# THE EXAMINATION OF COGNITIVE MODELS OF SAD: AN ANALYSIS OF UNIQUE PREDICTORS IN A SOCIAL ANXIETY CHALLENGE

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ABSTRACT

The current study aimed to examine unique predictors of a socially anxious response in a social anxiety challenge, using the cognitive models of social anxiety and previous research as reference. The fundamental question this study hoped to elucidate was what was contributing to changes that occurred in anxiety ratings from baseline to being informed of a speech task. This study examined individuals' somatic and cognitive responses in social situations, concerns pertaining to both positive and negative evaluation by others, individuals' perceptions of self as compared to others, self-monitoring, and safety behaviors. The hypothesized models were not supported by the data, as statistically significant findings were not found. While the hypothesized models were not supported by the findings, post-hoc exploratory analyses yielded statistically significant correlations between the various components of the cognitive model (i.e., social comparison was negatively correlated with reported anxiety and fear of positive and negative evaluation; safety behavior was positively correlated with anxious response and fear of negative and positive evaluation). Limitations concerning instrument selection, the experimental manipulation, implications related to recruitment and pre-screening, and considerations for future studies are further addressed in the discussion section.

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# CHAPTER 1

# INTRODUCTION

Social Anxiety Disorder (SAD) is a diagnosis characterized by significant fear or anxiety revolving around social situations in which one might be scrutinized by others (APA, 2013). This difficult, and at times debilitating, disorder is reported to have a lifetime prevalence rate of 14.2% in adult females and 11.8% in adult males in the United States (APA, 2013; Hofmann and DiBartolo, 2014; Kessler et al., 2012). The adoption of a cognitive model approach to exemplify the occurrence and maintenance of SAD symptomology has gained significant support (Alden et al., 2004; Clark and Wells, 1995; Hofmann, 2007; Turk, Heimberg, & Magee, 2008). More, specifically, this approach highlights the cognitive processes and the content of such processes as they relate to SAD. Research examining the components of these cognitive models and predictors of SAD has shed some light on the processes and interactions that facilitate and maintain socially anxious responses, particularly experiential avoidance and dysfunctional cognitions (Panayiotou, Karekla, and Panayiotou, 2014; Mahaffey et al., 2013). However, the components of the cognitive models have not been fully tested. The goal of this study is to examine components of these models more comprehensively and to gain further insight into the unique predictors of a socially anxious response and the potential mediating and moderating relationships among the predictors.

## Cognitive Models of SAD

Clark and Wells (1995) developed the cognitive model of SAD, highlighting the multifaceted and reciprocal nature of a socially anxious response. This model posits that upon entering a social situation, assumptions are activated within the socially anxious individual (Clark and Wells, 1995). These assumptions, as stipulated by Clark and Wells, fall into three categories pertaining to excessively high standards for performing in social capacities (e.g., “I

must always sound intelligent and fluent"), conditional beliefs regarding potential consequences of behaving in a specific way in social situations (e.g., "If my hands shake/I blush/or show other signs of anxiety, people will think I am incompetent/odd/stupid"), and unconditional negative beliefs about oneself (e.g., "I'm unlikeable/unacceptable"). The model explains how activation of these assumptions leads to the individual perceiving the social situation as dangerous and the occurrence of negative automatic thoughts (Clark and Wells, 1995) (See Figure 1).

The perception of social danger then leads to the individuals processing themselves as a social object. More specifically, they become hyperaware of the way they appear to others and how others may think of them (Clark and Wells, 1995). Clark and Wells' model also indicates a two-way relationship between the perceived social danger and processing self as a social object. The appraisal of the social situation as dangerous is believed, according to Clark and Wells' model, to lead to the anxious individual engaging in safety behaviors, which impact both the somatic and cognitive symptoms and the self-monitoring behavior, specifically leading to an increase in each of them respectively. The underlying theory behind Clark and Wells' model is that the perception of the individual that they are in danger of behaving in a way that would be judged as unacceptable, leading to devastating consequences (Clark and Wells, 1995; Hofmann, 2007).

Hofmann (2007) proposed a model similar to that of Clark and Wells identifying psychological factors that maintain SAD. This model theorizes that individuals with SAD experience apprehension in social situations due to their perception of there being high social standards and their poorly defined social goals. These concerns, according to Hofmann, lead to heightened self-focused attention, which in turn also reinforce additional apprehension (Hofmann, 2007). This heightened self-attention then activates a number of cognitive processes, specifically negative self-perception, high estimated social cost, low perceived emotional

control, and perceived poor social skills. These cognitive processes then lead to the individual anticipating social mishaps, resulting in the individual engaging in avoidance, safety behaviors, and post-event rumination (Hofmann, 2007).

Safety behaviors, identified as those that an individual engages in in order to decrease their distress or hide their anxiety in a social setting, as well as avoidance behaviors reinforce the anxiety that one experiences (Hofmann et al, 2004). Furthermore, Hofmann and colleagues postulate that this "feedback loop" that has been reinforced leads to an individual remaining anxious in social settings despite experiencing positive social interactions (Hofmann et al, 2004). Hofmann posits that this process ultimately leads to the increased social apprehension and the perpetuation, and even worsening, of the social anxiety (Hofmann, 2007) .

## Components of Social Anxiety Disorder

These cognitive models posit that the fear of negative evaluation (FNE) often seen in individuals with SAD stems from the negative assumptions held by the individual being nurtured by the resulting hypervigilance. This fear is ultimately reinforced by the resulting difficulties that one might encounter as a result of being so preoccupied with being anxious (Turk, Heimberg, & Magee, 2008). Carter, Sbrocco, and Ayati (2009) examined predictors of anxious responses to a social challenge and hyperventilation, comparing the Anxiety Sensitivity Index (ASI) and ASI-3. Correlation results in their study indicated that Fear of Negative Evaluation (FNE) was significantly correlated with social concerns, physical concerns, and mental incapacitation concerns. Additional examination through the use of stepwise regressions indicated that FNE was a significant predictor of anxious responding in the social challenge and somatic response from the social task (Carter et al, 2009). Carleton, Collimore and Asmundson (2007) examined social anxiety and the fear of negative evaluation. More specifically, they assessed the construct validity of the Brief Fear of Negative Evaluation-II (BFNE-II) and found that it correlated with

the Social Phobia Scale (SPS) the Social Interaction Anxiety Scale (SIAS), fear of somatic sensations, fear of cognitive dyscontrol, and fear of socially observable anxiety reactions (Carleton et al, 2007).

It has also been noted that positive evaluation may serve as a source of anxiety and fear in individual with SAD. More specifically, upon receiving positive feedback, individuals with SAD may experience more anxiety, potentially resulting from feeling added pressure to maintain performance (Alden et al., 2004). Weeks, Heimberg, and Rodebaugh (2008) examined the cognitive component of social anxiety, particularly as it pertained to the fear of positive evaluation (FPE). In conducting a hierarchical regression analysis, Weeks and colleagues aimed to determine whether FPE accounted for variance seen in social anxiety, above and beyond FNE. FNE scores were entered in step one of the equation and was found to be positively and significantly related to social anxiety, which is consistent with other research and the cognitive models (Carleton et al, 2007; Clark and Wells, 1995; Hofmann, 2007; Weeks et al, 2008). When FPE scores were entered in step two of the equation, results indicated that it too was positively associated with social anxiety and that it accounted for significant variance in social anxiety beyond FNE (Weeks et al, 2008). Additionally, FPE was found to have the strongest correlation with a measure of social interaction anxiety (SIAS), as compared to measures of generalized anxiety, worry, and depression. These findings lend support not only to the fact that FNE and social anxiety are related but also to the discriminant validity of the FPE scale (Weeks et al, 2008).

Cognitive models and theory posit that avoidance is prominent in individuals with SAD and that it plays a significant role in the maintenance of SAD (Clark and Wells, 1995; Davila and Beck, 2002; Hofmann, 2007; Ottenbreit et al, 2014). More specifically, individuals with SAD are generally unassertive, have avoidant traits, have a significant fear of rejection, and engage in

behaviors that are intended to protect oneself in social situations (Davila and Beck, 2002). Results of correlational analyses conducted by Davila and Beck (2002) indicated that social anxiety symptoms were significantly correlated with avoidance of expressing strong emotion, a desire to avoid conflict, actual avoidance of conflict, a lack of assertion, and fear of rejection. These findings are consistent with the general characterization of individuals with SAD (Davila and Beck, 2002) and provide support for the relationship between avoidance and social anxiety.

Avoidance is posited to lead to the maintenance, and even worsening, of SAD symptomology (Clark and Wells, 1995; Hofmann, 2007; Ottenbreit, 2014). More specifically, the avoidance may reduce anxiety in the short-term, which reinforces the avoidance behavior in the future. This avoidance deprives the individual of the opportunity to challenge or disprove their dysfunctional beliefs related to the feared social situation, which in turn fuels the avoidance further (Clark and Wells, 1995; Hofmann, 2007; Ottenbreit, 2014). Ottenbreit, Dobson, and Quigley (2014) examined avoidance in individuals with SAD and found that as compared to a nonclinical control group, individuals with SAD exhibited significantly higher levels of behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, cognitive nonsocial avoidance, and overall cognitive behavioral avoidance. These findings lend support for the key role of avoidance in SAD and for the inclusion of them in the cognitive models.

According to these cognitive models, the interpretation of social situations as dangerous lead to the individual engaging in safety and self-monitoring behaviors (Clark and Wells, 1995; Hofmann, 2007). These safety and self-monitoring behaviors are posited to assist the individual in managing the fear associated with the anticipation of receiving both negative and positive evaluation in social situations (Clark and Wells, 1995; Hofmann, 2007). However, similar to avoidance behaviors, using safety behaviors deprives the individual with SAD of the opportunity

to engage in social situations that might disprove their dysfunctional beliefs regarding social situations. Ultimately, these safety behaviors lead to the maintenance, and possible worsening of social anxiety over time (Clark and Wells, 1995; Hofmann, 2007; Piccirillo et al, 2016; Stangier et al, 2006). Research has suggested that despite the intended effect of decreasing anxiety in social settings, the use of safety behaviors is associated with experiencing greater social anxiety, negative evaluation from others, and increased avoidance of future social situations (Stangier et al, 2006). Stangier, Heidenreich, and Schermelleh-Engel (2006) examined the relationship between safety behaviors and anxiety, the results of which yielded a significant positive correlation. These findings provide further support for safety behaviors and the role they play in the maintenance of SAD.

Self-monitoring behaviors in individuals with SAD, such as simulating friendliness and the practicing of phrases, may serve to have a positive impact on length of conversation and social interaction as well as perceived likeability. However, individuals with SAD may experience enhanced anxiety due to feeling as though they are being inauthentic and fear that they will not be able to maintain the act in future social interactions (Piccirillo et al., 2016; Plasencia et al, 2011). Paidas (2002) conducted research in which a significant correlation was found between self-monitoring and social anxiety and distress. Additionally, this research yielded significant correlations between self-monitoring and the SIAS (Paidas, 2002). Utilization of hierarchical regression analysis indicated that when self-monitoring was entered into step three of the equation it accounted for 9.3% of the variance in social anxiety for the model and 17.39% of variance above and beyond what was already accounted for by focus and attention and need to evaluate (Paidas, 2002). This data serves as support for self-monitoring playing a role in social anxiety.

## Partial Examination of Cognitive Models of SAD

Limited empirical research that has been conducted examining various components of these cognitive models simultaneously. For example, Mahaffey, Wheaton, Fabricant, Berman, and Abramowitz (2013) examined the contribution of experiential avoidance (EA) and dysfunctional cognitions (DC) as predictors of social anxiety in an undergraduate sample. Both EA and DC are highlighted in the cognitive models as key contributors to SAD. They hypothesized that dysfunctional cognitions (DC) and EA were associated with social anxiety symptoms and each other. They also hypothesized that both EA and DC would independently predict social anxiety symptoms. The results of correlational analyses conducted using the 173 individuals in the high anxiety group indicated that EA and social anxiety symptoms were moderately correlated and that DC and social anxiety symptoms were correlated. The negative correlation reported for EA is a result of higher scores on the measure being used (Acceptance and Action Questionnaire II; AAQ-II) being indicative of higher psychological flexibility (Mahaffey, 2013). Examination of partial correlation results indicated that while after controlling for EA, DC was still a significant predictor of social anxiety symptoms, the same was not true for EA, after controlling for DC (Mahaffey et al., 2013).

The findings by Mahaffey and colleagues (2013) of the correlations between EA and social anxiety and DC and social anxiety follow the cognitive models, as having lower psychological flexibility and therefore engaging in greater experiential avoidance as well as having dysfunctional cognitions leads to greater social anxiety symptoms. While DC was still found to be a significant predictor of social anxiety, when controlling for EA, the fact that this was not the same for EA when controlling for DC lends to there being only mixed support for the proposed role of EA in the cognitive models.

In order to further examine the unique, as opposed to shared, predictive abilities of EA and DC on social anxiety scores, Mahaffey and colleagues tested three equations in their regression analyses. In the first equation, general distress was entered in step 1, DC was entered in step 2 and EA was entered in step 3. The results indicated that in step 1, general distress explained a minimal (10%), but statistically significant part of the variance in social anxiety scores. In step 2, the addition of DC was found to have explained an additional 19% of the variance (Mahaffey et al., 2013). However, the addition of EA in step 3 yielded results indicating that it did not account for any additional significant variance.

These results provide mixed support for the processes proposed by the cognitive models, as they highlight the key role of dysfunctional cognitions on the experiencing of social anxiety but did not indicate any significant unique predictive ability of EA. This finding is somewhat perplexing in that EA is noted in the cognitive models as playing a key role. It is possible that this research is suggestive of more of an interaction, rather than independent role that EA plays.

In the second equation, general distress was entered again in step 1 and was found to have predicted 10% of variance seen in the social anxiety scores. EA was entered in step 2 and was found to have explained significant additional variance (3%) over and above the general distress subscales. When DC was entered in step 3, it was found to explain an additional 17% of the variance (Mahaffey et al., 2013). The findings in examining this equation align more with what is seen in the cognitive models, as both EA and DC were found to explain significant variance seen in social anxiety. However, it should be noted that EA was only found to be a significant predictor over and above general distress. DC was still found to be a unique predictor even when added in step 3, which is still consistent with the cognitive models and theories.

The final equation was found to have explained 30% of the variance in social anxiety scores and was statistically significant. In this model, DC surfaced as the sole significant predictor of social anxiety scores (Mahaffey et al., 2013). This finding is not entirely surprising given the results of the previous equations, but the fact that DC emerged as the only significant predictor lends to questions about the actual role of EA in SAD.

Overall, the results of their regression analyses suggested that there is some overlap between DC and EA, more specifically that they both have to do with concerns pertaining to discomfort surrounding internal emotional experiences (Mahaffey et al., 2013). This overall finding is consistent with the cognitive models of SAD, as both DC and EA are noted as part of the process and maintenance of SAD. However, although the results provide support for the significant role the dysfunctional cognitions (i.e., "If my hands shake/I blush/or show other signs of anxiety, people will think I am incompetent/odd/stupid", "I'm unlikeable/unacceptable) play in experiencing social anxiety, questions still remain regarding the role of EA, as an independent contributor to the socially anxious response. With EA being highlighted as such a key factor in SAD in cognitive models, it appears as though there is still more to uncover about the role of this component as well as others covered in the cognitive models.

Further exploration in order to gain additional empirical support for the various components of the cognitive models of SAD was conducted by Panayiotou, Karekla, and Panayiotou (2014). In building on previous work (Mahaffey et al, 2013), Panayiotou and colleagues (2014) conducted a study in which select direct and indirect predictors of social anxiety were examined. More specifically, the role of anxiety sensitivity, behavioral inhibition, experiential avoidance, and self-consciousness in social anxiety were explored. Panayiotou et al. (2014) tested their hypotheses that anxiety sensitivity (AS) and behavioral inhibition (BI) indirectly predicted social anxiety, through experiential avoidance (EA) and self-consciousness

(SC). Their research consisted of two studies, the first conducted with a sample of college students (N = 253) and the second with a community sample. The results of their first study were indicative of statistically significant indirect effects of EA on SAD, and the overall total effect of AS on SAD. Results also indicated that SC did not mediate the relationship between AS and SAD. The hypothesized mediations of EA and SC on SAD group membership, as predicted by BI, were not statistically significant. Panayiotou and colleagues also tested a hypothesized moderation model, suggesting that the levels of EA moderate the effect of AS and BI on SAD. Their results did not provide support for this moderation model (Panayiotou et al., 2014).

Panayiotou and colleagues modified their hypotheses for their second study with the community sample. They focused on the direct and indirect effects of AS and SAD, as mediated by EA. They also tested the hypothesis that EA moderated the impact of AS on SAD. Results of Pearsons correlation indicated significant correlations between EA and SAD and AS and SAD. Their hypothesis that AS predicted SAD, mediated by EA, was supported, as AS significantly predicted EA and EA significantly predicted SAD (Panayiotou et al., 2014). Additionally, partial mediation by EA on SAD was found. There was a significant indirect effect and the total effect of AS on SAD was significant as well. As it was also seen in their first study, support for the hypothesized moderation of AS on SAD by EA was not found. (Panayiotou et al, 2014).

Overall, the studies conducted by Panayiotou and colleagues provided evidence and support for the idea that the connection between AS and SAD is through EA. The findings also provide support for the fact that AS is a key component of SAD (Panayiotou et al., 2014). These results are generally consistent with the cognitive models and theories, as they exemplified both the direct and indirect pathways to SAD through AS and EA. Key components in the cognitive models and theories, the propensity for socially anxious individuals to experience heightened anxiety coming into social situations, to feel a strong drive to avoid social situations and

resulting anxiety, and to engage in experiential avoidance are some of the components at the core of SAD (Clark and Wells, 1995; Hofmann, 2007).

## Existing Research and Future Directions

Existing research has highlighted the relationships between FNE (Carleton et al, 2007), FPE (Weeks et al, 2008), avoidance (Davila and Beck, 2002; Ottenbreit et al, 2014), social comparison (Antony et al, 2005; Mitchell and Schmidt, 2014), self-monitoring (Paidas, 2002; Piccirillo et al, 2016), and safety behaviors (Piccirillo et al, 2016; Stangier et al, 2006) and SAD. However, this research has primarily focused on the individual relationships and only limited research has been conducted combining components of the cognitive models. This research has begun to examine some of the core components of the cognitive models of SAD, such as experiential avoidance (Mahaffey et al, 2013; Panayiotou et al, 2014), dysfunctional cognitions (Mahaffey et al, 2013), and anxiety sensitivity (Panayiotou et al, 2014). Overall results from this existing research examining components of these cognitive models have highlighted potential overlap between EA and DC related to social anxiety, but that EA does not offer much additional predictive ability for SAD (Mahaffey et al, 2013). Further exploration of the role of EA, as a unique predictor of SAD might be beneficial. Additional previous research has suggested that anxiety sensitivity predicts SAD, particularly when an individual engages in experiential avoidance (Panayiotou et. al, 2014).

While this previous research has shed light on some of the key components behind SAD, the extant research is limited and there is a need for more comprehensive analysis and for the cognitive models to be more fully tested. One implication of a more comprehensive examination of these components is that it will provide for a deeper understanding of SAD and the theories underlying a socially anxious response. More specifically, this research aims to synthesize the previous research that has been done and expand on it by taking a more inclusive and

comprehensive stance in examining SAD as stipulated in cognitive models. The relationships among and between components relating to changes in anxiety ratings, comfort level in social situations and avoidance, fear of negative and positive evaluation, social comparison, self-monitoring, and safety behaviors will be explored in this research, as a means of gaining a more comprehensive picture of the processes at work in SAD. Additionally, this research may lend to elucidating other contributing factors that may not be tested or considered in the current models.

## Current Study

The current study aimed to examine unique predictors, using the cognitive models of social anxiety and previous research as reference. The fundamental question this study hoped to answer was what was contributing to changes that occurred in anxiety ratings from baseline to being informed of a speech task. More specifically, this study aimed to elucidate the processes highlighted in the cognitive models of social anxiety and to examine what best predicts anxiety, in the moment, based on participants being told that they were giving a speech.

This study examined individuals' somatic and cognitive responses in social situations, concerns pertaining to both positive and negative evaluation by others, individuals' perceptions of self as compared to others, self-monitoring, and safety behaviors. Participants were not pre-screened for SAD or placed into groups based on their scores on the measures. All participants' data will be analyzed together and within group differences will be explored. The hypotheses for this study were as follows:

1. Social phobia symptoms will predict increases in anxiety from baseline to following speech task instruction. More specifically, the greater the social phobia symptoms endorsed, the greater the increase in anxiety from baseline to following speech task instruction.
2. Fear of negative evaluation (FNE) will predict changes in anxiety from baseline to following speech task instruction, more specifically the higher the FNE, the greater the change in anxiety

(2a). This relationship may be conditional on both the use of safety (2b) and self-monitoring behaviors (2c), such that they both lead to a greater increase in social anxiety change.

3. Fear of positive evaluation (FPE) will predict changes in anxiety from baseline to following speech task instruction, more specifically the higher the FPE, the greater the change in anxiety (3a). This relationship may be conditional on both the use of safety (3b) and self-monitoring behaviors (3c), such that they both lead to a greater increase in social anxiety change.

4. Individuals who hold lesser views of themselves (i.e., inferior, weaker, undesirable, unattractive, unlikeable, an outside), as compared to others would experience greater changes in anxiety from baseline to following speech task instruction. It is also a hypothesized presence of causal models, in which either FPE or FNE caused greater increase in social anxiety change via their respective influences on SCRS (4b and 4c).

5. Using self-monitoring strategies will lead to an increase in social anxiety from baseline to being informed of speech task instruction. Self-monitoring will be positively correlated with safety behavior, the more self-monitoring the individual engages in, the more safety behaviors and vice versa (5b).

6. Use of safety behaviors will predict changes in anxiety from baseline to following speech task instruction. More specifically, greater the use of safety behaviors will result in an increase in anxiety.

# CHAPTER 2

# METHODS

## Participants

The sample included 81 participants, which was slightly above the 77 indicated as necessary for adequate power (.80) based on an a priori power analysis. Participants were recruited through the use of flyers around the American University (AU) campus, TodayAtAU emails, and the AU Psychology Department Research Experience Pool. Participants were required to be at least 18 years old and able to read and write in English, which was clarified in both the inclusion criteria in recruitment postings as well as the informed consent.

## Measures

### *Anxiety Rating Scale (ARS):*

Participants indicated their current level of anxiety on a scale of 0-5. This measure was included in order to obtain a baseline anxiety reading and to monitor self-reported changes in anxiety following speech task instruction. A change score (ΔARS) was calculated for this measure in order to determine whether any differences (increase/decrease) in anxiety occurred from baseline to following speech instruction.

### *The Social Phobia Scale (SPS; Mattick and Clarke, 1998):*

The SPS is a 20-item measure intended to assess an individual's fear of being watched or scrutinized. Items are comprised of descriptions of situations in which an individual would be observed. This measure asked that the participant rate, on a 5-point Likert Scale (0 (not at all true of me) to 4 (extremely true of me)), how comfortable they would be in each situation. Internal consistency for this measure is good *($\alpha$ = .88)* and test-retest reliability has been reported to be

between r = .91-.93. With the SPS tapping into a core component of SAD, the fear of being watched and scrutinized, the inclusion of this measure was imperative to get a baseline measurement of the level of fear associated with various social situations. The internal consistency of the SPS within this sample was high (α = .88).

*The Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983):*

The BFNE is a 12-item measure that inquiries about the participant's fear of evaluation by others. This measure utilizes a 5-point Likert scale, with anchors for 0 and 5, for each of the 12 items. In accordance with scoring guidelines, the four reverse-worded items were recoded prior to totaling the score. The BFNE has exhibited high internal consistency among undergraduate college students (α = .91). With FNE serving as a core component in SAD, it was imperative that this measure be included in order to gain insight into the participants fears related to being negatively evaluated by others. The BFNE exhibited adequate internal consistency within this sample (α = .70).

*The Fear of Positive Evaluation Scale (FPES; Weeks, Heimberg & Rodebaugh, 2008):*

The FPES is a 10-item measure intended to assess an individual's concern with being evaluated positively by others. Item ratings on this scale range from 0 to 9. Scoring guidelines for the FPES indicate that the two reverse-worded items be excluded when calculating the total score on this measure. The FPES is reported to be a good measure of convergent and discriminant validity, as it correlates with measures of trait anxiety and does not correlate as much with measures of worry and depression. The FPES has exhibited good internal consistency (α = .80). With FPE serving as a core component in SAD, it was imperative that this measure be included in order to gain insight into the participants' concerns pertaining to being positively evaluated by others. The FPES exhibited adequate internal consistency (α = .74)

*The Social Comparison Rating Scale (SCRS; Allan & Gilbert, 1995):*

The SCRS is an 11-item measure intended to assess an individual's tendencies towards social comparison. Lower scores on this measure reflect lower self-ranking. The SCRS total score has demonstrated high internal consistency in undergraduate samples ($\alpha > .88$). With social comparison playing a significant role in the development and maintenance of anxiety in social situations, this measure was included in the study in order to capture the self-ranking of the participants as they compare to others. The SCRS was found to have high internal consistency in this sample ($\alpha = .87$).

*The Self-Monitoring Scale (Snyder, 1974):*

The Self-Monitoring Scale is a 25-item measure intended to assess the degree to which an individual utilizes strategies for impression management in social situations. More specifically, it measures the extent to which an individual alters their behavior or manages nonverbal cues as a means of managing the way they are viewed by others. Sample items from this measure are**:** "Even if I am not enjoying myself, I often pretend to be having a goodtime", "In order to get along and be liked, I tend to be what people expect me to be rather than anything else", and "I sometimes appear to others to be experiencing deeper emotions than I actually am". The measure has been reported to have good test-retest reliability ($r = .83$). The Self-Monitoring Scale was included in this study in order to gather information on the extent to which each participant utilizes strategies for impression management in social situations. This measure had low internal consistency within this sample ($\alpha = .65$).

*The Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009):*

The SAFE is a 32-item measure intended to assess safety behaviors commonly used in the management and maintenance of social anxiety. Items pertaining to active safety behaviors, subtle restriction of behavior, and behaviors intended to avoid or hide physical symptoms.

This measure was included in order to assess the safety behaviors utilized by the participants in the study. This measure had high internal consistency within this sample ($\alpha = .89$).

Procedure

Individuals interested in participating in the study contacted the researcher in order to schedule an appointment to come in. Upon providing consent to participate, participants completed a baseline Anxiety Rating Scale (ARS), the Social Phobia Scale (SPS), the Brief Fear of Negative Evaluation Scale (BFNE), The Fear of Positive Evaluation Scale (FPES), the Social Comparison Rating Scale (SCRS), the Self-Monitoring Scale, and the Subtle Avoidance Frequency Examination (SAFE). Participants were then told that they would be presenting a 5-minute speech on a controversial topic and that they had 1-minute to prepare. While they were told that they would be asked to stand on a line designated on the floor of the lab prior to their speech, participants were not given explicit instruction as to whether their speech would be observed by anyone else aside from the experimenter in the lab. There was the potential for there to be concerns pertaining to impression management related to just the experimenter in the room watching or anticipation of others. Participants completed a second ARS after being told that they were delivering the speech. Upon completion of the second ARS, participants were informed that they were not actually giving a speech and that study participation has concluded. Participants were debriefed, provided with referral resources and compensated for their participation.

CHAPTER 3

RESULTS

The sample consisted of 56 females and 25 males between the ages of 18 and 53[1], with the average age being 20.4 years old. The majority of participants identified as Caucasian (58%), non-Hispanic (80.2%), with highest level of education completed being high school (86.4%) (See Table 1).

Table 1. Demographics

| | **Mean** | **SD** |
|---|---|---|
| **Age** | 20.3 | 4.9 |
| | **n** | **%** |
| **Gender** | | |
| Female | 56 | 69.1 |
| Male | 25 | 30.9 |
| **Ethnicity** | | |
| Hispanic | 16 | 19.8 |
| Non-Hispanic | 65 | 80.2 |
| **Race** | | |
| White | 47 | 58 |
| Hispanic or Latino | 12 | 14.8 |
| Black or African American | 5 | 6.2 |
| Asian/Pacific Islander | 12 | 14.8 |
| Other | 5 | 6.2 |
| **Education** | | |
| High school graduate | 70 | 86.4 |
| Community College (AA)/ Trade School | 3 | 3.7 |
| College Graduate (Bachelors) | 5 | 6.2 |
| Post Graduate Work (MA, PhD, JD) | 3 | 3.7 |

1 In order to examine the potential impact of the outlier, the 53 year-old participant was removed from the data set and analyses were re-run. However, after removing the outlier, no change was observed in the data, therefore they remain in this data sample.

The means of completed measures were examined in order to gain insight into the general makeup of the sample population (See Table 2). The sample can best be described as generally non-anxious, with a high tendency to engage in impression management and utilize safety behaviors, and concerns pertaining to fear of negative and positive evaluation and social comparison within normal limits.

An average ARS1 score of 1.77 (SD = 1.15), with the maximum value on the measure being 5, is suggestive of participants endorsing low baseline anxiety ratings. A mean score of 27.46 (SD = 12.68) on the SPS, with a maximum possible score of 80 is suggestive of participants in this sample endorsing some social phobia symptoms but not at high rates signifying particularly severe distress pertaining to the fear of being watched or scrutinized. As compared to established norms for clinical samples, with an average score of 40 for those with social phobia, the sample in this study would not meet clinical criteria for social phobia (Mattick and Clarke, 1998).

The mean score on the SMS was 15.11 (SD = 3.76) out of the possible 25-point total, which might indicate that participants in this sample engage, on average, in a high level of self-monitoring behavior (i.e., altering their behavior or nonverbal cues as a means of managing the way they are viewed by others), based on measure norms (Snyder, 1974). Participants in the sample scored an average of 79.09 (SD = 18.03) on the SAFE, which in considering the 128 total possible points suggests that participants reported that they typically engaged in some safety behaviors intended to avoid or hide physical symptoms of social anxiety, but not at a level consistent with necessarily consistent usage.

However, the mean score on this measure is above that found by Cuming and colleagues (40.5) for non-clinical samples and above the range presented in their work (15-82; Cuming et al, 2009). Overall, this suggests that participants in this sample reported engaging in more safety behaviors than might be expected in a non-clinical group.

Examination of the FPE endorsed by participants in this sample suggested moderate fear of positive evaluation with an average of 34.96 (SD = 12.73) out of the possible 72 total points. More specifically, as compared to an established norm for clinical samples of 39.6, this sample was below that cutoff (Weeks et al, 2011). A mean score on the BFNE in this sample of 35.37 (SD = 8.79), out of the possible **6**0 total possible points is suggestive of moderate consideration pertaining to being negatively evaluated by others. More specifically, in comparison to the established norm for this measure in clinical samples (46.91), this sample is well below that value as well as the non-clinical norm of 29.20 (Duke et al, 2006; Weeks et al, 2005). A mean score of 61.36 (SD = 14.35) on the SCRS, out of a possible total 110 points, suggests that participants viewed themselves as just about average as compared to others. This mean score is consistent with the normative data on college students' performance on this measure (64.67) and clinical samples (38.90; Allan and Gilbert, 1995).

Following speech task instructions, participants reported an average anxiety rating of 3.44 (SD = 1.36), indicating moderate anxiety. The average ΔARS was 1.67 (SD = 1.54), with 9.9% of the participants (n = 8) reporting a decrease in anxiety at ARS, 8.6% reporting no change (n = 7), and 81.4% reporting an increase (n = 66) in anxiety following speech task instruction. Post-hoc exploratory analyses yielded results indicative of a statistically significant increase from baseline (ARS1) to post-speech instruction (ARS2; $p < .001$), suggesting that the experimental manipulation did lead to an increase in reported anxiety.

Overall, in considering this sample and normative data, these scores indicate that participants in this study were generally non-anxious at baseline, reportedly engaged in high self-monitoring and impression management, were more inclined to engage in safety behaviors than expected, were appropriately concerned with negative and positive evaluation, did not typically view themselves as "lesser" than others, and experienced a general increase in anxiety over time following speech instruction (See Table 2). In examining the potential for gender differences impacting the findings, data was also examined by gender. Statistically significant differences were not found on any measures except for SCRS ($p$ = .035). More specifically, this data suggests that the male participants held lesser views of themselves, as compared to others, than the female participants (See Table 4 and Table 5).

Table 2. Measure Scores and Average Score Range

| Measure | Mean | SD | Minimum | Maximum |
|---|---|---|---|---|
| ARS1 | 1.77 | 1.15 | 0.00 | 4.00 |
| ARS2 | 3.44 | 1.36 | 0.00 | 5.00 |
| ΔARS | 1.67 | 1.54 | -3.00 | 5.00 |
| SPS | 27.46 | 12.68 | 3.00 | 56.00 |
| SMS | 15.11 | 3.76 | 5.00 | 23.00 |
| SAFE | 79.09 | 18.03 | 38.00 | 125.00 |
| FPE | 34.96 | 12.73 | 7.00 | 68.00 |
| BFNE | 35.37 | 8.79 | 17.00 | 50.00 |
| SCRS | 61.36 | 14.35 | 20.00 | 88.00 |

ARS1: Anxiety Rating Scale1; SPS: Social Phobia Scale; SMS: Self-Monitoring Scale; FPE: Fear of Positive Evaluation; BFNE: Fear of Negative Evaluation; SCRS: Social Comparison Rating Scale, ARS2: Anxiety Rating Scale2; ARS_Delta: Change score

Hypothesis 1:

The first hypothesis predicted that social phobia symptoms would be related to increases in anxiety from baseline to following speech task instruction (ΔARS). More specifically, that the greater the social phobia symptoms endorsed, the greater the increase in anxiety from baseline to following speech task instruction. Social phobia symptoms were measured at baseline by the

Social Phobia Scale (SPS) and ΔARS was calculated as a difference score between baseline Anxiety Rating Scale (ARS1) score and ARS score following speech instruction (ARS2). The correlation run in order to test this hypothesis yielded results indicating that this hypothesis was not supported, as there was no significant correlation between SPS and ΔARS, $r$ = -.055, $p$ = .605 (See Table 3).

Exploratory analysis examining the correlation between SPS and ARS1 and ARS2 yielded results suggesting a positive correlation between SPS and both ARS1 (r = *.378, p* = .001) and ARS2 ($r$ = .255, $p$ = .022).

Hypothesis 2:

The second hypothesis was composed of three parts. The first component of hypothesis two predicted that fear of negative evaluation (FNE) would predict changes in anxiety from baseline to following speech task instruction, more specifically the higher the FNE, the greater the change in anxiety (2a). FNE was measured at baseline using the Brief Fear of Negative Evaluation Scale (BFNE) and change in anxiety was measured using ΔARS. The second and third components hypothesized that this relationship may be conditional on both the use of safety (2b) and self-monitoring behaviors (2c), such that they both lead to a greater increase in social anxiety change (ΔARS). Support for this hypothesis was not garnered from the results of the following statistical analyses. To test the first portion of hypothesis two, FNE was entered into part of a multiple linear regression (MLR) model, along with Fear of Positive Evaluation (FPE) and Social Comparison Rating Scale (SCRS) scores. Results of this MLR yielded results suggesting that this part of the hypothesis was not supported, as there were no statistically significant findings. Exploratory correlations run yielded results that confirmed no statistically significant relationship between FNE and ΔARS, however it was found to be positively correlated with ARS2 ($r$ = .191, $p$ = .044).

Moderation models were examined in order to test the second and third portions of this hypothesis, probing the hypothesized conditional relation between FNE and ΔARS varying as a function of the use of safety behaviors and engaging in self-monitoring behaviors. These portions of the second hypothesis were also not supported, as the results **of** the moderations analyses did not yield statistically significant interaction or conditional effects for either model. Exploratory analyses examining potential correlations between the various components of this hypothesis yielded results suggesting positive correlations between FNE and safety behaviors ($r$ = .432, $p$ = .001), safety behaviors and ARS1 ($r$ = .242, $p$ = .015), and FNE and self-monitoring ($r$ = *.298, p = .003*). Statistically significant correlations were not found between safety behaviors and ARS2, self-monitoring and ARS1 or ARS2.

Hypothesis 3:

The third hypothesis was composed of three parts, as well. The first component of hypothesis three predicted that fear of positive evaluation (FPE) will predict changes in anxiety from baseline to following speech task instruction, more specifically the higher the FPE, the greater the change in anxiety (3a). FPE was measured at baseline using the Fear of Positive Evaluation Scale (FPES) and change in anxiety was measured using ΔARS. The second and third components hypothesized that this relationship may be conditional on both the use of safety (3b) and self-monitoring behaviors (3c), such that they both lead to a greater increase in social anxiety change (ΔARS). To test the first portion of hypothesis three, FPE was entered into part of a multiple linear regression (MLR) model, along with FNE and Social Comparison Rating Scale (SCRS) scores. Results of this MLR yielded results suggesting that this part of the hypothesis was not supported, as there were no statistically significant findings. Exploratory correlations run yielded results that confirmed no statistically significant relationship between

FPE and ΔARS, however it was found to be positively correlated with ARS1 ($r = 373$, $p < .001$) and ARS2 ($r = .373$, $p < .001$).

Moderation models were examined in order to test the second and third portions of this hypothesis, probing the hypothesized conditional relation between FPE and ΔARS varying as a function of the use of safety behaviors and engaging in self-monitoring behaviors. These portions of the third hypothesis were also not supported, as the results **of** the moderations analyses did not yield statistically significant interaction or conditional effects for either model. Exploratory analyses examining potential correlations between the various components of this hypothesis yielded results suggesting positive correlations between FPE and safety behaviors ($r = .365$, $p < .001$) and safety behaviors and ARS1 ($r = .242$, $p = .015$). Statistically significant correlations were not found between safety behaviors and ARS2, FPE and self-monitoring, and self-monitoring and ARS1 or ARS2.

Hypothesis 4:

The fourth hypothesis was also comprised of three parts. The first portion of this hypothesis predicted that individual**s** who held lesser views of themselves (i.e., inferior, weaker, undesirable, unattractive, unlikeable, an outside), as compared to others would experience greater changes in anxiety from baseline to following speech task instruction. An individual's tendency towards social comparison was measured using the Social Comparison Rating Scale (SCRS), with lower scores corresponding to an individual holding a lesser view of themselves as compared to others. As in the above hypotheses, change in anxiety was measured using ΔARS. The second and third portions hypothesized the presence of causal models, in which either FPE or FNE caused greater ΔARS, via their respective influences on SCRS (4b and 4c). To test the first component of hypothesis four, SCRS was entered into part of a multiple linear regression (MLR) model, along with Fear of Negative Evaluation (FNE) and Fear of Positive Evaluation

(FPE) scores. Results of this MLR yielded results suggesting that this part of the hypothesis was not supported, as there were no statistically significant findings. Exploratory correlations run yielded results that confirmed no statistically significant relationship between SCRS and ΔARS, however it was found to be negatively correlated with ARS2 ($r$ = -.275, $p$ = .007).

Mediation models were examined in order to test the second and third portions of this hypothesis, investigating the hypothesized causal relationships between FPE and FNE on ΔARS, through their respective influences on SCRS in each model. While the "a path", or portion of the model examining the relation between FPE and SCRS was statistically significant ($p$ < .001), suggesting that more fear of positive evaluation is quite strongly related to lower SCRS, no further statistically significant findings were observed in support of the overall mediation model (4b). Similarly, only the path between FNE and SCRS was statistically significant ($p$ < .001), signifying that more fear of negative evaluation is rather strongly related to lower SCRS. Exploratory data analyses examining potential correlations between the multiple components of this hypothesis yielded results suggesting negative correlations between FPE and SCRS ($r$ = -.386, $p$ < .001) and FNE and SCRS ($r$ = -.467, $p$ < .001). Positive correlations were found between FPE and ARS1 ($r$ = .373, $p$ < *.001*) and ARS2 ($r$ = .373, $p$ < *.001*), and FNE and ARS2 ($r$ = .191, $p$ = .044). No statistically significant correlations were found between FPE or FNE and ΔARS.

Hypothesis 5:

The fifth hypothesis was composed of two parts. The first part predicted that using self-monitoring strategies would lead to an increase in social anxiety from baseline to being informed of speech task instruction (ΔARS). Self-monitoring (SM) was measured as baseline using the Self-Monitoring Scale, which is intended to assess the degree to which an individual utilizes strategies for impression management in social situations. This hypothesis also predicted a

positive correlation between engaging in self-monitoring and using safety behaviors. Using correlations to test both components of this hypothesis yielded results indicating the lack of any corresponding significant correlations.

More specifically, SM was not found to be correlated with ΔARS ($r$ = -.069, $p$ = .269) or safety behaviors ($r$ = .174, $p$ = .061), therefore, this hypothesis was not supported. Exploratory analyses suggested that SM was also not correlated with ARS1 ($r$ = .012, $p$ = .458) or ARS2 ($r$ = -. 069, $p$ = .272), and was only positively correlated with FNE ($r$ = .318, $p$ = .002).

Hypothesis 6:

The sixth, and final, hypothesis predicted the presence of a positive correlation between the use of safety behaviors and changes in anxiety following speech task instruction (ΔARS). More specifically, it was predicted that the greater use of safety behaviors will result in an increase in anxiety. Correlations run to test this hypothesis yielded results suggestive of a lack of support for this hypothesis, as safety behavior and ΔARS were not found to be significantly correlated ($r$ = -.045, $p$ = .344). Exploratory analyses yielded results suggesting that the use of safety behaviors was positively correlated with ARS1 ($r$ = .242, $p$ = .015), FPE ($r$ = .365, $p$ < .001), FNE ($r$ = .432, $p$ < .001), and SPS ($r$ = .633, $p$ < .001). These analyses also suggested the presence of a negative correlation between safety behaviors and SCS ($r$ = - .297, $p$ = .004). Safety behaviors were not found to be correlated with ARS2 or SMS.

# CHAPTER 4

# DISCUSSION

In reviewing the data as a collective whole, it can be said that participants were generally less anxious at baseline and did get more anxious with the passing of time and delivery of speech task instructions. The data also suggests that while the magnitude of the change score from pre- to post-speech instruction did not reflect change in all anticipated areas, the absolute value of the socially demanding anxiety ranting scale was related to fear of negative evaluation. Overall, individuals with greater fear of negative evaluation were found to also report using more safety behaviors and self-monitoring in social situations. This pattern was also present for those participants reporting greater fear of positive evaluation. Additionally, despite reportedly engaging in safety behaviors, individuals in this sample endorsed higher baseline anxiety. Furthermore, the increase in reported anxiety at ARS2 is consistent with the posited underlying mechanism of utilizing safety behaviors, in that it is associated with an increase in anxiety with the passing of time.

The data also suggested that individuals in this sample with lesser views of themselves, as compared to others, also experienced greater fear of both negative and positive evaluation and higher anxiety at baseline as well as with the passing of time. Safety behaviors and self-monitoring were found to be closely related, as individuals who reportedly engaged in increased safety behaviors also reportedly engaged in greater self-monitoring in social situations. Lastly, self-monitoring in this sample was found to be correlated with fear of negative evaluation, suggesting that individuals in this sample might be more preoccupied with impression management given their greater fear of being negatively evaluated.

Support for the predicted positive correlation between social phobia symptoms (SPS) and reported anxiety following speech task instruction (ΔARS), was not found. This lack of statistical

support is consistent for each of the subsequent hypotheses with ΔARS as part of the model being examined. The correlation run on SPS and ΔARS data indicated that there was no significant correlation between the two variables. While it is possible that this hypothesis was incorrect and the lack of statistical evidence to support it confirms this, there may be alternative explanations for this hypothesis not being supported. Although the proposed hypotheses, in full, were not supported overall, exploratory analyses provided fruitful information consistent with the literature and also elucidated limitations in this study and potential considerations for future research pertaining to measurement selection, recruitment, and study design.

One potential consideration might be that the outcome variable (ΔARS) was not robust enough to capture this hypothesized process. The manipulation check conducted indicated the experimental manipulation was successful, in that it did lead to a statistically significant increase in reported anxiety from baseline (ARS1) to post-speech instruction (ARS2; $p < .001$). Furthermore, additional analyses finding a significant positive correlation between SPS and ARS1 and ARS2, again suggesting that there is a relation between the variables at the two points of measurement. These findings lend support for the Anxiety Rating Scale (ARS) serving a functional purpose in providing some information about changes in anxiety during participation. While this may be supported by the data, the use of the difference scores (ΔARS) as the overarching outcome variable clearly was not. It is possible that this difference score, calculated from scores on a one-item measure, may not be comprehensive enough to capture the hypothesized correlation. More specifically, the Anxiety Rating Scale measure captures a general anxiety level in the moment and does not ask about specific features of anxiety, both due to it its nature as a single-item measure and the wording (i.e., “Please indicate your level of anxiety following speech instruction”). It is possible that this significant limitation in this study explains the lack of support for all hypotheses in this experiment.

Research highlighting a lack of desirability for administering lengthy measures, particularly during clinical batteries and assessment, has lent momentum to a movement towards creating more brief measures (Wong, et al, 2016). However, it is possible that the ARS, while informative as a portion of the overall picture, was too brief as it contained only one-item. Wong, Gregory, and McLellan (2016) provide a review of some of the briefer measures that might, in this study, serve to be more robust and provide a large enough range in scores to be sufficiently sensitive to change as an outcome variable in the various models tested in this study. Measures such as the Mini-SPIN, Social Anxiety Session Change Index (SASCI), Clinically Useful Social Anxiety Disorder Outcome Scale (CUSADOS), and the Social Anxiety Disorder Dimensional Scale were some of the suggested measures in the work by Wong and colleagues. These measures, although shorter than others commonly used, have been found to be efficient, psychometrically sound, and to have robust factor structures (Wong et al, 2016). Future studies may aim to utilize more comprehensive brief measures, such as the SASCI (Hayes, Miller, Hope & Juster; 2008) in order to garner information regarding changes in anxiety compared to an earlier measurement. This measure in particular, while only 4 questions, examines aspects of changes in anxiety related to anticipation of social interaction/performance, avoidance, fear of evaluation, and impairment. This measure as compared to the ARS, while still brief, has a rating scale of 1-7 for each of the four items, potentially offering a larger range in scores for detecting significant change. Additionally, research conducted by Gore, Carter, and Parker (2002) as well as Carter, Sbrocco, and Atayi (2009) examined similar processes regarding predicting anxious responses in social challenges. Their research supported the significant clinical and research application of utilizing the State-Trait Anxiety Index, particularly the state portion, as an outcome measure. As the state portion of the measure aims to capture “in the moment” anxiety, this is another potential measure that could have been utilized as an outcome variable in this

study. While the trait portion of the measure could also be helpful in gaining insight into the participant's general anxiety, the state data might serve as a stronger dependent variable in this study. Additionally, using the state questions are baseline as well as post-speech instruction might also lend to helpful insight into changes experienced, at those various moments, during study participation. Additional measures, such as the SASCI could also be used to further support social anxiety change and to further explore the specific components of social anxiety that are impacting the changes seen in the moment when the STAI-S is completed. This is a significant consideration for future research and would be a change I would make to this protocol if I could do it again.

The proposed moderation models of FNE and ΔARS with safety behaviors and self-monitoring serving as the moderators were based on research suggesting the interplay amongst these various components of the maintaining factors of Social Anxiety Disorder (Clark and Wells, 1995; Hofmann, 2007; Mahaffey et al., 2013; Panayiotou, Karekla, and Panayiotou, 2014; Turk, Heimberg, & Magee, 2008). While the hypothesis was not supported, exploratory analyses did produce results consistent with research, as positive correlations were found between FNE and ARS1, ARS2, safety behaviors, and self-monitoring. Additionally, positive correlations were found between safety behaviors and ARS1. The findings suggest that greater fear of negative evaluation is related to greater reported anxiety, using more safety behaviors, and engaging in more self-monitoring behavior, which is consistent with what is posited within the literature regarding the interplay between these various components of the "feedback loop" created in SAD (Clark and Wells, 1995).

While the proposed conditional relationships between FNE and ΔARS based on the use of safety behaviors and self-monitoring was not supported, exploratory analyses offered some insight into processes occurring within this data. More specifically, the positive correlations

between FPE and ARS1, ARS2, and safety behaviors as well as between safety behaviors and ARS1 are congruent with what is reported in previous research. These findings are consistent with both the premise that fear of positive evaluation is significantly and positively correlated with reported anxiety (Carleton et al, 2007; Clark and Wells, 1995; Hofmann, 2007; Weeks et al, 2008) as well as the widely supported theory that despite the intended effects of decreasing anxiety in social settings, safety behavior is associated with greater social anxiety (Stangier et al, 2006). The positive correlation between safety behaviors and ARS1 supports this idea, in that despite reporting using more safety behaviors, individuals were reporting higher baseline anxiety.

The positive correlation found between safety behaviors and ARS1, FPE, and SPS are consistent with what we might expect to see based on the research. More specifically, individuals engaging in more safety behaviors are likely to experience not only higher baseline anxiety but also greater anxiety over time and have greater fears of negative and positive evaluation. While the nature of the correlations are in line with the processes described in the literature, pertaining to safety behaviors leading to the maintenance, and worsening, of social anxiety over time, the causal relationship cannot be drawn as a conclusion in this study based on there only being correlational support. Research has suggested that despite the intended effect of decreasing anxiety in social settings, the use of safety behaviors is associated with experiencing greater social anxiety, negative evaluation from others, and increased avoidance of future social situations (Stangier et al, 2006).

The proposed presence of causal models, in which either FPE or FNE caused greater ΔARS, via their respective influences on SCRS, the full models were not supported overall. However, with the paths between both FPE and SCRS and FNE and SCRS being statistically significant, consistency with key processes in the maintenance of SAD was still found. More

specifically, the findings based on the two significant paths suggests that both greater fears of positive evaluation and negative evaluation are very strongly related to lower self-esteem or a lesser view of oneself as compared to others, which is consistent with what one might posit based on the models of SAD. Further support for this concept was garnered as negative correlations between SCRS and ARS1, ARS2, FNE, and FPE. This data further supports the fact that viewing oneself in a more positive light, as compared to others, would lead to a decrease in feeling anxious, less fear of negative evaluation, and less concern with fear of positive evaluation. The opposite would be true for an individual who views themselves as "lesser" than others, as they are more likely to experience more social anxiety, and have greater fears of positive and negative evaluations due to their diminished sense of self.

The proposed positive reciprocal relationship between self-monitoring and safety behaviors just barely missed the cutoff for statistical significance ($p = .061$), suggesting that while the correlation was not statistically significant, the relationship may still be present. In fact, the only variable that SM was statistically significantly correlated to was FNE, which makes sense given that one might be more preoccupied with people figuring out that they are "faking it" (i.e., engaging in self-monitoring) if they are more concerned about being scrutinized by others or being negatively evaluated. Another important consideration regarding the lack of significant correlation between self-monitoring and other variables in this study may be related to the psychometrics of Snyder's Self-Monitoring Scale, as compared to other measures included in this study, its internal consistency was much lower. Therefore, future studies may aim to choose a self-monitoring measure with stronger psychometrics, such as Lennox and Wolfe's Revised Self-Monitoring Scale (RSMS) which has been reported to have much higher internal consistency ($\alpha = .88$; Lennox & Wolfe, 1984).

It is imperative to discuss the limitations in this experiment. The most significant limitation in this study, and posited to have played a key role in the lack of statistically support for the proposed hypotheses, is the use of the difference score for the two instances of measuring anxiety ratings (ΔARS) as the outcome variable. The exploratory correlations run determined that ΔARS was not correlated with any of the other variable, with the exceptions of ARS1 and ARS2, which makes sense since it is a difference score composed from those two measures. This information, although in hindsight, is strongly suggestive of ΔARS not being a suitable option for the outcome variable in this study. As mentioned earlier in this section, the use of a one-item was likely not robust enough to capture the intended processes for the purposes of this study. Given this consideration, future studies might want to use a more robust measure of social anxiety.

Another limitation in this study is that participants were not pre-screened for participation. In order to ensure that a wide variety in clinical presentations and levels of social anxiety are present in the sample, pre-screening might have been helpful in ensuring a more dimensional population. It is important to note that those individuals at clinical levels for social anxiety may not be inclined to participate in an experiment geared towards addressing public speaking, but that some clinical and subclinical participants might be willing. Incorporating a pre-screener into future studies' protocol might help ensure that the sample is also a balance between including individuals experiencing significant distress, less/no distress, and somewhere in the middle. Utilizing this type of approach in recruiting and building future sample populations might yield more targeted and specific data with significant clinical application.

Lastly, in considering the experimental manipulation, which consisted of telling participants that they would be giving a 5-minute controversial speech after having one minute to prepare, that adding an additional component of additional people watching might have led to

more of a socially anxious response. This could have been accomplished, for example, by telling participants that their speeches would be video recorded to be viewed by a group of their peers or that they would be observed through the one-way mirror in the lab. While many participants reported increases in anxiety as ASR2, it might be difficult to conclude that it was definitely related to social anxiety. More specifically, while the presence of a single experimenter and the absence of explicit instruction indicating that they would not be observed by others may have led to some anxiety increase observed, taking a more explicit approach in telling participants that their speech would also be viewed by others (either in the moment or after the fact) may have led to more explicit changes in social anxiety. Another important consideration is that the potential presence of anticipatory anxiety, whether related to giving the actual speech, receiving full instructions, or having the topic revealed makes it difficult to determine conclusively that the data collected in the ARS was definitively social anxiety. As previously mentioned, a more specific measure of anxiety, in the moment (i.e., STAI- State), might be considered as a more appropriate measurement choice in future studies.

While the proposed hypotheses were not supported and few a priori analyses garnered statistically significant result, the overall findings and conclusions may still yield pertinent information. More specifically, the post-hoc analyses provided insight into the potential cause of the initial findings and offers a strong argument for the thoughtful and intentional development of research measure plans and the importance of using robust measures. Additionally, some of the key posited underlying mechanisms of the cognitive model of social anxiety were still represented and somewhat supported through exploratory analyses. Overall, while any conclusive causal relationships cannot be concluded based on the correlational findings in the post-hoc analyses, this study still offers some clinical and research application in the field of

social anxiety while also elucidating the importance of instrument selection and striving to have as representative sample as possible.

APPENDIX A

Table 3. Correlations

| | | SPS | SAFE | SMS | ARS_Delta | FPE | BFNE | SCRS | ARS1 | ARS2 |
|---|---|---|---|---|---|---|---|---|---|---|
| SPS | Pearson Correlation | 1 | .633** | .015 | -.058 | .560** | .347** | -.380** | .378** | .255** |
| | Sig. (1-tailed) | | .000 | .446 | .303 | .000 | .001 | .000 | .000 | .011 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| SAFE | Pearson Correlation | .633** | 1 | .174 | -.045 | .388** | .432** | -.297** | .242** | .154 |
| | Sig. (1-tailed) | .000 | | .061 | .344 | .000 | .000 | .004 | .015 | .085 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| SMS | Pearson Correlation | .015 | .174 | 1 | -.069 | -.098 | .318** | .013 | .012 | -.069 |
| | Sig. (1-tailed) | .446 | .061 | | .269 | .191 | .002 | .455 | .458 | .272 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| ARS_Delta | Pearson Correlation | -.058 | -.045 | -.069 | 1 | .027 | .109 | -.119 | -.521** | .690** |
| | Sig. (1-tailed) | .303 | .344 | .269 | | .406 | .167 | .146 | .000 | .000 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| FPE | Pearson Correlation | .530** | .365** | -.163 | .050 | 1 | .321** | -.386** | .373** | .373** |
| | Sig. (1-tailed) | .000 | .000 | .073 | .330 | | .002 | .000 | .000 | .000 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| BFNE | Pearson Correlation | .347** | .432** | .318** | .109 | .321** | 1 | -.467** | .080 | .191** |
| | Sig. (1-tailed) | .001 | .000 | .002 | .167 | .002 | | .000 | .083 | .044 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| SCS | Pearson Correlation | -.349** | -.210** | .023 | -.037 | -.371** | -.467** | 1 | -.185** | -.199** |
| | Sig. (1-tailed) | .001 | .030 | .419 | .372 | .000 | .000 | | .049 | .038 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| ARS1 | Pearson Correlation | .378** | .242** | .012 | -.521** | .402** | .080 | -.165 | 1 | .258** |
| | Sig. (1-tailed) | .000 | .015 | .458 | .000 | .000 | .239 | .070 | | .010 |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| ARS2 | Pearson Correlation | .255** | .154 | -.069 | .690** | .372** | .191** | -.275** | .258** | 1 |
| | Sig. (1-tailed) | .011 | .085 | .272 | .000 | .000 | .044 | .007 | .010 | |
| | N | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |

** p < .05; ARS1: Anxiety Rating Scale1; SPS: Social Phobia Scale; SMS: Self-Monitoring Scale; FPE: Fear of Positive Evaluation; BFNE: Fear of Negative Evaluation; SCRS: Social Comparison Rating Scale, ARS2: Anxiety Rating Scale2; ARS_Delta: Change score

APPENDIX B

Table 4. Demographics: Gender Breakdown

| | Female | | Male | |
|---|---|---|---|---|
| | **Mean** | **SD** | **Mean** | **SD** |
| **Age** | 20.66 | 5.47 | 19.88 | 2.54 |
| **ARS1** | 1.61 | 1.20 | 2.12 | 0.97 |
| **ARS2** | 3.27 | 1.44 | 3.84 | 1.07 |
| **ΔARS** | 1.66 | 1.70 | 1.72 | 1.14 |
| **SPS** | 27.66 | 12.08 | 27.00 | 14.20 |
| **SMS** | 14.80 | 3.81 | 15.8 | 3.61 |
| **SAFE** | 79.88 | 18.37 | 77.32 | 17.48 |
| **FPE** | 33.77 | 13.83 | 37.64 | 9.55 |
| **BFNE** | 35.61 | 8.49 | 34.84 | 9.59 |
| **SCRS**** | 63.59 | 13.55 | 56.36 | 15.12 |
| | **n** | **%** | **n** | **%** |
| **Ethnicity** | | | | |
| Hispanic | 10 | 17 | 6 | 24 |
| Non-Hispanic | 46 | 82.1 | 19 | 76 |
| | | | | |
| **Race** | | | | |
| White | 33 | 58.9 | 14 | 56 |
| Hispanic or Latino | 8 | 14.3 | 4 | 16 |
| Black or African American | 4 | 7.1 | 1 | 4 |
| Asian/Pacific Islander | 8 | 14.3 | 4 | 16 |
| Other | 3 | 5.4 | 2 | 8 |
| | | | | |
| **Education** | | | | |
| High school graduate | 47 | 83.9 | 23 | 92 |
| Community College (AA)/ Trade School | 3 | 5.4 | 1 | 4 |
| College Graduate (Bachelors) | 4 | 7.1 | -- | -- |
| Post Graduate Work (MA, PhD, JD) | 2 | 3.6 | 1 | 4 |

** $p < .05$

APPENDIX C

Table 5. ARS Breakdown by Gender

| | Female | | Male | |
|---|---|---|---|---|
| | **n** | **%** | **n** | **%** |
| **ARS1** | | | | |
| 0 | 12 | 21.4 | 2 | 8.0 |
| 1 | 16 | 28.6 | 3 | 12.0 |
| 2 | 13 | 23.2 | 11 | 44.0 |
| 3 | 12 | 21.4 | 8 | 32.0 |
| 4 | 3 | 5.4 | 1 | 4.0 |
| 5 | -- | -- | -- | -- |
| **ARS2** | | | | |
| 0 | 3 | 5.4 | -- | -- |
| 1 | 6 | 10.7 | -- | -- |
| 2 | 6 | 10.7 | 4 | 16.0 |
| 3 | 9 | 16.1 | 4 | 16.0 |
| 4 | 22 | 39.3 | 9 | 36.0 |
| 5 | 10 | 17.9 | 8 | 32.0 |
| **ΔARS** | | | | |
| -3 | 1 | 1.8 | -- | -- |
| -2 | 2 | 3.6 | -- | -- |
| -1 | 4 | 7.1 | 1 | 4.0 |
| 0 | 4 | 7.1 | 3 | 12.0 |
| 1 | 11 | 19.6 | 4 | 16.0 |
| 2 | 18 | 32.1 | 12 | 48.0 |
| 3 | 8 | 14.3 | 4 | 16.0 |
| 4 | 7 | 12.5 | 1 | 4.0 |
| 5 | 1 | 1.8 | -- | -- |

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