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The Effect of Self-Compassion in the Experience of Anxiety and Fear During an Interpersonal Stressor

Arishna Agarwal

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THE EFFECT OF SELF-COMPASSION IN THE EXPERIENCE OF ANXIETY AND
FEAR DURING AN INTERPERSONAL STRESSOR

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ABSTRACT

At its core, Social Anxiety Disorder (SAD) is an intense fear where an individual is afraid of being rejected, humiliated, embarrassed, or negatively judged by others in social situations. Due to these feelings, those affected by SAD avoid interpersonal situations, which maintain and worsen the disorder. SAD affects 15 million adults and impairs daily functioning in countless aspects. Through various research studies, evidence has shown that individuals who suffer from SAD have difficulty managing their emotional states such as fear and anxiety and are less willing to accept and forgive themselves than their healthy peers. Willingness to accept, be kind, and forgive one's self is known as self-compassion. It is not clear in what way self-compassion effects the anxious and fear emotional states that define SAD. As fear is an immediate response to manifest danger, it is likely that self-compassion is more closely tied to anxiety that is prospective in nature. Therefore, this study examines if effects of self-compassion are more pronounced for anxiety rather than fear in a distressing task. Undergraduate students ($N=130$) completed the self-compassion measure on a computer and participated in a Free Breathing task (measure baseline) and the Trier Social Stress Test (measure distress) where they prepared (anticipatory state) and delivered (fear state) a speech in front of researchers. Participant's negative affect (nervous and scared) ratings were obtained following each task. Results concluded that self-compassion had a trend effect in decreasing negative affect equally for both the anticipatory and fear tasks relative to baseline.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER	
I. INTRODUCTION.....	1
1.1 Social Anxiety Disorder.....	1
1.2 Fear vs. Anxiety.....	5
1.3 Self-Compassion.....	6
1.4 Self-Compassion, Fear, and Anxiety.....	7
II. CURRENT STUDY.....	11
III. METHODS.....	13
3.1 Participants.....	13
3.2 Measures.....	13
3.3 Procedures.....	14
3.4 Analyses.....	16
3.5 Power.....	17
IV. RESULTS.....	18
4.1 Manipulation Check.....	18
4.2 Descriptive Analysis.....	18
4.3 Hypothesis.....	19
V. DISCUSSION.....	20

5.1 Limitations.....	22
5.2 Strengths.....	23
5.3 Future Directions and Implications.....	23
REFERENCES.....	24
APPENDICIES	
A. Tables.....	34
B. Figures.....	37

LIST OF TABLES

Table	Page
1. Descriptive statistics and bivariate correlation of negative affect variables....	34
2. Manipulation check of TSST for negative affect from baseline.....	34
3. Descriptive statistics and bivariate correlation of study variables.....	35
4. Results of repeated-measures ANCOVAs predicting change negative affect ratings following the preparatory and speech portions of the TSST.....	36

LIST OF FIGURES

Figure	Page
1. Conceptualized model of the procedure of the protocol.....	37

CHAPTER I

INTRODUCTION

1.1 Social Anxiety Disorder

Social Anxiety Disorder (SAD) is a mental disorder characterized by intense fear and avoidance of interpersonal situations (Heeren & McNally, 2018). Such situations of SAD include having a conversation, meeting unfamiliar people, being observed while eating or drinking, presenting in front of other people, or giving a speech. Social Anxiety Disorder was first introduced in DSM-III as social phobia due to the fear of being judged by a single socially related situation, while individuals afraid of multiple situations were diagnosed with avoidant personality disorder (American Psychiatric Association, 1980; Peyre et al., 2016). With the introduction of DSM-V, social phobia was reconceptualized as Social Anxiety Disorder, to emphasize the apprehension those with the disorder experience towards interpersonal situations (Karlsson et al., 2016). However, fear remained a prominent feature of SAD, as evidenced by the expectation that fear experienced by those with SAD is disproportional to what may be reasonable under the circumstance as observed by a professional clinician and not by the perspective of the individual (Heimberg et al., 2014; American Psychiatric Association, 2013). The excessive fear and anxiety must persist for typically six months or longer and bring about

significant distress and impairment in the daily functioning of those afflicted by the disorder (American Psychiatric Association, 2013; Karlsson et al., 2016). An indication should be made if the individual has social anxiety due to speaking or public performing (speech), which mostly impairs them in professional settings. However, these people do not avoid other nonperformance related situations. Individuals with SAD avoid situations where they feel that they could be negatively evaluated or they tolerate the situation with much anxiety and fear (American Psychiatric Association, 2013; Kampmann, Emmelkamp, & Morina, 2018). Individuals with this disorder also show anxious feelings due to perceiving humiliation, embarrassment, or rejection by others (American Psychiatric Association, 2013). They fixate and attend to negative meanings and social cues, which leads to increased levels of anxiety and ineffective social behavior (Naim, Kivity, Bar-Haim, & Huppert, 2018).

SAD is the fourth most prevalent mental disorder and with the highest lifetime prevalence rate in the United States out of all the anxiety disorders, at 12.1% (Werner et al., 2012; Asher & Aderka, 2018). Even with the high prevalence, much of it can go under-reported by adults due to the onset of SAD beginning at an early age and then plausibly remitting before adulthood (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). In the United States the 12-month prevalence rate is 6.8% (Karlsson et al., 2016). Among this general prevalence rates are gender and cultural differences. Gender differences have shown that women tend to have higher rates of SAD than men (American Psychiatric Association, 2013; Karlsson et al., 2016). Asher and Aderka (2018) found statistical significance in their study comparing 13.5% of women and 10.9% of men having lifetime prevalence of SAD and 8% of women and 5.8% of men

displaying 12-month prevalence in the United States. Considering cultural race differences, as compared to whites in America, American Indians are shown to have higher prevalence rates while Asians, African Americans, and Latinos tend to have lower prevalence rates (American Psychiatric Association, 2013). It has also been found minorities have a greater level of difficulty and life deterioration from SAD symptoms than Caucasians even though their prevalence rates are under-reported (Asnaani et al., 2015).

The age of onset for SAD is typically 13 years old in the United States, and ranges between the ages of 8 and 15 years (American Psychiatric Association, 2013; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). SAD is a relatively stable disorder throughout an individual's lifetime, implying that it does not abruptly remit but can remain for years (Werner et. al, 2012). Remission occurs within the first year for 30% of people and within a few years for 50% of people suffering from it (American Psychiatric Association, 201; Vriends, Bolt, & Kunz, 2014). Remission can take many years for 60% of people who do not have a treatment plan for the disorder.

Regarding functional impairment, personal well-being and the quality of life in general are affected (American Psychiatric Association, 2013; Kashdan, Julian, Merritt, & Uswatte, 2006). One area, which tends to be lacking and strained are interpersonal relationships including romantic partners (American Psychiatric Association, 2013; Porter, Chambless, Keefe, Allred, & Brier, 2019). There is a positive association between SAD and being single or divorced among men (American Psychiatric Association, 2013; Priest, 2013). Individuals with SAD have lower rates of intimate marriage-like relationships (American Psychiatric Association, 2013). Among the people with SAD

who do get married, there is more instability due to avoidant emotions leading to marital issues (Alden, Buhr, Robichaud, Trew, & Plasencia, 2018). Peer support and social groups are also affected to the point where these individuals have smaller social groups with less friends and are at a higher risk of living by themselves. They tend not to be heavily involved in various extracurricular activities (Alden, Buhr, Robichaud, Trew, & Plasencia, 2018). Additionally, it has been found that SAD is linked to educational and academic difficulties such as decreased likelihood of completing high school or failing a grade (Wersebe, Sijbrandij, & Cuijpers, 2013). It is noted that there are high rates of school dropouts, unemployment, lower socio-economic status, and lower workplace productivity (American Psychiatric Association, 2013). Not only does SAD impact behavioral areas of a person's life, it also impacts other mental health such as depression, alcohol usage, and suicidal ideation (Karlsson et al., 2016).

Due to the problematic nature of SAD, finding treatments which work are essential. Since the first diagnosis of SAD, there have been advancements made in treatment options (Rodebaugh, Holaway, & Heimberg, 2004). There are numerous treatments that can help social anxiety such as cognitive behavioral therapy (CBT), relaxation, exposure, social skills training, cognitive restructuring, interpersonal psychotherapy (IPT), or medication (Rodebaugh, Holaway, & Heimberg, 2004). Even with all these interventions, continued improvements in therapy and research can enhance the lives of people. Therefore, it is important to understand all aspects of social anxiety to strategize which sort of treatment is most effective for SAD. Fear and anxiety are universal emotional states which reflect essential components of emotional disorders like SAD (Craske et al., 2009). Consequently, developing a basic foundation about these

states is necessary in better understanding about social anxiety, how people suffer from it, and which interventions should be used for both of those states in enriching the outcome of SAD.

1.2 Fear vs Anxiety

Distinguishing the difference between fear and anxiety is often complicated and difficult. Fear is the notion that there is imminent threat or danger where one must save themselves by fleeing the situation (Lewis, Haviland-Jones, & Barrett, 2008). It usually has a cause or stimulus which is recognizable. Anxiety, however, is a feeling of worry, uneasiness, or apprehension that a situation could possibly turn bad or worse (Lewis, Haviland-Jones, & Barrett, 2008; Craske et al., 2009). It is referred to as “prestimulus, anticipatory to threatening stimuli,” whereas fear is referred to as “poststimulus.” A similarity between fear and anxiety is that they are both activated when an individual feels potential threat where they exhibit negative affect. However, the two emotions are characterized as mostly different forms. Thinking about it in a more situational context, fear would occur when there is danger present in a specific moment, it is clearly identifiable, or can be dealt with in a fight or flight manner. Meanwhile, anxiety is more uncertain or unknown in the present situation and is difficult to defend against. Accordingly, a human study demonstrated that as compared to healthy counterparts, people with SAD describe threatening situations as more dangerous, perceive more fear and therefore tend to move away from the threatful source (Mesquita, 2011). This relates to the idea that individuals with SAD are afraid of the anticipation of the situation before they even experience it. Numerous animal studies have been conducted to further distinguish the response of fear and anxiety to threatening stimulus (Dias, Banerjee,

Goodman, & Ressler, 2013). A study looking at the behavior of zebrafish notes that immediate fear experience would be the strike of a predator by sensing the movement of water (Jesuthasan, 2012). An example of anxiety would be the fish freezing up in light environments because anxious zebrafish prefer dark environments. Another study investigated two stress inducing approaches to cause social anxiety in rats. First is social defeat by dominant male rats to the naïve and the second is repeated foot shocks to that naïve rat. After establishing this social fear, the rats demonstrated freezing and defensive behavior towards social stimuli and were less willing to explore their environment (Toth, Neumann, & Slattery, 2012).

1.3 Self-Compassion

As stated, SAD is the negative appraisal of the self in social cues. It increases self-doubt and apprehension within the self, thus disliking one's self and feeling inadequate (Werner et al., 2012). To suppress these thoughts of self-disapproval and bring forth thoughts of kindness and love to one's self instead is known as self-compassion (Neff, 2003). Self-compassion is similar to compassion; compassion refers to understanding the pain and suffering of others. Compassion also means to not judge others for their failures or mistakes because humans are imperfect and tend to make those mistakes. Therefore, the construct of self-compassion means to be forgiving of one's self, being nonjudgmental to one's pain and failures, and being open to one's suffering but learning to heal by giving kindness (Neff, Kirkpatrick, & Rude, 2007). Interestingly, theories capture the notion that humans are self-obsessed, but experiences contradict this finding (Neff, 2003). Individuals tend to be kinder and more generous towards others they care about and sometimes even strangers than they are towards themselves. Feeling

compassionate for one's self is about being equal to others in regard to respect and recognizing interconnectedness. There is an idea that self-compassion can sometimes lead to acceptance of what happens, without any resistance, but with genuine feelings about one's self. That case is not true unfortunately. An important component to note about self-compassion is that there are three basic positive parts: self-kindness, common humanity, and mindfulness (Neff, 2003; Fredrick, LaDuke, & Williams, 2019). Self-kindness is again, being kind and nonjudgmental towards one's self. Common humanity means that experiences are part of the overall human experience and not individual isolating factors. Finally, mindfulness is balancing out painful memories and feelings, so they do not become an overwhelming burden. By understanding the idea behind self-compassion, it can be hypothesized that people with SAD have lower self-compassion (Werner et al, 2012). These individuals do not display kindness for themselves or develop any positive thoughts. Being supportive and having self-compassion for one's self has numerous psychological benefits, especially in lowering anxiety and having more satisfaction with life (Neff, 2003).

1.4 Self-Compassion, Fear, and Anxiety

Given the knowledge attained about self-compassion and anxiety, two thoughts can be concluded about how self-compassion plays a role with SAD. First, there is a direct inverse correlation between the two where individuals with high self-compassion usually tend to have low social anxiety (Blackie & Kocovski, 2018). Secondly, self-compassion can be viewed as more of a buffer against anxiety where it acts as a protective factor for someone with anxiety (Werner et al., 2012). Studies show that those with social anxiety are higher on the negative subscales of self-compassion: self-

judgment, overidentification, and isolation scale and lower on the two of the positive scales. One study found that the scale for social anxiety was correlated positively with the negative subscales (self-judgement and isolation) of self-compassion (Werner et al., 2012). Findings suggest that there may be a lack of positive cognitive style, such as self-compassion, in addition to negative qualities which may be one of the reasons for SAD. Another is how people react in a defensive way is based off perceptual systems in our automatic thought process, inferring that we form an opinion about a threatful situation using our senses and create a self-protecting mechanism. When there is actual danger, the system will send an appropriate message to fight off the threat. Conversely, the root cause of anxiety is when this system is oversensitive sometimes and is constantly firing ways that we should defend ourselves, even when there is no danger present. Since avoidance is a common reaction for people with SAD, and they are continuously alert in situations, when presented with threatening situations these people experience a typical response such as elevated fear (Etkin & Wagner, 2007). Not only is self-compassion important in better understanding anxiety, it is relevant in developing a healthy emotional state (Neff, 2013). For instance, being happy and proud of one's self rather than being upset and mad for thinking overcritically about a situation. Having these unhealthy and negative thought processes leads to inability to be able to deal with stressful situations (Finlay-Jones, 2017). This then enhances the feeling of anxiety and prevents an individual from coping in a positive way and ultimately steers them towards avoidance. Therefore, having high self-compassion, being kind and accepting of one's self, is important because it increases the aptitude to deal with stressful situations. It increases positive affect and stimulates "parasympathetic activity" leading to once more, less avoidant behavior. An effective

strategy to decrease social anxiety in individuals is to aid them in creating this thought process of having high self-compassion, which may help them to accept and not dwell on their negative qualities (Blackie & Kocovski, 2018). Another potentially effective way to reduce SAD is to incorporate self-compassion into other treatments (Werner, et al., 2012). Encompassing mindfulness into the intervention to help the individual learn to accept themselves has been shown to reduce stress. A type of meditation known as loving-kindness can help increase self-compassion. Combining various aspects of self-compassion into therapies like CBT can also be effective. The literature proposed the relationship between self-compassion and anxiety but was extremely limited on the relationship with self-compassion and immediate fear. However, a book by Germer (2009) explains that being kind to one's self is directly related to fear. There has been an indication that general mindfulness is associated with an extinction in fear or fearful thoughts or memories (Kummar, 2018). Mindfulness meditation-based therapy helps expose people to their avoidant and unpleasant thoughts by suppressing their need to internalize such feelings. A study conducted with undergraduates exposed them to a mindfulness task before showing them a fear-inducing task to measure avoidant behavior, as is common for most individuals with anxiety disorders (Carlin & Ahrens, 2014). Results indicated that those individuals who received the mindfulness task were less likely to end the task as compared to their control group. Although self-compassion is related to social anxiety and may protect against it, it is not clear which emotional state is associated with self-compassion. Given how people with SAD have heightened fear, an immediate instinctual behavior to a situation and anxiety, a cognitive process involved with anticipatory threat, it may be likely that self-compassion is more closely linked with

anxiety than fear. Individuals with high self-compassion as compared to those with low can keep negative life events in perspective and are therefore able to handle the anxiety. It is pertinent to develop self-compassion for one's self to buffer against negative cognition and self-criticism, particularly for those with SAD.

CHAPTER II

THE CURRENT STUDY

The intention behind this study is to investigate further whether self-compassion is more closely associated with anxiety rather than with fear in response to a situational stressor introduced in a laboratory setting. As fear is an immediate response to manifest danger, it is likely that self-compassion is more closely tied to anxiety that is prospective in nature. Therefore, I hypothesize that self-compassion will positively predict greater discrepancy in levels of distress between speech preparation and speech presentation portions of the Trier Social Stress Test, well-validated procedures for eliciting social anxiety and fear. Previous studies have looked at fear, self-compassion, and social anxiety but the existence of all of them together is still lacking and needs to be expanded upon to dissect how self-compassion plays a role within each of those components.

The purpose of the current study is to broaden the evidence that self-compassion is a key construct to assist individuals with Social Anxiety Disorder and is a preventative measure for those without SAD. It is also to better understand the relationship between self-compassion, fear, and anxiety. Numerous individuals suffer from anxiety and expanding research to combat such anxious emotions is critical in allowing people to live a healthy lifestyle. Therefore, this research is aimed to provide a more concrete

understanding in how self-compassion is important with, which key component of social anxiety.

CHAPTER III

METHODS

3.1 Participants

One hundred and thirty undergraduate students ($M_{age} = 22.40$, $SD = 6.87$, 60% females) were recruited from Cleveland State University through the university's SONA System. SONA System is an online research participation website for the students to sign up on and earn research credits for their Introduction to Psychology class or other courses. The students signed up for a time slot preferable to them and arrived at the research lab for the study. The students received 3 research credits for participating in the protocol.

3.2 Measures

Demographic Questionnaire. A self-reported questionnaire which includes the participant's general background information such as age and sex.

Self-Compassion Scale (SCS-SF). A short-form of the original self-compassion scale containing 12 self-report items measured on a 5-Likert scale range from 1 (*Almost never*) to 5 (*Almost always*) (Brenner, Heath, Vogel, & Crede, 2017; Skinta, Fekete, & Williams, 2019). The scale is composed of 6 subscales, 3 of which are positive: Self-Kindness, Common Humanity, and Mindfulness. The other 3 subscales are negative:

Self-Judgment, Isolation, and Over-Identification. Example questions include, “I try to be understanding and patient towards those aspects of my personality I don’t like” and “When I fail at something important to me, I become consumed by feelings of inadequacy.” The total score can fall in the range of 1-2.5 indicating low self-compassion, 2.5-3.5 indicating moderate, and 3.5-5.0 indicating high self-compassion by computing a grand mean. SCS-SF has been shown to be just as reliable and valid ($\alpha = 0.86$) as the original Self-compassion Scale with an almost perfect correlation ($r = 0.98$) (Raes, Pommier, Neff, & Van Gucht, 2011). The internal consistency for the present study was just as reliable ($\alpha = .81$).

Self-report Mood Rating. A self-reported measure on a 10-point Likert scale obtained from an item from the Positive and Negative Affect Schedule (PANAS) assessing the participant’s negative or distressing moods, “nervous” and “scared” (Serafini et al., 2016). In addition, participants responded to other distractor emotional items such as sad, happy, angry, blue, joyful, irritable, stressed, and upset. An example question would be “How nervous do you feel at this moment?” The question remains the same with respect to each emotion mentioned. This study only utilized scared and nervous affect ratings and then combined them to have one overall negative affect rating after each task. A correlation table (Table 1) was used to portray the significance of aggregating the affect for scared and nervous. There is compelling evidence for combining those affects because they have a high correlation with each other, ranging from 0.66 to 0.83.

3.3 Procedures

When participants arrived at lab, they were given an informed consent and the protocol of the study was explained to them. This study was part of a larger laboratory

protocol where students received 3 research credits for participating in the whole research experiment. After informed consent, the participants completed private surveys on the computer containing questions associated with self-compassion (SCS). Once the participants finished the surveys, they completed the psychophysiology protocol, where they were asked to perform various tasks such as looking at a + sign on the computer screen for 3 minutes (Free Breathing) (Figure 1). Participants also took part in the Trier Social Stress Test (TSST), a common psychosocial stress inducing laboratory tool used in research settings to measure individual's stress, anxiety, and fear levels, which generally contains three tasks (Bershad, Miller, & Wit, 2017). TSST is a procedure where participants are told that they will have to write a speech, deliver that speech, and perform an arithmetic task in front of researchers with neutral faces (McRae et al., 2006). The challenge can be daunting for most people, which is the main reason for the utilization of this tool. The preparatory stage of the speech is the anticipatory period, where the participant's anxiety begins to build up about performing in front of others while the immediate response of giving the speech is fear. One study demonstrated sex differences for stressors and explained that fear and irritability were high after TSST for women than men (Kelly et al., 2008). First, the participants prepared a speech for 3 minutes on a piece of paper describing why they would be a good candidate for their ideal job. Next, they delivered the speech for 3 minutes, without the paper, in front of a panel of "judges" who were mostly other research assistants in lab. The participant was prompted to keep continuing their speech if they stopped in the middle. Lastly, to complete the rest of the TSST portion of the protocol, they sequentially subtracted the number 17 from 2,023 for 3 minutes in front of the same judges. A microphone and camera were set up during TSST to delude the participant into thinking they were being

recorded to intensify their emotions and stress level. After each of those tasks, they gave a self-reported affect answer to the questions asking about their scared and nervous emotions. Again, for the study, the focus will be primarily on the speech preparation and speech portion of the TSST along with Free Breathing.

3.4 Analyses

Descriptive statistics and analyses were conducted in repeated measures ANCOVA in SAS to test whether self-compassion is more strongly tied to anxiety relative to fear. In this model, aggregated “scared” and “nervous” ratings (Negative Affect, NA) will serve as the dependent variable after each task, the task (preparation vs. speech) will serve as the within-subjects factor, and self-compassion and NA baseline will serve as a between-subjects predictor. Sex will be looked at as a covarying factor as it has been shown that men and women differ in their emotional reactivity. Age will also be covaried along with sex. When analyzing the data, few participant cases had missing nervous and scared affect ratings (28.8%) for the free breathing task and the preparation task by design of the study. Due to this reason, the method of multiple imputation was utilized in SAS to estimate and create 50 supplementary pure datasets to fill in the missing frequency. Multiple imputation is applied to reduce bias in statistical analyses that are associated with missing data. It is used in datasets to impute reasonably appropriate real values in places where there are missing values (Rubin, 1988; Rubin, 1996). Multiple imputation was conducted in two steps in this study: first the creation of datasets that estimate missing values through the Estimation-Maximization (EM) algorithm that were subjected to statistical analyses, and second, a synthesis of results from said analyses (Enders, 2010).

3.5 Power

Based on G*Power a target sample size was calculated of 114 participants would enable the detection of medium effect size ($f=.26$) at an $\alpha=.05$, and power=0.80.

CHAPTER IV

RESULTS

4.1 Manipulation Check

A repeated measures ANCOVA manipulation check was performed in SAS to determine if the distressing task (TSST) induced negative affect (“scared” and “nervous”) among participants from the baseline level (Free Breathing task) to preparation (TSST Speech Preparation task) and speech (TSST Speech Presentation task). Significant results were observed and indicated that TSST did increase negative affect from baseline to preparation and speech (Table 2). However, there was not a significant increase from preparation to speech.

4.2 Descriptive Analyses

Descriptive statistics and bivariate correlations include the means and standard deviations for all scared and nervous affect ratings across each task (Table 1). Correlations for all other variables are also included (Table 3). Self-compassion had a significant negative correlation with negative affect for speech. Further, NA at baseline significantly correlated with preparation and speech portion of TSST. NA preparation of speech correlated with presentation of speech. Other variables were not significantly correlated with each other.

4.3 Hypothesis

The hypothesis was tested using repeated-measures ANCOVA to determine if self-compassion predicted more distress in a state of anxiety (TSST preparation) or state of fear (TSST speech). The task (preparation versus speech) was the within-subjects factor. Self-compassion and negative affect at baseline were the between-subjects factors. Sex and age were the between-subjects covarying factors. The analysis showed a significant increase in distress from preparation to speech ($\beta= 4.87, p= .03$) implying a substantial increase in negative affect for participants during the immediate threat portion of TSST. Even though manipulation check (general reactivity from baseline) displayed non-significant results, inclusion of covariates (sex and age) and between-subject factors (self-compassion and baseline) in this model could explain the difference between both analyses. There was also a trend effect ($\beta= 0.30, p= .055$) in increasing distress across tasks from baseline (free breathing task) to TSST, indicating that participant's negative affect increased when they both prepared and presented the speech. In line with the hypothesis, though not significant, self-compassion had a trend effect ($\beta= -0.1, p= .055$) in lowering negative affect from baseline to TSST. Those who reported more self-compassion had reduced fear and anxiety levels. Age and sex were not direct predictors for the various tasks. As well, interaction effect displayed that self-compassion did not vary across preparation and speech tasks. Self-compassion decreased negative affect equally for TSST preparation and speech.

CHAPTER V

DISCUSSION

Social Anxiety Disorder (SAD) is one of the most common anxiety disorders in which people avoid social situations that trigger anxious thoughts or feelings by engaging in more safe behaviors because they fear that they will be scrutinized by others (Goodman, Kashdan, Stikma, & Blalock, 2019; Filho et al., 2009; Voncken, Alden, Bögels, & Roelofs, 2008). SAD, like other anxiety disorders, has two major emotional components that should be carefully evaluated to better understand the disorder. First is the anticipatory period, which is when the individual becomes aware of the subjective threatening situation, and secondly is the fear period, which is the immediate interaction with the objective threatening situation (Bourke, 2003). Fear and anxiety are emotional states, the dysfunction of which hallmarks SAD. Therefore, elucidating process that attenuate fear and anxiety has potential to inform treatment and prevention efforts.

Self-compassion is a construct that reflects a tendency to be kind towards one's self while also being mindful and compassionate of the obstacles faced without overidentifying things (Booth, McDermott, Cheng, & Borgogna, 2019). High self-compassion levels have been shown to reduce negative emotional arousal, including anxiety, though its protective effects for fear are not known (Takahashi et al., 2019; Arch,

Landy, Schneider, Koban, & Andrews-Hanna, 2018). This study sought to test the relative value of self-compassion for reducing anxiety and fear in a social threat paradigm. It was hypothesized that high self-compassion levels would attenuate arousal in both emotional states, and that this effect would be stronger for anxiety relative to fear.

In partial support of expectations, those with high self-compassion levels tended to experience less arousal in anxiety and fear states than their peers. This finding is consistent with what is present in the current literature about self-compassion and anxiety (Mackintosh, Power, Schwannauer, & Chan, 2018). High scores on SCS are associated with lower self-reported anxiety scales as well as general anxiety symptomology (Raes, 2010; Przedziecki, 2013). The connection between self-compassion and fear is deficient in literature but mindfulness and fear are linked extensively. It has been proposed that mindfulness or being more aware of negative thoughts and emotions could assist in the prevention of exaggerated responses and lead to desensitization of fear (Kummar, 2018).

Contrary to expectation, the protective effects of self-compassion did not differ across the two emotional states. Self-compassion helps to reduce the negative emotions experienced during certain situations or criticism from others, positively impacting emotion welfare (Barry, Loflin, & Doucette, 2015; Luo, Qiao, & Che, 2018). Individuals with SAD struggle with maintaining positive emotions and generally have higher negative affect causing distress (Morrison et al., 2016). A study by Shikatani, Fredborg, Cassin, Kuo, and Antony (2019) concluded that people with SAD would be relieved from their negative thinking and emotions by developing more mindful ideology. This result could be due to the fact that mindfulness is a fundamental aspect expressed in self-compassion and mindfulness plays a critical role in both anxiety and fear. However, a

study done by Van Dam, Sheppard, Forsyth, and Earleywine (2011) described that self-compassion is a better predictor of anxiety than mindfulness. One particular study tested the role of self-compassion in SAD during a distressing task (speech) and found significant results favoring self-compassion and its reduction of anxiety (Harwood, & Kocovski 2017). As there is not much literature regarding the effect of self-compassion on fear but numerous studies regarding the effect of self-compassion on anxiety, this study should have added further evidence to that growing body of literature. However, the rejection of this hypothesis could be due to missing values in this dataset which were inputted via multiple imputation.

5.1 Limitations

As with most studies, the outcome of this study should be considered in the context of limitations. Missing data from some cases necessitated multiple imputation, which may have increased measurement error. In similar vein, a reliance on participants' subjective ratings of their mood states may have been affected by demand characteristics of the study and their response bias. Further, while the TSST has been shown to strongly induce fear and anxiety, the use of multiple research assistants during the study's execution could have increased measurement error (Zimmer, Buttlar, Halbeisen, Walther, & Domes, 2019). In order to limit this error and increase pressure of authenticity, having the same research assistants sit in for each participant run while wearing lab coats could intensify the process impressively. Another limitation was that this was primarily an all student sample, which could perhaps indicate that many students were not extremely socially anxious and were able to deliver speeches without too much difficulty. Testing a clinically socially anxious sample could provide a better clarification of this hypothesis.

5.2 Strengths

Apart from the limitations this study did have notable strength. It employed a well-controlled experimental design that robustly evoked anxiety and fear that analogue of SAD in among those who are not eager to deliver a speech in front of others (McDaniel, 1993).

5.3 Future Direction and Implications

Future works that examine the effects of self-compassion on psychophysiological substrates of fear and anxiety (e.g., heart rate and electrodermal activity) along with subjective emotional experience in large representative clinical and community sample would do much to elucidate the role of self-compassion in risk for SAD. Further, adding a self-compassion induction procedure to the TSST would provide an experimental means for ascertaining the role of self-compassion in anxiety and fear. Finally, as self-compassion reflects Buddhist philosophy (Zeng, Wei, Oei, & Liu, 2016), it would be interesting to see whether the effects of self-compassion on fear and anxiety are more pronounced in cultures that espouse such ideology.

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APPENDIX A: Tables

Table 1. Descriptive statistics and bivariate correlation of negative affect variables.

Variables	<i>M (SD)</i>	1.	2.	3.	4.	5.	6.
1. scaredFB	1.39(.94)	---					
2. nervsFB	2.16(1.77)	.66***	---				
3. scaredprep	2.63(2.16)	.31***	-.29**	---			
4. nervsprep	3.76(2.53)	.33**	.49***	.83***	---		
5. scaredSpch	3.45(2.59)	.26**	.13	.61***	.48***	---	
6. nervsSpch	5.14(2.65)	.14	.23*	.55***	.66***	.72***	---

Note. scaredFB = Scared Affect for Free Breathing (baseline), nervsFB = Nervous Affect for Free Breathing (baseline), scaredprep = Scared Affect for TSST Speech Preparation, nervsprep = Nervous Affect for TSST Speech Preparation, scaredSpch = Scared Affect for TSST Speech Presentation, nervsSpch = Nervous Affect for TSST Speech Presentation
 *** $p \leq .001$, ** $p \leq .01$ * $p \leq .05$

Table 2. Manipulation check of TSST for negative affect from baseline

	β	<i>SE</i>	<i>df</i>	<i>t-test</i>	<i>p-value</i>
Preparation	2.47	0.41	105.71	6.10	<.001
Speech	4.37	0.45	116.31	9.62	<.001

Table 3. Descriptive statistics and bivariate correlation of study variables.

Variables	<i>M (SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	22.40(6.87)	---							
2. Sex	.40(.49)	.00	---						
3. SCS	37.60(8.34)	.19	.03	---					
4. Nabl	4.17(2.91)	.03	-.11	-.14	---				
5. Naprp	6.64(4.43)	-.15	-.15	-.13	.31***	---			
6. Naspch	8.54(4.80)	-.12	-.07	-.21*	.20*	.61***	---		
7. Δnaprp	2.47(4.62)	-.17	-.08	-.04	-.32**	.80***	.48***	---	
8. Δnaspch	4.37(5.18)	-.13	-.00	-.13	-.35***	.41***	.85***	.63***	---

Note. SCS = Self-compassion Scale, Nabl = Negative Affect at baseline, Naprp = Negative Affect at Preparation, Naspch = Negative Affect at Speech, Δnaprp = Negative Affect Change from Baseline to Preparation, Δnaspch = Negative Affect Change from Baseline to Speech
 *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$

Table 4.

Results of repeated-measures ANCOVAs predicting Change Negative Affect Ratings Following the Preparatory and Speech Portions of the TSST.

Predictor	NA
Between-Subjects	
Age	$F(1,126) = 1.17, p = .28$
Sex	$F(1,126) = .26, p = .61$
NA-baseline	$F(1,126) = 3.80, p = .055$
SCS	$F(1,126) = 3.76, p = .055$
Within-Subjects	
Task (prep, speech)	$F(1,252) = 4.62, p = .03$
Age X Task	$F(1,252) = .35, p = .56$
Sex X Task	$F(1,252) = .58, p = .45$
NA-baseline x Task	$F(1,252) = .11, p = .27$
SCS X Task	$F(1,252) = 1.99, p = .16$

Note. For sex, 0=female and 1=male, SCS= Self-compassion Scale, prep = presentation, speech = speech.

APPENDIX B: Figures

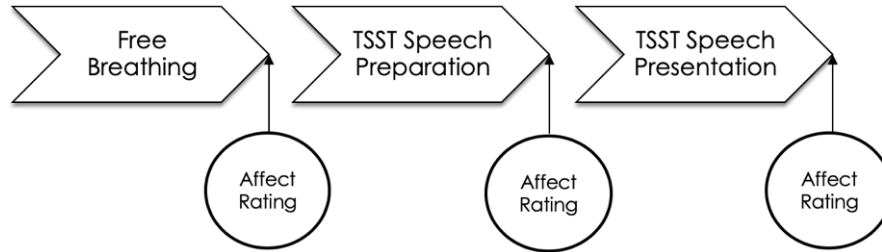


Figure 1. Conceptualized model of the procedure of the protocol