values

greater than three and absolute kurtosis values between 10 and 20 may be indicative of

deviance from normality. (West, Finch, and Curran [1995] provide more conservative

criteria, reporting skew values above two and kurtosis values above seven as problematic). A

summary of the skew, kurtosis, Kolmogorov-Smirnov statistics and significance values for

the total scale and subscales are provided in Table C1 in Appendix C.

We began by examining normality *at the item level* for the global measures and each

of the multi-item scales. There were no items with skew or kurtosis values in identified

problematic ranges for any of the global measures or at the item-level for the IAS, BCS,

SCS, Impression and Expectation scales. For the SAS scale we found over 10 items to have

skew values above three and kurtosis values above 10. It is important to note that this scale

includes a number of items with particularly low endorsement rates (as it was meant to be an

exhaustive list of anxiety and panic symptoms), and we were not overly troubled by the

distribution at the item level. Further we used the SAS scale total score as our dependent

variable, and the skew and kurtosis values for the total score were in an acceptable range.

(We discuss the distribution of this scale in more detail in the Univariate Outlier Section). At

the item-level we also found indicators of non-normality for two items on the OSA-Self and

five items on the OSA-Partner scale. Once again, we were most interested in item totals for

these scales, and these measures were within the appropriate ranges for each of the OSA

scales. Of note, there was no evidence of deviance for the *total scores* for these multi-item

scales using either of the skew and kurtosis criteria described above.

There were a number of scales for which we would not expect a normal distribution

in our combined sample and these totals were identified as non-normal by the Kolmogorov-

Smirnov statistic (e.g., IAS score). For the IAS score in particular we expected a bimodal

distribution due to our method of participant selection. As well, for scales with low

endorsement rates of items, such as the SAS scale, we expected to find a positively skewed

distribution. Therefore, we informally examined distribution plots of the total scores against

the normal curve to have a better understanding of how the sample may violate normality for

the primary scales and to determine if additional measures (e.g., transformations) were

required. (See Figure C1 in Appendix C for detailed explanation and distribution of SAS

scale with Normal Curve). In brief, we decided to leave scales with non-normal

distributions (e.g., SAS) untransformed given our sample size and difficulties with

interpretation of transformed variables. In addition, the usefulness of the Kolmogorov-

Smirnov Z statistic is conservative in that the "null hypothesis is likely to be rejected with

50

large sample sizes when there are only minor deviations from normality" (Tabachnick and Fidell, 2007 p. 80).

3.1.2.2 Univariate Outliers

We began with a preliminary analysis of outliers at the univariate level by identifying cases with scores more than three standard deviations away from the mean (Z-score > 3.29, $p <$ .001; Tabachnick and Fidell, 2007). For the single-item global measures completed by participants we found one outlier on the anxious feelings measure.

We then analyzed the number of outliers present for total scores on the multi-item scales and found that the percentage of outliers was less than half of one percent (n = 12) for all of the scales. Only seven of these outliers occurred on measures used as independent variables. In addition, given the floor effects and generally low endorsement rates on some of the scales, many of the "outlier" cases are of interest in subsequent analyses. We choose not to arbitrarily exclude these cases; as outliers are not always influential cases—and clearly influential cases are what are of concern in most analyses. Rather, we completed influence analyses[5] for the regressions of global and specific variables (section 3.1.6) and the tests of Schlenker and Leary's (1982) model (section 3.4). The key regressions were completed with and without the inclusion of identified influential cases and both results are reported only when a discrepancy was found.

---

[5] *To examine for the presence of influential cases, standardized DFBETAS were produced from the regression analyses, and cases that were more than two standard deviations away from the norm (i.e., with absolute values greater than two) were identified. These cases were dropped from the analysis and the regressions were re-done. We only report results of each analysis if a discrepancy in significance level was found.*

3.1.2.3 Multivariate Outliers

Given the high number of combinations of multivariate variables, we began by completing a multivariate analysis of all of the scales of interest using AMOS 6.0. All of the variables (i.e., total and global scores) were simultaneously entered to examine the Mahalanobis distance (d-squared) for each observation, along with Mardia's coefficient of multivariate kurtosis. This analysis requires complete data for all variables, therefore, missing values were imputed using mean substitution (less then 5% of the data was estimated).

First we ran the analysis including all variables[6] except the variables completed by observers as this was not present for the full set of participants. Using a chi-squared distribution with $p < .001$ and degrees of freedom based on the number of variables in the sample, we identified a critical value (X^2 critical $= 37.70$, $df = 15$) for the analysis. Seven participants (one SA participant; six NSA participants) were thus identified as multivariate outliers using this criterion. The analysis also provides a significance value for each observation, and these same seven outliers were identified as deviant from the sample using p values of less than .001 (this is considered a conservative value [Tabachnick & Fidell, 2007]). This analysis was repeated with the subset of participants who were examined by observers also (X^2 critical $= 40.79$, $df = 17$) and we found that two of the outliers identified in the latter analysis had already been flagged in the full sample, in addition to two more

---

[6] *We ran the following analyses with and without the IAS total scores included as we knew this scale was bimodally distributed. The observations identified as outliers were unaffected; however, there were small changes in the value for Mardia's coefficient.*

participants (1 SA; 1 NSA participant). Therefore, in total, 11 individuals were identified as multivariate outliers (three of whom were previously identified as univariate outliers).

Values of Mardia's coefficient of multivariate kurtosis above 1.96 suggest significant non-normality (Arbuckle & Wothke, 1999), and not surprisingly, given the number of outliers, we found high values for this indicator on both of the multivariate normality analyses with and without observer variables included (34.96 [c.*r.* = 13.76] and 32.79 [c.*r.* = 9.54], respectively). Note, that Mardia's coefficient is hypersensitive as sample size increases (Arbuckle & Wothke, 1999). We re-ran the multivariate normality analysis with the identified outliers excluded and Mardia's coefficient appeared to remain elevated for the analysis with and without observer variables included (25.07 [c.*r.* = 9.54] and 18.94 [c.*r.* = 5.42]).[7]

3.1.3 Reliability

The internal consistency reliabilities (Cronbach's alphas) are provided in Tables B1 and B2 in Appendix B for all measures completed by participants (range .61 to .91). We also examined the observers' ratings of target participants within each coding group and found high reliability for anxious appearance at the global and specific levels (.85 to .86; Table B2 in Appendix B).

---

[7] *While we could complete all the analyses with this flagged group of 11 outliers in the sample and again without them present (i.e., reporting discrepant results), the rational for such a step is unconvincing and the steps for systematically examining this protracted and potentially fruitless. Arbitrarily removing this group would result in excluding participants who were not identified as outliers for a particular regression analysis (although they were identified as outliers on an unrelated regression). In addition, to identify the exact combination of variables for which the participants were identified as multi-variate outliers would include testing each possible variable grouping, clearly an onerous task.*

3.1.4 Factor Analysis

Prior to examining the core hypotheses of the study, we conducted a closer inspection of the factor structure of our dependent measures at the specific level for a number of reasons. First, as most of the dependant measures were uniquely developed for the current study, we were interested in examining the structure or classification of these measures (potentially reducing the number of variables used) and establishing if these structures were comparable for SA and NSA participants. Second, we were interested in determining how well global items and the parallel total and factor scores of the multi-item specific measures correlated in this sample. Ultimately, we were interested in whether the relation between global and multi-item anxious arousal and appearance scores was moderated by trait levels of social anxiety (as discussed in Global and Specific Measures section).

For the *specific-item scales*, a series of principal components factor analyses with varimax rotation were conducted. For each scale, SA and NSA participants were included as one sample, and parallel analyses (with 100 random cases generated) were completed to determine the number of factors to extract (O'Connor, 2004). The number of factors extracted was based on criteria provided in Hayton, Allen and Scarpello (2004). Specifically, the quantity of factors was determined by the highest factor with an eigenvalue at or above the mean eigenvalue found at the 95th percentile for the random data group.

Given that the full sample was asymmetrically composed of NSA participants (62.6% of sample), we also ran the parallel analysis separately for the SA and NSA groups as an informal check of the predicted factor structure (i.e., number of factors). It is possible that the factor structures of key measures are different for SA and NSA individuals—implying

that these groups use the measures of interest in different manners. We did not expect to find

differences across groups, but discuss the findings for each scale below. Further, in the

following section, the variance explained, the number of factors extracted and factor structure

are described for each variable of interest. (Table 1 lists items by factor; Rotated component

matrices are provided for all scales in Tables D1 to D6 in Appendix D)

3.1.4.1 Impression Importance Scale

The parallel analysis for the self-reported impression importance scale suggested a two-factor

model, and the subsequent factor analysis indicated that 57.33% of the variance was

explained. The first factor was composed of items (6, 7, 8 and 10) reflecting a

Confident/Non-anxious impression importance. The second factor included strong loadings

of items related to behaving in a warm, polite and courteous manner. These behaviours are

similar to those seen in making an innocuously sociable impression, or as Schlenker and

Leary (1982) coined "Innocuous Sociability" and so named. One item—"it is important for

me to appear interesting"—appeared to load on both factors, while another item—"it is

important for me to appear assertive"—did not load on either factor. Informal inspection of

factor loadings revealed similar factor structure for the SA and NSA groups.

3.1.4.2 Impression Expectations Scale

Parallel analysis for the self-reported impression expectations scale suggested a three-factor

model, in which 63.97% of the variance was explained. Factor One consisted of items

reflecting an expectation to be warm, courteous and polite, in a manner of Innocuous

Sociability. The second factor consisted of items representing a desire to promote a

Dominant/Confident social impression (i.e., assertive, humorous, comfortable, interesting). Finally, the third factor reflected a desire to not appear anxious (Items 6, 7; reverse score of awkward and embarrassed). Item eight (comfortable) appeared to load moderately strongly with Factor Two and Three; while Item 10 (secure) did not load strongly on any factor. Again, similar factor structures emerged when the groups were analyzed separately.

3.1.4.3 Specific Anxiety Symptoms (SAS) Scale

Data reduction techniques described above resulted in a five factor model for the SAS scale, accounting for 49.36% of the total variance. The first factor was predominantly composed of items consisting of derealization symptoms (Item 8, 10, 12, 20, 29, and 30). Factor Two included items mainly describing blushing symptoms (Item 14, 18, 23 and 31). The third factor was comprised of symptoms of shaking (Item 1, 3 and 22). The fourth factor consisted of three items related to cardiac symptoms and feelings of dizziness (Items 9, 13, 21). The fifth factor was composed of four items—nausea, lightheadedness, chest pain and numbness—each with strong and unique loadings. Several items did not have unique loadings on any of the five factors. In addition, we examined the factor structure in separate factor analyses for the NSA and SA groups and found differences in the factor structures across groups.

We suspected that the factors described above may be a misrepresentation of true factor structure, and instead, indicative of potential item artifacts. An inspection of the *M* and *SD* for the items on the SAS scale for both the SA and NSA groups revealed a number of items with low endorsement, and attenuated range and/or low variability. For example, for

items 7, 13, 17, 19, 25, 26, 27, 28 and 30, the majority of respondents (i.e., > 90%) choose a value of "1" (floor effect), while less than 10% of the sample selected higher values. Therefore, we re-examined the factor structure of this scale after eliminating these nine items, and found the factor structure reduced to three components. Factor One primarily was composed of items (1, 3, 4, 9, 11, 21, 22) describing symptoms of shaking and trembling. Factor Two (Items 8, 10, 11, 12, 24, 29) was composed of derealization and cognitive symptoms of anxiety, and the third factor mainly described symptoms of Blushing/Feeling Flushed (14, 18, 23, 31). When we completed a separate factor analysis for the NSA and SA groups with the subset of items, the three anxious arousal factors appeared to re-emerge as expected from the combined analysis, with minor differences for a few items.

3.1.4.4 Overt Signs of Anxiety – Self, Partner, Observer

At the self-report level (OSA-Self) we extracted four factors explaining 54.31% of the total variance. The first factor consisted of items describing Speech Dysfluencies (Items 5, 6, 7, 8). Factor Two was composed primarily of Visual Signs of Anxiety—such as shaking, or appearing stiff (Items 10, 11, 12, 13, 14, 15 and 16). The third factor was mainly composed of a couplet of items (2 and 3) indicative of Self-manipulation/Fidgetiness. The fourth factor had high loadings for items of Initiation of Interaction during the conversation (Items 19 and 20), and a moderate loading for a third related item (18, loading of .41). Informal inspection of the factor structure, when run independently for the two groups, revealed similar item loadings.

The factor structure for the OSA scale when completed on partners' behaviour (OSA-Partner) consisted of two factors. The first factor had a number of high and unique loadings (Items 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14 and 16) which seemed to combine the visible, dysfluent speech and self-manipulation signs of anxiety factors described above for OSA-Self. The second factor consisted of four items (9, 17, 19, and 20) regarding Conversational Style. The total variance explained in these two factors was 42.85%. Again, loadings of items for the SA and NSA groups were similar.

The OSA scale when completed by observers (OSA-Observers) reduced to a four-factor structure, explaining 56.14% of the total variance. Factor One include seven items (1, 4, 9, 15, 17, 19, 20) which combined symptoms of Conversational Style and facial distress signs. The OSA-Self Self-manipulation/Fidgetiness factor also appears to reemerge as Factor Two in this model (Items 1, 2, 3, 11). The third factor appeared to be composed of three items (10, 12, and 14): "my voice appeared to be trembling," "I appeared short of breath" and "I appeared to be perspiring," collectively considered Tremulousness. Factor Four (Items 5, 6, 7, 8) included four items describing Speech Dysfluencies.[8]

A summary of the factor structure for each of the dependent measures is provided below (Table 1) for the combined group and separately for the SA and NSA participants. To highlight the primary items on each of the factors, the summary includes items with factor scores at or above .5 on its respective component. In sum, it appears that the overall factor

---

[8] *We would not expect the observers to use the OSA scale differently for the two groups based on trait social anxiety of the participants. Therefore to reduce number of analyses, we chose not to complete the analysis separately for the SA and NSA groups for the OSA-Observer scale.*

structure is similar for both SA and NSA groups, with minor differences in loadings of one to

four items across factors.[9]

Table 1. Factor Structure for SA, NSA and Combined Groups

	Factors			
Scale	Factor One	Factor Two	Factor Three	Factor Four
<u>Impression</u>	Confident/	Innocuous		
<u>Importance</u>	Non-anxious	Sociability		
Combined	*6, 7, 8, 9, 10*	*1, 3, 4, 5*		
NSA only	6, 7, 8, 9, 10	1, 3, 4, 5		
SA only	6, 7, 8, 9, 10	1, 3, 4, 5, 9		
<u>Impression</u>	Innocuous	Dominant/	Non-Anxious	
<u>Expectations</u>	Sociability	Confident		
Combined	*1, 3, 5*	*2, 4, 8, 9*	*6, 7*	
NSA only	1, 3, 5	2, 4, 8, 9	6, 7	
SA only	1, 3, 5	2, 4, 8, 9	6, 7	

[9] *We could have completed a formal test of the factor structure across SA and NSA groups (i.e., CFA with stacked models) but did not have a priori reasons to believe the structures should be different across groups. Further, this series of group analysis is decidedly a side issue to the main inquiries of the study.*

SAS	Shaking/ Trembling	Derealization/ Cognitive	Blushing/ Feeling flushed	
Combined	*1, 3, 4, 9, 11, 21, 22,*	*8, 11, 10, 12, 24, 29*	*14, 18, 23, 31*	
NSA only	1, 3, 9, 11, 21, 22	8, 10, 15, 29	14, 18, 23, 31	
SA only	1, 2, 3, 4, 15, 22	11, 12, 16, 24, 29	9, 14, 18, 21, 23, 31	

OSA - Self	Speech Dysfluencies	Visual Signs of Anxiety	Self- manipulation/ Fidgetiness	Initiation of Interaction
Combined	*5, 6, 7, 8*	*10, 11, 12, 13, 14, 15, 16*	*18, 19, 20*	*2, 3, 11*
NSA only	5, 6, 7, 8	10, 11, 12, 13, 14, 15, 16	19, 20	2, 3, 11
SA only	4, 5, 6, 7, 8, 9, 17	12, 13, 14	18, 19, 20	2, 3, 8, 11

OSA-Partner	Visual Signs/ Dysfluent Speech	Conversational Style
Combined	*2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 16*	*9, 17, 19, 20*
NSA only	2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 16	9, 17, 19, 20
SA only	5, 6, 7, 8, 10, 11, 12, 13, 14	9, 17, 19, 20

OSA- Observers	Conversational Style	Self- manipulation/ Fidgetiness	Tremulous- ness	Speech dysfluencies
Combined	*1, 4, 9, 15, 17, 19, 20*	*1, 2, 3, 11*	*10, 12, 14*	*5, 6, 7, 8*

3.1.5 Factor Score Development

We used a unit-loading weighted method to calculate factor scores (e.g., Cattell, 1952). We recognized that this traditional method is susceptible to factor score indeterminacy and high inter-factor correlation (Grice, 2001), and therefore, evaluated the use of alternative regression weighted methods (e.g., Grice and Harris, 1998). Unit-loading procedures are less

susceptible to shrinkage (Wackwitz & Horn, 1971) and are computationally simple. In addition, unit-loading methods transfer easily to "real-world" or clinical use; for example, tallying up a client's degree of blushing symptoms versus idiosyncratically weighting proportion of similar symptoms. Moreover, in Grice and Harris' (1998) Monte Carlo study evaluating alternative methods, unit-loading procedures were similar to regression weighted scales on their validity criterion (i.e., correlation of test and true factors scores).[10] Unit-loading estimates were more valid than unit-regression estimates with low sample size and medium complexity. Further, we felt that our measures were not developed in a construct-driven manner (i.e., based on a solid theoretical definition), but rather were content-driven, as we want to assess an exhaustive sample of relevant content. We composed factor scores by weighting all items with coefficients greater than .3 (or less than -.3) equally. Items with negligible loadings (i.e., coefficients between -.3 and .3) were excluded.

It is important to highlight that the data investigations presented thus far were required to examine and simplify the structure of key measures in the current study; these were only preliminary analyses of the current study's main tests. In brief, we learned that for the most part the data is complete, and acceptable levels of reliability were demonstrated. There was some minor evidence of non-normality; however, methods to adjust for these deviances were reviewed. Finally we completed a series of factor analyses and developed factor scores to use in further investigations.

---

[10] *Of note, the correlations between unit-loading weighted factors (used in this study) and respective regression weighted factor scores varied from .66 to .98.*

3.1.6 Global and Specific Measures

The following set of analyses examines the relation between global ratings and their corresponding specific rating scales. As previously noted, the purpose of this analysis was to examine how well the anxious arousal and appearance global and multi-item specific measures (total scores and factors) correlated in this sample and whether such a relationship was a function of trait social anxiety.[11] In particular, these analyses allowed us to determine if SA and NSA individuals were likely to use these key measures in a similar manner. As well, we hoped to determine if global and specific dependant variables should be examined independently in the study's core analyses—as each type of variable may be assessing different and valuable information. (For example, a global 1-item face-valid rating [e.g., "How anxious did you feel?"] may not be directly predicted by total scores for specific ratings or composites of items [i.e., "I felt tense;" "I felt sweaty"—discussed further below]). These investigations were completed for the dependent variables used in the study's key analyses of interest (i.e., tests of Schlenker and Leary, [1982] and Clark and Wells' [1995] models).

The global/specific variables of interest were the self-measure of anxious arousal scale and the self-, partner- and observer-reported anxious appearance scales. For each of these pairs of variables, we carried out a two-step multiple regression with scores on the 1-item global measure of interest as the dependent variable. Predictors included degree of

---

[11] *We could have compared independent correlations of global and specific ratings for the SA and NSA groups but choose to use the trait social anxiety measure as a continuous variable to increase power in these explorations.*

social anxiety measured by the total IAS score centered on the mean of the NSA group[12] and

total score from the specific scale (entered on the first step) and the interaction of social

anxiety with the total score (entered on the second step). We also completed another two-

step multiple regression for each global variable predicted by IAS scores and factor scores of

the specific measures (entered on the first step) and the interaction of social anxiety with

each of these factors (entered on the second step). The results of each of the series of

regressions are summarized below. The unstandardized and standardized coefficients, R^2,

adjusted R^2, and *F* values with significance are provided in Table E1 in Appendix E.

3.1.6.1 Anxious Arousal

In the first analysis, the global measure of anxious feelings was regressed on the specific

symptoms of anxiety (SAS) scale total and IAS trait scale (Step 1) and the two-way

interaction of SAS and IAS (Step 2). The regression ($R^2 = .25$; $F[2, 313] = 52.60$; $p < .00$)

and test of the two-way interaction were significant ($R^2_{change} = .01$; $F[1, 312] = 5.68$; $p = .02$).

The regression showed that global ratings of anxiety were significantly predicted by specific-

ratings (*Beta* = .58; $t = 9.98$; $p < 00$) and by trait social anxiety (*Beta* = .49; $t = 2.41$; $p = .02$)

in Step 1. The significant interaction suggests that the relation between global ratings of

anxiety and the specific measures varies as a function of trait social anxiety, such that the

---

[12] *We centered the IAS score using the mean from the NSA group, rather than the mean of the whole group. Although this is not common practice, we recognized that the mean score for the whole sample had a meaningless value—as it was outside the range of both groups. With this modification, nonessential collinearity is still reduced by centering of the variables and the intercept for analyses using the IAS variable has a meaningful value (i.e., the mean of the NSA group).*

relation is less strong at higher levels of trait social anxiety (*Beta* = -.51; *t* = -2.38; *p* = .02).

Overall about a quarter of the variability in global ratings is predicted by the specific-ratings, while the addition of the interaction results in a significant increment in R^2; however, the magnitude of change is minor (less than 1% of the variance).

We replaced the SAS with each of the factor scores to determine if any of the specific factors were more strongly correlated to the global item. In the following regressions, we examined the global feeling measure scale predicted by the IAS trait social anxiety scale and the three factors for SAS scale (Step 1) and the two-way interactions of trait social anxiety and the interaction with each of the three factors (Step 2). The regression was significant at the first step (R^2 = .27; *F*[4, 311] = 29.27; *p* < .00) and the test of the interactions as a group were significant also (R^2_{change} = .02; *F*[3, 308] = 3.02; *p* = .03). In Step 1, two factors of the SAS scale were significant predictors of the criterion (Factor One [Shaking/Trembling]: *Beta* = .33; *t* = 3.66; Factor Two [Derealization/Cognitive symptoms]: *Beta* = .25, *t* = 3.01, both *p* < .001). Social anxiety was not a significant predictor of global anxious arousal in Step 1 (*Beta* = .00; *t* = .05; *p* > .05). This suggests that degree of globally-reported anxiety is not affected by trait levels of social anxiety—individuals do not report more global anxiety simply because they experience more trait social anxiety.

Interestingly, in the second step of the regression model, trait social anxiety became a significant predictor of global anxious arousal (*Beta* = .49, *t* = 2.87, *p* < .01), along with the first two factors again. There were no significant interactions present when the predictors were partialled on each other. Therefore, we re-ran the regressions with all of the main

effects in Step 1 and each of the interaction terms separately in Step 2 (i.e., three separate analyses), to determine which interactions were significant (without partialling on the other interaction terms). The interaction of Factor One (Shaking/Trembling) and trait social anxiety was significant (Step 2: R^2_{change} = .01, F_{change} [1, 310] = 5.72, p = .02), such that as trait social anxiety increases, the strength of the relation between this first factor and reporting of anxiety globally decreases (*Beta* = -.35, *t* = -2.39; *p* = .02). In other words, more chronically SA individuals are less likely to use symptoms of shaking and trembling in their judgments of global anxious arousal. Once again, the magnitude of the contribution of the interaction term to the prediction of global anxious arousal was miniscule (i.e., approximate increase in variance explained by addition of interaction was less than four percent). In sum, this indicates that there is little evidence to suggest the relation of global to specific ratings varies strongly across groups for self-reported anxious arousal. (See Figure E1 in Appendix E for graphical representation of the relation between the global and specific scales for each of the significant factors described above).

3.1.6.2 Anxious Appearance

In the next set of analyses, the global measure of anxious appearance was regressed on the specific measure of anxious appearance (OSA-Self) and the IAS. Step 1 was significant (R^2 = .18, F_{change} [2, 313] = 33.45, p < .00), while the two-way interaction was not significant (R^2_{change} =.001, F_{change} [1, 312] = .32, p > .05). Global measures of anxious appearance increased as a function of number of symptoms reported (*Beta* = .41, *t* = 7.82; *p* < *.001*), but was unrelated to trait social anxiety (*Beta* = .02, *t* = .05; *p* > .05). This suggests that only

about 18% of the variance in global ratings of anxious appearance is explained by the specific OSA-Self total score.

When global anxious appearance was regressed on trait social anxiety and the four factors of the OSA-Self scale (Step 1) and the interaction of trait social anxiety and each factor (Step 2), the regression was significant ($R^2 = .23$, $F = [5, 310] = 18.73$, $p < .001$) in Step 1, but not in Step 2 ($R^2_{change} = .005$, $F = [4, 306] = .541$, $p > .05$). Specifically, there was no main effect for social anxiety, Factor One (Speech Dysfluencies) or Factor Four (Initiation of Interaction; all $Beta < .08$, $t < 1.3$, $p > .05$). Two main effects were found for Factor Two (Visual Signs of Anxiety; $Beta = .29$, $t = 3.94$, $p < .001$) and Factor Three (Initiation of Interaction; $Beta = .17$, $t = 2.46$, $p = .015$). This suggest that Visual Signs of Anxiety (Factor Two) and Self-manipulation/Fidgetiness factors (Factor Three) were the strongest predictors, yet altogether the factors only explain about 23% of the variability in self-report of global appearance for all participants.

We also examined if participants' ratings of the global anxious appearance of their partner varied as a function of their own social anxiety status and the OSA-Partner scale (Step 1), and the interaction of these two variables (Step 2). This regression was significant in the first step only ($R^2 = .23$, $F[2, 312] = 46.73$, $p < .00$). Specifically, global ratings of partners' appearance was a function of the specific OSA-Partner scale ($Beta = .47$, $t = 9.60$, $p < .00$), and not the raters' own trait social anxiety ($Beta = -.07$, $t = -1.43$, $p = .15$). Using the factor scores, both of the OSA-Partner factors were found to be significant predictors of the global measure of anxious appearance of partners (Factor One [Visual Signs/Dysfluent

67

Speech] *Beta* = .37, *t* = 6.02, *p* < .001; Factor Two [Conversational Style]: *Beta* = .14, *t* = 2.23, *p* =.03). No significant interactions were found in Step 2 (both *t* < .44, *p* > .05).

Finally we completed similar regression analysis for global and specific measures completed by observers; however, we excluded social anxiety status as a predictor of the participant in the following analysis as we would not expect the relation to vary as a function of the participants' trait social anxiety. The one step regression of the global measure regressed on the specific measure for the anxious appearance was significant (R^2 = .38, *F* [1, 194] = 118.13, *p* < .001; *Beta* = .62 *t* = 10.69, *p* < .001). We also regressed the four OSA-Observer factors on the global measure and found the regression to be significant (R^2 = .40, *F*[4, 191] = 31.41, *p* < .001). Specifically, the first two factors of this scale were significant predictors (Factor One [Conversational style]: *Beta* = .54, *t* = 8.38; Factor Two [Self-manipulation/Fidgetiness]: *Beta* = .25, *t* = 4.43, both *p* < .001) while the other two factors were not significant (both *Beta* less than .1, *t* < 1.14, *p* > .25). In sum, about 40 percent of the variability in this model for OSA-Observer is explained by these four factors.

Overall, the results of this series of regressions suggest that the relation between global and specific ratings of arousal and of appearance (self-, partner-, and observer-reported) falls within a weak to moderate range. The composite items and totals of the specific scales do not completely explain participant- or observer- global (1-item) ratings; the variance explained ranged from 17 to 39 percent. Further, when factor scores were examined, particular sets of items appeared to be relatively stronger contributors in explaining the variance in the models examined. In particular, factor scores for ratings of Shakiness/Trembling and Derealization/Cognitive symptoms of anxiety were stronger

contributors in the explanation of the variance for the global measure of anxiety than factors representing symptoms of blushing. Factor Two (Visual Signs of Anxiety) and Factor Three (Initiation of Interaction) of the OSA-Self scale were more strongly related to global ratings than the other two factors (Self-manipulation/Fidgetiness and Speech Dysfluencies). Ratings of global measures did not seem to vary as a function of trait social anxiety alone, nor was the relation between specific and global ratings mediated by trait social anxiety. The exception to this latter finding occurred when the interaction between trait social anxiety and the total score for the SAS scale was examined. The interaction was found to be significant; however, the magnitude of the relation was weak, such that the variance explained only increased by one percent. Given the above findings—specifically, the imperfect relation between global and specific ratings—we examine global and specific ratings separately in the following core study analyses.

3.2 Demographic and Descriptive Measures

In our initial analyses of demographics, we separated the participants into three groups: SA participants, all the NSA participants who interacted with other NSA individuals (NSA_{NSA}) and NSA participants who were partnered with SA individuals (NSA_{SA} participants). Participants ranged from 17 to 25 years of age. A one-way ANOVA conducted on age resulted in no significant group differences (SA: $M = 19.39$, $SD = 1.46$; NSA_{NSA}: $M = 19.29$, $SD = 1.23$; NSA_{SA}: $M = 18.98$, $SD = 1.15$; $F[2, 321] = 2.77$ $p = .06$).

Given that we did not use a traditional "high" versus "low" participant sampling procedure, we tested whether SA participants' IAS scores were significantly higher than NSA participants and the NSA partners. As expected, NSA_{NSA} and NSA_{SA} participants' IAS

scores did not differ from each other, but were significantly lower than IAS scores of SA participants (SA: $M = 59.10$, $SD = 4.39$, NSA$_{NSA}$: $M = 42.56$, $SD = 3.34$; NSA$_{SA}$: $M = 42.28$, $SD = 3.25$, $F[2, 321] = 716.02$, $p < .00$). We did not expect any other differences in pre-interaction measures for NSA partners of SA participants and NSA participants, and therefore, collapsed these groups for the following pre-interaction analyses and many of this study's core tests.

Independent sample t-tests were completed on the Body-Consciousness Scale (BCS; Table A2) and Self-Consciousness Scale (SCS; Table A2). SA participants were not significantly different from the NSA group on the private BCS, public BCS and private SCS measures (all $t[319] < -.69$, $p > .21$); however, groups were significantly different on the public SCS measure (SA: $M = 26.44$, $SD = 5.24$, NSA: $M = 25.15$ $SD = 4.86$; $t[319] = -2.16$, $p = .03$). Although we found a significant difference for this trait, it is important to draw attention to the minor magnitude of the difference in group means (i.e., less than 1/5th of the pooled standard deviation estimate). Means and SDs of all dependent and descriptive measures for both groups of participants can be seen in Table F1 in Appendix F).

A two-way ANOVA was completed for all descriptive measures and revealed no gender by group interactions (all $F < 2.5$; p > .05). As noted, we did not make specific predictions about participants' gender but hoped to minimize anxiety due to "attractiveness" by using same sex couples. We recognize that this assumes participants were heterosexual, as we did not ask about sexual preferences. We chose not to include gender as a predictor for each additional analysis, and felt these initial analyses support the likelihood that gender

differences at the participant level were absent or minimal. Further, we had no a priori predictions about gender differences.

3.3 Levels of Perception: Self-, Partner- and Observer-ratings

A series of independent samples *t*-tests were completed to compare anxious arousal and appearance for self-perceptions of SA and NSA individuals who interacted with a NSA individual[13] and ratings by partners and observers (See Table F1 for Means, SDs and *p* values). When asked how anxious one felt during the interaction on a single item scale, SA and NSA individuals tended to report similar levels of anxiety (SA: $M = 2.28$, $SD = .89$; NSA: $M = 2.13$, $SD = .10$; $t = 1.28$, $p > .05$). When asked to report on intensity of specific symptoms (SAS), SA individuals tended to report more anxious arousal than NSA individuals (SA: $M = 39.77$, $SD = 9.63$; NSA: $M = 36.77$, $SD = 8.50$; $t = 2.57$, $p = .01$).

In terms of observable anxiety, SA individuals reported that they thought they appeared more anxious than NSA individuals according to the specific scales (SA: $M = 43.36$, $SD = 12.35$; NSA: $M = 38.50$, $SD = 9.46$; $t = 3.49$, $p < .01$), but not according to the global scales (SA: $M = 2.52$, $SD = 1.0$; NSA: $M = 2.32$, $SD = .90$; $t = -.57$, $p > .05$). Partners reported that SA individuals appeared more anxious, at both the global (SA: $M = 2.39$, $SD =$

1.16; NSA: $M = 2.03$, $SD = .95$; $t = 2.46$, $p = .02$) and specific levels (SA: $M = 35.83$, $SD = 10.57$; NSA: $M = 31.57$, $SD = 8.48$; $t = 3.29$, $p < .01$). A similar pattern was seen for observers' reports of anxious appearance at global (SA: $M = 3.03$, $SD = .75$; NSA: $M = 2.62$, $SD = .59$; $t = 3.52$, $p < .01$) and specific levels of measurement (SA: $M = 40.74$, $SD = 5.29$; NSA: $M = 38.47$, $SD = 3.86$; $t = 2.93$, $p < .01$).

The correlations of self-, partner- and observer-ratings of appearance were also examined (see bold correlations in Table G1 in Appendix G) and found to be non-significant and weak overall, with the exception of two significant (positive) correlations. NSA individuals' self-report of global anxious appearance was significantly correlated with observers' global rating of appearance ($r = .29$, $p < .01$) and the relation between observer and partner ratings of anxious appearance for SA individuals ($r = .29$, $p < .05$) was significant. In brief, this suggests that anxious appearance varies by rater—even when analogous criteria are being used—and neither self-, partner- or observer-ratings are strongly associated.

---

[13] *We also compared NSA individuals who interacted with a SA partner to NSA individuals from NSA-NSA dyads on post-interaction measures, including anxious arousal and appearance at global, specific and factor levels. There were no significant differences in any of these measures (all $p > .05$) with one exception. NSA individuals who partnered with SA participants were rated as significantly more anxious looking on Factor Two (Self-manipulation/Fidgetiness of the Observer-rated OSA scale ($M = 9.74$, $SD = 2.17$ and $M = 8.86$, $SD = 2.08$, $p = .02$); however, upon further inspection the magnitude of the difference was small (about ½ of the pooled standard deviation estimate). In overlooking the small difference, this finding suggests that NSA individuals may find it less pleasant to interact with highly SA individuals as they experience more visible anxiety than those NSA participants who interact with other NSA partners.*

3.4 Schlenker and Leary's Model

Prior to examining the main Schlenker and Leary (1982) hypotheses, we examined mean

score differences between groups on the pre-interaction measures of interest: global

impression, impression importance and expectations, and the respective factor scores for the

latter two measures. The means are provided in Table F1 in Appendix F for the SA

individuals and all NSA individuals. Independent sample *t*-tests (all Bonferroni adjusted *p* <

.05 for total of 39 t-tests; p < .001) revealed mean differences for the impression expectations

measure (and its Factor Two: Dominant/Confident), such that SA individuals expected to

make a less positive presentation (i.e., lower expectation scores) than NSA individuals. In

contrast, SA individuals did not differ from NSA individuals on their ratings of how

important it was to make a particular impression (i.e., overall positive impression).

3.4.1 Difference Score Methodology

Schlenker and Leary (1982) predict that social anxiety occurs when a discrepancy exists

between an individual's desire to make a particular impression and his or her expectations to

make such an impression. We examined this self-presentation model through a series of

hierarchical/polynomial regressions. In theory, this model should apply to all individuals;

hence we ignored group status in the first series of analyses and then included the IAS trait

social anxiety measure as a continuous predictor variable in the regression.

One way to examine Schlenker and Leary's (1982) model would be to create a

variable that accounts for the difference between one's impression importance total score and

expectation score, and then test if anxious symptoms increased as a function of increases in

73

this "difference score" for both SA and NSA individuals. However, difference score

methodology is fraught with numerous difficulties (e.g., Edwards, 2001), with a primary

problem being ignorance of the component measures. An alternative to difference scores is

the use of polynomial regression in which the two component scores are included as

predictors, and the test of the difference between these scores is treated as a hypothesis to be

tested (Edwards, 2001).

Edwards and Parry (1993; Edwards, 1995) provides a series of constrained and

unconstrained equations that explain how difference scores can be represented in the

regression. When there is one predictor composed of the difference between two component

scores (X and Y), the regression equation is: $Z = b_0 + b_1(X-Y) + e$ (Equation 1a), where Z is

the outcome measure and e is a random disturbance term. This specifies that outcome Z is

positively related to the difference between X and Y. If expanded, this equation, $Z = b_0 +$

$b_1X - b_1Y + e$ (Equation 1b), depicts a positive relation between Z and X, and a negative

relation between Z and Y, with the constraint that the coefficients on X and Y are equal in

magnitude ($b_1 = b_1$). This constraint can be removed by allowing the coefficients for X and

Y to vary (i.e., be of different magnitudes, b_1 and b_2) in the following equation, $Z = b_0 + b_1X$

$- b_2Y + e$ (Equation 2). Subsequently, the regression equation can be extended to account for

possible increases in X and Y in either a positive or negative direction when the difference

score is included as a quadratic equation $Z = b_0 + b_1(X-Y)^2 + e$, (Equation 3a), expanded as Z

$= b_0 + b_1X^2 - 2b_1XY + b_1Y^2 + e$, (Equation 3b). Finally, the following equation relaxes the

constraint on the coefficients to be the same for the higher order curvilinear and interactive

terms, and includes coefficient variability for the appropriate lower-order terms, $Z = b_0 = b_1X$

- $b_2Y + b_3X^2 - b_4XY + b_5Y^2 + e$, (Equation 4). Edwards and Parry (1993) provides

systematic methodology to interpret coefficients from the more complicated quadratic

equation; however, they note that most difference score relationships can be represented by

either a linear or quadratic equation (Equations 2 and 4, respectively).

3.4.2 Test of Schlenker and Leary

In the following set of analyses, we ran a series of regressions in which participants' report of

anxious symptoms was a dependent variable. In addition to trait social anxiety, predictors

included impression importance and expectations. We had a number of ways to examine the

dependent and predictor variables (i.e., global, total and factor scores), therefore, we

completed a series of regressions with modifications in variable type. (See Table H1 in

Appendix H for a detailed summary of the regression statistics). Of note, these analyses

were completed for the full sample of 202 participants—independent of their dyad status

(i.e., SA-NSA or NSA-NSA) as the predictors were all completed prior to the interactions

and would be unrelated to dyad type.[14]

We began by regressing the SAS total score on the impression importance and

expectation total scores (Equation 2).[15] We found the regression to be significant ($R^2 = .06$, F

[2, 313] = 10.64, $p < .01$), revealing that impression importance was positively related to

---

[14] *While anxiety ratings were completed following the interaction, all participants (whether SA or NSA) interacted with NSA partners. As further described, we choose to examine trait levels of anxiety rather than complete separate analyses for SA-NSA and NSA-NSA dyads.*

[15] *We centred all the predictors on the whole sample mean with the exception of IAS (centred on the NSA group mean as described in Footnote 9). The factors and global outcome variables were not centered.*

symptoms of anxiety (*Beta* = .25, *t* = 4.18, *p* < .01) and expectations were negatively related (*Beta* = -.21, *t* = -3.48, *p* < .01). This supports the prediction that increased anxiety is a function of holding higher impression importance and lower expectations to depict a positive impression. We repeated this regression substituting the SAS with the global measure of anxiety, and found a similar pattern of results. The full model was significant (R^2 = .02, *F* [2, 313] = 3.99, *p* = .02) and the coefficients for the self-reported impression importance and expectations variables were in the same direction as above but of lower magnitude (*Beta* = .16, *t* = 2.61, *p* = .01; *Beta* = -.12, *t* = 2.05, *p* = .04, respectively).[16]

We then examined a plot of the residual standardized predicted value for the SAS total regression described above for indication of a possible quadratic relation between the component scores. Although we did not see any suggestion of a quadratic function, to confirm this finding we choose to examine the unconstrained model depicted in Edwards and Perry's (1993) Equation 4. The regression included SAS regressed on the impression importance and expectations (Step 1, same as the first regression described in paragraph above) and the second-order terms: impression importance squared, expectations squared and the product of the two components (entered in Step 2). The regression was significant in the first step as expected given it was unchanged from the previous regression (same R^2 and main effects). The second step was not significant (R^2_{change} = .07, *F*[3, 310] = 1.18, *p* = .32), suggesting that the difference score does *not* hold a quadratic relation with the dependent variable. A test of the R^2_{change} associated with adding the polynomial coefficients to the

---

[16] *We also replaced the impression total score with the global impression importance score in the regression predicting anxious symptoms and found similar results.*

model revealed a non-significant difference in R^2 ($R^2_{diff} = .05$, $CI_{.95}$: -.003 to .11). Again we repeated these regression analyses with global self-reported ratings of anxious feelings regressed on the same predictors and found a similar pattern of results.

Next, we examined the Schlenker and Leary (1982) model using the factor scores from the impression and expectations scales. For example, we tested whether there was a similar pattern of results when self-reported anxious arousal was regressed on the Innocuous Sociability factors of the impression importance and expectation scales. We decided to complete this next set of analyses with the total score for the SAS scale as our dependent variable, rather than completing each analysis with the global anxiety measure also. Given that we found stronger effects with this multi-item score and a moderate correlation between these measures (approximately $r = .50$), this decision reduced the number of redundant tests and Type II error. In this series of analyses we regressed SAS total score with an impression importance factor score and expectation factor score (using the constrained model, Equation 1). We did not include all possible combinations of impression importance and expectation factors (See Table 2 below). Rather, we included the two factors representing Innocuous Sociability on the importance scale (Impression Factor Two) and expectations scales (Expectations Factor One). Factor One of the importance scale (Confident/Non-anxious) and Factor Two of the expectation scale (Dominant/Confident) were also tested together. As well, we tested the Non-anxious expectation factor (Expectations Factor Three) with each importance factor separately, for a total of four separate regressions. (See Table H1 in Appendix H for a detailed summary of regression statistics)

Table 2. Combinations of Impression Factors used in Regression of Anxious Arousal

Regression	Importance Factor	Expectations Factor
A	Innocuous Sociability (Factor Two)	Innocuous Sociability (Factor One)
B	Confident/Non-anxious (Factor One)	Dominant/Confident (Factor Two)
C	Innocuous Sociability (Factor Two)	Non-anxious (Factor Three)
D	Confident/Non-anxious (Factor One)	Non-anxious (Factor Four)

All of the regressions were significant (all $R^2 > .06$, F [2, 313] > 9.50, $p < .001$) except for the regression of SAS scale on Innocuous Sociability factors of the Impression Importance and Expectations scales (Regression A: $R^2 = .01$, F [2, 313] = 1.55, $p = .21$). (That is, the discrepancy between high importance attached to Innocuous Sociability importance factor and expectation scores of making an innocuously sociable impression was not related to experience of anxiety). For the significant regressions, the coefficients for the importance factors were in the positive direction as expected (all *Beta* > .14, $t > 2.48$, $p < .05$) and the expectation factors in the negative direction (all *Beta* < -.12, $t < -2.12$, $p < .05$). In sum, these results suggest that the experience of anxiety increases when an individual believes it is important to portray a Confident/Non-anxious impression, but does not expect to be able to pull off a Dominant/Confident impression (Regression B). As well, experience of anxiety is also a function of the discrepancy between expecting to appear anxious but believing it is important to make an innocuously sociable (Regression C) or Confident/Non-anxious impression (Regression D).

Again, we examined the possibility of a quadratic relation between the three pairs of importance and expectations factor scores found to be significant in the above regressions. We completed a series of two-step regressions which included the interactions of the factors in the second step (squared and product terms entered as shown in Edwards and Perry' [1993] Equation 4). The relation between factors of Innocuous Sociability importance and Non-anxious expectations was shown to be linear (Regression C), that is, there was no evidence of a quadratic function. There was also no evidence of a quadratic relation between the Confident/Non-anxious Impression Importance and Non-anxious Expectation factors (Regression D; both regressions $R^2_{change} < .01$ in the second step of the model F [2, 313] < .62, $p > .05$).

We found a significant test of the higher-order interaction terms in Step 2 of the model when the Confident/Non-anxious factor of the impression scale and the Dominant/Confident factor of the expectations scale were tested with the unconstrained model (Regression B). Specifically, we found all the coefficients, except the square of Impression Factor One, to be significant (Step 2: $R^2_{change} = .03$, F [3, 310b] = 3.84, $p = .01$). To understand the relation between these two factors and anxiety, we plotted the unstandardized regression equation at different (low, medium and high) levels of the Impression Factor One (IMP F1; 1 *SD* below the mean, at the mean, and 1 *SD* above the mean, respectively) with the Expectation Factor Two (EXP F2) included. In effort to simplify the presentation with only minor adjustments to the equation, we first re-ran the

regression without the Impression Factor One (IMP F1) squared term in the model. [17] The

original equation was only slightly modified, as shown below:

Original equation: $Z = 36.96 + .39(\text{IMP F1}) + -.31(\text{EXP F2}) + .01(\text{IMP F1})^2 + -$

$.08(\text{IMP F1 X EXP F2}) + .10(\text{EXP F2})^2$

Modified equation: $Y = 37.151 + .39(\text{IMP F1}) + -.31(\text{EXP F2}) + -.07 (\text{IMP F1 X EXP}$

$\text{F2}) + .10(\text{EXP F2})^2$

Figure 1 depicts the relation between self-reports of anxious arousal and one's

expectations to depict a Dominant/Confident impression. High arousal was associated with

low expectations for appearing Dominant/Confident. In particular, individuals who believed

it was important to appear Dominant/Confident experienced more anxiety, and specifically

anxiety levels increased quadratically, as expectations for a Dominant/Confident impression

decreased. Although the overall change in contribution to variance explained was small

($R^2_{change} = .03$), the significant increase in Step 2 indicates that 50% more of the total

variance explained in Step 1 ($R^2 = .06$) is accounted for by the addition of the interaction

effect in Step 2. This finding suggests that individuals with high importance ratings are

likely to report more anxious symptoms as their expectations decrease to a stronger degree

than individuals with lower impression importance scores. Figure 1 below also suggests that

when expectations to make a Dominant/Confident impression are very high (i.e., > 25 on

factor), lower importance ratings of making a Confident/Non-anxious impression are more

strongly associated with reports of anxious symptoms (i.e., steeper slope).

---

[17] *Note, the R^2_{change} difference across the simple and higher order model was not significantly different ($R^2_{diff} = .023$, $CI_{.95}$: -.04 to .09).*
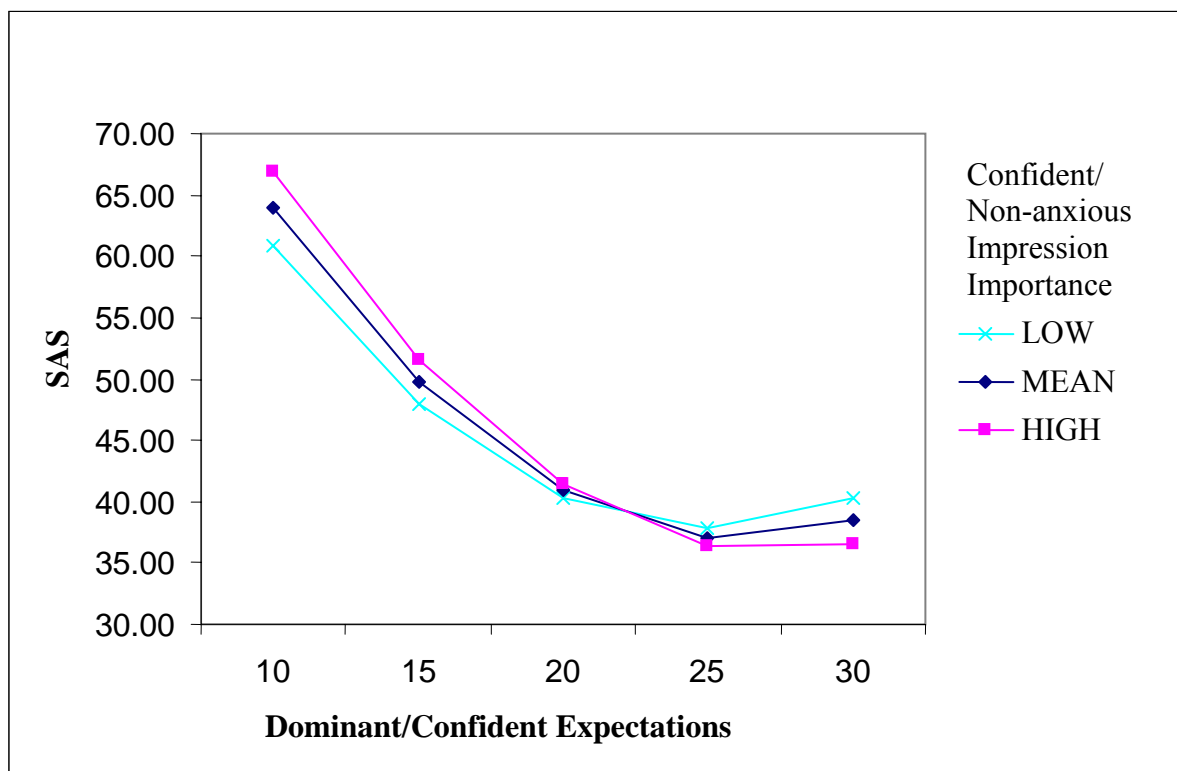
Figure 1. Prediction of self-report of anxious arousal from expectations to depict a

Dominant/Confident impression mediated by Confident/Non-anxious importance ratings at

low, mean and high levels (- 1 SD, mean, + 1 SD, respectively)

In sum, the findings reported in this section suggest that there is a tendency for

anxious arousal to increase as a function of the discrepancy between one's ratings of the

importance of an impression and beliefs about making such impressions. Specifically, when

an individual rates high importance in making a Confident/Non-anxious impression, but does

not expect to be able to make a Dominant/Confident impression (a discrepancy between these scores), the degree of anxiety increases during a social situation. As well, expecting to appear anxious but believing it is important to make an impression of Innocuous Sociability or Confident/Non-anxious impression leads to higher levels of anxiety. Finally, we have evidence that the relation between anxious arousal and expectations of making a Dominant/Confident impression varied as a function of one's beliefs about how important it was to make such an impression.

3.4.3 Role of Trait-level Social Anxiety

In the next set of analyses testing the Schlenker and Leary (1982) model, we included trait social anxiety as an additional predictor, as we were interested in examining if the relation between anxious arousal and impression scores varied as a function of chronic trait levels of anxiety. (A detailed summary of the regression statistics are provided in Table H1 in Appendix H). For the following analyses, we again regressed SAS total score on the impression importance and expectations total scores and also included the trait social anxiety measure as a predictor (Step 1). We were particularly interested in the interaction of trait social anxiety (i.e., W) with the difference measure (W*[X-Y]). This was tested by including two interactions in Step 2: trait social anxiety by impression importance, and trait social anxiety by impression expectations. The corresponding unconstrained regression equation becomes:

$$Z = b_0 + b_1X - b_2Y + b_3W + b_4WX - b_5WY + e.$$

Note that the product of impression and expectation scores is not included in this equation as we continue to predict that a linear relation exists between these two components and have

removed this term for simplification. The regression was significant in the first step ($R^2 =$ .08, $F[3, 312] = 9.31$, $p < .001$), but the test of the interactions was not significant in the second step ($R^2_{change} < .01$, $F[2, 310] = 1.09$, $p > .05$). As expected, impression importance and expectation main effects were found to be significant and in the expected directions (comparable to the regression without trait social anxiety entered). Trait social anxiety was a significant predictor (*Beta* = .15, $t = 2.51$, $p = .01$), such that increased trait social anxiety was associated with increased reports of symptoms of anxiety. We also repeated these regressions using the factor scores as predictors with the inclusion of trait social anxiety but no interaction effect was found. We did not find any interactions of trait social anxiety with the component measures (all $R^2_{change} < .01$, $F[2, 312] < 2.05$, $p > .05$; as tested in Step 2). All in all, these regression findings indicate that the relation between impression and expectations discrepancies and anxiety experienced during an interaction does not appear to be moderated by trait levels of social anxiety.

3.5 Clark and Wells' (1995) Model

3.5.1 Distinguishable and Non-distinguishable Dyads

Unlike the Schlenker and Leary (1982) model, the Clark and Wells' (1995) model makes distinct predictions for SA individuals in comparison to NSA individuals. Specifically, in the current task, by default, SA individuals should be more likely to experience symptoms of anxiety than NSA individuals.[18] Further, SA individuals are expected to attend more to such

---

[18] *Schlenker and Leary's (1982) theory may also be consistent with such a prediction, but only if just individuals with high trait levels of social anxiety held discrepant impression importance and expectations (and NSA individuals did not). Then as a group, SA would individuals would be expected to experience more anxiety than NSA individuals.*

symptoms when they derive how they appear to others in comparison to NSA participants. Therefore, to examine this specific aspect of the Clark and Wells model, we compared SA participants to NSA participants in the study. In particular, we compared SA individuals who interacted with NSA partners to NSA individuals who also interacted with NSA partners (i.e., NSA_{nsa} members). We neglect the NSA participants (i.e., NSA_{sa} members) who interacted with SA participants at this time, primarily for ease of calculations and to avoid difficulties with additional dependencies in the models.[19] (See Table F1 in Appendix F for means, SDs and *t*-test significance values).

In the first test of the Clark and Wells (1995) model, we examined the development of self-reported appearance as a function of internal sensations and appearance as reported by the partner (or observer; Figure 2), through a series of regressions.
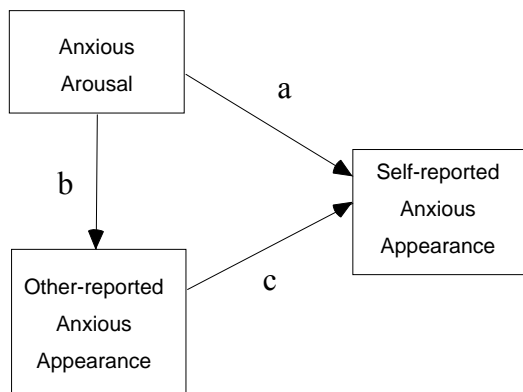
Figure 2. Model of Clark and Wells' (1995) interoceptive hypothesis

---

[19] *As previously noted, we tested whether NSA participants (who interacted with SA partners) were different in kind to NSA participants who interacted with other NSA participants, and found they were not. Independent samples t-test revealed no differences in mean values for the variables used in the following series of tests.*

We were most interested in the relationship between anxious arousal and self-reported appearance, path (a), in an effort to test the Clark and Wells (1995) interoceptive hypothesis. According to the model above, if the interoceptive hypothesis is supported, we would find that path (a) is strong for SA participants and weak for NSA participants. Observable or "actual" anxious appearance, as measured by both partners and observers in the model (i.e., Other-reported Anxious Appearance), was also included as another source of information that participants could use when making self-judgments of their appearance (serving as a mediator in the relation of arousal and self-reported appearance). We expect that path (b) should be weak for SA and NSA participants, as internal arousal (e.g., tension, upset stomach) should not be visibly noticeable to others. It is possible that the way in which participants appear to their interaction partners (i.e., partner-reported anxious appearance) may influence participants' judgments of their own appearance, path (c); for example, partners' perceptions could "leak-out" during an interaction through their behaviour and be "read-by" the participants as they make self-ratings of their own appearance. Therefore, we choose to draw a causal (rather than a mutual influence or unanalyzed correlational path) between other-reported anxious appearance and anxious arousal, path (b), and with self-reported anxious appearance, path (c). We believed during an interaction, one's anxiety level is the "cause" of anxious appearance as seen by others (independent of the predicted weakness of this path (b), and how one believes he or she appears should not influence others' ratings. Such a representation of the model would also allow for an opportunity to

85

test for differences in path coefficients in the model when partners versus observers were used. If a mediation effect occurred, it should take place only for partners' reports, as only partners' beliefs about participants' anxiety level can "leak-out" during an interaction (as observers are removed from the interaction). It is important to note that this view is a simplification of the relationship between actual and self-reported appearance, and a side issue relative to the core test of the interoceptive hypothesis in this population. In sum, we expect a (non-zero, positive) correlation between self-reported and actual appearance, path (c), for both types of participants when judged by partners and observers, although clear theoretical support is lacking for the specific types of dyads (i.e., SA-NSA) used in this study.

For the mixed dyads (SA-NSA), we could clearly identify the socially-anxious "participant" of focus and the non-socially anxious "partner" in the analyses. In contrast, for the NSA-NSA pairings, each individual served as a participant and partner, and therefore, individuals in these dyads were indistinguishable. One individual could be randomly chosen as the participant of focus and the other identified as the partner; however, randomly choosing one of the individuals as *the participant* would reduce the sample size and thus reduce power (an error of deletion according to Gonzalez and Griffin, 1997). As well, examining any linear relation between variables collected on individuals in dyads violates an assumption of independence and the subsequent tests of significance are incorrect (Gonzalez and Griffin, 1997).

Gonzalez and Griffin (1997) developed a pairwise approach to examining dyadic data using easy to understand Pearson-type correlations in which the interdependence within

dyads is accounted for in the significance tests, and individual- and dyad-level information is identified. With slight modifications this method can be applied to both distinguishable and exchangeable dyads.
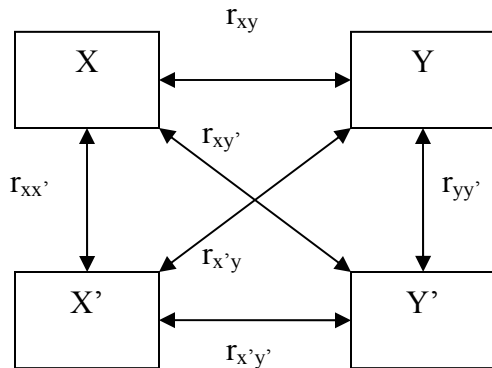
Figure 3. Pairwise correlations between variables X and Y (person 1) and X' and Y' (person 2)

Figure 3 above illustrates all possible pairwise correlations between two variables, X and Y, for any pair of individuals. In this model, X and Y represent the variables for one individual in the pairing, while X' and Y' represent the same variables for the other participant in the dyad. The Pearson product-moment correlation (r_{xy} and $r_{x'y'}$) for variables X and Y (or X' and Y') could be found in the usual manner when dyads are composed of distinguishable participants. However, when dyads are exchangeable, the tests of significance for these associations will be inaccurate; the correct test of significance requires information on the intradyadic similarity within X and within Y (Griffin and Gonzalez, 1995). The pairwise intraclass correlation ($r_{xx'}$ and $r_{yy'}$) is an index of the "absolute similarity

87

between the two exchangeable partners in the dyad" (Gonzalez & Griffin, 1997, p. 276) and

is required to find the correct test of significance for the overall correlations (r_{xy}, $r_{x'y'}$). The

significance of the overall correlations, adjusting for the dependent observations of N dyads,

is calculated using a Z test where $Z = r_{xy}\sqrt{N_1}$*[20] and represents the "effective sample size"

(Griffin and Gonzalez, 1995, p. 432). This model also measures the cross-intraclass

correlation or the strength of the relation between variable X for one individual in the dyad

and variable Y' for his or her partner.

      O'Connor (2004) supplies SPSS syntax that provides calculations of the overall,

pairwise intraclass and cross-intraclass correlations for exchangeable and distinguishable

dyads. We used this syntax to calculate the overall individual-level correlations for

participants in our NSA-NSA group[21], and used these correlations to complete the

regressions described below. In sum, we used the pairwise approach to find the correlations

between the variables displayed in Figure 2 (i.e., anxious arousal, self-reported and other-

reported anxious appearance), ultimately to be able to determine the relation depicted by

paths a, b and c in the Clark and Wells' (1995) model depicted above. (See Table G1 in

Appendix G for overall correlations and significance values for NSA-NSA and SA-NSA

groups)

---

[20] N_1* = 2N/[1 + $r_{xx'}r_{yy'}$ + $r^2_{xy'}$]

[21] *As we were interested in the SA participant only for the distinguishable dyads, regressions for the SA-NSA dyads were completed in the typical manner, and did not require developing an inter-dyadic correlation matrix from the Gonzales and Griffin (1997) method.*

3.5.2 A Test of Clark and Wells' (1995) Interoceptive Hypothesis

To examine the Clark and Wells' interoceptive hypothesis we completed a series of separate

regression analyses for each dyad type. We then tested if the unstandardized coefficients for

the SA and NSA participants (B_{SA}, B_{NSA}, respectively) differed significantly by calculating

the confidence interval (at $t = 1.96$, $p < .05$) for the difference between the two coefficients

$[SE(B_{SA}-B_{NSA}) = \sqrt{([SEB_{SA}]^2 + [SEB_{NSA}]^2)}$, and testing whether it contained zero (indicating

a non-significant difference).

Table 3. Regression Models testing Clark and Wells' (1995) Interoceptive Hypothesis

DV	Self-reported Anxious Appearance: Global or OSA-Self

Step 1	Self-reported Anxious Arousal: Global or SAS
	Partner-reported Anxious Appearance: Global or OSA-Partner
	Or
	Observer-reported Anxious Appearance: Global or OSA-Observer

The table above summarizes the dependent and predictor variables in the series of

regressions completed to investigate the interoceptive hypothesis of Clark and Wells (1995).

The dependent variable was either global or specific anxious arousal, while the predictor

variables varied by level of measurement (global or specific) and also by type of other-rater

(i.e., partner or observer). There were a number of similar findings when the DV or

predictors were changed, for example, from global to specific, so only a limited presentation

of the typical results is provided. (See Tables H2[a to d] in Appendix H for full summary of regression statistics). All of the regressions were found to be significant for both the exchangeable and SA-NSA dyads, explaining between 24% and 44% of the variance, respectively. Overall, we found that for NSA individuals (paired) with a NSA partner, reports of internal sensations were significant predictors in the model and positively related to self-reported appearance of anxiety (path [a], *Beta* = .48 to .65, all *p* < .00). For SA participants, anxious appearance was also significantly predicted by anxious arousal (path [a], *Beta* = .60 to .66, all *p* = < .00). There were no significant differences in the unstandardized coefficients of self-reported anxious arousal for SA and NSA individuals in this model, suggesting that the relation between internal arousal and self-reported appearance at the global and specific level is similar for SA and NSA participants.

Actual appearance of anxiety as reported *by partners* was unrelated to self-reports of appearance for both NSA and SA individuals (path [c], *Beta* = .02 to .03, *p* > .05, for both groups), and the test of difference between coefficients for each group was non-significant. Similarly, appearance as reported *by observers* was unrelated to self-report of appearance for SA and NSA individuals, with one exception. Observer-reported anxious appearance at the multi-item level (OSA-Observer) was a significant predictor of anxious appearance for the SA group (*Beta* = .22, *t* = 2.19, *p* = .03), but not a significant predictor for the NSA group (*Beta* = .04, *t* = .36, *p* > .05). Once again, though, the coefficients were not significantly different between types of participants.

Finally, for the most part, the relation between self-reported anxious arousal and other-reported anxious appearance was weak for SA and NSA individuals (path [b], *r* = -.16

to .18 and .11 to .18, respectively, all $p > .05$). We found a significant, yet weak relation

between global self-report of anxious arousal and anxious appearance when globally

measured by partners ($r = .20, p < .01$) for the NSA individuals only. Interestingly, global

anxious arousal was strongly associated with global appearance as rated by observers ($r =$

.95, p > .05); however, the ratings by observers were made immediately after the first five

minutes of the interaction (while all other ratings were completed after the full interaction

ended. This may have influenced this somewhat unexpected finding.

3.5.3 Role of Self-awareness in Self-reported Appearance

To examine if trait levels of self-awareness were moderating the relation between arousal and

self-reported appearance, we completed a series of regressions in which self-reported anxious

appearance was predicted by anxious arousal and the trait-level self-awareness measure of

interest (Step 1), the interaction between arousal and self-awareness (Step 2) and partner- or

observer-reported appearance (Step 3).[22] In these series of analyses we were most interested

in the results of Step 2 (and the main effects of the self-awareness measures in Step 1), as we

wanted to determine if the relation between self-reported appearance and internal sensations

was affected by self- or body-consciousness trait measures.[23] As with the regression tests

---

[22] *Other-reported (partner or observer) appearance was initially entered in a separate third
step in an effort to isolate the test of the main effect for this variable on anxious arousal and
to test for differences between the Beta coefficients for partners and observers in this step.
Following this initial test, in most cases, the variable was entered in Step 1 along with the
other two main effect predictors as no unique variance or differences were suggested from
the regression tests.*

[23] *Pearson correlations for IAS and each of the four self-awareness traits are provided for SA
and NSA groups in Table G1. When the groups were combined, the correlation between IAS*

above, we used the global and specific multi-item measures in separate regressions and then compared coefficients of the two groups to see if there were differences between SA and NSA individuals. The full regression results are presented in Tables H2 in Appendix H, and a summary of the findings is outlined below.

Table 4. Regression Models Examining Self-awareness in the Prediction of Self-reported Anxious Appearance

DV	Self-reported Anxious Appearance: Global or OSA-Self

Step 1	Self-reported Anxious Arousal: Global or SAS
	Self-awareness trait: public or private BCS or SCS
Step 2	Self-reported Anxious Arousal X Self-awareness trait
Step 3	Partner-reported Anxious Appearance: Global or OSA-Partner
	Or
	Observer-reported Anxious Appearance: Global or OSA-Observer

When the analyses were completed with global measures for both pair types, none of the regressions were significant in Step 2 or 3.[24] Therefore, we re-ran the models excluding

---

and public SCS was .11 and significant at p = .05, while the correlations for the other self-awareness traits were not significant (r = .02 to .08; all p > .05).

[24] *As expected, in Step 1, anxious arousal continued to be a significant predictor of anxious appearance for both SA and NSA groups. There were no significant main effects for any of the self-awareness measures for the NSA-NSA group (all p > .35).*

the interaction terms, and collapsing the three main effects in Step 1 in a single-step

regression. None of the self-awareness traits were significant predictors of global self-

reported appearance for NSA individuals (all $p > .05$). For SA participants, private BCS and

public BCS were positively related to self-reports of anxious appearance ($R^2 = .36$ to $.38$,

Beta $= .15$ to $.18$, both $p < .07$), while private SCS and public SCS were unrelated (both $R^2 =$

.36, Beta $= .02$ to $.04$, $p > .66$). Yet, when we compared the coefficients from these four

regressions across SA and NSA individuals, we found that none of the self-awareness

coefficients were significantly different between SA and NSA participants.

A similar pattern of results was found for the regressions in which observer-reported

global anxious appearance was used in place of partner-reported appearance for SA

individuals, but not NSA individuals.[25] For NSA individuals, global anxious appearance was

found to be a significant predictor for the model including private BCS ($R^2 = .46$, Beta $= .19$,

$p = .04$) and approaching significance in the other three models ($R^2 = .45$ to $.46$, all Beta $=$

.17, $p = .06$). Once again though, the coefficients for observer-reported global appearance

were not significantly different between SA and NSA individuals, suggesting the weak or

virtually absent relation between self-reported and observer-reported appearance (with the

inclusion of self-awareness factors) is similar for both types of dyads.

When the regressions were completed with the multi-item measures, we found some

evidence of an interaction between self-awareness traits and anxious arousal in the prediction

---

[25] *Recall that for observers the global anxious appearance rating was made immediately
after the first five minutes of the interaction while partner-reported global arousal was made
after the interaction was completed.*

of self-reported anxious appearance. For all four regressions with the SA individuals, the regression model was significant (R^2 = .38 to .39, public BCS and private SCS, both $p < .04$) or approaching significance (R^2 = .36 to .37, private BCS and public SCS, both $p < .07$) in Step 2. For the NSA-NSA pairs, Step 2 was only significant in one of the regressions indicating an interaction between anxious arousal and public BCS (R^2 = .28, *Beta* = .22, $p < .001$) as well as a main effect for public BCS. Partner-reported appearance was not a significant predictor of self-reported appearance for either dyad type (all $p > .05$). Therefore, as discussed we re-ran the regressions for both groups in two steps instead of three, with the main effects of anxious arousal, self-awareness rating, and partner-reported appearance (entered in Step 1) and interaction of self-awareness and arousal (entered in Step 2).

Overall, the results of the two-step regressions were consistent with the findings above. That is, there were no main effects for the partner-reported anxious appearance or trait-levels of self-awareness for SA individuals and as expected, the main effect for anxious arousal re-emerged in the prediction of anxious appearance for both groups. For the SA individuals, the R^2_{change} in Step 2 for the interaction of trait-levels of self-awareness and anxious arousal for each of the four regressions was significant (public SCS and private BCS, both $p < .04$) or approaching significance (private SCS and public BCS, $p < .07$), but small (between .02 and .03; accounting for less than 10% more variance explained with the inclusion of the interaction). The directions for all of these interactions were negative (*Beta* between -.15 and -.18). Similarly, for the NSA-NSA group, the R^2_{change} of .05 for the regression including public BCS was significant ($p = .01$). While the overall change in contribution to the total variance explained was small (R^2_{change} = .05), the significant increase

94

in Step 2 indicates that about 18% more of the total variance explained in Step 1 (R^2 = .28) is accounted for by the addition of the interaction effect in Step 2 for the NSA-NSA dyads. In contrast to the SA participants, the direction of the interaction for NSA individuals was positive (*Beta* = .22).

Before interpreting the results for each of the groups with the two-step regressions, we completed comparisons across the two dyad types. We compared the coefficients for these four regressions at the multi-item level and found that the only key difference between SA and NSA individuals was in the interaction coefficient for public body-consciousness and arousal predictors, as none of the other coefficients for main effects or interactions were significantly different across groups. As we were interested in understanding how the models differed across groups, to truly test the Clark and Wells' model, we focused on this particular finding for public body-consciousness. We examined the difference in the interaction of public BCS and arousal for each group by plotting self-reported arousal as a function of self-reported appearance for each dyad-type at different levels of public body-consciousness (1 *SD* below mean, at mean, 1 *SD* above mean).

Figure 4 below shows the relation between self-reported appearance and arousal at different levels of public body-consciousness. For SA participants, the relation between self-reported anxious appearance and anxious arousal is not convincingly moderated by trait-levels of body-consciousness. Although there was a significant (but weak) interaction effect (< 8% increase in variance explained), the three slopes for SA individuals are essentially flat at all levels of public body-consciousness. In contrast, for NSA individuals, the relation between appearance and arousal does appear to vary at different public body-consciousness

levels such that the slope is steeper for individuals with higher trait levels of public body-consciousness (i.e., fanning appearance of slopes; again, approximately 18% more variance explained). Nonetheless, the most pronounced difference between SA and NSA individuals—at any level of trait public BCS—is the contrast between the relation of arousal and appearance. For NSA individuals the tendency to focus on observable aspects of body moderates the relation between self-reported arousal and appearance, such that the relation between arousal and self-report of appearance is more strongly associated at higher trait levels of public body-consciousness (i.e., steeper slope). This pattern of results was not found for SA individuals. That is, for SA participants, the relation between self-ratings of arousal and appearance is not influenced by the tendency to focus on observable aspects of body (e.g., appearance, manner, style of behaviour). The following equations are depicted in Figure 4:

SA: Y = 43.48 + .81(SAS) + .02(public BCS) + -.04(SAS X public BCS)

NSA: Y=38.70 + .62(SAS) + .30(public BCS) + .07(SAS X public BCS)
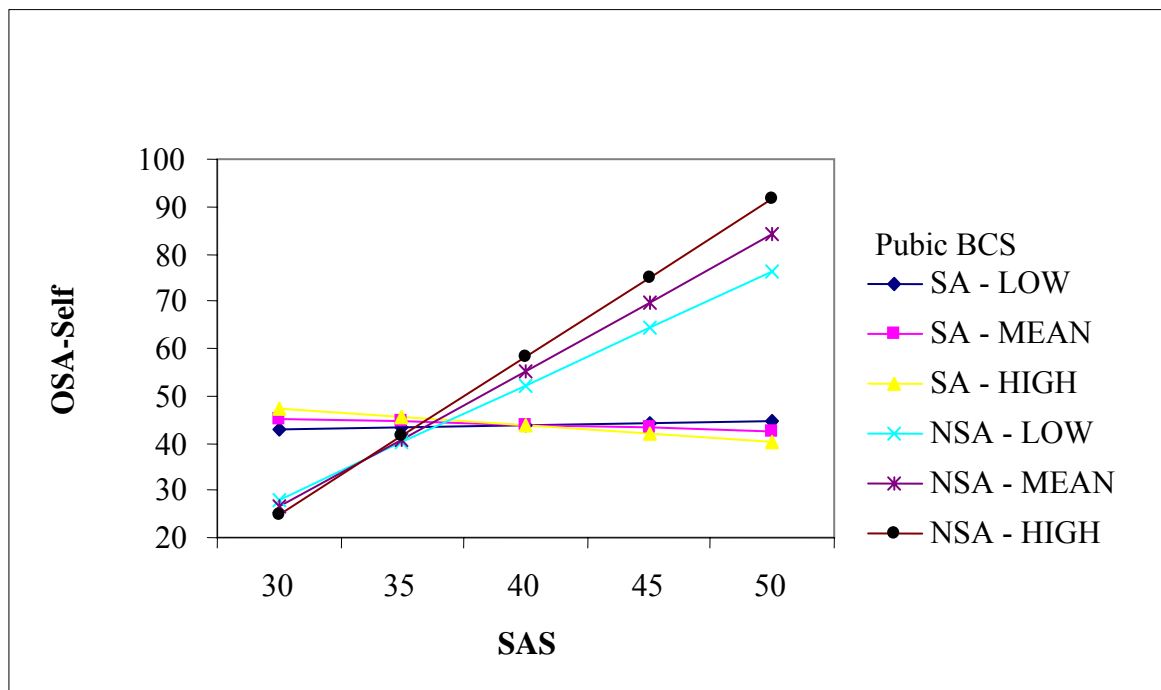
Figure 4. Self-reported appearance as a function of anxious arousal at low, mean and high levels of public body-consciousness (- 1 *SD*, mean, + 1 *SD,* respectively).

We also completed the above series of regressions with the multi-item measures by replacing appearance as reported by partners with observer-reported appearance. For NSA individuals, the results for the regressions (i.e., R^2_{change} and coefficients) were similar to the partner regressions, and observer-reported appearance was not a significant predictor of self-reported anxious appearance. There were some minor differences in the structure of the models for the SA participants as OSA-observer was found to be a significant predictor of self-reported appearance (in Step 3; *Beta* = .21 to .24) and none of the interactions between SAS and the self-awareness traits were significant (in Step 2). Of note, the R^2_{change} for including OSA-observer in a separate Step (without the interactions present) was small

97

$(R^2_{change} < .06)$. We compared the coefficients for the OSA-observer predictor (when entered in a separate Step) for SA and NSA individuals and did not find a difference between groups. In brief, these findings add to the suggestion that appearance as perceived by partners and observers likely varies (and should be duly acknowledged), but also suggests that neither of these variables have a particularly strong relation to self-reported appearance.

3.5.4 Clark and Wells (1995) Summary

In sum, this section addressed a key component of the Clark and Wells' (1995) model. Clark and Wells predict that self-reported (but not actual) appearance is strongly related to internal sensations for SA individuals. In our test of this assumption, we found moderately strong associations between arousal and self-reported appearance for *both* SA and NSA individuals. This finding was shown at the global and multi-item level of measurement for these variables.   In addition, we consistently showed that self-reported and partner-reported appearance is not strongly correlated for either SA or NSA individuals. In contrast, there was some suggestion that specific observer-reported appearance was weakly related to self-reported appearance for SA participants, yet unrelated for NSA individuals.

In our test of Clark and Wells' (1995) model, we examined the anxious arousal-appearance relation and the role of self-awareness, as these traits are often overlooked. At the level of global measures, we found little evidence of a relation between any of the self-awareness measures and self-reported arousal and appearance. We found some indication of an interaction between self-awareness and arousal at the multi-item level in prediction of appearance. For SA individuals, public body-consciousness and private self-consciousness were weakly related to the relation between self-reported arousal and appearance. In contrast

98

for the NSA individuals, the only significant regression demonstrating an interaction was for the public body-consciousness, indicating a positive (but weak) influence on the relation between arousal and appearance. Overall this suggests that for NSA individuals, the relation between arousal and self-reported appearance is moderated by trait-levels of body-consciousness (i.e., tendency to focus on observable aspects of body). That is, we would expect NSA individuals with high levels of public body-consciousness to report more anxious appearance at high levels of arousal than those with low levels of this trait. In contrast, for SA individuals, levels of public body-consciousness are virtually unrelated to arousal and degree of reporting anxious appearance. Socially anxious individuals' reports of anxious appearance appear to be more "hard-wired" to levels of arousal and not influenced by body-consciousness predispositions in comparison to NSA individuals.

3.6 Anxious Arousal, Appearance and Desire for Future Interactions

In the final set of analyses, we examined how participants appeared to their NSA partners and how that impacted ratings of a desire for a future interaction. In review, we were interested in the types of impressions SA individuals actually make on others in an interaction. SA individuals were predicted to be judged as appearing more anxious than NSA individuals by partners, and anxious behaviour was expected to be related to rejection by others (while controlling for raters' own anxious arousal levels). As mentioned, independent sample t-tests revealed that SA individuals were judged as appearing more anxious than NSA participants by partners and observers when using global (both $p < .02$) and specific (all $p < .002$) ratings of anxious appearance (See Table F1 for summary of Means and SD).

99

Using the Desire for Future Interaction (DFI) scale as an index of likeability/rejection (higher scores are associated with higher likeability, lower scores associated with more rejection), we examined the relation between perceived anxiety and likeability. Although there were no mean differences for DFI ratings made by NSA individuals for SA or NSA participants ($t = -1.13$, $df = 215$, $p = .26$), we found that DFI was negatively correlated with perceived anxiety in one's partner for NSA individuals who interacted with SA individuals ($r = -.20$, $p = .05$) and other NSA partners ($r = -.22$, $p = .02$).[26] Though the effect is small, this finding implies that the more anxious NSA individuals perceive their partner to be, the less likely they are to desire a future interaction. Interestingly, perceived anxiety in one's partner was also positively associated with *how anxious the partner reported being* during the interaction. For NSA individuals partnering with NSA participants, the Pearson correlations between DFI and OSA-Self were significant and of moderate strength ($r = .46$ and $.44$, both $p < .01$, for global and specific ratings). A similar trend was found for NSA participants interacting with SA individuals ($r = .24$, $p = .02$ and $r = .45$, $p < .01$, global and specific, respectively). Perhaps the relatively lower correlations for SA than NSA individuals were a function of fewer individual differences in OSA-Self ratings for the SA group.

In the following regression analysis, we examined the relation between perceived appearance and likeability ratings, while controlling for partners' own level of anxious arousal and observer-reported appearance. We believed that likeability decreased with

[26] *Correlation significance values were obtained from Gonzalez and Griffin's (1997) pairwise approach for exchangeable dyads which adjusts p-values for interdependence in the model as described in Distinguishable and Non-distinguishable Dyads section of the Results.*

higher anxious appearance ratings, but suspected raters' own level of arousal may mediate this relation, while controlling for anxious appearance as viewed by observers outside of the interaction (as their appearance ratings should not be based on their own level of anxiety). Therefore, we completed a regression analysis in which *specific* anxious appearance (as rated by a partner) was predicted from the raters' anxiety experience, desire for future interaction with partner-rating, observers' rating of anxious appearance (Step 1) and the interaction of likeability and raters' anxious arousal rating (Step 2; using all specific measures only). The regressions for the NSA-NSA exchangeable dyads were completed using Gonzalez and Griffin's (1997) pairwise approach using syntax provided by O'Connor (2004). Regressions for dyads involving SA individuals were completed in the usual manner. Regression coefficients were compared in the same manner described in the Clark and Wells (1995) section above.

The overall model for the regression was significant for NSA-SA dyads in Step 1 (R^2 = .30, F [3, 52] = 7.52, p < .01) and Step 2 (R^2_{change} = .07, F [1, 51] = 5.25, p = .03). Perceived anxiety in partners was negatively associated with likeability ratings (*Beta* = -.23, p =.05), positively associated with self-reported anxious arousal (*Beta* = .52, p < .01), and unrelated to appearance as judged by observers (*Beta* = -.07, p > .05). The additional amount of variance explained by including the test of moderation was miniscule (< 1%), yet the interaction of arousal and desire for future interaction was significant (*Beta* = -.26, p =.03) and accounted for about 20% more variance explained than in Step 1 alone. This suggests for NSA-SA pairings, the relation between NSA raters' anxious appearance and likeability ratings of their SA partner is weaker as the NSA raters' anxious arousal increases.

For NSA individuals interacting with other NSA individuals, the regression was significant in Step 1 ($R^2 = .27$, F [3, 76] = 9.18, $p < .01$), but not Step 2 ($R^2_{change} = .01$, F [1, 75] = .90, $p > .05$). Likeability of partners and raters' own arousal level were significantly related to partner-reported anxious appearance (From Step 1: $Beta = -.21$, $p = .03$ and $Beta = .50$, $p < .01$, respectively); while observer-reported appearance was unrelated ($Beta = .12$, $p > .05$). For NSA individuals interacting with other NSA participants, raters' anxious arousal did not moderate the relation between likeability and appearance ratings in partners. The unstandardized regression coefficients for the main effects across the two dyad types were compared and no significant differences were found across groups. We plotted the regression equations (with observer-reported appearance excluded) to further examine any potential differences between dyad types with the inclusion of the interaction effect.
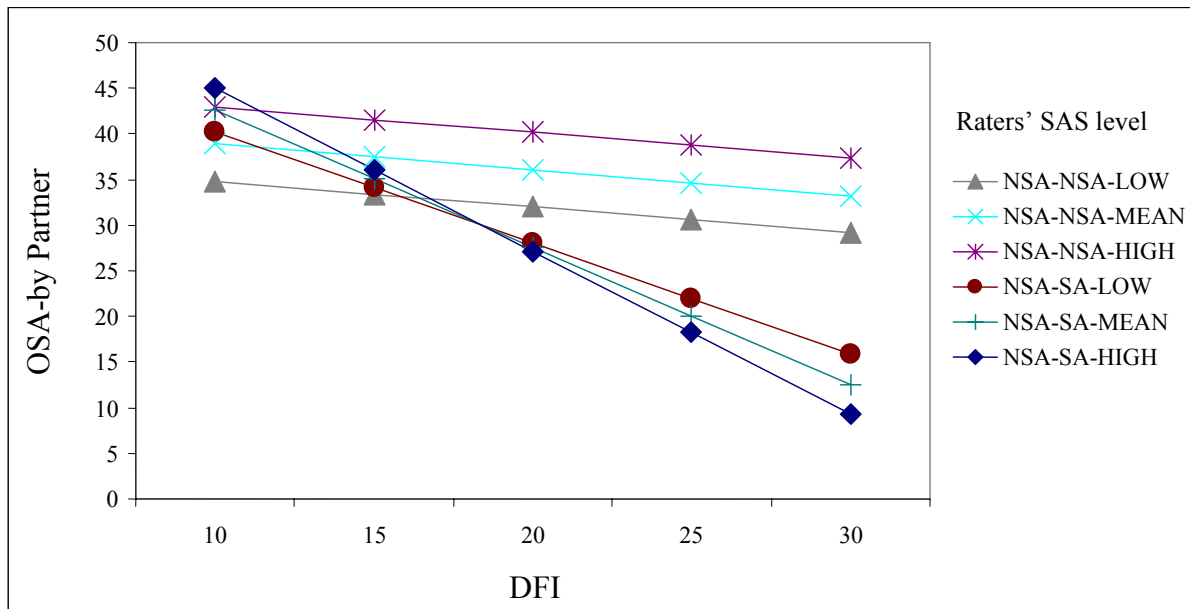
Figure 5. Prediction of anxious appearance from likeability mediated by low, mean and high

levels of raters' anxious arousal ratings (- 1 *SD*, mean, + 1 *SD,* respectively) for NSA-SA and

NSA-NSA dyads

Figure 5 illustrates the relation between anxious appearance ratings and likeability for

NSA-NSA and NSA-SA dyads at low, mean and high levels of anxious arousal for the rater.

In general, this graph suggests that the relation between perceived anxiety by partner and

likeability of partner is negative for both groups, but more strongly negative for NSA

individuals who interacted with SA individuals. For NSA-NSA dyads, partner-reported

anxious appearance shows subtle decreases with increased reports of likeability, but this

relation is not moderated by arousal levels of the rater. In contrast, for NSA-SA dyads, the

relation between likeability and perceived anxiety in partner seems is moderated by level of

arousal, such that higher arousal in rater is associated with a stronger negative relation (i.e.,

steeper slope).

Overall, this series of analyses provides several interesting findings. First, perceived

level of anxious appearance[27] is not predicted by appearance as viewed by observers outside

---

[27] *The results presented were for specific multi-item measures. The regressions were also
completed with all global items only; however, the global results should be interpreted with
caution as the 1-item appearance rating completed by observers was completed after the first
5 minutes of the interaction, while partner global ratings of appearance were completed at
the end of the interaction. Nonetheless, we found a similar pattern of results for the NSA
individuals who interacted with the NSA individuals, such that 21% of the variance in
partner-reported global anxious appearance was explained in the first step of the model and
there was no indication of a moderation effect of anxious arousal. Desire for future
interaction was not found to be a significant predictor of global anxious appearance, while
raters' anxious arousal continued to be a significant predictor in the model. For NSA
partners who rated SA individuals, the interaction of DFI and anxious arousal was not found
to be significant in the second Step of the model. As well, in Step 1, arousal was found to be*

of the interaction. Partner-reported anxious appearance is negatively associated with likeability, such that higher levels of anxious appearance are associated with lower levels of likeability (or higher levels of rejection). Raters' own level of anxious arousal appears to be a strong predictor of perceived appearance in a partner, suggesting that how a participant appears to his or her partner (i.e., more anxious appearance) is less related to objectively observable signs of anxiety and more strongly tied to anxious symptoms of the rater. There is some indication that when NSA individuals interact with SA individuals, the relation between perceived anxiety and likeability is partly moderated by raters' own arousal level, while this is less so for NSA interacting with NSA partners. Although this latter finding should be interpreted with caution as the regression coefficients were compared across dyad types and no significant differences emerged.

3.7 Discussion

The purpose of the current study was to examine beliefs about impression importance, expectations, anxious arousal and anxious appearance for individuals with social anxiety. Prior to examining the main predictions in this study, we completed a closer inspection of the key variables' factor structure and compared global and specific measures of key constructs. Using the full sample of participants and partners, factor analyses revealed that measures of impression importance, impression expectations, anxious arousal and anxious appearance held similar factor structures for SA and NSA individuals, implying that trait-levels of social anxiety generally do not influence the manner in which these scales are used. In brief, the

---

a significant predictor of appearance while DFI was not for NSA-SA dyads. Global anxious appearance as reported by observers was not a significant predictor for either dyad type.

factor analyses revealed that the impression importance scale was composed of two key parts: Confident/Non-anxious and Innocuous Sociability impression factors; while the impression expectation scale included both a Dominant/Confident and a Non-anxious factor, along with an Innocuous Sociability factor. Symptoms of anxiety tended to be grouped into three factors composed of shaking and trembling symptoms, derealization and cognitive symptoms, and feelings of being flushed or blushing. For self-reported anxious appearance ratings, the analysis revealed four factors composed of speech dysfluencies, visual signs of anxiety, interaction initiation actions, and self-manipulation and fidgetiness.

We also examined how global 1-item ratings of anxious arousal and appearance (i.e., self-, partner- and other-reported) related to composite ratings of multi-item scales and whether this relationship might be moderated by trait-levels of social anxiety. The variance explained in global ratings by specific measures varied from 17 to 39 percent, with weak to moderate positive correlations between these global and specific variables. Trait-levels of social anxiety had weak to virtually no influence on the relation between global and specific measures, suggesting that individuals do not simply report more global anxiety because of higher levels of trait social anxiety. When a statistically significant interaction of trait social anxiety and specific ratings did occur, the contribution to variance explained was negligible (less than one percent). When factor scores were used in these analyses, the results suggested that global anxious arousal is more strongly associated with Shaking/Trembling and Derealization/Cognitive symptoms than the Blushing/Feeling flushed factor. For self-report of anxious appearance, global ratings were most strongly related to Visual Signs of Anxiety and Initiation of Interaction factors. Finally, for partner-reported anxious

105

appearance both Conversational Style and Visual Signs/Dysfluent Speech factors were significantly related to global ratings, but the latter factor was more strongly related to the single-item appearance score. In all, these findings suggest that global anxious arousal or appearance ratings are not a simple summation of symptoms of anxious arousal or indicators of anxious appearance. Use of both global and multi-item variables is essential to accurately assess perceptions of anxiety and appearance in the current study.

Before entering a social interaction, SA and NSA individuals hold similar beliefs about the importance of making a positive impression. However, people with social anxiety expect to make less positive impressions than NSA individuals prior to an encounter. During a social interaction, SA individuals (interacting with NSA individuals) report more anxious arousal than NSA participants. In general, the degree of anxious arousal is linearly related to the discrepancy between overall impression importance ratings and beliefs about making those impressions. A higher discrepancy rating (i.e., impression importance is higher than impression expectations) is associated with more self-reported anxious arousal for all individuals—independent of trait levels of social anxiety. This study also found that particular types of impressions and expectations for making such impressions were related to degree of anxious arousal. Specifically, the discrepancy between importance and expectations for making a Confident/Non-anxious and dominant impression was positively related to anxious symptoms. Expecting to appear anxious but believing it is important to make a sociable or Confident/Non-anxious impression also leads to higher levels of anxiety.

Clark and Wells' (1995) model of social anxiety predicts that individuals with social anxiety have strong desires to form a favourable impression on others, but doubt their ability

to do so. Our finding that SA and NSA individuals want to make similar impressions on others is inconsistent with Clark and Wells' model. However, these findings are supportive of Schlenker and Leary's (1982) model of social anxiety in which it is predicted that social anxiety will occur whenever a person's expectations for making an important impression are discrepant from their beliefs about making that impression, irrespective of the type of impression desired. This suggests that all individuals are likely to experience anxiety in social situations, for example, even if they are making innocuous or good impressions, if the desired impression and expectations are not "in sync."

Clark and Wells (1995) also predict that anxious arousal during a social interaction would be strongly related to self-reports of anxious appearance for individuals with social anxiety, likely due to a tendency to focus on interoceptive information and be more self-focused than individuals without social anxiety. As expected, we found that SA individuals experience more anxious arousal and report appearing more visibly anxious than NSA individuals. Interestingly, the current study showed that anxious symptoms were moderately related to self-report of anxious appearance for both SA and NSA individuals. This implies that *both* SA and NSA individuals use interoceptive information to make self-ratings of appearance during a social interaction. And while we found that NSA and SA individuals differed in their trait-level tendency to be concerned about making a good impression on others, they did not differ in their tendencies to pay attention to internal sensations, thoughts, feelings or observable aspects of body.

We found one key difference in the relation between arousal and appearance based on trait-levels of social anxiety. For NSA individuals, the relation between arousal and self-

107

reported appearance was moderated by one's tendency to focus on observable aspects of one's own body (i.e., trait-levels of public body-consciousness). That is, increased arousal is more strongly related to self-report of appearance (with a positive slope) at higher trait levels of public body-consciousness for NSA participants. In contrast, self-reported appearance for SA individuals appears to be more stable across levels of arousal and not shaped by one's tendency to focus on outwardly seen aspects of body.

In addition to tests of Schlenker and Leary's (1982) and Clark and Wells' (1995) models, we also completed comparisons of SA and NSA individuals' arousal, appearance and impressions made. We inspected self-reported appearance ratings and studied how these ratings compared to anxious appearance as judged by others both in the interaction and observing the interaction. When participants were asked to make a global rating of anxious appearance, SA individuals reported similar levels of anxious appearance as NSA individuals. When asked to rate specific and observable aspects of appearance (such as appearing fidgety), SA individuals reported significantly more total anxious appearance than their NSA counterparts. Interestingly, appearance of anxiety as reported by partners was unrelated to self-report of appearance for both NSA and SA individuals. Likewise, observer-reported appearance tended to be unrelated to self-reported appearance for NSA individuals and only weakly related for SA individuals in the positive direction (yet, the difference between the groups was not significantly different). As expected, the relation between anxious arousal and other-reported anxious appearance was, for the most part, weak for both SA and NSA individuals.

All in all, both (NSA) partners and observers reported that SA individuals appeared more anxious than NSA participants during the interaction. In our exploration of how anxious appearance might influence impressions made during an interaction, we found that as a group, SA individuals were rated as equal to NSA individuals on a desire for future interaction scale; yet we found that this rating was weakly but negatively correlated with ratings of specific signs of anxious appearance. In addition, anxious appearance ratings of partners were positively associated with the raters' own level of anxiety.

We tested what predictors might explain partner-reported anxious appearance ratings completed by NSA individuals, finding that rater arousal was the strongest positive predictor. Desire for future interactions was negatively associated with anxious appearance ratings, such that higher levels of observable anxious appearance are associated with lower levels of likeability (or higher levels of rejection); this relation appeared to be moderated by raters' own arousal level for NSA individuals interacting with SA partners. We also found that observer-reported anxious appearance was not a significant predictor of partner-reported appearance ratings, suggesting that NSA individuals may not be basing their judgments simply on objectively visible signs of anxiety as viewed by observers.

Chapter 4

General Discussion

4.1 Study Aims

This study addressed a number of key questions regarding impressions, anxious arousal and visibility of anxiety for the individual with social anxiety.

1. In what way is anxiety in social situations related to discrepancies between desire to make a particular impression and expectations for making that impression? As well, what roles do trait levels of social anxiety play in both impression goals and expectation of achieving those goals? (These questions provide tests of Schlenker and Leary's [1982] model.)

2. How are the symptoms of anxious arousal that are experienced during a social interaction related to beliefs about visibility of anxiety for individuals with high trait levels of social anxiety in comparison to those with normal to moderate levels of trait social anxiety? Is the relation between self-reported arousal and anxious appearance influenced by tendencies to be concerned about making a good impression on others or to pay attention to internal sensations, thoughts, feelings or observable aspects of body? (These questions provide a test of Clark and Wells' [1995] model.)

3. How is visibility of anxiety as reported by partners in a dyad related to the impressions made by individuals with social anxiety during an interaction? What factors influence partner-reported appearance ratings of SA and NSA individuals?

(These questions constitute an application and extension of Schlenker and Leary's [1982] and Clark and Wells' [1995] model.)

4. Finally, how do global ratings of anxious arousal and appearance relate to multi-item symptoms and behaviour lists of arousal and appearance, and is such a relation the same for SA and NSA individuals? (This question is an investigation of key measurement issues for social anxiety theory.)

The questions proposed above will be discussed in the following sections. Implications for the models of social anxiety and treatment of individuals with SA will be presented, followed by limitations, future studies and conclusions.

4.2 Impressions: Importance and Expectations

The first set of questions above stemmed primarily from two vital influences in the understanding of social anxiety disorder—the cognitive models of Schlenker and Leary (1982) and Clark and Wells (1995). While each model stresses the importance of cognitive beliefs about self and the subsequent influence on social anxiety, there are distinct and conflicting predictions from each model. Schlenker and Leary's theory hypothesizes that social anxiety occurs when individuals desire to make a particular impression, but doubt their ability to make such an impression. Clark and Wells also predict that individuals with social anxiety doubt their ability to make their desired impressions. Yet, they propose that individuals with social anxiety want to make "good" impressions on others and expect to make negative or less skilled impressions, implying that the invariant experience of social anxiety during an interaction stems from poor performance (i.e., making "bad" impressions).

111

In this study, we found support for the key tenet of Schlenker and Leary's (1982) model. Larger discrepancies between the types of impression individuals find important to make and their expectations for making such impressions were associated with increased reports of anxiety in social situations. This finding was irrespective of trait social anxiety status, and SA and NSA individuals' importance ratings for making a positive impression overall were similar. As with Oakman et al.'s (2003) study, we found that highly SA individuals wanted to appear innocuously sociable. In contrast to their study, though, we found that NSA individuals believed it was important to appear polite, warm and courteous also! There was no difference in ratings for the importance of appearing confident between SA and NSA participants, suggesting that on the whole, both types of individuals believed it was equally important to *not appear anxious* in an interaction.

The similarity in importance ratings is somewhat surprising, and is likely, in part, a function of using individuals who have within-normal levels of social anxiety (i.e., NSA participants) as a comparison group. It was expected that the NSA control participants would also experience some interaction anxiety when meeting a stranger and presumably would be more variable than characteristically low SA individuals in the types of impressions they believed were important to make on others. If we used the typical comparison group, primarily composed of low SA participants who by definition are not worried about the impressions they make, we may have found more pronounced differences in importance ratings. Nonetheless, we found that SA and NSA individuals differed on their *expectations* for making particular impressions. Consistent with Clark and Wells' (1995) predictions, and the findings of Leary et al. (1988) and Walden and Alden (1991), individuals with social

anxiety expected to make less positive impressions overall, and in particular expected to appear less dominant and confident than NSA individuals during the interaction. Additional theoretical and clinical implications for social anxiety disorder are discussed below.

Clark and Wells' (1995) belief that SA individuals want to make "extraordinary" impressions was not directly tested in this study as we were unable to compare mean impression expectation scores with some other standard outside of the study findings (e.g., with the availability of normative scores). Yet there was some evidence that trait social anxiety was positively (albeit weakly) associated with an overall tendency to be concerned about making *good* impressions. In particular, there was a trend for public self-consciousness to be higher for individuals with high levels of trait social anxiety. However, when importance for making a positive impression was examined for a specific social interaction and immediately prior to that social encounter, it was found that the types of impressions individuals with social anxiety want to make are not different in kind from the types of impressions that are important to individuals without high levels of social anxiety. This serves as evidence that Clark and Wells may be incorrect in their belief that SA individuals want to make unrealistic or "exceptional" impressions relative to others. Once more, the discrepancy between valued impressions and expectations for oneself is associated with experiencing anxiety in social situations—regardless of the types of impressions desired.

4.3 Anxious Arousal and Appearance

The role of anxious appearance in understanding social anxiety was examined in a number of ways—that is, from the perspective of the target participant, the interactants (e.g., the target

113

participants' partners in the interaction) and observers of the interaction. Each of these

individuals has different levels and types of information available when making judgments of

visible anxiety. For the participant, the available information includes internal or

interoceptive information such as anxious arousal, feelings and thoughts, and external

information such as partner's reactions (e.g., as seen in Alden & Mellings, 2004). Partners'

judgments were expected to be based on noticeable information (e.g., speech style) along

with their own feelings and reactions, while observers should rely more heavily on visible

information in comparison to partners. To truly understand the role of anxious appearance in

this disorder, all of these perspectives should be acknowledged.

In terms of self-reported anxious appearance, the Clark and Wells' (1995) model

makes predictions about how such judgments vary between SA and NSA individuals. They

predict that SA individuals rely heavily on symptoms of anxious arousal when judging how

anxious they appear to others, while individuals without social anxiety would likely use both

internal and external information to make ratings of how they are seen by others. Clark and

Wells believe that a high reliance on interoceptive information leads to inaccurate

perceptions of anxious appearance for SA individuals when compared to other people's

ratings, but they do not acknowledge that individuals without social anxiety may hold a

"positivity" bias when making self-ratings; Woody & Rodriguez, 2000. That is, it is possible

that the individuals without social anxiety perceptions are *more positive* than the perceptions

of the average person, while SA individuals' beliefs are consistent with the average persons'

perceptions.

114

SA individuals, by definition, are expected to experience more anxious arousal in social situations and this finding is frequently confirmed in interaction studies (Alden & Wallace, 1995; Beidel, Turner & Danc, 1985; Norton & Hope, 2001) including this one. This finding alone, though, does not predict that arousal and self-reported appearance would be more strongly associated for SA individuals than for NSA individuals. There is some indirect and rather mixed evidence that SA individuals have attentional biases away from external social information (i.e., a tendency to attend to themselves), that they tend to see themselves from an observer perspective (i.e., from an external point of view; George & Stopa, in press as cited in Brown & Stopa, 2007) and that they show memory deficits for external information following interactions. However, these findings also do not fully support Clark and Wells' (1995) interoceptive hypothesis. The tendency for SA individuals to report more anxious appearance than individuals without high levels of social anxiety is frequently cited as evidence for Clark and Wells' interoceptive hypothesis too (e.g., Mansell & Clark, 1999; Mellings & Alden, 2000). Again, these types of indirect studies do not confirm that SA individuals' self-perceptions (e.g. anxious appearance) are primarily tied to internal arousal levels.

Unfortunately, direct tests of Clark and Wells' interoceptive prediction are rare (e.g., McEwan and Devins, 1983; Mansell and Clark, 1999), and typically neglect measurement of traits that could influence the relation between anxious arousal and self-reported appearance. Such traits include a predisposition to be focused on internal information or a tendency to focus on observable aspects of one's body. Moreover, we might expect that highly SA individuals' tendency to over-attend to anxious arousal is related to a predisposition to be

115

focused on internal sensations (i.e., sensitive to physiological arousal; Leary & Kowalski, 1993) and outwardly visible aspects of appearance (e.g., posture, facial features; Fenigstein et al., 1975). In addition, the measures of anxious arousal and anxious appearance widely vary across studies, leading to difficulties in making comparisons across the literature. The measurement of these concepts in and of itself is complicated as little is known about how commonly used general assessments of anxious arousal and appearance (e.g., "how anxious do you think you look?") compare to summations of specific indicators commonly assessed in the laboratory (e.g., eye contact, blushing). In this study, the association between anxious arousal and anxious appearance for individuals with social anxiety was compared with the association for those with more typical levels of social anxiety. The role of self-awareness factors and different kinds of global and specific anxious appearance measures (along with the relation between such measures as described below) was also included in the investigation.

Unlike Clark and Wells' (1995) interoceptive prediction we found that *both* SA and NSA individuals had moderately strong relationships between reports of anxious arousal and self-reported anxious appearance, despite SA individuals' tendency to experience higher levels of anxious arousal during the interaction. This finding was quite robust and seen at both global and multi-item levels of measurement. Such a result suggests that an inclination to focus on bodily sensations and feelings during a social interaction is not an exclusive feature of experiencing social anxiety; rather, many individuals with normal levels of social anxiety would use such information in deriving how anxious they appear. Further, this effect is consistent with Mansell & Clark's (1999) study showing moderately strong correlations

between negative symptoms and perception of bodily sensations, for *both* low and high SA participants.

We also found that trait levels of private and public body- and self-consciousness were essentially unrelated to social anxiety status, consistent with Miller et al.'s (1981) findings. It is noteworthy that these findings occurred under conditions considered to evoke self-focused attention that is both private (i.e., "get acquainted" task) and public (i.e., video camera presence). The four self-awareness traits had little *direct* impact on self-reports of anxious appearance for either SA or NSA individuals. However, we found that the tendency to focus on observable aspects of body (i.e., public body-consciousness) appeared to moderate the relation between self-reports of arousal and appearance for NSA individuals, but not SA individuals.

A closer inspection of this latter finding revealed that the SA individuals' reports of appearance did not vary as a function of arousal when levels of public body-consciousness were taken into account. This would imply that SA individuals' appearance ratings were independent of levels of anxious symptoms and not influenced by tendencies to focus on observable aspects of body when this latter tendency is accounted for in the analysis. In contrast, for NSA individuals, the relation between appearance and arousal *does* appear to vary with public body-consciousness levels such that those high on this trait would report more anxious appearance as arousal levels increase in an interaction. This latter finding is consistent with Clark and Wells' (1995) view that anxious arousal is strongly tied to anxious appearance ratings—but established for the wrong group! That is, individuals with moderate levels of social anxiety, who are inclined to focus on publicly noticeable aspects of

117

appearance, rely heavily on anxious arousal to make judgments of how they appear to others. Increased arousal is thus associated with higher self-reports of anxious appearance for NSA individuals only, when public-consciousness was included. Surprisingly, we did not find a trend for individuals with increased sensitivity to somatic awareness (i.e., private body-consciousness) to show higher reports of arousal as with McEwan and Devins' (1983) results. Such a finding would have been consistent with Clark and Wells' predictions that reports of anxious arousal are positively related to higher self-report of anxiety visibility.

In Clark and Wells' (1995) model, they propose that the tendency to focus on interoceptive information is problematic for SA individuals as it ultimately leads to overestimation of the visibility of their anxiety when compared to others' ratings. The literature describing differences between self- and other-reported ratings of anxious appearance is inconclusive, yet it is fair to say that SA individuals do not hold a pervasive tendency to overestimate anxious appearance in comparison with others' reports of appearance in an interaction (as shown in Woody and Rodriguez, 2000). The difficulty in developing absolute conclusions is partly based on determining which "other" (i.e., interaction partner vs. observer) should be used for comparison, as well as the complexity involved in measuring appearance consistently. Although discrepancies between appearance ratings were not a significant feature of the current study, it would be neglectful to ignore this aspect when studying models of social anxiety per se. In the current study, we are in a position to comment on how *in sync* raters are in perceptions of appearance, and will briefly discuss these relationships below.

We found that SA participants' self-reported anxious appearance at the global level

was not different from NSA participants' self-reports of global appearance. A difference did

exist between SA and NSA individuals' self-reported appearance at the specific level, such

that SA individuals report more overt signs of anxiety during an interaction. This finding is

consistent with a number of previous studies (e.g., Alden & Wallace, 1995; Mellings &

Alden, 2000) and supports our use of an analogue sample of university students with social

anxiety. In addition, visibility of anxiety as reported by partners and observers was

systematically higher for SA than NSA individuals.

Interestingly, in the present study, the correlations between NSA partner and observer

ratings of appearance were weak overall. The only significant positive (yet weak) relation

between partners' and observers' scores was found for specific anxious appearance

judgments of SA participants. Although both types of raters reported higher levels of

observable anxiety for SA individuals, the weak correlation result is consistent with the idea

that partners and observers may be relying on different sources of information to make

decisions about appearance as their ratings are *out of sync* with each other.[28] One possibility

is that partners also consider how they are feeling (i.e., degree of anxiety) when construing

their opinion of others' appearance. In contrast to partners, observers are excluded from the

direct interaction, and assumingly do not use their own levels of arousal when making

judgments of appearance.

---

[28] *If ratings are considered in sync or "accurate", they are expected to correlate strongly*
with other ratings of the same behaviour. Inaccuracy "refers to being off in one's perception
in unsystematic ways" (p. 5) as random measurement error does not correlate with anything;

It is also possible that the poor correlation between observers' and partners' perspectives is a function of different degrees of training and levels of information available to these individuals. First, observers practiced using the scales in a consistent manner prior to coding, while partners did not do so. Observers also provided ratings for numerous participants, while partners completed scales for only themselves and for the person with whom they interacted. Although observers watched videotapes of the full interactions, clearly there were limits to the information available in the videos. Partners were not only involved in the interaction, but had a better "view" of participants, for example, sitting within two feet of each other and better access to not only unambiguous signs of anxiety (e.g., fidgeting), but also more subtle indicators not easily viewed from afar (e.g., perspiring). Overall, the important conclusion is that the "other" in any study of social anxiety plays an important role and his or her influence must be thoughtfully considered when making conclusions.

4.4 Impressions on Partners

While it is argued that both observers' and partners' opinions must be considered in interpersonal interaction studies, it is acknowledged that the SA individuals, particularly those selectively high on an interaction anxiousness scale, are most likely concerned with the impressions made on the people with whom they interact. There are a number of different ways in which the impression made on an interaction partner can be measured, including appearance, social skills, likeability or even success in the task. We focused on anxious

---

the more inaccurate a measure is the less it should correlate with other measures (Sadler, 2001).

appearance and the partners' ratings of a desire for future interaction—as these measures are arguably the most important outcome measures—given that SA individuals by definition are worried about appearing anxious and rejection from others during an interaction (Strahan & Conger, 1998).

First, we simply tested whether desire for future interaction (a proxy measure for likeability) varied for SA and NSA individuals as rated by a NSA partner. Similar levels of likeability were found across dyad types at the group level, despite greater degrees of perceived anxiety in SA individuals in comparison to NSA participants. In an attempt to better understand what may influence partner-reported appearance ratings, we examined the relation between perceived levels of anxiety and likeability ratings by raters, observer-reported appearance and raters' own anxiety level. The raters' own level of anxious arousal was included, as presumably, individuals do not want to interact with partners who make them feel uncomfortable or experience anxious symptoms themselves, and we believed that this might influence appearance ratings or moderate the relation between likeability and appearance ratings.[29] Interestingly, we found that anxious appearance of SA or NSA individuals as reported by partners was *not* predicted by overt signs of anxiety as judged by observers. Rather, appearance ratings were strongly related to the raters' own anxious arousal levels and how much they report liking the partners for whom they are making

---

[29] *Of note, self-reported arousal and appearance of NSA individuals who interacted with SA individuals or other NSA partners was similar, suggesting that on the whole, NSA individuals do not report more anxious arousal when interacting with an individual showing more visible signs of anxiety. Observers judged NSA individuals who interacted with SA partners to be more anxious looking on SAS Factor Two (Self-manipulation/Fidgetiness). While this*

ratings. Overall, the variance explained in the appearance ratings was less than 30 percent, implying that other factors also likely contribute in the development of appearance ratings formed by partners. One potential influence on partners' ratings of appearance in others could be task-focused attention, as increased task-focused attention has been shown to result in lower self-reports of anxiety (Bogels & Lamers, 2002). In the current study, task-focused attention could be influenced by performance on the task, for example, how well participants "got to know one another" or success in the problem-solving task.[30]

A closer inspection of the relation between partner-perceived appearance and likeability revealed some differences between NSA individuals who interacted with SA individuals and those who partnered with NSA individuals. For NSA partners who interacted with SA individuals, we found that the relation between appearance and likeability was moderated by the raters' arousal level, such that the relation between likeability and anxious appearance was stronger for those raters who experienced the most anxiety during the interaction, and weakest for those with lower levels of arousal. For NSA individuals who interacted with other NSA partners, the relation between partners' appearance and desire for a future interaction was unaffected by raters' arousal levels. Perhaps NSA individuals partnered with NSA individuals were more task-focused than NSA-SA dyads, and therefore, less attentive to one's own arousal levels. Subsequently, these NSA-NSA pairs would

could be considered evidence that NSA individuals find it less pleasant to interact with SA than NSA individuals, it is important to note that the difference was only by a half SD.
[30] _Measures of these potential influences on performance were included in the study procedure, but not examined in the current analyses._

experience their interaction partner as more likeable or as displaying less anxiety. Additional implications for theory and treatment are discussed below.

4.5 Multi-item Scales: Anxious Arousal and Appearance

An important aspect of the study, albeit a side interest to testing Schlenker and Leary (1982) and Clark and Wells' (1995) models, was to understand the composition of the scales used to measure anxious arousal and appearance. We completed a series of factor analyses that revealed each of the multi-item measures were composed of well-formed factors, and that these factors appeared to be similar to those found when the factor structure of SA and NSA groups was examined separately. Ultimately, we were interested in testing whether global ratings of arousal and appearance were strongly related to composite multi-item scales and the factors of these scales. To illustrate, a strong correlation between specific symptoms of anxiety and overall feeling of anxiety suggests that one's report on how anxious he or she is feeling is some relatively accurate composite of the number and intensity of anxious indicators experienced. A poor relation between these variables implies that overall anxiety experienced is a reflection of symptoms and possibly some other factors. We also tested whether this relation between global and specific variables varied as a function of participants' social anxiety status. In review, the study showed that the relation between both global and specific ratings of arousal and appearance was not moderated by trait social anxiety status, suggesting that the manner in which global measures of arousal and appearance were used did not vary between SA and NSA individuals. (Of note, when a statistically significant interaction with trait social anxiety and arousal was found the degree of additional variance explained was essentially negligible at around one percent).

123

Finally, it is recognized that psychometric properties of global 1-item ratings can be questionable. Arguably, the face validity of the items "how anxious did you feel" and "how anxious do you think you appeared" is solid, and repeatedly used in other studies (e.g., Mansell & Clark, 1999). Further, these 1-item ratings appear to have good reliability, as they hold moderately strong correlations with other scales (e.g., $r = .45$ for our 1-item rating of appearance and specific-ratings of anxious arousal from the current study) and the correlations between global and specific ratings and external variables are comparable (e.g., IAS correlation with global anxious arousal is $r = .18$ and $r = .19$ with specific anxious arousal ratings).

Global ratings of *anxious arousal* appeared to be most strongly related to feeling shaky, unsteady, and cognitive symptoms (e.g., "feeling confused") and related to blushing and feeling flushed to a lesser extent. Though, overall, the weak to moderate levels of variance explained by composite scores in the prediction of global scores for anxious arousal ($R^2 = .25$ to .27) suggests that asking one how anxious he or she feels is not equivalent to summing totals of commonly-experienced anxious arousal symptoms. It is unlikely that the list of anxious symptoms was restricted (i.e., not exhaustive) and failed to capture some component of anxious arousal, as it contained commonly experienced physiological symptoms of anxiety and agoraphobia (adapted from Wells, 1997; Papsdorf & Alden, 1998; American Psychiatric Association, 2000). As well, nine of these symptoms were not experienced by either SA or NSA individuals during an interaction and were subsequently dropped from the factor analysis and total score.

It is probable that the 1-item global rating of arousal maybe more strongly reflective of just a few key anxious symptoms that vary on an individual basis (Herbert, Rheingold & Brandsma, 2001), and that the rest of the symptoms contributes only "noise" in the prediction.[31] Rapee and Heimberg (1997) propose that the SA individual's mental representation is characterized by the features he or she worries the most about presenting. An individual worried that sweating results in negative evaluation would conjure a mental representation dominated by excessive sweating (Rapee & Heimberg, 1997). This line of thinking suggests that it may be more suitable in such studies to have individuals identify the idiosyncratically specific anxious symptoms contributing to their global rating structure. Undoubtedly, use of such scales in empirical inquiries makes systematic comparisons across studies a further challenge.

In addition, the single item question of "how anxious did you feel?" implies that raters are providing an average of the *physiological* symptoms of anxiety experienced over the interaction. Yet, anxiety may be better thought of as a composition of "cognitive, behavioural, and physiological components" (Rapee and Heimberg, 1995, p. 749; Turk et al., 2001). In our regression analysis of global and specific ratings, the focus was on the relation between the question "how anxious do you feel?" and predominantly physiological symptoms of anxiety. A stronger association between global and specific measures might be expected if additional cognitive anxious symptoms (e.g., "mind went blank" and "sense of panic") and/or behavioural anxiety symptoms (e.g., "shaky" or "trembling voice") of anxiety

---

[31] *We could have examined Beta values for each anxious symptom in the prediction of global arousal; obviously, this would be an onerous task in relation to the study's primary goals.*

125

were used. Of note, behavioural signs of anxiety were included in our measurements; however, they were categorized as observable indicators of anxious appearance, rather than interoceptive indicators of anxiety per se.

It is also probable that how anxious one feels is related to a "felt sense" of anxiety rather than accumulation of anxious symptoms per se (Teasdale & Barnard, 1993 as cited in Clark & Wells, 1995). Spurr and Stopa (2002) describe a "felt sense" as one source of information used by individuals with social anxiety in the development of self-representations. For example, an individual may describe feeling "like a geek" (p. 950, Spurr & Stopa, 2002) without a specific observable image of how that looks. In this study, a "felt sense" can be considered a global encapsulation of one's experience during an interaction, and relatively independent of occurrences of anxious symptoms, such as feeling "shaky" or "flush" (Spurr & Stopa, 2002). If individuals tend to use a felt sense when describing how anxious they feel, we would not expect a strong correlation between global and more objective specific ratings of arousal. We would, though, expect a difference in the strength of the relation between these types of ratings if only SA but not NSA individuals used such a phenomenon (as implied by Clark and Wells' model).

There are also a number of reasons why the global or overall ratings of *anxious appearance* used in the current study might not precisely match specific-item ratings. Though it could be argued that 1-item rating has poor psychometric properties as described above, it seems more likely that a measurement of overall anxious appearance is not simply a "sum" of its probable constituents as shown with global arousal ratings. While it is also possible that our specific appearance scale did not include all the meaningful signs of

126

anxiety, that is, did not include all the right "parts," this strikes us as unlikely, as we provided 20 common signs of anxiety used in previous studies (e.g., Clark & Arkowitz, 1975). In addition to general face validity, the signs of anxiety were broad and included indicators of self-manipulation, facial expressions, and speech dysfluencies.

An assumedly straightforward rating of how anxious one appears may be more than an aggregate of overt signs of anxiety over the course of a considerably long interaction. We speculate that global ratings may be a better indication of how a participant believed he or she appeared on average over the whole interaction, while specific reports of symptom frequency serve to be an important reflection of one's experience during more discrete and possibly more memorable episodes of an interaction. Recall that the specific anxious appearance scale is primarily composed of behavioural, observable indicators of anxiety (e.g., "left long gaps in the conversation," "face turned red") that either did not occur at all or were present, infrequently to frequently, in the familiarity or problem-solving tasks. During a 15-minute interaction, SA individuals reported higher anxious appearance, implying that they tended to experience more intensity (or variety) of these behaviours in comparison to NSA individuals—this is, they recalled more anxious appearance from a noteworthy period in the interaction. When simply asked how anxious one appeared during the experience, individuals may tend to consider how anxious they felt by the end of the interaction or over the whole experience, rather than from discrete episodes during the interaction. (This might explain why SA individuals reported similar levels of appearance at the global level in comparison to NSA participants, yet reported more specific anxious appearances—maybe they had more of these noteworthy experiences, but on average, comparable experiences of

overall anxiety). By and large, if global and specific arousal and appearance ratings were

made after a briefer period of interaction, we may have found stronger relationships between

global and multi-item measures for SA and NSA individuals.

In sum, the above section highlights the incomplete understanding of the relation

between the global and specific ratings for key anxiety measures. We feel that it is essential

to use both types of scales in such interaction studies (as we have done in most analyses), as

this likely provides the most inclusive reflection of the participants' and partners'

experiences. While this series of analyses was a departure from the current study's main

goals, the conclusions are useful in the understanding of models of social anxiety disorder

and emphasize the need for more research in the understanding global and specific ratings.

4.6 Implications for Models and Treatment of Social Anxiety Disorder

Theoretical perspectives explaining social anxiety disorder have often been categorized as

one of three approaches: classical conditioning, social skills deficit or cognitive approaches

(Leary, 1983b), with recent years seeing an explosion of cognitive-behavioural models

(Hofmann & DiBartolo, 2001). While numerous cognitive models have been presented and

tested, no one model has surfaced as a clear winner. Since its first presentation in 1995,

Clark and Wells' model of SA has been repeatedly examined (cited over 300 times) and

produced substantial implications for treatment (Alden, Mellings & Ryder, 2001). In the

current study we hoped to test a few key aspects of social anxiety disorder theory, primarily

emerging from Clark and Wells' model, in a controlled, yet more realistic setting with

empirically exhaustive and clinically useful measures. In the following section we discuss

how the current findings influence a few vital aspects of social anxiety disorder theory, including impressions, anxious arousal, and appearance of anxiety.

Within a cognitive-behavioural framework, it is clear that SA individuals' expectations and pre-existing beliefs about making certain impressions are predicted to have a strong influence on the experience of anxiety during an interaction. While the Clark and Wells (1995) theory would predict that SA individuals have unrealistically high expectations, our findings are inconsistent with such a suggestion. Unlike the Clark and Wells theory, this study suggests that a model of social anxiety disorder must consider that SA individuals do *not* hold unrealistically high impression importance ratings when compared to NSA individuals. Rather, the types of impressions SA individuals believe are important to make are similar to NSA individuals and include making a confident/non-anxious and neutral (i.e., innocuously sociable) impression on others. SA individuals expect that they will be less likely to meet these varied impressions in comparison to NSA individuals. This discrepancy between impression importance values and expectations to make such an impression explains why SA individuals experience more social anxiety in an interaction than NSA individuals. Our results are consistent with Schlenker and Leary's (1982) prediction about discrepancies—the acknowledgement of which was largely ignored in Clark and Wells' theory.

Undeniably, the experience of anxiety during a social interaction is a key part of nearly any model of social anxiety disorder. Marked experience of anxiety in a social situation is what primarily distinguishes SA individuals from those who do not experience chronically high levels of social anxiety. Moreover, the experience of arousal in a situation

is believed to influence the development of mental representations of self (Rapee & Heimberg, 1997). Our results suggest that SA and NSA individuals may be more alike in how they form self-representations of anxious appearance than predicted by Clark and Wells (1995). Specifically, the general relation between arousal and self-ratings of appearance is moderately strong for both SA and NSA individuals! We suspect that when other interaction studies fail to show similar results it is primarily a consequence of using low SA controls, rather than a more normalized comparison group. Again, such a finding must be accounted for in theorizing of the mental self-representation development for social anxiety disorder.

The one pronounced difference that did exist between SA participants and individuals within normal levels of trait social anxiety occurred when trait levels of public body-consciousness were taken into account, a factor which is often ignored in many models of social anxiety disorder (viz., Clark and Wells, 1995; Turk, Lerner, Heimberg & Rapee, 2000; see Bogels and Lamers, 2002 and Spurr & Stopa, 2002[32]). In this particular analysis we found a "flat" relation between anxious symptoms and appearance for SA individuals, suggesting that for SA individuals, reports of appearance may be unrelated to how anxious they are feeling during an interaction. If anxious appearance ratings are not based on arousal (when public body-consciousness is taken into account), presumably self-reported appearance ratings for SA individuals are based on some pre-existing beliefs. This could

---

[32] *Spurr and Stopa (2002) describe the relevance of Carver & Scheier's (1981) cybernetic theory of self-regulation (which includes reference of self-consciousness to theory of social anxiety). They outline how normal social-psychological processes (i.e., self-consciousness)—that were developed independent of social anxiety disorder—have important relevance to theories of this condition.*

130

include an illusion of transparency belief—that is, that others can see how one really feels—as a factor that drives the SA individuals' self-perceptions (Gilovich, Medvec & Savitsky, 1998).

When public body-consciousness is included, NSA individuals also have a tendency to report more visible anxiety at higher levels of arousal, implying that they hold beliefs that one's internal states are apparent to others and believe that others are likely to attend to their external appearance. These findings are congruent with the idea that NSA individuals hold an illusion of transparency and also a spotlight effect tendency (i.e., a belief that others attend very closely to their external appearance; Gilovich et al., 1998). It is possible that these findings are particularly relevant for NSA participants during a social interaction as it is considered a condition of social evaluation (Brown and Stopa, 2007). It should be acknowledged that these interpretations of transparency and spotlight effects are a loose extension of the current findings; nonetheless, the importance of including such social psychology phenomena, largely ignored in such studies (for an exception, see Brown and Stopa, 2007), into future investigations is made clear.

For many cognitive models of social anxiety disorder, the perceived audience or the "others" in a social interaction are important components, but their specific role or impact is merely assumed. For example, in the Clark and Wells' (1995) model, the role of the SA individuals' beliefs about the audience (and presumed ignorance of audience generated cues of one's performance) is included. However, the implied pivotal role of the partner in the interaction is inferred but not necessarily shown to be empirically validated. Clark and Wells suggest that behaving in an anxious manner is "likely to make other people somewhat less

friendly and hence produce a negative interaction pattern that further contributes to the maintenance of social phobia" (*p*. 74). Turk et al. (2001) stress that the characteristics of the audience, whether interaction partners, observers or strangers, influences how anxious the SA individual feels in a social event. They note that anxiety "may function to reduce effective social performance and result in negative verbal and nonverbal feedback from the audience" but the manner in which this occurs is "indirect and ambiguous" (Turk et al., *p*. 297).

The direct impact of appearing anxious on others in an interaction is often overlooked in models of social anxiety disorder; however, only a few studies support the claim that anxious appearance can have negative consequences on perception by others (such as Purdon et al., 2001). A thorough model of social anxiety disorder should take into account the role of partners and or other audience members, and also provide testable predictions. In the current study, anxious appearance as perceived by partners was examined, showing that anxious appearance in others is predicted by how much raters like their partner and how anxious raters feel (i.e., higher rater anxiety is associated with higher perceived visibility of anxiety). Such information is pertinent in a model explaining the development and maintenance of social anxiety disorder, and in all, these findings emphasize how the interdependent role of partners in an interaction cannot be ignored in model development.

Not surprisingly, treatment of social anxiety disorder is purportedly as varied as the models explaining this disorder. In general, cognitive theories of treatment include a focus on challenging SA individuals' beliefs about self and others, while social skill therapies concentrate on teaching SA clients how to interact with others. Both frameworks might include some relaxation training, role playing and practice of interactions. While it is

impossible to speak to all components of treatment, this study's results highlight some key features to be considered in therapy.

Treatment of social anxiety disorder must address the clients' importance values and expectations for achieving his or her idiosyncratically derived impressions. This study suggests that therapists cannot assume that SA individuals' expectations are unrealistically high or always positive; rather, different types of expectations (e.g., innocuously sociable, dominant/confident, non-anxious) must be objectively assessed for all types of situations. For example, clinicians tend to think of innocuous sociability as a mechanism to prevent making undesired impressions on partners (Leary, 2001). However, if SA individuals have similar levels of "wanting to" and "expecting to" make such an impression, it is unlikely to cause them social anxiety during an interaction. In accordance with Schlenker and Leary's (1982) theory, it would be undesirable to then teach and expect SA individuals to behave in less innocuously sociable ways (i.e., to show less agreeableness), as this would likely lead to a discrepancy between impression importance and expectations, thus increasing anxiety!

This argument can be guardedly extended to the use of safety behaviours also. If SA individuals use safety behaviours, such as rehearsing sentences before they speak, in a way that helps them pull off a desired impression, they will be less likely to experience anxiety in a social interaction. While this may be an overall treatment goal, individuals with social anxiety are reluctant to abandon these behaviours, as the absence of safety behaviours during interactions would certainly lead to discrepancies between impressions valued and expectations. Nonetheless, the long-term negative consequences of using safety behaviours and the significance associated with such behaviours remains (Alden & Bieling, 1998; Otto,

1999). Finally, it should also be considered that if a SA individual wants to appear confident and/or dominant in an interaction, but doubts his or her ability to do so; this latter feature needs to be the focus of treatment. Treatment could include a skill-based training component to increase level of self-assuredness in an interaction, for example, or practicing interactions during which one learns to assess and modify expectations with restructuring of thoughts.

In general, cognitive restructuring in therapy for social anxiety can have many aims. Clark and Wells' (1995) model predicts that only SA individuals hold distorted self-perceptions because of an apparently strong reliance on arousal levels in developing self-reported appearance. They would suggest that SA clients need to challenge their mistaken belief that their self-image (based on interoceptive information) is representative of how they are seen by others. Treatment should then focus on training SA individuals to rely less on interoceptive information and more on external information when judging their own social performance. The goal of treatment, for example, by using video feedback techniques during social encounters, would be to train individuals to become more "objective" (Harvey, Clark, Ehler, & Rapee, 2000)[33]. In the current study, though, we found that both SA and NSA individuals have a tendency for moderate to strong correlations between how anxious they feel and believe they look to others. The goal of treatment would be to modify the client's

---

[33] *Interestingly, the weak correlation in judgments of appearance by partners and observers suggest some implications for treatment using camera feedback. It is likely that camera feedback during therapy is most effective when it is tightly focused enough on individuals' faces. Otherwise, clients would believe (possibly accurately) that they are conveying their anxiety in a myriad of ways too subtle for a camera at medium range to pick up. By comparing observations at different levels of focus, it may be apparent that anxiety, if visible at all, is only visible to interaction partners in close-range and not more broadly to other individuals.*

construal of what "looking anxious" means. The interpretation that looking anxious equals incompetence in social situations is the target for change (rather than restructuring of the "distorted self"; Alden, Mellings & Ryder, 2001). Of course, another possibility is to teach the client to feel less anxious in social situations, namely through exposure and/or skills training, because lower levels of anxiety are also associated with lower self-reports of anxious visibility. Such a proposition also supports pharmacological treatment of social anxiety disorder, as there are arguable many effective and well-tolerated medications available to reduce in-situation anxiety (Robinson & Hood, 2007).

SA clients may gain some reassurance in learning that most individuals tend to focus on their own arousal in social situations, and are inclined to report strong correlations between levels of arousal and self-reported appearance. More importantly, the concern that anxious appearance by others leads to interpersonal rejection can be shown to be only somewhat true, as chronically SA individuals on the whole are not liked less by their NSA partners (despite being rated as appearing more anxious than NSA individuals). While partner-perceived anxious appearance has a modest negative correlation with the desire for future interaction rating by partner, the strongest indicator of how one is seen by others is the anxiety level of the rater. Therefore, if SA individuals are primarily concerned with how anxious they appear to others, they may be well served to learn how to alleviate anxiety in their interaction partners! Although it is not often proposed in this manner, one way to reduce reports of how anxious one appears to others would be to explicitly manipulate attention in an interaction. This could include behaving in ways that increase task-focused attention, as this has been associated with lowering subjective reports of anxiety by others

135

(Bogels & Lamers, 2002), and by extension of this speculative argument, perceived anxiety by others.

Finally, the results comparing global and specific indicators of anxiety and appearance have implications for treatment. Given the common goal of reducing anxiety during social situations, clinicians need to be aware that asking a client "how anxious do you feel?" may not be reflective of the sum of all his or her anxious symptoms, as typically assumed. It may be essential to determine which symptoms, cognitive, physiological and behavioural, are most pertinent for each client to focus on changing during the course of therapy. Then, these particular symptoms could become focal in the development of a treatment plan.

4.7 Limitations and Future Studies

As with most studies investigating the development of self-perceptions in social anxiety, the results are based on correlational information only. Given the difficulty in experimentally manipulating anxious arousal (i.e., without the use of anxiolytics), most studies rely on measuring anxiety under controlled conditions. We could argue that this particular study has a number of advantages over previous investigations faced with the same challenges, such as an exhaustive list of anxious symptoms and clinically-relevant and face-valid measures of appearance. Certainly, a future study examining the development of self-perceptions could focus on the connection between arousal and appearance at a more fine-grained level. For example, individuals could be asked to rate symptoms of arousal and simultaneously rate to what degree that symptom is used in judging how anxious they believe they appear to others. Or, SA individuals can be asked to directly report which factors (e.g., verbal behaviour,

136

anxiety-related behaviour, subjective anxiety, pro-social behaviour, partner-interest, partner comfort; Alden & Mellings, 2004) influence their self-ratings of appearance.

This study used highly SA and NSA undergraduate students. As expected, highly SA individuals did experience anxiety during the interaction, and more so than their NSA counterparts. Although the literature suggests that research with highly SA individuals corresponds well to clinical groups (e.g., Stopa and Clark, 2001), one could argue that generalization to individuals with social anxiety disorder would require replication with clinical samples. It is important to note that such beliefs imply that individuals with social phobia are categorically different from those with high levels of social anxiety, despite the theoretical view that individuals with high social anxiety share features with social phobia, and that these features tend to fall along a continuous dimension (Vriends, Becker, Meyer, Michael & Margraf, 2007). This can be investigated by further validation of the trait measure of social anxiety used in the current study with clinical features of social anxiety disorder.

One potential limitation of this study is the use of partners that were untrained, non-confederate individuals within normal levels of trait social anxiety. Although using confederates that follow standard scripts arguably provides some gain in controllability of partners' reactions and behaviours, we feel the use of and perspective from a natural partner is more analogous to a "real" interaction. This might be particularly true for one of the outcome measures of interest—desire for future interaction; as such a rating is most meaningful from a "real-life" interaction partner. (Feasibly, one could argue that other, more pertinent, outcome measures exist).

137

Along the same lines, we choose NSA individuals (who interacted with other NSA individuals) as the group to which SA individuals were compared. While this may make our findings difficult to compare to studies in which low SA individuals were used as controls, our results are likely more robust given that the majority of interaction partners in real life will experience "within-normal" amounts of social anxiety.. Moreover, there is an obvious, if not empirically demonstrated, difference between individuals within the normal range of social anxiety and those identified as low socially anxious. Those individuals very low on a social anxiety scale could be described as gregarious, highly extroverted and *unique* or *infrequently* found group of people, and not a suitable comparison group for those individuals with high social anxiety ratings. Even so, the current study could be extended to include individuals across the full dimension of social anxiety to test if our predictions about differences in impression importance and expectations, and anxiety experiences hold for low SA individuals also.

We know that the presence of cameras during an interaction or performance has a tendency to increase self-awareness, and consequently self-focused attention (e.g., Vallacher, 1978). While individuals at all levels of self-awareness were included, it is feasible that the presence of cameras in the interaction setting had differential effects on individuals with SA or normal levels of social anxiety. For example, would NSA individuals use interoceptive information to the same extent as SA individuals without the presence of a camera? It is also possible that the increase in self-awareness led NSA individuals (particularly those high on trait levels of public body-consciousness) to take the "observer perspective" more than would be expected without cameras present? In a future study it would be possible to compare how

self-reports of anxious arousal may vary while systematically varying the obvious presence or absence of a camera (Brown and Stopa, 2007).

Another way in which our study is limited is by the focus on the participant in the model as the unit of interest. Although we found that on average, NSA partners of SA and NSA individuals had similar experiences; mutual influences between members of the dyad were not explored. One possibility would be to reanalyze our data (viz., NSA-NSA group) using a structural equation model for interchangeable dyads (Woody & Sadler, 2005). Likely, we would require additional dyads to use structural equation modeling satisfactorily. Such a study could also help us understand to what degree (i.e., explained variance) individuals' bodily sensations and feelings are employed, as well as what other types of information, such as partners' arousal level might be used when deriving judgments.

Finally, it is important to acknowledge that, as with many previous studies, reports of anxiety and appearance judgments were made after the interaction was complete, and therefore, may be susceptible to post-event processing (e.g., Fehm, Schneider & Hoyer, 2007). Global measures were completed immediately after the entire interaction—composed of both an affiliation and structured problem-solving task, and participants were requested to avoid changing their original responses after completing specific ratings. We may have found differences in ratings of global anxiety and appearance between groups if ratings were made at different intervals during the interaction—for example, after the unstructured "get familiar" task. This is an option to consider for future studies.

4.8 Conclusions

Social anxiety disorder is one of the most prevalent mental health disorders and associated with a lifetime of distress and disability. While a number of models of social anxiety disorder exist, Clark and Wells (1995) provide one of the most influential cognitive models and make a number of predictions about the experience of anxiety and self-representations for the individual with high levels of social anxiety. In the current study we demonstrated that anxious arousal occurs when individuals desire to make a particular impression but doubt their ability to do so, irrespective of social anxiety status (Schlenker and Leary, 1982). While individuals with social anxiety were found to experience more anxiety in a social interaction and report more observable anxiety, both SA and NSA individuals appear to rely on their anxious experience when deriving how they appear to others. Neither SA or NSA individuals were found to have a trait level tendency to be concerned about how others view oneself or to be more internally self-focused, but for NSA individuals who had a strong tendency to attend to publicly observable aspects of their body, the relation between arousal and self-reported appearance was particularly strong in comparison to SA individuals. In addition, we showed that as a group SA and NSA individuals make comparable types of impressions on their partners during an interaction (e.g., the desire for a future encounter). Finally, we investigated the relation between clinically-useful (i.e., global ratings) and commonly-used empirical (e.g., multi-item behaviours) measures of anxiety and appearance, demonstrating the importance of furthering such investigations. Implications for current theories and treatment of social anxiety disorder were discussed and the immense need for further investigation of this disorder reinforced.

References

Alden, L. E., & Bieling, P. (1998). Interpersonal consequences of the pursuit of safety. *Behaviour Research & Therapy*, 36(1), 53-64.

Alden, L. E., & Mellings, T. M. B. (2004). Generalized social phobia and social judgments: The salience of self- and partner-information. *Journal of Anxiety Disorders*, 18(2), 143-157.

Alden, L. E., Mellings, T. M. B., & Ryder, A. G. (2001). Social anxiety, social phobia, and the self. In S. G. Hofmann, & P. M. DiBartolo (Eds.). *From social anxiety to social phobia: Multiple perspectives*. (pp. 304-320). Needham Heights, MA, US: Allyn & Bacon.

Alden, L. E., & Wallace, S. T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research & Therapy*, 33(5), 497-505.

American Psychiatric Association (2000). D*iagnostic and statistical manual of mental disorders* (4th ed, text revision). Washington, DC: American Psychiatric Association.

Amir, N., & Foa, E. B. (2001). Cognitive biases in social phobia. In S. G. Hofmann, & P. M. DiBartolo (Eds.). *From social anxiety to social phobia: Multiple perspectives*. (pp. 254-267). Needham Heights, MA, US: Allyn & Bacon.

Arbuckle, J. L., & Wothke, W. (1999). *Amos 4.0. user's guide*. Chicago: Small Waters.

Beck, A. T., Emery, G., & Greenberg, R. L. (2005). *Anxiety disorders and phobias: A cognitive perspective*. New York, NY, US: Basic Books.

Beidel, D. C., Turner, S. M., & Dancu, C. V. (1985). Physiological, cognitive and behavioral aspects of social anxiety. *Behaviour Research & Therapy, 23*(2), 109-117.

Bergman, J. S., & Johnson, H. J. (1971). The effects of instructional set and autonomic perception on cardiac control. *Psychophysiology*, 8(2), 180-190.

Bögels, S. M., & Lamers, C. T. J. (2002). The causal role of self-awareness in blushing-anxious, socially-anxious and social phobic individuals. *Behaviour Research & Therapy*, 40(12), 1367-1384.

Bradley, B. P., Mogg, K., & Lee, S. C. (1997). Attentional biases for negative information in induced and naturally occurring dysphoria. *Behaviour Research & Therapy*, 35(10), 911-927.

Brown, M. A., & Stopa, L. (2007). The spotlight effect and the illusion of transparency in social anxiety. *Journal of Anxiety Disorders*, 21(6), 804-819.

Buss, A. H. (1980). *Self-consciousness and social anxiety*. San Francisco: Freeman & Company.

Cattell, R. B. (1952). *Factor analysis: An introduction and manual for the psychologist and social scientist*. Oxford, England: Harper.

Chapman, T. F., Mannuzza, S., & Fyer, A. J. (1995). Epidemiology and family studies of social phobia. In R. G. Heimberg, & M. R. Liebowitz (Eds.), *Social phobia: Diagnosis, assessment, and treatment.* (pp. 21-40). New York, NY, US: Guilford Press.

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, &

    M. R. Liebowitz (Eds.), *Social phobia: Diagnosis, assessment, and treatment*. (pp. 69-

    93). New York, NY, US: Guilford Press.

Clark, J. V., & Arkowitz, H. (1975). Social anxiety and self-evaluation of interpersonal

    performance. *Psychological reports*, 36(1), 211-221.

Coles, M. E., Turk, G. L., Heimberg, R. G., & Fresco, D. M. (2001). Effects of varying levels

    of anxiety within social situations: Relationship to memory perspective and attributions

    in social phobia. *Behaviour Research & Therapy*, 39(6), 651-665.

Coyne, J. C. (1976). Depression and the response of others. *Journal of Abnormal*

    Psychology, 85(2), 186-193.

DePaulo, B. M., Epstein, J. A., & LeMay, C. S. (1990). Responses of the socially anxious to

    the prospect of interpersonal evaluation. *Journal of Personality*, 58(4), 623-640.

Daly, J. A., Vangelisti, A. L. & Lawrence, S. G. (1989). Self-focused attention and public

    speaking anxiety. *Personality and Individual Differences*, 10, 903-913

Eastwood, J. D., Smilek, D., Oakman, J. M., Farvolden, P., van Ameringen, M., Mancini, C.,

    et al. (2005). Individuals with social phobia are biased to become aware of negative

    faces. *Visual Cognition*, 12(1), 159-179.

Edwards, J. R. (1995). Alternatives to difference scores as dependent variables in the study of congruence in organizational research. *Organizational Behavior and Human Decision Processes*, 64(3), 307-324.

Edwards, J. R. (2001). Ten difference score myths. *Organizational Research Methods*, 4(3), 265-287.

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Academy of Management Journal,* 36(6), 1577-1613.

Fehm, L., Schneider, G., & Hoyer, J. (2007). Is post-event processing specific for social anxiety? *Journal of Behavior Therapy and Experimental Psychiatry, 38*(1), 11-22.

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, 43(4), 522-527.

Gilovich, T., Medvec, V. H., & Savitsky, K. (2000). The spotlight effect in social judgment: An egocentric bias in estimates of the salience of one's own actions and appearance. *Journal of Personality & Social Psychology, 78*(2), 211-222.

Gilovich, T., Savitsky, K., & Medvec, V. H. (1998). The illusion of transparency: Biased assessments of others' ability to read one's emotional states. *Journal of Personality & Social Psychology, 75*(2), 332-346.

144

Gonzalez, R., & Griffin, D. (1997). *On the statistics of interdependence: Treating dyadic data with respect.* John Wiley & Sons, Inc, Hoboken, NJ: US.

Govern, J. M., & Marsch, L. A. (2001). Development and validation of the situational self-awareness scale. *Consciousness and Cognition: An International Journal, 10*(3), 366-378.

Grice, J. W. (2001). A comparison of factor scores under conditions of factor obliquity. *Psychological Methods*, 6(1), 67-83.

Grice, J. W., & Harris, R. J. (1998). A comparison of regression and loading weights for the computation of factor scores. *Multivariate Behavioral Research*, 33(2), 221-247.

Griffin, D., & Gonzalez, R. (1995). Correlational analysis of dyad-level data in the exchangeable case. *Psychological Bulletin*, 118(3), 430-439.

Hackmann, A., Surawy, C., & Clark, D. M. (1998). Seeing yourself through others' eyes: A study of spontaneously occurring images in social phobia. *Behavioural & Cognitive Psychotherapy*, 26(1), 3-12.

Harvey, A. G., Clark, D. M., Ehlers, A., & Rapee, R. M. (2000). Social anxiety and self-impression: Cognitive preparation enhances the beneficial effects of video feedback following a stressful social task. *Behaviour Research & Therapy, 38*(12), 1183-1192.

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, 7(2), 191-205.

Hirsch, C. R., Mathews, A., & Clark, D. M. (2007). Inducing an interpretation bias changes self-imagery: A preliminary investigation. *Behaviour Research & Therapy, 45*(9), 2173-2181.

Hofmann, S. G., & DiBartolo, P. M. (Eds.). *From social anxiety to social phobia: Multiple perspectives.* Needham Heights, MA, US: Allyn & Bacon.

Hope, D. A., & Heimberg, R. G. (1988). Public and private self-consciousness and social phobia. *Journal of Personality Assessment*, 52(4), 626-639.

Hope, D. A., Heimberg, R. G., & Klein, J. F. (1990). Social anxiety and the recall of interpersonal information. *Journal of Cognitive Psychotherapy*, 4(2), 185-195.

Horley, K., Williams, L. M., Gonsalvez, C., & Gordon, E. (2003). Social phobics do not see eye to eye: A visual scanpath study of emotional expression processing. *Journal of Anxiety Disorders*, 17(1), 33-44.

Kline, R. B. (. (1998). *Principles and practice of structural equation modeling*. New York, NY, US: Guilford Press.

Kimble, C. E., & Zehr, H. D. (1982). Self-consciousness, information load, self-presentation, and memory in a social situation. *Journal of Social Psychology*, 118(1), 39-46.

Leary, M. R. (1983a). Social anxiousness: The construct and its measurement. *Journal of Personality Assessment*, 47(1), 66-75.

Leary, M. R. (1983b). *Understanding social anxiety*. Beverly Hills, CA: Sage

Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behaviour*. Milwaukee, WI: Brown & Benchmark.

Leary, M. R. (2001). Social anxiety as an early warning system: A refinement and extension of the self-presentation theory of social anxiety. In S. G. Hofmann, & P. M. DiBartolo (Eds.), *From social anxiety to social phobia: Multiple perspectives..* (pp. 321-334). Needham Heights, MA, US: Allyn & Bacon.

Leary, M. R., & Kowalski, R. M. (1993). The interaction anxiousness scale: Construct and criterion-related validity. Journal of Personality assessment, 61(1), 136-146.

Leary, M. R., & Kowalski, R. M. (1995). The self-presentation model of social phobia. In R. G. Heimberg, & M. R. Liebowitz (Eds.), *Social phobia: Diagnosis, assessment, and treatment*. (pp. 94-112). New York, NY, US: Guilford Press.

Leary, M. R., Kowalski, R. M., & Campbell, C. D. (1988). Self-presentational concerns and social anxiety: The role of generalized impression expectancies. *Journal of Research in Personality*, 22(3), 308-321.

Lederman, S. A., Savitsky, K. & Gilovich, T. (1998). The illusion of transparency in emotional expression: Do people know how little they show? *Eastern Psychological Association*, February, 1998, Boston MA.

MacLeod, C., Mathews, A., & Tata, P. (1986). Attentional bias in emotional disorders. *Journal of Abnormal Psychology*, 95(1), 15-20.

Mansell, W., & Clark, D. M. (1999). How do I appear to others? Social anxiety and processing of the observable self. *Behaviour Research & Therapy*, 37(5), 419-434.

Mansell, W., Clark, D. M., Ehlers, A., & Chen, Y. P. (1999). Social anxiety and attention away from emotional faces. *Cognition & Emotion*, 13(6), 673-690.

Mathews, A. (1997). Information-processing biases in emotional disorders. In D. M. Clark, & C. G. Fairburn (Eds.), *Science and practice of cognitive behaviour therapy*. (pp. 47-66). London: Oxford University Press.

McEwan, K. L., & Devins, G. M. (1983). Is increased arousal in social anxiety noticed by others? *Journal of Abnormal Psychology*, 92(4), 417-421.

Mellings, T. M. B., & Alden, L. E. (2000). Cognitive processes in social anxiety: The effects of self-focus, rumination and anticipatory processing. *Behaviour Research & Therapy*, 38(3), 243-257.

Miller, L. C., Murphy, R., & Buss, A. H. (1981). Consciousness of body: Private and public. *Journal of Personality & Social Psychology*, 41(2), 397-406.

Norton, P. J., & Hope, D. A. (2001). Kernels of truth or distorted perceptions: Self and observer-ratings of social anxiety and performance. *Behavior Therapy, 32*(4), 765-786.

Oakman, J., Gifford, S., & Chlebowsky, N. (2003). A multilevel analysis of the interpersonal behavior of socially anxious people. *Journal of Personality*, 71(3), 397-434.

O'Connor, B. P. (2004). SPSS and SAS programs for addressing interdependence and basic levels-of-analysis issues in psychological data. *Behavior Research Methods, Instruments & Computers,* 36(1), 17-28.

Otto, M. W. (1999). Cognitive-behavioral therapy for social anxiety disorder: Model, methods, and outcome. *Journal of Clinical Psychiatry*, 60, 14-19.

Papageorgiou, C., & Wells, A. (2002). Effects of heart rate information on anxiety, perspective taking, and performance in high and low social-evaluative anxiety. *Behavior Therapy, 33*(2), 181-199.

Papsdorf, M., & Alden, L. (1998). Mediators of social rejection in social anxiety: Similarity, self-disclosure, and overt signs of anxiety. *Journal of Research in Personality*, 32(3), 351-369.

Pollack, M. H. (1999). New frontiers in the management of social anxiety disorder: Diagnosis, treatment, and clinical course. *Journal of Clinical Psychiatry*, 3.

Phipps, M., (1991). Group dynamics in the outdoors: a model for teaching outdoor leaders. In Cockrell, D. (Ed.) *The wilderness educator: The wilderness education association curriculum guide*. Merrillville, IN: ICS Books, Inc.

Purdon, C., Antony, M., Monteiro, S., & Swinson, R. P. (2001). Social anxiety in college students. *Journal of Anxiety Disorders*, 15(3), 203-215.

Rapee, R. M., & Lim, L. (1992). Discrepancy between self- and observer-ratings of

performance in social phobics. *Journal of Abnormal Psychology*, 101(4), 728-731.

Rapee, R. M., McCallum, S. L., Melville, L. F., & Ravenscroft, H. (1994). Memory bias in

social phobia. *Behaviour Research & Therapy*, 32(1), 89-99.

Robinson, H. M., & Hood, S. D. (2007). Social anxiety disorder—A review of

pharmacological treatments. *Current Psychiatry Reviews, 3*(2), 95-122.

Sadler, P. (2001). Complementarity in social interaction: Interpersonal style and mutual

influence in mixed-sex dyads (Doctoral dissertation, University of Waterloo, 2001).

Dissertation Abstracts International: Section B: The Sciences & Engineering, 64(2-B),

1005.

Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and

panic: A cognitive account. *Behavioural Psychotherapy Special: The changing face of

Behavioural Psychotherapy*, 19(1), 6-19.

Schlenker, B. R., & Leary, M. R. (1982). Social anxiety and self-presentation: A

conceptualization model. *Psychological Bulletin*, 92(3), 641-669.

Schlenker, B. R., & Leary, M. R. (1985). Social anxiety and communication about the self.

Journal of Language & Social Psychology, 4(3-4), 171-192.

Scholing, A. & Emmelkamp, P. M. G. (1990). *Social phobia: Nature and treatment*. New

York, NY, US: Plenum Press.

Spurr, J. M., & Stopa, L. (2002). Self-focused attention in social phobia and social anxiety. *Clinical Psychology Review*, 22(7), 947-975.

Stopa, L., & Clark, D. M. (1993). Cognitive processes in social phobia. *Behaviour Research & Therapy*, 31(3), 255-267.

Stopa, L., & Clark, D. M. (2000). Social phobia and interpretation of social events. *Behaviour Research & Therapy*, 38(3), 273-283.

Strahan, E., & Conger, A. J. (1998). Social anxiety and its effects on performance and perception. *Journal of Anxiety Disorders*, 12(4), 293-305.

Tabachnick, B. G. & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon/Pearson Education.

Turk, C. L., Lerner, J., Heimberg, R. G., & Rapee, R. M. (2001). An integrated cognitive-behavioral model of social anxiety. In S. G. Hofmann, & P. M. DiBartolo (Eds.), *From social anxiety to social phobia: Multiple perspectives (*pp. 281-303). Needham Heights, MA, US: Allyn & Bacon

Tyrer, P. (1976). The role of bodily feelings in anxiety. Oxford, England: Oxford U Press.

Vallacher, R. R. (1978). Objective self awareness and the perception of others. *Personality and Social Psychology Bulletin, 4*(1), 63-67.

Vriends, N., Becker, E. S., Meyer, A., Michael, T., & Margraf, J. (2007). Subtypes of social phobia: Are they of any use? *Journal of Anxiety Disorders, 21*(1), 59-75.

151

Veljaca, K. A., & Rapee, R. M. (1998). Detection of negative and positive audience behaviours by socially anxious subjects. *Behaviour Research & Therapy*, 36(3), 311-321.

Vorauer, J. D., & Ross, M. (1999). Self-awareness and feeling transparent: Failing to suppress one's self. *Journal of Experimental Social Psychology*, 35(5), 415-440.

Wackwitz, J. H., & Horn, J. L. (1971). On obtaining the best estimates of factor scores within an ideal simple structure. *Multivariate Behavioral Research*, 6(4), 389-408.

Wallace, S. T., & Alden, L. E. (1991). A comparison of social standards and perceived ability in anxious and nonanxious men. *Cognitive Therapy & Research*, 15(3), 237-254.

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting & Clinical Psychology,* 33(4), 448-457.

Webb, W. M., Marsh, K. L., Schneiderman, W. & Davis, B. (1989). Interaction between self-monitoring and manipulated states of self-awareness. *Journal of Personality & Social Psychology*, 56, 70-80.

Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my minds eye: Perspective taking in social phobic imagery. *Behaviour Research & Therapy*, 36(6), 631-634.

Wells, A., & Papageorgiou, C. (1999). The observer perspective: Biased imagery in social phobia, agoraphobia, and blood injury phobia. *Behaviour Research & Therapy*, 37(7), 653-658.

Wells, A., & Papageorgiou, C. (2001). Brief cognitive therapy for social phobia: A case series. *Behaviour Research & Therapy*, 39(6), 713-720.

Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide.* New York, NY, US: John Wiley & Sons, Inc.

Wells, A. (2000). Modifying social anxiety: A cognitive approach. In W. R. Crozier (Ed.), *Shyness: Development, consolidation and change* (pp. 186-206). New York, NY, US: Routledge.

West, S. G., Finch, J. F., & Curran, P. J. (1995). *Structural equation models with nonnormal variables: Problems and remedies*. Thousand Oaks, CA, US: Sage publications, Inc.

Williams, J. M. G., Watts, F. N., MacLeod, C., & Mathews, A. (1990). *Cognitive psychology and emotional disorders*. Oxford, England: John Wiley & Sons.

Wood, J. V., Saltzberg, J. A., Neale, J. M., Stone, A. A., & Rachmiel, T. B. (1990). Self-focused attention, coping responses, and distressed mood in everyday life. *Journal of Personality and Social Psychology, 58*(6), 1027-1036.

Woody, E., & Sadler, P. (2005). Structural equation models for interchangeable dyads: Being the same makes a difference. *Psychological methods*, 10(2), 139-158.

Woody, S. R. (1996). Effects of focus of attention on anxiety levels and social performance of individuals with social phobia. *Journal of Abnormal Psychology*, 105(1), 61-69.

Woody, S. R., & Rodriguez, B. F. (2000). Self-focused attention and social anxiety in social phobics and normal controls. *Cognitive Therapy & Research*, 24(4), 473-488.

Appendices

Appendix A (Measures)

Table A1. IAS measure

Instructions: Rate the degree to which the statement is characteristic or true of yourself, by making a rating between 1 and 5, where:

Not at all characteristic 1	Slightly characteristic 2	Moderately characteristic 3	Very characteristic 4	Extremely characteristic 5

1. I often feel nervous even in casual get-togethers.	1 2 3 4 5
2. I usually feel uncomfortable when in a group of people I don't know.	1 2 3 4 5
3. **I am usually at ease when speaking to a member of the opposite sex.**	1 2 3 4 5
4. I get nervous when I must talk to a teacher or boss.	1 2 3 4 5
5. Parties often make me feel anxious and uncomfortable.	1 2 3 4 5
6. **I am probably less shy in social interactions than most people.**	1 2 3 4 5
7. I sometimes feel tense when talking to people of my own sex if I don't know them very well.	1 2 3 4 5
8. I would be nervous if I was being interviewed for a job.	1 2 3 4 5
9. I wish I had more confidence in social situations.	1 2 3 4 5
10. **I seldom feel anxious in social situations.**	1 2 3 4 5
11. In general, I am a shy person.	1 2 3 4 5
12. I often feel nervous when talking to someone to whom I am attracted.	1 2 3 4 5
13. I often feel nervous when calling someone I don't know very well on the telephone.	1 2 3 4 5
14. I get nervous when I have to speak to someone in a position of authority.	1 2 3 4 5
15. **I usually feel relaxed around other people, even people who are quite different from myself.**	1 2 3 4 5

Note. Bold typeface items were reversed scored.

Table A2. Private and Public Self- and Body-Consciousness

Instructions: Please rate how well the following describes you. Please circle only one number for each response.

Extremely Uncharacteristic 1	Uncharacteristic 2	Neutral 3	Characteristic 4	Extremely Characteristic 5

1. I am sensitive to internal bodily tensions.	1 2 3 4 5
2. I'm concerned about my posture.	1 2 3 4 5
3. I know immediately when my mouth or throat gets dry.	1 2 3 4 5
4. It's important for me that my skin looks nice, for example, has no blemishes.	1 2 3 4 5
5. I can often feel my heart beating.	1 2 3 4 5
6. I am quick to sense the hunger contractions of my stomach.	1 2 3 4 5
7. I'm very aware of changes in my body temperature.	1 2 3 4 5
8. I think a lot about my body build.	1 2 3 4 5
9. When I am with others, I want my hands to be clean and look nice.	1 2 3 4 5
10. *I am very aware of my best and worst facial features.*	1 2 3 4 5
11. *I like to make sure my hair looks right.*	1 2 3 4 5
12. I'm am always trying to figure myself out	1 2 3 4 5
13. I'm often the subject of my own fantasies	1 2 3 4 5
14. I am constantly examining my motives	1 2 3 4 5
15. I'm alert to changes in my mood	1 2 3 4 5
16. I'm concerned about what other people think of me	1 2 3 4 5
17. I'm usually aware of my appearance	1 2 3 4 5
18. I never scrutinize myself	1 2 3 4 5
19. I'm generally attentive to my inner feelings	1 2 3 4 5
20. One of the last things I do before I leave my house is look in the mirror	1 2 3 4 5
21. I'm concerned about my style of doing things	1 2 3 4 5
22. I'm concerned about the way I present myself	1 2 3 4 5
23. I'm self-conscious about the way I look	1 2 3 4 5
24. Generally, I am not very aware of myself	1 2 3 4 5
25. I reflect about myself a lot	1 2 3 4 5

26. I'm aware of the way my mind works when I work through a problem	1 2 3 4 5
27. I sometimes have feelings that I'm off somewhere watching myself	1 2 3 4 5
28. I usually worry about making a good impression	1 2 3 4 5

Note. Items 1 to 11 are from the Body-Consciousness Scale (BCS); 12 to 28 are from the

Self-Consciousness Scale (SCS). Items from the private subscales are in bold typeface.

Table A3. Impression and Expectations

Instructions: Please indicate how important it is for you to make a positive impression on your partner. Please circle only one answer.

Not at all important	Slightly important	Somewhat important	Moderately important	Very important	Extremely important
1	2	3	4	5	6

How important is it for you to make a positive impression during the interaction?	1 2 3 4 5 6

Instructions: Please rate how important it is for you to make an impression, according to the following descriptors, on your partner during the interaction. Please circle only one answer.

Not at all important	Slightly important	Somewhat important	Moderately important	Very important	Extremely important
1	2	3	4	5	6

1. It is important for me to appear warm	1 2 3 4 5 6
2. It is important for me to appear assertive	1 2 3 4 5 6
3. It is important for me to appear courteous	1 2 3 4 5 6
4. It is important for me to appear humourous	1 2 3 4 5 6
5. It is important for me to appear polite	1 2 3 4 5 6
6. It is important for me to <u>not</u> appear embarrassed	1 2 3 4 5 6
7. It is important for me to <u>not</u> appear awkward	1 2 3 4 5 6
8. It is important for me to appear comfortable	1 2 3 4 5 6
9. It is important for me to appear interesting	1 2 3 4 5 6
10. It is important for me to appear secure	1 2 3 4 5 6

Instructions: Please rate to what extent you think you will display the following characteristics during the interaction. Please circle only one answer.

Not at all	Slightly	Somewhat	Moderately	Very	Extremely
1	2	3	4	5	6

1. Warm	1 2 3 4 5 6
2. Assertive	1 2 3 4 5 6
3. Courteous	1 2 3 4 5 6
4. Humourous	1 2 3 4 5 6
5. Polite	1 2 3 4 5 6
6. Embarrassed	1 2 3 4 5 6
7. Awkward	1 2 3 4 5 6
8. Comfortable	1 2 3 4 5 6
9. Interesting	1 2 3 4 5 6
10. Secure	1 2 3 4 5 6

Note. Bold typeface items were reversed scored.

Table A4. Specific Anxiety Symptoms (SAS)

Instructions: In the shaded column below, please rate how well the following describes **how you felt** during the interactions. In the non-shaded column please indicate **how visible** you believe these feelings were to your partner. Please circle only one number per column.

Not at all	Slightly	Somewhat	Moderately	Very	Extremely
1	2	3	4	5	6

	Feelings						Visibility					
1. I felt that I was trembling.	1	2	3	4	5	6	1	2	3	4	5	6
2. I felt sweaty.	1	2	3	4	5	6	1	2	3	4	5	6
3. I felt that my hands were shaking.	1	2	3	4	5	6	1	2	3	4	5	6
4. My throat felt dry.	1	2	3	4	5	6	1	2	3	4	5	6
5. I felt weak.	1	2	3	4	5	6	1	2	3	4	5	6
6. My stomach was in knots.	1	2	3	4	5	6	1	2	3	4	5	6
7. I felt nauseated.	1	2	3	4	5	6	1	2	3	4	5	6
8. My mind went blank	1	2	3	4	5	6	1	2	3	4	5	6
9. My heart was pounding.	1	2	3	4	5	6	1	2	3	4	5	6
10. I felt that things were unreal.	1	2	3	4	5	6	1	2	3	4	5	6
11. I felt tense.	1	2	3	4	5	6	1	2	3	4	5	6
12. I felt unsteady.	1	2	3	4	5	6	1	2	3	4	5	6
13. I felt dizzy.	1	2	3	4	5	6	1	2	3	4	5	6
14. I felt that I had hot flushes.	1	2	3	4	5	6	1	2	3	4	5	6
15. I felt that my voice was trembling.	1	2	3	4	5	6	1	2	3	4	5	6
16. I felt light-headed.	1	2	3	4	5	6	1	2	3	4	5	6
17. I had chills.	1	2	3	4	5	6	1	2	3	4	5	6
18. My face felt hot.	1	2	3	4	5	6	1	2	3	4	5	6
19. I felt short of breath.	1	2	3	4	5	6	1	2	3	4	5	6
20. My body or face felt stiff.	1	2	3	4	5	6	1	2	3	4	5	6
21. I felt like my heart was racing.	1	2	3	4	5	6	1	2	3	4	5	6
22. I felt shaky.	1	2	3	4	5	6	1	2	3	4	5	6
23. My face felt flushed.	1	2	3	4	5	6	1	2	3	4	5	6
24. I felt a sense of panic.	1	2	3	4	5	6	1	2	3	4	5	6
25. I felt numbness in my parts of my body.	1	2	3	4	5	6	1	2	3	4	5	6
26. I had tingling in my fingertips.	1	2	3	4	5	6	1	2	3	4	5	6
27. I had blurred or distorted vision.	1	2	3	4	5	6	1	2	3	4	5	6
28. I had chest pain.	1	2	3	4	5	6	1	2	3	4	5	6
29. I felt disoriented or confused.	1	2	3	4	5	6	1	2	3	4	5	6
30. I felt disconnected from my body.	1	2	3	4	5	6	1	2	3	4	5	6
31. My face felt red.	1	2	3	4	5	6	1	2	3	4	5	6

158

Note. Visibility ratings were not used in the current study.

Table A5. Overt Signs of Anxiety (OSA-Self)

Instructions: Please indicate to what extent **you believed you displayed** the following. Please circle only one number for each response.

Not at all true 1	Slightly true 2	Somewhat true 3	Moderately true 4	Very true 5	Extremely true 6

1. I appeared to make low eye contact	1	2	3	4	5	6
2. I appeared fidgety	1	2	3	4	5	6
3. I appeared to be touching my face/body	1	2	3	4	5	6
4. I appeared to make uncomfortable facial expressions	1	2	3	4	5	6
5. My speech appeared dysfluent (e.g., stammering or hesitating)	1	2	3	4	5	6
6. I appeared to make omissions in my speech	1	2	3	4	5	6
7. I appeared to make slips of tongue	1	2	3	4	5	6
8. I appeared to repeat words	1	2	3	4	5	6
9. I appeared to have a non-expressive tone of voice	1	2	3	4	5	6
10. I appeared to be perspiring	1	2	3	4	5	6
11. I appeared jittery	1	2	3	4	5	6
12. My voice appeared to be trembling	1	2	3	4	5	6
13. My body or hands appeared to be shaking	1	2	3	4	5	6
14. I appeared short of breath	1	2	3	4	5	6
15. My body or face appeared stiff	1	2	3	4	5	6
16. My face or body appeared to turn red	1	2	3	4	5	6
17. I appeared to leave long gaps in the conversation	1	2	3	4	5	6
18. I appeared to understand what my partner said	1	2	3	4	5	6
19. I appeared to ask interesting questions	1	2	3	4	5	6
20. I appeared to initiate conversations	1	2	3	4	5	6

Note. Bold typeface items were reversed scored. The same items were used in the OSA-Partner and OSA-Observer scales with modifications to the wording "I appeared" to "My partner" and "The participant," respectively.

Table A6. Desire for Future Interaction (DFI)

<u>Instructions:</u> Please rate the extent to which you would like to engage in a variety of social activities with your partner. Please circle only one number for each response.

Not at All	A Little	Somewhat	Moderately	Very Much
1	2	3	4	5

1.	Would you like to meet this person again?	1 2 3 4 5
2.	Would you like to spend more time with him/her?	1 2 3 4 5
3.	Would you like to work with this person?	1 2 3 4 5
4.	Would you like to sit next to him/her on a 3-hour bus ride?	1 2 3 4 5
5.	Would you invite this person to visit you?	1 2 3 4 5
6.	Would you like to get to know this person better?	1 2 3 4 5
7.	Would you ask this person for advice?	1 2 3 4 5
8.	Would you consider having this person for a housemate?	1 2 3 4 5

Appendix B (Cronbach's Alphas)

Table B1. Psychometric Properties (Cronbach's Alphas) for Descriptive Measures

	SA	NSA	Combined
	$N = 117$ to 120	$N = 231$ to 240	$N = 362$ to 369
IAS	--	--	.82
Self-awareness			
Private Body-Consciousness	.65	.57	.61
Public Body-Consciousness	.76	.73	.75
Private Self-Consciousness	.75	.68	.72
Public Self-Consciousness	.81	.80	.81
Impression Importance	.86	.83	.84
Impression Expectations	.77	.71	.73

Note. IAS = Interaction Anxiousness Scale. Due to restriction of range for scores on the IAS

for the SA and NSA group, we only report alpha for the combined group.

Table B2. Psychometric Properties (Cronbach's Alphas) for Dependent Measures

	SA	NSA	Combined
	$N = 93$ to 98	$N = 112$ to 122	$N = 297$ to 335
SAS	.87	.91	.88
Overt Signs of Anxiety (OSA)			
OSA-Self	.86	.82	.85
OSA-by Partner	.83	.86	.86
OSA-by Observer – Group1	.91	.85	.77
OSA- by Observer – Group 2	.91	.87	.80
Global Anxious Appearance			
Observer – Group 1	.81	.71	.88
Observer – Group 2	.78	.79	.88
DFI	.89	.92	.91

Note. SAS = Specific Anxiety Symptoms; DFI = Desire for Future Interaction. The sample sizes were different for Observer Group 1 (SA, $N = 28$ to 29; NSA: $N = 54$ to 55) and Observer Group 2 (SA: $N = 28$; NSA: $N = 84$).

Appendix C (Normality)

Table C1. Normality Indices for Descriptive and Dependent Measures

	N	Skew	Kurtosis	K-S	*p*
IAS	324	.80	-.36	3.08	.00
Self-awareness					
Private Body-Consciousness	322	.07	.48	1.73	.01
Public Body-Consciousness	322	.21	.68	1.60	.01
Private Self-Consciousness	321	.15	.06	.98	.30
Public Self-Consciousness	322	.01	-.12	1.35	.05
Impression Global	279	-.87	1.31	4.42	.00
Impression importance	322	-.29	.84	1.38	.04
Impression expectations	322	-.08	.11	1.02	.25
SAS	316	1.53	1.96	3.23	.00
Global Ratings					
Anxious Arousal-Self	316	.68	.18	4.67	.00
Anxious Appearance-Self	316	.58	-.02	.47	.00
Anxious Appearance-Partner	316	.88	.23	4.86	.00
Anxious Appearance-Observer	196	.31	-.47	1.36	.05
Overt Signs of Anxiety					
OSA-Self	316	1.10	1.69	1.70	.01
OSA-by Partner	316	1.72	4.00	2.09	.00
OSA-by Observer	196	.73	.84	1.03	.24
DFI	315	-1.32	-.572	.56	.02

Note. K-S = Kolmogorov-Smirnov; IAS = Interaction Anxiousness Scale; DFI = Desire for

Future Interaction; OSA: Overt Signs of Anxiety scale.

Figure C1. Distribution of SAS with Normal Curve
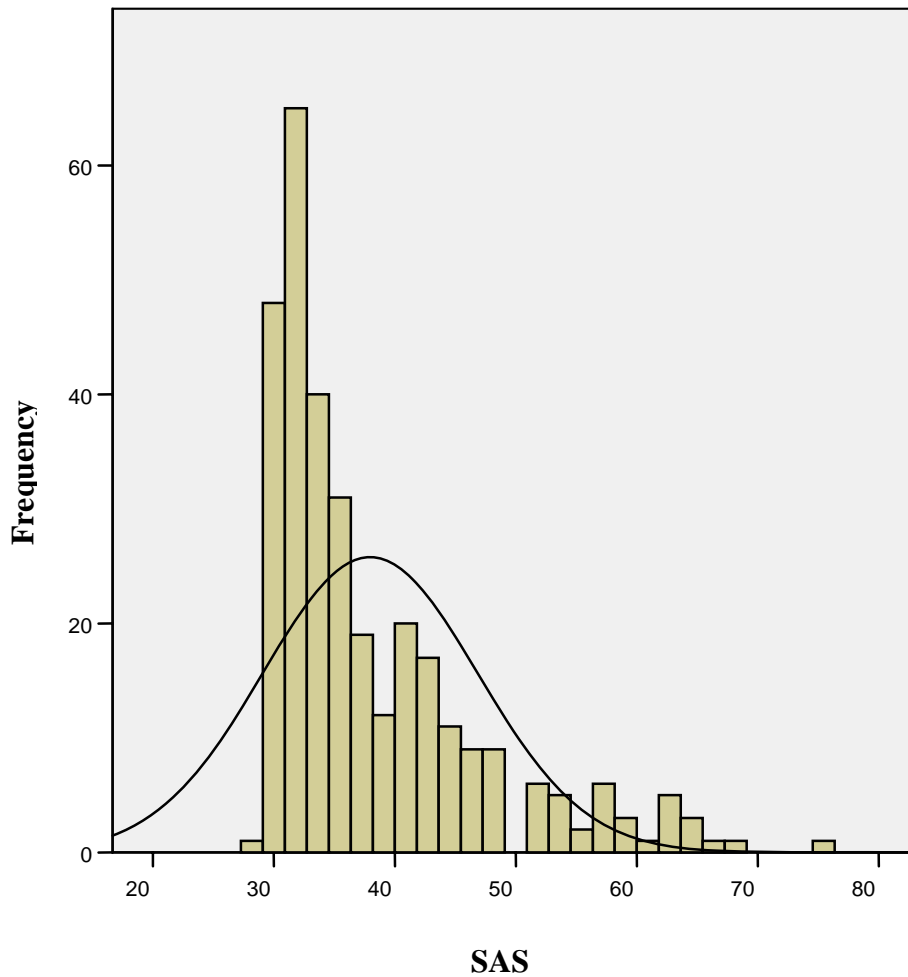
Note. SAS = Specific Anxiety Symptoms. We examined the distribution of the SAS scale to determine whether transformation was required. Visual inspection of Figure D1, Appendix D, suggests that the distribution is highly positively skewed. We considered a transformation of this total score to see if the distribution could approach a more normal distribution. However, closer inspection of the frequency of scores (and testing of square root and log transformations) suggested that this was not a viable option as over 30% of the sample had

scores within three consecutive values at the low end of the range (i.e., 31 to 33). It is important to note that the main implication of leaving data untransformed (or a violation of normality) is a loss of power—with large samples, significance tests and confidence intervals are unaffected by violations of normality (Tabachnick and Fidell, 2007). Given our sample size, this consequence was not a particular concern, and we chose to leave the item total scores untransformed. Moreover, it was recognized that transformed scores pragmatically are difficult to interpret (often requiring a re-transformation to an original interpretable scale; Tabachnick & Fidell, 2007). Finally, this decision is further supported as the results of the analyses of skew and kurtosis values did not produce violations according to these widely-used criteria.

Appendix D (Rotated Component Matrices)

Table D1. Rotated Component Matrix for Impression Importance Scale Principal

Components Factor Analysis with Varimax Rotation

Item	Factor One	Factor Two
1. It is important for me to appear warm	.24	**.66**
2. It is important for me to appear assertive	.38	.37
3. It is important for me to appear courteous	-.01	**.87**
4. It is important for me to appear humourous	.28	**.52**
5. It is important for me to appear polite	.09	**.74**
6. It is important for me to not appear embarrassed	**.86**	.03
7. It is important for me to not appear awkward	**.89**	.02
8. It is important for me to appear comfortable	**.74**	.31
9. It is important for me to appear interesting	**.53**	**.49**
10. It is important for me to appear secure	**.68**	.37

Note. Factor loadings > or = .4 are denoted in bold typeface.

Table D2. Rotated Component Matrix for Impression Expectations Scale Principal

Components Factor Analysis with Varimax Rotation

		Factor One	Factor Two	Factor Three
1.	Warm	**.58**	.29	.04
2.	Assertive	.05	**.64**	-.01
3.	Courteous	**.87**	.10	-.02
4.	Humourous	.09	**.76**	-.05
5.	Polite	**.89**	.05	-.10
6.	Embarrassed	-.08	.01	**.89**
7.	Awkward	-.03	-.04	**.91**
8.	Comfortable	.24	**.51**	**.49**
9.	Interesting	.30	**.78**	.07
10.	Secure	**.46**	**.43**	.36

Note. Factor loadings > or = .4 are denoted in bold typeface.

Table D3. Rotated Component Matrix for Specific Anxiety Symptoms (SAS; Reduced Items) Principal Components Factor Analysis with Varimax Rotation

Items	Factor One	Factor Two	Factor Three
1. I felt that I was trembling.	**.71**	.28	-.16
2. I felt sweaty.	**.46**	-.07	.33
3. I felt that my hands were shaking.	**.73**	.14	-.09
4. My throat felt dry.	**.54**	.06	.19
5. I felt weak.	.29	**.41**	.23
6. My stomach was in knots.	.26	.38	.35
8. My mind went blank	.00	**.56**	.25
9. My heart was pounding.	**.59**	.14	.30
10. I felt that things were unreal	-.03	**.49**	.17
11. I felt tense.	**.50**	**.54**	.09
12. I felt unsteady.	**.41**	**.64**	.01
14. I felt that I had hot flushes.	.03	.22	**.67**
15. I felt that my voice was trembling.	**.45**	**.44**	.09
16. I felt light-headed.	.13	**.44**	.09
18. My face felt hot.	.13	.14	**.87**
21. I felt like my heart was racing.	**.56**	.01	.34
22. I felt shaky.	**.68**	.32	.08
23. My face felt flushed.	.17	.17	**.82**
24. I felt a sense of panic.	.19	**.63**	.21
29. I felt disoriented or confused.	.08	**.77**	.01
31. My face felt red.	.11	.28	**.81**

Note. Factor loadings > or = .4 are denoted in bold typeface.

Table D4. Rotated Component Matrix for Overt Signs of Anxiety (OSA-Self) Principal

Components Factor Analysis with Varimax Rotation

Items	Factor One	Factor Two	Factor Three	Factor Four
1. I appeared to make low eye contact	.39	.00	.28	.12
2. I appeared fidgety	.12	.08	**.81**	.09
3. I appeared to be touching my face/body	.15	.05	**.70**	-.02
4. I appeared to make uncomfortable facial expressions	**.44**	.20	**.43**	.14
5. My speech appeared dysfluent (e.g., stammering or hesitating)	**.79**	.17	.11	.04
6. I appeared to make omissions in my speech	**.80**	.16	.10	.05
7. I appeared to make slips of tongue	**.73**	.21	.11	.03
8. I appeared to repeat words	**.72**	.08	.17	.00
9. I appeared to have a non-expressive tone of voice	**.46**	.29	-.19	.08
10. I appeared to be perspiring	.20	**.62**	-.02	.04
11. I appeared jittery	.05	**.54**	**.56**	.06
12. My voice appeared to be trembling	**.43**	**.64**	.00	.03
13. My body or hands appeared to be shaking	.12	**.64**	.39	.01
14. I appeared short of breath	.26	**.77**	-.02	.06
15. My body or face appeared stiff	.14	**.69**	.04	.09
16. My face or body appeared to turn red	-.03	**.63**	.27	.06
17. I appeared to leave long gaps in the conversation	**.44**	.11	.14	.38
18. I appeared to understand what my partner said	.01	.28	.05	**.41**
19. I appeared to ask interesting questions	.04	.11	-.01	**.88**
20. I appeared to initiate conversations	.13	-.12	.07	**.80**

Note. Factor loadings > or = .4 are denoted in bold typeface.

Table D5. Rotated Component Matrix for Overt Signs of Anxiety-of Partner (OSA-

Partner) Principal Components Factor Analysis with Varimax Rotation

Items	Factor One	Factor Two
1. Low eye contact	.37	.19
2. Fidgeting	**.65**	-.02
3. Touching face/body	**.57**	-.15
4. Uncomfortable facial expressions	**.63**	.15
5. Speech dysfluencies (e.g., stammering, hesitating)	**.66**	.24
6. Omissions in speech	**.71**	.25
7. Slips of tongue	**.70**	.14
8. Repeating words	**.63**	.09
9. Non-expressive tone of voice	.35	**.59**
10. Perspiring	**.51**	.18
11. Appearing jittery	**.73**	.27
12. Trembling voice	**.69**	.28
13. Shaking body or hands	**.63**	.16
14. Shortness of breath	**.60**	.17
15. Stiff body or face	**.47**	.37
16. Face or body turning red	**.51**	.09
17. Left long gaps in the conversation	.28	**.58**
18. Understood what I said	.15	.32
19. Asked interesting questions	-.02	**.82**
20. Initiated conversations	-.08	**.81**

Note. Factor loadings > or = .4 are denoted in bold typeface.

Table D6. Rotated Component Matrix for Overt Signs of Anxiety-Observer (OSA-Observer) Principal Components Factor Analysis with Varimax Rotation

Items	Factor One	Factor Two	Factor Three	Factor Four
1. Low eye contact	**.60**	**.51**	.02	-.12
2. Fidgeting	-.09	**.83**	-.01	.10
3. Touching face/body	-.05	**.70**	-.01	.20
4. Uncomfortable facial expressions	**.67**	.32	.13	-.17
5. Speech dysfluencies (e.g., stammering, hesitating)	**.46**	.06	.25	**.61**
6. Omissions in speech	.20	-.08	.15	**.77**
7. Slips of tongue	-.06	.16	.14	**.50**
8. Repeating words	-.22	.00	.34	**.50**
9. Non-expressive tone of voice	**.78**	-.09	.06	-.10
10. Perspiring	-.01	.16	**.74**	-.11
11. Appearing jittery	-.09	**.60**	.08	-.22
12. Trembling voice	.09	.02	**.87**	.20
13. Shaking body or hands	-.04	.08	.09	-.34
14. Shortness of breath	-.05	-.07	**.86**	.18
15. Stiff body or face	**.61**	-.50	.02	-.01
16. Face or body turning red	.05	**.42**	.13	-.39
17. Left long gaps in the conversation	**.82**	-.10	-.08	.14
18. Understood what I said	.44	.04	-.02	.43
19. Asked interesting questions	**.77**	-.15	.01	.27
20. Initiated conversations	**.75**	-.15	-.16	.17

Note. Factor Loadings > or = .4 are denoted in bold typeface.

Appendix E (Global and Specific Measures)

Figure E1. Global anxious arousal as a function of Factor One (upper) and Factor Two (lower) of SAS
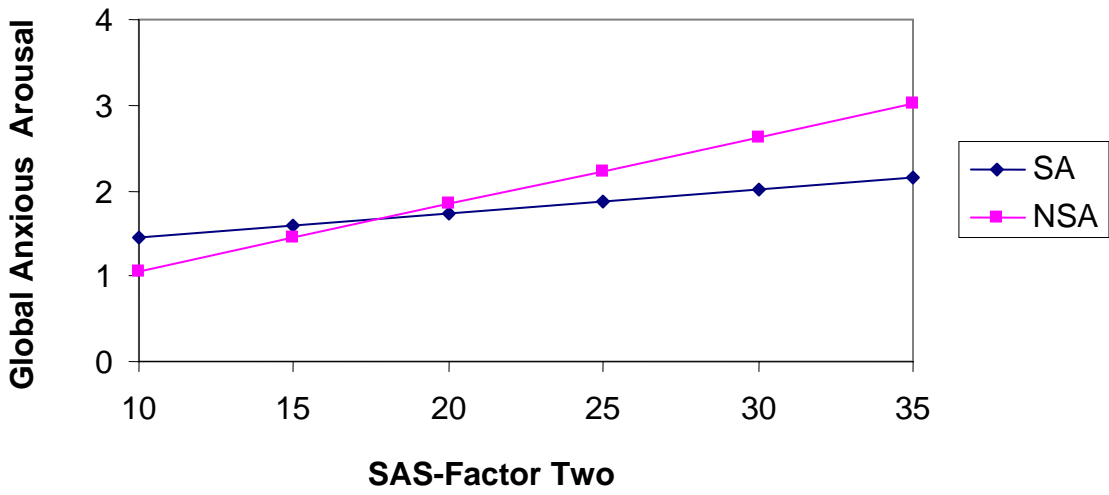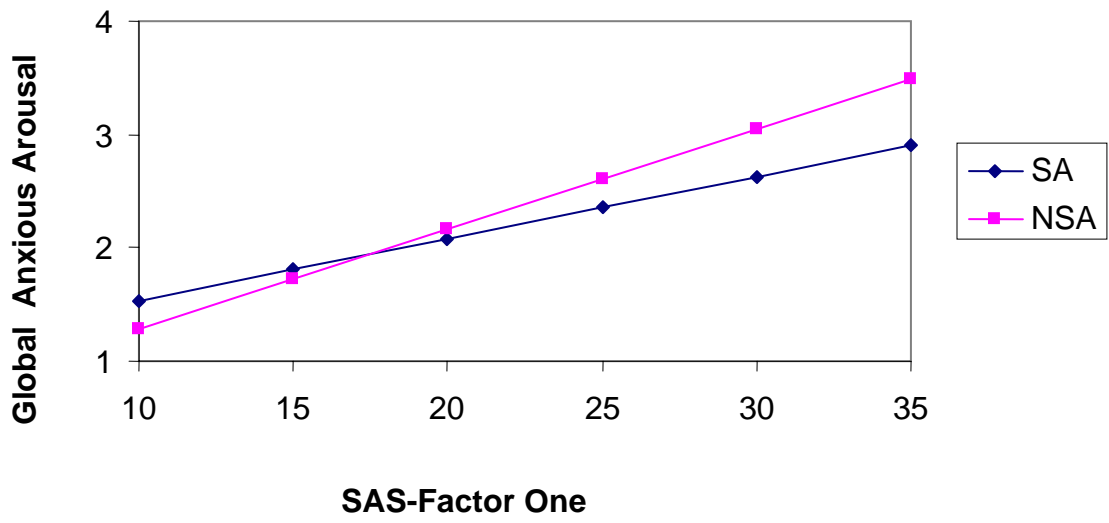
Note: SAS = Specific Anxiety Symptoms scale. Figure E1 (upper) illustrates the regression of self-reported global anxious arousal with the SAS Factor One (Shaking/Trembling) and the interaction of SAS Factor One and trait social anxiety (IAS). The original regression equation was simplified by eliminating the main effects of the other SAS factors, and including only the mean IAS main effect and its interaction with the first factor. The regression equation was: $Y' = .405 + .035$ X IAS $+ .088$ X Factor One $+ -.002$ X IAS X SAS Factor One. Figure E1 (lower) illustrates the regression of global anxious arousal with SAS Factor Two (Derealization/Cognitive) and the interaction of this factor and trait social anxiety; $Y = .283 + .053$ X IAS $+.078$ X SAS Factor Two $+ .003$ X IAS X SAS Factor Two. In both examples, higher levels of trait social anxiety were associated with a weaker relation of arousal and each of the respective SAS Factors.

Table E1. Summary of Hierarchical Regression Analysis for Variables Predicting

Global and Specific Anxious Arousal and Appearance Ratings

Variable	Beta	t	p	Adjusted R^2	R^2	F	Sig.
Global Self-reported Anxious Arousal							
Step 1				.25	.25	52.60	.00
IAS	.02	.39	.70				
SAS	.50	9.98	.00				
Step 2					.01	5.68	.02
IAS	.49	2.41	.02				
SAS	.58	9.60	.00				
SAS X IAS	-.51	-2.38	.02				
Step 1				.26	.27	29.27	.00
IAS	.00	.05	.96				
SAS-Factor One	.33	3.67	.00				
SAS-Factor Two	.25	3.01	.00				
SAS-Factor Three	-.04	-.72	.47				
Step 2					.02	3.02	.03
IAS	.49	2.87	.00				
SAS-Factor One	.32	2.64	.01				
SAS-Factor Two	.36	3.14	.00				
SAS-Factor Three	-.03	-.40	.69				
IAS X SAS-Factor One	.01	.05	.96				
IAS X SAS-Factor Two	-.46	-1.62	.11				
IAS X SAS-Factor Three	-.09	.49	.63				
Global Self-reported Anxious Appearance							
Step 1[a]				.17	.18	33.45	.00
IAS	-.08	-.42	.18				
OSA-Self	.39	5.76	.00				
Step 1[a]				.22	.23	18.74	.00
IAS	-.01	-.06	.96				
OSA-Self Factor One	-.05	-.60	.55				
OSA-Self Factor Two	.32	3.63	.00				
OSA-Self Factor Three	.18	2.11	.04				
OSA-Self Factor Four	.09	1.32	.19				

Global Anxious Appearance of Partner							
Step 1[a]				.23	.23	46.73	.00
IAS	-.07	-1.43	.15				
OSA-*of* Partner	.48	9.60	.00				
Step 1[a]				.21	.22	28.59	.00
IAS	-.07	-1.41	.16				
OSA-*of* Partner Factor One	.37	6.02	.00				
OSA-*of* Partner Factor Two	.14	2.23	.03				

Note. IAS = Interaction anxiousness scale; SAS = Specific Anxiety Symptoms Scale; SAS-Factor One = Shaking/Trembling; SAS-Factor Two = Derealization/Cognitive; SAS-Factor Three = Blushing/Feeling flushed; OSA-Self Factor One = Speech dysfluencies; OSA-Self Factor Two = Visual signs of anxiety; OSA-Self Factor Three = Initiation of interaction; OSA-Self Factor Four = Self-manipulation/Fidgetiness; OSA-of Partner Factor One = Visual Signs/Dysfluent Speech; OSA-of Partner Factor Two = Conversational style.

[a] The global variable of interest was predicted from IAS, the specific measure of interest (Step 1) and the interaction of the predictors (Step 2). Regression was significant in Step 1 only; coefficients shown are from Step 1.

Appendix F (Means and SDs)

Table F1. *N*, **Means and SDs for Descriptive and Dependent Measures**

	SA			NSA			
	N	Mean	*SD*	*N*	Mean	*SD*	*p*
IAS	102	58.86	4.97	222	42.47	3.26	< .001
Self-awareness							
Private Body-Consciousness	99	38.00	19.87	220	31.02	18.85	>.05
Public Body-Consciousness	99	15.78	7.83	220	14.21	8.25	>.05
Private Self-Consciousness	99	10.00	6.88	220	8.20	6.40	>.05
Public Self-Consciousness	99	12.22	9.42	220	8.61	7.71	.04
Impression Global	88	3.91	1.03	188	3.93	1.01	>.05
Impression Importance Total	101	39.54	7.70	221	39.62	7.55	>.05
Factor One: Confident/Non-anxious	94	23.01	5.49	220	22.82	5.37	>.05
Factor Two: Innocuous Sociability	94	31.55	6.21	220	32.33	6.03	>.05
Impression Expectations Total	101	34.88	5.61	221	38.40	5.47	< .001
Factor One: Innocuous Sociability	94	18.69	3.45	220	19.70	3.43	.02
Factor Two: Dominant/Confident	94	15.32	3.61	220	17.39	3.35	< .001
Factor Three: Non-anxious	94	16.61	3.53	220	19.24	3.33	.03
SAS Total	99	39.77	9.63	122	36.77	8.5	.01
Factor One: Shaking/Trembling	92	15.34	5.17	122	13.64	4.71	.01
Factor Two: Derealization/ Cognitive	92	16.09	5.05	122	14.51	4.37	.02
Factor Three: Blushing/Feeling Flushed	92	10.75	3.67	122	9.81	2.89	.05

	N	M	SD	N	M	SD	p
Global Ratings							
Anxious Arousal-Self	99	2.28	.89	122	2.13	.10	>.05
Anxious Appearance-Self	99	2.52	1.00	122	2.32	.90	>.05
Anxious Appearance-by Partner	97	2.39	1.16	122	2.03	.95	.02
Anxious Appearance-by Observer	57	3.03	.75	82	2.62	.59	.001
OSA-Self Total	99	43.36	12.35	122	38.50	9.46	.001
Factor One: Speech dysfluencies	92	19.90	7.68	122	22.79	3.43	.02
Factor Two: Visual signs of Anxiety	92	10.66	3.74	122	8.86	2.08	.002
Factor Three: Initiation of interaction	92	11.29	4.20	122	5.09	1.32	>.05
Factor Four: Self-manipulation/ Fidgetiness	92	11.57	3.60	122	7.62	1.9	>.05
OSA-*by* Partner Total	96	35.83	10.57	122	31.57	8.48	.002
Factor One: Visual signs of Anxiety	92	23.23	6.45	122	22.21	6.85	>.05
Factor Two: Conversational style	92	13.40	4.18	122	12.41	4.06	>.05
OSA-Observer Total	57	40.74	5.29	82	38.47	3.86	.007
Factor One: Conversational style	52	24.66	4.96	82	22.78	3.43	.016
Factor Two: Self-manipulation/ Fidgetiness	52	10.00	2.81	82	8.86	2.08	.002
Factor Three: Tremulousness	52	5.00	.68	82	5.09	1.32	>.05
Factor Four: Speech dysfluencies	52	7.62	1.62	82	7.62	1.91	>.05
DFI (by partners)	98	25.31	6.55	122	25.38	7.28	>.05

Note. IAS = Interaction Anxiousness Scale; SAS = Specific Anxiety Symptoms; OSA = Overt Signs of Anxiety. DFI = Desire for Future Interaction. For measures completed before the interaction, the full NSA sample means are provided; while post-interaction measures only include NSA individuals who partnered with NSA individuals. Bonferroni adjusted p value for 35 independent *t*-tests is p = .001.

Appendix G (Correlation Matrix)

Table G1. Correlations between Arousal, Appearance and Self-Awareness Traits for SA and NSA individuals

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Global Anxious Arousal	.12	$.62^b$	.11	.18	$.37^b$	$.30^b$	-.02	.23	.05	.16	-.04	$.21^c$	.16
2	Global Anxious Appearance-Self	$.66^a$	.19	**.09**	**.22**	$.45^b$	$.45^b$	-.01	-.04	$.21^c$	$.24^c$	-.01	.16	.14
3	Global Anxious Appearance-Partner	$.20^b$	**.15**	.14	**.23**	.03	.18	$.42^b$	$.30^c$	-.01	.02	-.03	.07	.03
4	Global Anxious Appearance-Observer	.95	$\mathbf{.29^b}$	**.10**	$\mathbf{.33^b}$	.07	$.35^b$	$.28^c$	$.54^b$	-.03	-.01	.01	.11	-.01
5	SAS	$.58^a$	$.39^a$	$.26^b$	$.20^b$	.21	$.61^b$	-.16	-.13	.11	.06	.00	.14	.20
6	OSA-Self	$.35^a$	$.41^a$	$.22^b$	.12	$.52^a$	.04	**-.07**	**.14**	.00	.01	.11	.09	.26
7	OSA-Partner	.14	.01	$.55^a$	.05	.11	**.08**	.05	$\mathbf{.29^c}$	-.04	-.15	-.07	-.09	-.11
8	OSA-Observer	.16	.16	.10	$.73^a$	.18	**.12**	**.20**	.20	-.15	.13	-.08	.19	-.01
9	Private BCS	-.04	-.09	.01	.03	.00	.07	.00	-.04	.07	$.59^b$	$.39^b$	$.55^b$	.02
10	Public BCS	-.07	-.09	-.11	-.01	.00	.11	-.11	.00	$.32^a$	.13	$.28^b$	$.75^b$	-.10
11	Private SCS	.03	-.02	.11	.06	$.19^b$	.09	$.18^b$	.01	$.31^a$	$.20^b$	-.04	$.34^b$	-.05
12	Public SCS	.06	.04	-.01	-.13	.13	.16	-.09	$-.19^b$	$.22^b$	$.73^a$	$.24^b$	.07	-.10
13	IAS	$.18^c$	.14	.15	$.24^c$	$.19^c$	$.18^c$	.11	.19	-.07	.04	.11	.11	.09

Note. SAS = Specific Anxiety Symptom Scale; OSA = Overt Signs of Anxiety; BCS= Body-Consciousness; SCS = Private Self-Consciousness; IAS = Interaction Anxiousness Scale. Correlations for the SA participants (N = 93 to 98) are shown above the diagonal; while correlations for NSA participants in the NSA-NSA dyads (N = 112 to 122) are shown below the diagonal.

Correlations involving OSA are based on smaller N.   The pairwise intraclass correlations ($r_{xx'}$) for the NSA-NSA dyads are listed along the shaded diagonal. This correlation is an index of the "absolute similarity between the two exchangeable partners in the dyad" (Gonzalez & Griffin, 1997, p. 276) and its test of significance indicates whether the dyadic similarity is significantly different from

zero. Variables used in determining correlations between global and specific self-, partner- and observer-reported anxious appearance are highlighted in bold typeface.

[a]p < .001. [b]p < .01. [c]p < .05.

Appendix H (Regression Summaries)

Table H1. Summary of Hierarchical Regression Analyses for Variables Predicting Global and Specific Anxious Symptoms from Measures of Impression Importance and Expectations

Variable	*Beta*	*t*	*p*	Adjusted R^2	R^2	*F*	Sig.
Global Anxious Arousal							
Step 1				.02	.03	3.99	.02
IMP	.16	2.61	.01				
EXP	-.13	-2.05	.04				
Step 1				.02	.02	3.07	.05
IMP-Global	.10	1.61	.11				
EXP	-.14	-2.23	.03				
Specific Anxiety Symptoms							
Step 1[a]				.06	.06	10.64	.00
IMP	.25	4.18	.00				
EXP	-.21	-3.48	.00				
Step 1[a]				.04	.04	6.10	.00
IMP-Global	.14	2.19	.03				
EXP	-.20	-3.20	.00				
Step 1[a]				.00	.01	1.55	.22
IMP-Factor Two	.12	1.68	.10				
EXP-Factor One	-.04	-.60	.55				
Step 1[a]				.11	.12	2.29	.00
IMP-Factor One	.23	4.31	.00				
EXP-Factor Two	-.27	-5.01	.00				
Step 1[a]				.07	.08	13.66	.00
IMP-Factor Two	.14	2.47	.01				
EXP-Factor Three	-.27	-4.94	.00				

Step 1				.05	.06	9.50	.00
IMP-Factor One	.26	4.32	.00				
EXP-Factor Two	-.12	-2.12	.04				
Step 2				.03		3.84	.01
IMP-Factor One	.23	3.94	.00				
EXP-Factor Two	-.12	-2.07	.04				
IMP-Factor One^2	.04	.60	.55				
EXP-Factor Two^2	.21	3.21	.00				
IMP-Factor One X EXP-Factor Two	-.20	-2.59	.01				

Specific Anxiety Symptoms (with IAS predictor included)

Step 1[b]				.07	.08	9.31	.00
IAS	.15	2.51	.01				
IMP	.23	3.83	.00				
EXP	-.15	-2.30	.02				
Step 1[b]				.07	.08	9.42	.00
IAS	.17	2.96	.00				
IMP-Factor One	.23	3.87	.00				
EXP-Factor Two	-.06	-.89	.37				
Step 1[b]				.04	.05	5.35	.00
IAS	.20	3.58	.00				
IMP-Factor Two	.11	1.52	.13				
EXP-Factor One	.00	.02	.99				
Step 1[b]				.12	.12	14.61	.00
IAS	.10	1.73	.08				
IMP-Factor One	.23	4.24	.00				
EXP-Factor Three	-.23	-3.89	.00				
Step 1[b]				.08	.09	1.37	.00
IAS	.11	1.89	.06				
IMP-Factor Two	.14	2.50	.01				
EXP-Factor Three	-.23	-3.79	.00				

Note. SAS = Specific Anxiety Symptoms scale; IMP = Impression Rating Total; EXP =

Expression Rating Total; IMP-Global = Impression Global rating score; IMP-Factor One =

184

Confident/Non-anxious Impression; IMP-Factor Two = Innocuous Sociability Impression; EXP-Factor One = Innocuous Sociability Expectations; EXP-Factor Two = Dominant/Confident Expectations; EXP-Factor Three = Non-Anxious.

[a] The regressions included SAS regressed on the impression importance and expectations (Step 1) and the second-order terms (impression importance squared, expectations squared) and the product of the two components entered in Step 2. None of these models were significant after Step 1; the results are shown for the first step only.

[b] These regressions were completed with impression importance, expectations total and the trait social anxiety measure (Step 1) and the interactions of trait social anxiety and each of impression and expectation variables (Step 2). None of these regressions were significant after Step 1 and the coefficients shown are from Step 1.

Table H2. Regression Summaries for Tests of Clark and Wells' (1995) model

Table H2a. Summary of Hierarchical Regression Analyses for Variables Predicting Global Anxious Appearance for NSA participants

Variable	Beta	t	Sig.	Adjusted R^2	R^2 change	F	p
Global Anxious Appearance							
Step 1							
Anxious Arousal	.65	9.13	.00	.42	.43	44.02	.00
G-AA-*by* Partner	.03	.35	.73				
Step 1							
Anxious Arousal	.62	7.21	.00	.44	.45	31.78	.00
G-AA-*by* Observer	.17	1.94	.06				
Step 1							
Private BCS	-.07	-.95	.35	.42	.43	29.62	.00
Anxious Arousal	.65	9.08	.00				
G-AA-*by* Partner	.03	.36	.72				
(G-AA-*by* Observer)	(.19)	(2.15)	(.04)				
Step 1							
Public BCS	-.04	-.57	.57	.42	.43	29.28	.00
Anxious Arousal	.65	9.06	.00				
G-AA-*by* Partner	.02	.29	.77				
(G-AA-*by* Observer)	(.17)	(1.94)	(.06)				
Step 1							
Private SCS	-.04	-.60	.55	.42	.43	29.31	.00
Anxious Arousal	.65	9.11	.00				
G-AA-*by* Partner	.03	.41	.68				
(G-AA-*by* Observer)	(.17)	(1.9)	(.06)				
Step 1							
Public SCS	.00	.04	.97	.42	.43	29.09	.00
Anxious Arousal	.65	9.07	.00				
G-AA-*by* Partner	.02	.35	.73				
(G-AA-*by* Observer)	(.17)	(1.92)	(.06)				

186

Note. G-AA = Global Anxious Appearance; SCS = Self-Consciousness Scale; BCS = Body-

Consciousness Scale. Anxious arousal refers to Global 1-item measure of anxious arousal.

The latter four regressions including the self-awareness traits were completed with Global

AA-Observer replacing Global AA-Partner (Step 1: Global Anxious Arousal, Self-awareness

Trait; Step 2: Anxious Arousal X Self-awareness Trait; Step 3: Global AA-Observer). In

each of these models Step 3 was significant ($p = .04$) or approaching significance ($p = .06$);

but the R^2_{change} was small (from .02 to .04). The interaction was not found to be a significant

predictor and was dropped from the model. The regression was repeated with all of the main

effects only in Step 1. The coefficients for the OSA-*by* Observer and R^2_{change} in Step 2 of the

model are provided in brackets.

Table H2b. Summary of Hierarchical Regression Analyses for Variables Predicting

Specific Anxious Appearance for NSA participants

Variable	Beta	t	Sig.	Adjusted R^2	R^2 change	F	p
OSA-Self							
Step 1				.25	.27	21.28	.00
SAS	.51	6.45	.00				
OSA-*by* Partner	.02	.29	.77				
Step 1				.22	.24	11.90	.00
SAS	.48	4.72	.00				
OSA-*by* Observer	.04	.36	.72				
Step 1				.25	.27	14.4	.00
Private BCS	.07	.86	.39				
SAS	.51	6.44	.				
OSA-*by* Partner	.02	.29	.77				
Step 1				.26	.28	14.94	.00
Public -BCS	.11	1.39	.17				
SAS	.51	6.46	.00				
OSA-*by* Partner	.04	.44	.66				
Step 2					.05		.00
Public -BCS	.13	1.71	.09				
SAS	.55	7.00	.00				
OSA-*by* Partner	.04	.35	.72				
Public BCS X SAS	.22	2.75	.01				
(OSA-*by* Observer)	(.03)	(.36)	(.72)		(.05)		(.02)
Step 1				.25	.27	14.07	.00
Private SCS	-.01	-.16	.87				
SAS	.52	6.35	.00				
OSA-*by* Partner	.03	.31	.75				

Step 1				.26	.28	.14.71	.00
Public SCS	.10	1.19	.24				
SAS	.50	6.23	.00				
OSA-*by* Partner	.03	.42	.68				

Note. SAS = Specific Anxiety Symptoms; OSA = Overt Signs of Anxiety; SCS = Self-Consciousness Scale; BCS = Body-Consciousness Scale. The latter four regressions including the self-awareness traits were completed with OSA-*by* Observer replacing OSA-*by* Partner (Step 1: SAS, Self-awareness trait; Step 2: SAS X Self-awareness trait; Step 3: OSA-*by* Observer). Step 3 was not significant for any of the models and Step 2 was significant for public BCS only (R^2_{change} = .05, *p* =.02) only. The OSA-*by* Observer was included in Step 1 along with the other main effects and the public BCS model was re-run in two steps with the interaction included in Step 2. The coefficients for the OSA-*by* Observer are shown above; the coefficient for the interaction of SAS X public BCS from Step 2 was *Beta* = .23, *p* = .02. When OSA-*by* Observer was included alone in Step 2 (no interaction in model) there was no significant R^2_{change} (*p* > .05) for the private BCS, private SCS or public SCS models. These regressions were repeated with all of the main effects in one step. None of the OSA-*by* Observer coefficients in these three models were significant (all *Beta* = .03 to .05; *p* > .05).

Table H2c. Summary of Hierarchical Regression Analyses for Variables Predicting

Global Anxious Appearance for SA participants

Variable	*Beta*	*t*	Sig.	Adjusted R^2	R^2 change	*F*	*p*
Global Anxious Appearance							
Step 1							
Anxious Arousal	.61	7.51	.00	.37	.38	28.00	.00
G-AA-*by* Partner	.03	.37	.71				
Step 1							
Anxious Arousal	.60	5.62	.00	.38	.40	17.99	.00
G-AA-*by* Observer	.11	1.04	.30				
Step 1							
Private BCS	.04	.44	.66	.36	.38	19.10	.00
Anxious Arousal	.61	7.23	.00				
G-AA-*by* Partner	.03	.35	.73				
Step 1							
Public BCS	.15	1.85	.07	.38	.40	2.84	.00
Anxious Arousal	.59	7.22	.00				
G-AA-*by* Partner	.03	.37	.71				
Step 1							
Private SCS	.02	.20	.85	.36	.38	19.02	.00
Anxious Arousal	.61	7.47	.00				
G-AA-*by* Partner	.03	.38	.71				
Step 1							
Public SCS	.04	.44	.66	.36	.38	19.10	.
Anxious Arousal	.61	7.23	.00				
G-AA-*by* Partner	.04	.35	.73				

Note. G-AA = Global Anxious Appearance; SCS = Self-Consciousness Scale; BCS = Body-

Consciousness Scale. Anxious Arousal refers to Global 1-item measure of anxious arousal.

The latter four regressions including the self-awareness traits were completed with G-AA-*by* Observer replacing G-AA-*by* Partner (Step 1: Global Anxious Arousal, Self-awareness trait; Step 2: Anxious Arousal X Self-awareness trait; Step 3: G-AA-*by* Observer). The G-AA-*by* Observer variable was not significant predictor ($p > .05$) in any of the models, and the regressions were repeated with all of the main effects only in Step 1. The coefficients for the G-AA-*by* Observer were not found to be significant predictors in any of the models (all *Beta* = .11 to .12, $p > .05$).

Table H2d. Summary of Hierarchical Regression Analyses for Variables Predicting

Specific Anxious Appearance (OSA-Self) for SA participants

Variable	Beta	t	Sig.	Adjusted R^2	R^2 change	F	p
OSA-Self							
Step 1				.36	.37	28.11	.00
SAS	.62	.746	.00				
OSA-*by* Partner	.03	.41	.68				
Step 1				.42	.44	21.58	.00
SAS	.66	6.42	.00				
OSA-*by* Observer	.22	2.19	.03				
Step 1				.36	.38	18.83	.00
Private BCS	-.06	-.71	.48				
SAS	.65	7.77	.				
OSA-*by* Partner	.03	.35	.73				
Step 2					.02		.07
Private BCS X SAS	-.15	-1.83	.07				
(OSA-*by* Observer)	(.21)	(2.10)	(.05)		(.05)		(.03)
Step 1				.36	.38	18.58	.00
Public BCS	.03	.37	.71				
SAS	.62	7.42	.00				
OSA-*by* Partner							
Step 2					.03		.04
Public BCS	.02	-2.1	.04				
SAS	.63	7.72	.00				
OSA-*by* Partner	.02	.18	.86				
Public BCS X SAS	-.17	-2.10	.04				
(OSA-*by* Observer)	(.25)	(2.40)	(.02)		(.05)		(.03)

	B	t	p				
Step 1				.37	.39	19.44	.00
Private SCS	.11	1.30	.20				
SAS	.62	7.51	.00				
Step 2					.03		.02
Private SCS	.14	1.70	.09				
SAS	.61	7.59	.00				
OSA-*by* Partner	.05	.64	.53				
Private SCS X SAS	-.18	-2.29	.02				
(OSA-*by* Observer)	(.24)	(2.30)	(.02)		(.05)		(.02)
Step 1				.35	.37	18.54	.00
Public SCS	.03	.38	.71				
SAS	.65	7.66	.00				
OSA-*by* Partner	.04	.53	.60				
Step 2					.02		.07
Public SCS X SAS	-.16	-1.84	.07				
(OSA-*by* Observer)	(.22)	(2.14)	(.04)		(.05)		(.04)

Note. SAS = Specific Anxiety Symptoms; OSA = Overt Signs of Anxiety; SCS = Self-Consciousness Scale; BCS = Body-Consciousness Scale. The latter four regressions including the self-awareness traits were completed with OSA-*by* Observer replacing OSA-*by* Partner (Step 1: SAS, Self-awareness trait; Step 2: SAS X Self-awareness trait; Step 3: OSA-*by* Observer). In each of these models Step 3 was significant ($p < .05$) or approaching ($p = .07$; private SCS); but the R^2_{change} was small for each of the models (from .03 to .06). The interaction was not a significant predictor in any of the models, and was dropped from the model. The regression was repeated with SAS and the self-awareness trait (Step 1) and OSA-*by* Observer (Step 2). The coefficients for the OSA-*by* Observer and R^2_{change} in Step 2 of the model are provided in brackets.

193