Theses and Dissertations

August 2016

Evaluating Attentional Bias in Shame Using the Dot Probe Task

Kathleen Marie Grout
University of Wisconsin-Milwaukee

EVALUATING ATTENTIONAL BIAS IN SHAME USING THE DOT PROBE TASK

by

Kathleen M. Grout

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Psychology

at

The University of Wisconsin-Milwaukee

August 2016

ABSTRACT

EVALUATING ATTENTIONAL BIAS IN SHAME USING THE DOT PROBE TASK

by

Kathleen M. Grout, M.S.

The University of Wisconsin-Milwaukee, 2016
Under the Supervision of Professor Shawn P. Cahill, PhD

Background: Cognitive theorists have long held that attentional biases are a central feature of psychopathology (Beck, 1976). Although shame plays a key role in psychopathology, research and theoretical models on information processing in shame is lacking. ***Objective***: The considerable overlap both functionally and topographically between shame and negative affective states of anxiety and depression prompted our investigation in to whether there are attentional biases in shame. ***Method***: We compared individuals with low, moderate, and high levels of shame on the dot probe task. We investigated the effect of valence and time course of such biases by exposing stimuli portraying disgust, sad, and happy faces at short (150 ms), medium (500 ms), and long (1,000 ms) durations. ***Results***: We analyzed dot probe reaction times along three indices: conventional bias, facilitated engagement, and difficulty disengaging. Our analyses indicated order effects for the conventional bias index, in which the stimulus exposure duration impacted individuals with low amounts of shame when the questionnaires were administered first. We observed group main effects for our indices of facilitated engagement and difficulty disengaging, in which high shame individuals exhibited slowed engagement to all affective stimuli and delayed disengagement from all affective stimuli. Additional trends in the data are reported. ***Conclusions***: Implications are discussed in terms of the perception of affect and social stimuli as threatening.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Introduction

Guilt and Shame

Discrete emotions theory assumes that there are a set number of core emotional responses that are expressed in similar ways universally. Although there is debate about which emotions comprise the core emotions (theorists debate between 7-10 emotions), many theorists propose guilt or shame as one of them (Izard, 1991; Lazarus, 1991; Lee, Scragg, & Turner, 2001). Although shame is often differentiated from guilt in discrete emotions theory, there is no consensus on these differences and they overlap on many other key features such as facial expressions, functions, cognitive content, and action tendencies (Tangney & Dearing, 2002; Lazarus, 1991). Interestingly, a number of authors reveal that laypeople are not familiar with the differences between shame and guilt either at the level of facial expression recognition (Izard, 1991) or verbal differentiation (Tangney & Dearing, 2002). Thus, the expression and understanding of these emotions seem to intersect in important ways.

Based on their shared characteristics, guilt and shame can be defined as an internal state that is brought about by a violation of social norms and manifests itself through negative affect and cognitions. It seems plausible that exploring general shameful affect (including guilt) will be more beneficial than differentiating between them, especially at the functional level (i.e. motivation for treatment, denial of feelings of remorse, patient understanding of their emotions). Therefore, for the purposes of this paper, discussion of these emotions will be simplified by referring to them both as shameful affect Shameful Affect in Psychopathology

Guilt and shame are disproportionately understudied compared to other negative affect, especially considering the importance guilt and shame play in the development of psychopathology. For instance, guilt and shame are associated with social anxiety, eating disorders, depression, suicidal behaviors, and posttraumatic stress disorder (PTSD; Bryan et al, 2013; Goss & Allan, 2009; Lee, Scragg, & Turner, 2001). Although the impact of guilt and shame in mental illness has long been noted, relatively little is known about shame from an

empirical perspective, and the focus of shame in the literature has largely been theoretical. Interestingly, theorists suggest that guilt and shame are beneficial at moderate levels, but intense feelings of guilt and shame may lead to dysfunctional behaviors (Lazarus, 1991; Shahar, 2013). Lewis (1971) explained that experiencing intense and recurrent shame and guilt may lead to maladaptive perfectionism, anxiety, sensitivity to rejection, interpersonal difficulties, and increased self-reproach. From the existing body of research on shame, there is consistent evidence demonstrating the association between shame and psychopathology, particularly anxiety and depression (Fergus et al., 2010; Gilbert, 2000; Carvalho, 2013; Kim, Thibodeau, & Jorgensen, 2011). It has been proposed that a restricted range of negative cognitions and avoidance behaviors in those with shameful affect may influence the development of psychopathology (Muris and Meesters, 2013; Lazarus, 1991).

  Cognitive Biases in Shame. Cognitive theorists describe the cognitive triad as thoughts about oneself, one's future, and one's experiences, which, when taken together, create vulnerability to psychopathology (Oatley & Johnson-Laird, 1987). In the first part, Beck (1976) describes a negative evaluation of oneself in terms of being worthless or morally defective. This reflects tendencies in shame, although cognitive theorists do not explicitly implicate shame in the cognitive triad (Power, 2009). Also, cognitive theorists describe schemas, mental representations of oneself and the world, as contributing to psychopathology (Beck, 1976; Oatley & Johnson-Laird, 1987). Importantly, Beck (1976) explains that individuals selectively attend to certain information that is congruent with their schema and selectively ignore other incongruent stimuli. For example, a depressed individual may attend to depressing stimuli and ignore joyful stimuli, which would reinforce the individual's schema that the world is a depressing place. However, the role of schemas in negative affect excluded a focus on shame. Theoretical and empirical focus of traditional cognitive theorists was on attentional and memory biases in anxiety and depression. In the literature on guilt and shame there is no empirical evidence focusing on cognitive biases in information processing. However, cognitive theories

provide a foundation of cognitive patterns in depression and anxiety to build a model of cognitive biases in shame around. The author proposes a cognitive model of attentional biases in shame following a review of the literature on attentional biases in other negative affect.

Although cognitive theorists do not explicitly state the role of shame in psychopathology, it is possible that one way shame influences mental health is through various cognitive biases. Theorists suggest that those experiencing shame may be more likely to make stable, personal attributions for negative events, similar to cognitive theorists' explanation of depression (Andrews, 1995; Tangney & Dearing, 2002; Orth, Berking, & Burkhardt, 2006). For example, a person who experiences high amounts of shame may be more likely to attribute the cause of negative life events to permanent characteristics of him- or herself. This type of attributional style is sometimes referred to as self-blame (Andrews, 1995). Such guilt-induced attribution styles have been suggested by cognitive psychologists to result in feelings of depression and social anxiety (Orth, Berking, & Burkhardt, 2006).

Social psychologist Leary (2004) describes two types of cognitions in shame. First, he describes negative self-evaluations, in which an individual consistently evaluates him or herself as inferior to others. Second, he described how individuals also make attributions about how others are evaluating them. For example, a child may perceive others as judging him or her negatively. Evaluating the self as shameful is referred to as "internal shame" in the literature; whereas evaluating others as shaming is referred to as "external shame" (Gilbert, 2000; Lee, Scragg, & Turner, 2001). Lazarus (1991) adds that subsequent failure to cope with initial feelings of shame will lead to thoughts of self-blame in a "secondary appraisal process". He also suggests that self-blame can be thought of as misdirected attributions of responsibility, a clearly maladaptive pattern.

Avoidance. The unwillingness to experience negative affect, called "avoidance", has been suggested to play a role in depression as well as anxiety disorders, such as PTSD (Foa and Kozak, 1986; Lee, Scragg, & Turner, 2001). As described by Lazarus (1991) and Izard

(1991), those who experience shame often have the tendency to hide or turn away, which topographically resembles overt avoidance behavior. Lee, Scragg, and Turner (2001) posited that shame may often lead to dysfunctional avoidance coping strategies (e.g., substance abuse, staying in bed to, avoiding thoughts and feelings) following a trauma. Muris and Meesters (2013) suggest that following repeated shame and self-blame, individuals may come to rely on avoidant interpersonal action tendencies, such as isolating, which could lead to anxiety and depression. Furthermore, as Foa and Kozak (1986) emphasize, avoidance impedes emotional processing of the event. In other words, without emotional processing anxiety symptoms are maintained. There is some evidence implicating the link between shame, avoidance, and subsequent psychopathology. For example, avoidant coping was shown to mediate the relationship between shame and depressive symptoms in an adolescent sample (De Rubeis & Hollenstein, 2009). In addition, Carvalho (2013) found evidence that avoidance of emotional experiences strongly mediated the relationship between shame and depressive symptoms.

The pattern of avoidance of emotional experiences is common due to the short-term decrease in negative emotions. Avoidance becomes problematic when used as a long-term coping strategy, because new learning, processing, and coping strategies cannot take place. Additionally, avoidance strategies are ineffective because they impair functioning in daily life. Therefore, Carvalho (2013) suggests that chronically using avoidance to cope following shameful experiences puts individuals at risk for increased psychopathology, such as depression. One potential limitation of this study is that, although the design measures shame from childhood and current avoidance and depressive symptoms, a cause-effect pattern cannot be determined due to the correlational design. The analog sample also limits any conclusions that can be made regarding those who are clinically depressed. Also, there are limitations in memory for events in the distant past. Especially in light of the evidence on avoidance in shame, the question arises whether self-report questionnaires can accurately detect shame in individuals who are most avoidant of painful emotional experiences.

Not only does avoidance in shame play a role in the development and maintenance of psychopathology symptoms, but this may also act as a barrier to entering treatment (Levin, 1971). In addition, many authors suggest that clients may be unable or reticent to reveal feelings of shame in session due to its speechless nature (Levin, 1971; Feiring & Taska, 2005; Izard, 1991). Not only do many individuals deny their experience of shame, they also tend to avoid reflecting on it (Izard, 1991; Lazarus, 1991; Carvalho, 2013). According to emotional processing theory, reflecting on and processing events may lead to symptom improvements (Foa and Kozak, 1991; Shahar, 2013). Thus, the avoidance aspect of shame may inhibit individuals from seeking treatment, communicating feelings of shame to their provider, and active processing of feelings of shame.

Shame in Anxiety. The body of research indicates that shame plays a prominent role in certain anxiety disorders, such as Obsessive-Compulsive Disorder (OCD), Generalized Anxiety Disorder (GAD), Posttraumatic Stress Disorder (PTSD), and especially Social Anxiety Disorder (SAD). The association between shame and anxiety could be attributed to the overlap in symptoms of depression and anxiety, considering shame plays a role in depression as well. However, Fergus et al. (2010) found that shame was associated with GAD and SAD even when controlling for depressive symptoms. Furthermore, using standardized measures the authors found that changes in shame pre-to-post-treatment were associated with changes in GAD, SAD, and obsessive-compulsive symptoms.

PTSD. Shame in PTSD has garnered more attention in the literature than many other disorders. From a conceptual perspective, Lee, Scragg, and Turner (2001) posit that internal and external shame influence schemas following a trauma in different ways. Following a trauma, an individual may experience internal shame when a trauma confirms negative self-evaluations (e.g., that s/he is weak). In terms of external shame, an individual may feel devalued by others (e.g., that others believe s/he is weak).

5

Literature on shame and guilt in PTSD is largely conceptual; however, there is some data that connects shameful affect with trauma symptomology. For example, guilt may be associated with PTSD symptomology, but results are mixed (Leskela, Dieperink, & Thuras, 2002). Shame, on the other hand, has been found to be significantly and positively correlated with PTSD symptom severity in a study examining 107 former prisoners of war using well-validated measures (Leskela, Dieperink, & Thuras, 2002). However, based on the study design, no causal relationship can be determined.

Andrews et al. (2000) investigated the role of shame in predicting PTSD severity among victims of crime-related trauma. Findings showed that shame and anger were the only predictors of PTSD severity one month post-trauma, and shame was the only predictor of PTSD severity six months post-trauma. They also found a significant correlation between a history of childhood abuse and current PTSD symptoms, and shame mediated this association. This and other studies indicate that shame may act as a mediator variable between sexual abuse and subsequent psychopathology such as depression, bulimia, and PTSD (Feiring & Taska, 2005; Andrews et al., 1995, 2000).

Social Anxiety. In regards to shame, social anxiety has received the most research compared to other anxiety disorders. This is likely due to the notion that shame and social anxiety share many features, which has been emphasized by a variety of theorists (Gilbert, 2000; Matos et al., 2013; Shahar, 2013) and corroborated by some initial research. For example, Gilbert (2000) investigated shared aspects of shame, social anxiety, and depression. Results confirmed the hypothesis that shame, social anxiety, and depression are correlated with feelings of inferiority. Additionally, these three were associated with more submissive social behaviors (e.g., agreeing one was wrong). Interestingly, when controlling for social anxiety, shame and depression were no longer significantly correlated. On the other hand, when depression was controlled for, shame and social anxiety remained significantly correlated. The author suggests this implies that the role of shame in depression may operate through social

anxiety. However, the author failed to provide a rationale for the samples used (109 psychology students; 50 hospitalized depressed patients). Further, it is unclear why the author utilized individuals diagnosed with depression but failed to find participants diagnosed with social anxiety.

Conceptually, there are many overlapping characteristics of social anxiety and shame. First, they share the element of self-consciousness. Similar to shame, social anxiety is said to include self-focused attention, in which awareness is concentrated on an individual's own physiological sensations, emotions, or cognitions (Morrison & Heimberg, 2013). Theorists suggest that self-focused attention prevents awareness of new experiences and subsequent learning to disprove negative cognitive biases (Clark, 2005; Morrison & Heimberg, 2013). Theorists suggest that the heightened awareness of the self may lead to negative self-evaluation in both social anxiety and shame (Fergus et al., 2010). Repeated self-blame about failures and self-criticism involving thoughts of one's worthlessness and core deficiencies are hypothesized to lead to negative self-evaluation in social anxiety and shame (Shahar, 2013).

Second, social anxiety and shame share the tendency of making attributions of being negatively evaluated by others (Clark, 2005; Leary, 2004). In fact, an intense fear of negative evaluation from others is considered a central feature of social anxiety (Morrison & Heimberg, 2013) and is related to the concept of external shame. Clark (2005) describes socially anxious individuals as experiencing discomfort in the presence of others and an increased predisposition to feelings of embarrassment, which reflects the shame experience as described by Izard (1991) and Lazarus (1991). Therefore, "biased processing of social cues" is implicated by many theorists to account for the maintenance of social anxiety (Clark, 2005; Morrison & Heimberg, 2013).

Third, they both involve ruminative worry. Clark (2005) describes evidence that rumination is association with social anxiety disorder. Although Orth, Berking, and Burkhardt (2006) did not examine anxiety in their study, their findings reveal that shame is correlated with

rumination. Buss (1980) posits that rumination about social contact is associated with both shame and social anxiety by means of self-consciousness.

Fourth, social anxiety and shame have some overlap in regards to behavioral tendencies. For example, both are associated with blushing and physiological arousal (Morrison & Heimberg, 2013). Further, social avoidance is a hallmark of both shame and social anxiety (Clark, 2005). Additional overlapping response styles include unassertiveness and submission (Morrison & Heimberg, 2013).

In his emotion-focused therapy model for social anxiety, Shahar (2013) proposes that shame is linked to social anxiety. He describes shame as a primary emotional response to a humiliating situation. The resulting social anxiety is a secondary reaction to repeated shame experiences, in which worries arise regarding exposure of one's defects. According to Shahar (2013), these worries result in hypervigilance in social settings and information processing biases. For example, attention to others may be biased in terms of noticing any signs of disapproval (Clark, 2005). Shahar (2013) suggests that shame processing may be the mechanism through which social anxiety lessens, and evoking and processing shame should therefore be the target of treatment.

Shame in Depression. A majority of the literature on shame in psychopathology focuses on depression. Using a non-clinical sample, Carvalho (2013) found that the frequency and intensity of shame-provoking events during childhood was correlated with depressive symptoms later in life. In a meta-analysis of 20 studies on shame in children and adolescents, results indicated that there is a modest correlation between shame and psychopathology symptoms of depression, anger, and aggression/delinquency (Muris & Meesters, 2013). Kim, Thibodeau, and Jorgensen (2011) conducted a meta-analysis on 108 correlational studies on shame and depression published between 1987 and 2010. Their findings revealed that associations with depression were stronger for shame compared to guilt. In addition, larger effect sizes were seen in external shame compared to internal shame. Orth, Berking, and

8

Burkhardt (2006) found that rumination mediated the shame-depression link. They explain the significance of their findings by suggesting that rumination may help to problem solve ways to maintain belongingness with others, but also results in repeated negative self-evaluation, leading to depressive symptoms.

Although no studies elucidate the causal pathway between shameful affect and psychopathology, Frewen et al. (2013) investigated the perceived causal relationship between shame and symptoms of anxiety and depression. Individuals were asked to rate their belief as to the cause-effect pathway that led to their symptomatology. Results indicated that individuals were more likely to attribute shame as a cause of depression than depression as a cause of shame. Although results showed that individuals were more likely to attribute anxiety as a cause of depression than depression as a cause of anxiety, no relationship was found between shame and anxiety, suggesting that individuals may perceive shame to be more similar to their experience of depression compared to their experience of anxiety A notable limitation to this study is the possibility of introspective limitations and demand characteristics. Individuals may not be aware of the presence, degree, or temporal association of certain emotions and symptoms, and they may also be motivated to misreport the causal relationships. In addition, shame-guilt was assessed by only one-item, limiting its validity as a measure of shameful affect, and the study failed to use standardized instruments to assess for other symptoms. Also, it seems that understanding the perception of a cause-effect relationship reveals more about attributions of the sequence compared to the actual cause-effect relationship.

In addition to replicating the finding from prior research that shame was associated with depressive symptoms, Andrews, Qian, and Valentine (2002) found evidence that shame predicted additional significant variance in depressive symptoms at a second time point, suggesting that shame may play a role in the development of symptoms.

Although there is increasing research on the role of shame in psychopathology, there are no studies that focus on any level of information processing in shame. Given the

relationships between shame and both anxiety and depression, research on attentional biases in anxiety and depression may guide initial research on information processing in shameful affect at the level of attention biases.

Attentional Biases in Shame-Relevant Affect

Attention refers to the ability to concentrate, process, and attend to information, and can occur at either the conscious or unconscious level. Due to the vast amount of information individuals are presented with every moment, the attentional system selects information to attend to and information to ignore. Cognitive theorists have long held that attentional biases are a central feature of mood disorders (Beck, 1976). The literature on attentional biases in psychopathology focuses on anxiety and depression. Although shame plays a key role in psychopathology, research and theoretical models on information processing in shame is lacking. Because both attention biases and shameful affect influence psychopathology it is of crucial importance to determine the existence and patterns of attentional biases in shame. Due to the overlap between shame and anxiety/depression, as aforementioned, understanding attention processing in anxiety and depression may shed light on possible attention processing patterns in shame.

Methodologies of Attention Bias Research

Studies assessing attentional biases have utilized various methodologies in terms of type of paradigm, length of stimuli exposure, and type of stimuli.

Paradigms. The literature on attention biases is vast and a number of paradigms have been generated to assess for biases. Two of the most common methods include the visual dot probe task and the emotional Stroop (Bar-Haim, 2007).

Dot probe. MacLeod, Mathews, and Tata (1986) modified the dot probe task to assess visual encoding of threatening stimuli. The dot probe task is a computer-based task that

presents a series of threat-neutral (or sad-neutral, etc.) trials to the participant (MacLeod, Mathews, and Tata, 1986; Bar-Haim, 2007; Wald et al, 2013). Trials begin with a screen briefly (e.g., 500 ms) displaying fixation crosses. Next a threat-neutral word pair (e.g., dead, data) or pictorial pair (threatening face, neutral face) is presented briefly (e.g., 500ms, 1000ms). Lastly, the words or pictures disappear and a probe (e.g., dots, arrows) appears in the empty space of one of the stimuli. In typical dot probes participants are instructed to indicate the identity of the probes (e.g., one or two dots; arrow up or down) or to indicate the location of the probe (e.g., left or right) by making a key press (Mogg & Bradley, 2005; Bar-Haim, 2007). The probes are present until a response is made. Participants are instructed to respond quickly and accurately. Attention vigilance or threat bias is defined as attentional bias *towards* a threatening cue. Conversely, attention avoidance is attentional bias *away* from a threatening cue (MacLeod, Mathews, & Tata, 1986; Wald et al, 2013). In terms of the dot probe, threat bias is reflected when participants are faster at identifying targets that replace threatening stimuli than they are at identifying targets that replace non-threatening stimuli. For example, if the participant is faster at responding when dots replaced words like "dead" and slower when dots replaced words like "data", this indicates the participant is attending to the word "dead" prior to the target. Conversely, threat avoidance is thought to be reflected in participants who are faster to detect targets replacing neutral stimuli and slower to detect targets replacing threat stimuli (Wald et al, 2013). Furthermore, the addition of happy-neutral trials could provide evidence for a bias towards or away from positive stimuli (Bar-Haim, 2007).

    Emotional Stroop. The Emotional Stroop is a modification of the color-naming Stroop developed in the 1930s (Bar-Haim et al., 2007). The original *Stroop effect* refers to decreased performance when incongruent (e.g., the word green printed in red) stimuli are presented compared to when congruent stimuli (e.g., the word green printed in green) are presented. Semantic incongruence is thought to interfere with the ability to exclusively attend to color. In the Emotional Stroop, threat-bias is reflected in decreased performance in naming the color of

threat-related stimuli (e.g., the printed color of the word "cancer" or the color of an angry face) compared to naming the color of neutral stimuli (e.g., "plate" or a neutral face).

According to a meta-analysis, both the Stroop and dot probe paradigms are associated with significant within-subject and between-group effects. Effect sizes for these two paradigms were comparable and did not differ significantly (Bar-Haim et al., 2007). However, some researchers have criticized the Stroop on the belief that it may not be measuring attention bias, but rather may be measuring avoidance or cognitive preoccupation instead. For example, the Stroop requires suppression of a response and ignoring emotion stimuli in order to provide the correct response.

In contrast, the dot probe allows individuals to freely attend to emotion stimuli, which has been argued to be a more "naturalistic" paradigm (Gotlib et al, 2004). Another benefit to the dot probe is that the probe itself is neutral, thereby allowing response latencies to the probe to be a direct assessment of attentional allocation instead of response biases or arousal (Bar-Haim et al., 2007). The dot probe also has the added benefit of allowing for variation of the duration between the stimulus presentation and the probe, termed the stimulus onset asynchrony (SOA). Exposure of the stimuli may be subliminal or supraliminal. Because of these benefits of the dot probe paradigm over the Stroop, research using the dot probe task to measure attention biases will be highlighted.

Variants of Dot Probe

Length of Stimulus Exposure. Examining the time-course of attentional biases is imperative in clarifying whether individuals maintain attentional vigilance or show disengagement from threatening stimuli. Thus, understanding the impact of the length of stimuli exposure on attentional biases is warranted.

In a meta-analysis Bar-Haim et al. (2007) found significant differences in effect sizes between 5 studies that utilized subliminal exposures (< 500 ms) compared to 25 studies that

12

utilized supraliminal exposures (500 - 1000 ms) in dot probe tasks. Threatening stimuli presented at all exposure durations produced a significant threat bias in anxious participants, although effect sizes for studies using subliminal exposure of stimuli were almost twice the effect size of studies using supraliminal exposures; however, there were far fewer subliminal studies included in analyses. Bar-Haim et al. (2007) also found differences in nonanxious control groups at different exposure times. They found that control groups showed significant threat avoidance using subliminal exposure of stimuli, but showed no significant effect at supraliminal exposures. Additionally, significant differences were found between anxious participants and controls for subliminal and 500 ms stimulus exposure times, but not for longer exposure times. Based on this literature, in order to investigate the time-course of attentional processing in negative affect, employing multiple stimulus exposure lengths seems optimal to assess both early and later attentional patterns.

Types of Stimuli. Researchers have begun to debate which type of stimuli – words or faces – are optimal to assess attentional biases using the dot probe. A majority of the initial research on attention biases in anxiety utilized word stimuli. However, many recent studies have begun using pictures of human faces displaying facial expressions. Peschard (2013) suggested that pictorial stimuli reveal more accurate findings than studies using word stimuli. He explains that the processing of faces involves a separate neural pathway from processing of word stimuli. Processing faces is automatic, bypasses semantic processing, and is thought to be more indicative of real-world stimuli and attention biases (Bradley, Mogg, & Millar, 1997; Bar-Haim, 2007).

Additionally, theorists have proposed that utilizing word stimuli confounds results due to the possibility of variable familiarity of words. Utilizing face stimuli allows researchers to rule out word frequency of word usage as a confounding variable. For example, anxious individuals may be more likely to use anxiety-related words in conversations or think anxiety-related thoughts.

13

Therefore, these individuals may be primed to notice these words due to their increased usage compared to usage among non-anxious individuals (Bradley et al., 1997; Bar-Haim, 2007).

Researchers have found evidence of a threat bias utilizing word stimuli (MacLeod, Mathews, and Tata, 1986; Mogg, Bradley, & Williams, 1995; Wald et al, 2013) and face stimuli (Gotlib et al., 2004; Bradley, Mogg, & Millar, 2000; Staugaard, 2010). However, some inconsistencies have emerged. For example, Pishyar, Harris, and Menzies (2004) directly compared the impact of faces and words on attentional biases. They found threat bias for faces but not words, as they hypothesized. On the other hand, Bradley et al. (1997) had null findings relating to threat bias when using facial stimuli. These studies are discussed in more depth below. Of importance, a meta-analysis examining 35 dot probe studies indicated that the magnitude of threat biases was comparable when using words (20 studies were included in analyses) or faces (15 studies) (Bar-Haim et al., 2007). Both types of stimuli produced biases towards threatening information in anxious participants, but not in controls. The meta-analysis also revealed that control groups demonstrated threat avoidance for threatening word stimuli, but not face stimuli. Based on this meta-analysis there is no evidence that face stimuli produce larger threat biases than word stimuli when using the dot probe. Additionally, more research is needed to determine if there is a difference in threat bias between words and pictures as a function of stimulus exposure time. One reason to expect a difference is based on differences in timing of processing (Peschard et al., 2013). For example, processing faces is said to occur quickly whereas semantic processing takes longer (Bar-Haim et al., 2007). Therefore, it may follow that assessing faces subliminally and words supraliminally may increase the magnitude of effect sizes, but more research is needed to determine if this pattern holds.

Another feature of stimulus type is emotional content. Cognitive theorists predict that individuals selectively attend to stimuli that are relevant to their domain of psychopathology, referred to as domain-specificity. For example, individuals who are depressed may show attention bias to stimuli reflecting sadness whereas individuals with social anxiety may show

biases for stimuli involving socially threatening information, such as anger. Research on domain-specificity is mixed. Some studies show evidence of an association between content of stimulus and domain (Beck, 1976; Gotlib et al., 2004). However, others found no domain-specificity for threat biases, indicating participants showed a threat bias to any emotional stimuli regardless of content (Mogg et al., 1995; Schofield, Inhoff, and Coles (2013). For example, one study showed that attentional biases in GAD were not specific to anxiety-related threatening words ("attack", "hostile"), but also included bias towards depression-relevant words ("sad", "worthless") (Mogg et al., 1995). Interestingly, another study showed that all emotional expressions (as opposed to neutral expressions) attracted participants' attention (Schofield, Inhoff, and Coles, 2013).

Components of Attention Processing. Most dot probe literature measures attention biases by comparing reaction times to detect the probe when the probe replaces a valenced stimulus, called "congruent" trials, with reaction times to detect the probe when the probe replaces a neutral stimulus, called "incongruent" trials. Thus, positive scores indicated more rapid detection of the probe when it replaces a valenced stimulus. However, it has been noted (e.g., Koster et al., 2004) that attention biases can be further decomposed into two distinct categories. Specifically, an attention bias could reflect rapid initial detection of the emotional stimulus on relevant trials (called facilitated engagement) on congruent trials *or* it could reflect difficulties moving attention away from the emotional stimulus on incongruent trials (called difficulty disengaging). Researchers (e.g., Fox et al., 2002; Klumpp & Amir, 2009; Koster et al., 2004; Matlow, Gard, & Berg, 2012) have devised scoring procedures for differentiating these two sources of attention bias by comparing reaction times for congruent or incongruent trials with reaction times on control trials in which both stimuli are neutral.

Attentional Biases in Anxiety

The following review highlights research trends relating to attentional biases in anxiety generally, followed by research trends specifically focused on social anxiety. These literatures are emphasized due to the overlap in behavioral tendencies of shame and general features of anxiety, and specifically the many overlapping features of shame with social anxiety, described previously.

Is there a threat bias in anxiety?

There is robust evidence demonstrating an initial attentional vigilance to threat-related information in anxiety using the dot probe paradigm (MacLeod, Mathews, & Tata, 1986; Mogg et al., 1995; Bradley et al., 2000; Mogg & Bradley, 2005; Wald, et al., 2013). Bar-Haim et al. (2007) showed significant although modest within-subject effects across 35 dot probe studies, indicating an increased bias to threatening stimuli compared to neutral stimuli among anxious participants. Findings also reflected a significant and comparable combined between-group effect size, reflecting increased bias to threatening stimuli in anxious groups compared to control groups. Moreover, researchers have begun examining enhanced engagement and deficient disengagement in dot probe paradigms. Evidence has been mounting that individuals with greater anxiety display greater difficulty disengaging from emotional stimuli (Fox, Russo, Dutton, 2002; Koster er al., 2004; Klumpp and Amir, 2009; Matlow, Gard, and Berg, 2012). Researchers suggests that difficulty disengaging from emotional stimuli may reflect difficulty shifting one's attention to active coping or fear-disconfirming information, or may be due to difficulty in decision-making and may reflect an inhibited behavioral response. Koster et al. (2004) proposed that maintained focus on threatening stimuli likely maintains the state of anxiety, and thus, difficulty disengaging may play a significant role in the maintenance of anxiety disorders.

Does the threat bias vary as a function of sample type?

Evidence indicates the presence of attentional biases in clinically anxious samples (MacLeod, Mathews, & Tata, 1986; Mogg, et al., 1995, Wald et al., 2013) including PTSD, generalized Anxiety Disorder (GAD), social anxiety disorder (SAD), and phobias. Additionally, significant attentional biases have been demonstrated in nonclinical samples with high self-reported anxiety (Eysenck, MacLeod, & Mathews, 1987; Broadbent & Broadbent, 1988; Bradley et al., 2000; Pishyar et al., 2004). Bar-Haim et al. (2007) examined whether attentional biases differ between individuals with high levels of self-reported anxiety (nonclinically anxious) and individuals who were diagnosed with an anxiety disorder (clinically anxious) across a number of studies. Importantly, there was no difference in the magnitude of threat biases in 16 studies utilizing clinical samples compared to 19 studies using nonclinical anxiety samples. Studies using either type of sample produced significant, modest effect sizes. This suggests that nonclinical forms of anxiety are sufficient to produce attention biases.

Another factor regarding samples that should be noted is the different control groups employed in different studies. Studies using a clinical sample typically recruited individuals from the general population, whereby these control groups demonstrated average levels of anxiety. Studies using nonclinically anxious individuals typically recruited a control group made up of low self-reported anxiety. Interestingly, Bar-Haim (2007) found that the control groups of high self-report anxiety studies demonstrated significant threat avoidance, a pattern not found in control groups in studies using clinically anxious participants. This suggests that a bias away from negative stimuli may act as a buffer against anxiety.

Do attentional biases show a vigilant-avoidant pattern?

Mogg, Philippot, and Bradley (2004) introduced the term *vigilant-avoidant* to describe how the initial attention vigilance to threat seen in anxiety may be quickly followed by attentional avoidance of threat. Some research corroborates this idea, although the findings on this pattern are more inconsistent than the findings demonstrating initial threat vigilance.

17

Mogg et al. (1995) found that there was no difference in the effect sizes when stimuli were presented subliminally or supraliminally. GAD participants showed significantly more threat vigilance to emotional stimuli presented both subliminally and supraliminally compared to controls. These data indicate that attention bias to emotional stimuli did not depend on awareness of stimuli, as measured by a subliminal masking procedure[1] to assess preconscious processing.

Wald et al. (2013) found that the soldiers experiencing acute stress (a combat simulation group) showed more threat avoidance. Wald et al. (2013) compared soldiers' attention biases following advanced combat training to a control group with no stress exposure. Furthermore, their findings indicated that among soldiers who were acutely stressed, those who displayed attention threat avoidance exhibited more PTSD symptoms. Therefore, evidence of the vigilant-avoidant pattern of attention bias in PTSD may be more pronounced following acute emotional distress, such as combat or a mood-induction scenario. In summary, vigilant-avoidant threat processing models suggest that in anxious individuals there may be an initial, automatic vigilance toward a threat cue followed by avoidance of the threat cue when prolonged attention is required, such as supraliminal processing.

Does tracking eye-movements help assess threat avoidance?

Some researchers have hypothesized that supplementing the dot probe task with eye-tracking could provide further information into patterns of vigilance and avoidance (Schofield, Inhoff, & Coles, 2013; Bradley et al., 2000). Eye-tracking allows measurement of covert attention at smaller increments of time compared to the dot probe. A study using the dot probe task did not find evidence of a bias to threatening faces in a sample of GAD individuals, but did find evidence of this bias using eye-tracking (Mogg et al., 2000). However, this experiment

---

[1] In subliminal conditions, the word-pair is typically replaced by a mask, a string of random letters (e.g. HRSKOTW), usually matched for the length of the preceding word. The SOA between word-pair and mask is brief (e.g. 14 ms).

presented dot probe stimuli for 1000ms, which may have allowed participants enough time to orient towards and subsequently avoid the threatening stimuli.

Conversely, another study provided evidence that response times measured from stimuli presented for 500ms in the dot probe task (covert attention) was a sufficient and valid measure of initial attention bias (Bradley et al., 2000). Bradley et al. (2000) reported that eye movements (overt attention) did not provide further evidence of biases due to the limited eye movements that participants made. Therefore, the necessity of adding eye-movement data to response time data is unresolved, but it seems that the majority of research finds attentional biases in dot probe tasks alone.

Explanation for Mixed Findings. Inconsistencies in these findings underscore the many methodological and population variants in the attentional bias research (Bar-Haim et al., 2007). In terms of methodological differences, even among studies utilizing the dot probe, different experimenters modify the dot probe in different ways, such as variability in number of trials and procedural instructions (e.g., "look at top picture" vs. "look at central fixation cross"). In terms of population variants among attentional bias research, some studies involve clinical samples (participants with diagnosed anxiety disorders) and others involve nonclinical samples (those who score high on measures of anxiety). Also, studies using high self-reported anxiety typically refer to trait anxiety, but also seldomly refers to state anxiety (either through mood induction or naturally occurring stress differences). Findings from the meta-analysis revealed that within-group comparisons indicated a slightly larger effect size for studies that relied on state anxiety compared to trait anxiety, although this difference was not statistically significant. Between-group comparisons, however, showed significant effect sizes only for studies that relied on trait anxiety but not for studies that relied on state anxiety.

Further, Schofield, Inhoff, and Coles (2013) suggest that the dot probe is not an adequate measure of avoidance because at the time of attentional shift to the probe, the

emotional stimuli are absent. They posit that the dot probe instead measures avoidance of "where there *had been* an emotional stimulus", but they do not provide an alternative means of measuring attentional bias other than supplementing the dot probe with eye-tracking. Perhaps this feature of the dot probe could account for the inconsistencies in the literature regarding the pattern of attention following initial vigilance.

Importantly, control groups also differ across studies (Bar-Haim et al., 2007). Studies utilizing clinical samples often recruit their control group from the general population whereas studies utilizing nonclinical samples recruit a control group with lower levels of anxiety. Furthermore, studies differ in the degree to which they rule out comorbid depression. However, Bar Haim et al. (2007) found no differences in effect sizes between studies that excluded comorbid mood disorders and studies that did not. This suggests that the existence of anxiety disorders with comorbid mood disorders does not change the effect size of the attentional bias. However, the number of studies that ruled out comorbid depression was low, possibly underpowering this analysis.

These varied procedures and findings highlight the necessity of carefully choosing stimuli and samples. Despite these methodological variations, studies using the dot probe paradigm have provided compelling evidence of the presence of a threat bias in anxiety.

Attentional Biases in Social Anxiety. A review of the literature on attentional biases in social anxiety, a construct theoretically relevant to shame, may provide further insight into potential attention biases in shame. Research into attentional biases in those with social anxiety is particularly relevant for developing predictions regarding attentional biases in those with shameful affect.

Does the threat bias vary as a function of sample type in social anxiety?

Many studies indicate there is an attentional bias toward threatening stimuli in those who are socially anxious (Gotlib et al, 2004; Chen et al., 2004). Of importance, empirical evidence indicates that the magnitude of the threat-related bias does not differ as a function of anxiety disorder (GAD, panic, social anxiety disorder, PTSD, OCD, or simple phobia) (Bar-Haim, et al., 2007). However, a nuanced analysis of social anxiety research on attentional biases studies sheds light in the research methodology common to this particular topic.

Just as in anxiety, an attentional bias to threat has been detected in clinical (Mogg et al., 2004) and nonclinical (Helfinstein, et al., 2008; Klumpp & Amir, 2009; Pishyar et al., 2004) socially anxious samples. One exception is a study by Bradley et al. (1997) investigating nonclinical socially anxious participants. They found a main effect for face valence, indicating that in general participants avoided threatening faces more than happy faces. However, this did not interact with their between-group variable, high vs. low anxiety, indicating that the high socially anxious group was not significantly different in terms of attentional biases compared to the low socially anxious group. Additionally, there was no evidence of differential attentional biases as a function of gender. The study included well-validated measures and a thorough rating procedure for inclusion of face pictures. . Although some studies using a nonclinical socially anxious sample have detected attentional biases, this study was limited by including participants with only mild social anxiety in the high social anxiety group. It is possible that an attentional bias toward threat is only seen with relatively high levels of anxiety.

Do attentional biases show a vigilant-avoidant pattern in social anxiety?

Evidence regarding the time-course of processing in social anxiety shows there may be a pattern of vigilance-avoidance, as seen in studies examining anxiety in general. Mogg et al. (2004) showed increased threat bias to angry faces in their SAD group compared to the control group when the SOA was 500 ms, but not when the SOA was longer at 1250 ms.

Schofield et al. (2013) examined the time-course of attentional biases in SAD participants with the dot probe in concurrence with eye-tracking. Eye-tracking indices indicated that socially anxious participants attended less to emotional faces, specifically happy faces, over time. Interestingly, attentional allocation among the socially anxious participants did not vary as a function of emotional valence. That is, there were no differences between the biases for happy, angry, and fearful faces, contrary to hypotheses that socially anxious participants would show an initial bias only to negative faces. Also surprising, they found no difference in attention vigilance in SAD participants compared to controls. Furthermore, their dot probe data did not reach significance, and they found only limited correlation between dot probe reaction times and eye-tracking indices. One notable reason for this deviation from prior research may be the long stimulus exposure times (1500 ms) employed on their dot probe (Schofield et al., 2013). This is potentially problematic due to prior literature demonstrating attentional avoidance at longer stimulus exposure times. Because participants had longer to disengage from stimuli, this could explain the null findings of equal attentional biases in the SAD group compared to the control group (Mogg et al., 2004).

It should be noted that control participants showed an increasing tendency over time (at 1000 ms) to attend to happy faces and avoid negative faces. This study brings to light the value of assessing biases to negative *and* positive stimuli. These authors conclude that the pattern of attentional allocation seen in socially anxious individuals may consist of a relative lack of biases compared to individuals without social anxiety. In other words, between-group effects may be driven by attention patterns in the non-anxious participants, and anxious individuals' attention patterns may be best characterized as a lack of positive bias. Some limitations of this study include small sample size and failure to exclude comorbid depression. In addition, they note that eye-tracking measures overt attention, and that attention can shift without eye movement (covert attention). Furthermore, covert attention precedes overt attention, thus eye-tracking may not provide a full picture of attention patterns.

Does type of stimulus change the pattern of attentional biases in social anxiety?

One study investigated the impact of faces compared to words on attentional biases in social anxiety (Pishyar et al., 2004). When facial stimuli were presented, those with high self-reported social anxiety showed a bias towards negative faces; the control group showed a bias towards positive faces. Notably, neither group showed a significant bias for word stimuli. Both words and faces were presented for 500 ms. This raises the possibility that longer processing time is needed for attentional biases to be detected when using words. Therefore, there is some evidence that facial stimuli may be optimal in assessing threat bias in socially anxious individuals.

Attentional Biases in Depression

Early theorists described information processing biases in anxiety as predominantly attending to threat in order to avoid future failures (attention bias) whereas depression involved a ruminative focus on past failures (memory bias). Indeed, findings revealed that those with depression show an explicit memory bias, and early studies seemed to corroborate the hypothesis that no attentional biases occurred in depression (MacLeod, Mathews, & Tata, 1986; Dalgeish & Watts, 1990). However, there are some potential methodological limitations in the early studies that could explain the null findings in depression. First, MacLeod, Mathews, and Tata (1986) did not appropriately match the anxiety group (younger participants on average, out-patients) to the depressive group (older participants on average, in-patients). Second, early studies failed to use depression-relevant stimuli (Mogg et al., 1995). Third, Mogg et al. (1995) suggested that these early studies did not focus on clinically depressed participants. Lastly, the probes on early versions of the dot probe did not occur on every trial. Further, the probes appeared more on trials containing threat words. Thus, early dot probes may have a confounding learning variable.

What is the pattern of attentional biases in depression?

Currently, although there is limited research on attentional biases in depression, there is increasing evidence indicating an attention bias may exist in depression (Mathews & MacLeod, 1994; Mathews, Ridgeway, & Williamson, 1996; Peckham, 2010). For instance, Mathews & MacLeod (1994) found that depressed individuals showed greater attention bias to socially threatening information than the anxious group. Alternately, the anxious group displayed greater vigilance to physically-threatening stimuli as compared to the depressed group. However, similar to the Mogg et al. (1995) study, Mathews & MacLeod (1994) did not rule out the presence of co-morbid anxiety disorders in their depressed groups. Thus, a potential alternative explanation of the results could be that the anxiety component could be driving the attentional vigilance patterns found in those who were depressed.

Of importance, biases have been demonstrated using dysphoric stimuli in depressed individuals when the stimuli are presented at later stages of processing (i.e. supraliminally). Gotlib et al. (2004) found this pattern using carefully diagnosed individuals with Major Depressive Disorder. Mogg et al. (1995) demonstrated that anxious and depressed participants showed supraliminal bias to negative words; subliminally only anxious individuals showed this pattern.

Thus, evidence shows that depression-related attentional biases are more pronounced when negative stimuli are presented at longer durations, thus allowing for more elaborative processing, according to Mogg and Bradley (2005). Such differences from anxiety-related attention biases indicate that there could be different cognitive biases at play for anxiety and depression. Biases in depression are thought to reflect difficulty disengaging from negative stimuli. The existence of a supraliminal bias in depression may indicate that more elaborative processing needs to occur in order to detect biases in attention (Mogg & Bradley, 2005). Mogg et al. (1995) found supraliminal attention biases for negative words (both anxiety- and

depression-relevant) in those who had a primary diagnosis of major depressive disorder (according to DSM-III-R) compared to controls.

The lack of consistent findings regarding biases in depression could reflect slowed response times due to psychomotor retardation (Mogg & Bradley, 2005). Also, null findings in response to external threat cues may indicate that depressed individuals are more preoccupied with internal rumination. However, generally speaking, anxiety tends to show more attentional vigilance at earlier processing stages, whereas depression shows difficulty disengaging attention from sad stimuli at somewhat later stages (Peckham, 2010).

In summary, threat-related attention biases include selective attention towards and away from threatening stimuli (Wald, et al., 2013). Generally, anxious individuals engage in an initial attention bias towards the threatening stimuli, but may ultimately avoid the stimuli from further processing. Evidence shows that depressed individuals may have an attention bias towards negative stimuli at later stages of processing. Understanding the role of attention vigilance, avoidance, engagement and disengagement in shame may help disentangle different components of selective attention within the information processing chain.

Notably, the current study is one of only a few studies that utilized multiple control groups within the same dot probe by displaying the critical affect of disgust and additionally displaying sad and happy faces, thus allowing us to evaluate the effects of general negative affect and positive affect on our reaction times. Our dot probe is also unique in that it evaluated the time course of attentional biases by utilizing multiple stimulus duration times. Thus, the current study provides unique contributions to the growing body of literature on information processing in negative affect.

Specific Aims

Given the considerations discussed above, the first primary aim of the current study was to determine whether there is an attentional bias in shame. The second primary aim was to

determine the time course of such biases by varying the duration of exposure of faces. Based on current trends in the literature, we utilized the dot probe paradigm to accomplish these aims. We compared dot probe performance of participants with low, moderate, and high levels of shame at varying stimuli exposure durations. We predicted patterns similar to those found in studies on social anxiety based on significant similarities between social anxiety and shame, especially the theoretical conceptualizations that include both negative evaluation from others and biased processing of social cues (Clark, 2005; Shahar, 2013). Specifically, we predicted initial (at 150 ms) attention biases to threatening stimuli in those experiencing high levels of shame (Hypothesis 1a) and attention biases away from threatening stimuli in those experiencing low levels of shame (Hypothesis 1b). In line with the majority of prior research on social anxiety, we also predicted attention biases away from threatening stimuli in shameful individuals and controls at longer stimulus exposure durations (Hypothesis 2).

We also have one secondary aim, which was to determine whether our face stimuli would induce a change in affect over time. Because participants viewed more negatively-valenced photographs (sad and disgusted) than positively-valenced photographs (happy) we hypothesized that our dot probe would induce negative affect. In other words, we predicted that participants would report an increase in negative affect and a decline in positive affect when comparing their emotional state prior to the dot probe to their emotional state immediately following the dot probe (Hypothesis 3).

Research Design Overview

The specific aims of the current study were evaluated by comparing dot probe performance between those with varying levels of shame. The current study focused on women due to higher average levels of shame among women compared to men (Feiring, Taska, and Lewis, 1996). Our recruitment procedure involved online screening with the ESS. Based on the range and distribution of scores obtained in prior thesis research (Grout, 2014 unpublished data), our original plan was to draw equally from the bottom (ESS score $\leq$ 37), middle (ESS score between 38 and 54, inclusive), and top (ESS $\geq$ 55) thirds of the prior Experiences of Shame Scale (ESS) scores. A differential percentage of invitations were made to potential participants based on ESS scores that could be flexibly adjusted to insure parallel recruitment of similar numbers of participants in each of the three ESS groups. We anticipated that there would be fewer participants with extreme high or low scores, compared with moderate scores. Accordingly, we initially invited 100% of participants with low and high scores, and a random 60% of participants with moderate scores. From time to time, the percentages being invited from each group were adjusted to slow down the flow of one or more groups.

Unfortunately, the recruitment procedure did not yield the expected distribution of ESS scores, a significant plurality (48.8%) of those who attended session had scores falling in the high shame category, and only a small minority of participants had scores falling in the low shame category (12.8%). As a result, we shifted our grouping strategy to create three groups based on ESS scores obtained during the in-person study session, comparing the bottom, middle, and top thirds of the distribution of ESS scores. The revised low shame group included scores of 43 and below, the revised moderate shame group included scores between 44 and 62, inclusive, and the revised high shame group would include scores of 63 and above.

The study design overview is illustrated in Figure 1. Eligible participants were invited to attend the session and provided with a code to sign up for a timeslot for the in-person study session. Upon arrival to session, all participants completed informed consent, a demographics

questionnaire (see Appendix A), self-report questionnaires (see Appendix B-G), and the dot

probe task. We counterbalanced the order in which participants completed the questionnaires

and the dot probe attention task. All participants completed the Positive and Negative Affect

Scale (PANAS) before, during, and after the dot probe as a manipulation check. Participants

where then divided into three groups based on the ESS scores obtained during the in-person

session. Group assignment was based on participants falling within the top, middle, or bottom

thirds of the ESS distribution and group assignment was completed prior to analyzing data from

the dot probe task.

```
                    ┌─────────────────────────┐
                    │        Screening        │
                    └─────────────────────────┘
                                 │
                                 ▼
                    ┌─────────────────────────┐
                    │ Make appointment and sign│
                    │         consent          │
                    └─────────────────────────┘
                                 │
                                 ▼
                    ┌─────────────────────────┐
                    │         PANAS           │
                    │        Dot Probe        │
                    │         Task[1]         │
                    │        PANAS[2]         │
                    └─────────────────────────┘
                                 │
                                 ▼
                    ┌─────────────────────────┐
                    │    Questionnaires[3]    │
                    └─────────────────────────┘
                          ╱      │      ╲
                        ╱        │        ╲
                      ▼          ▼          ▼
        ┌──────────┐   ┌──────────────┐   ┌──────────┐
        │Low Shame │   │Moderate Shame│   │High Shame│
        └──────────┘   └──────────────┘   └──────────┘
```
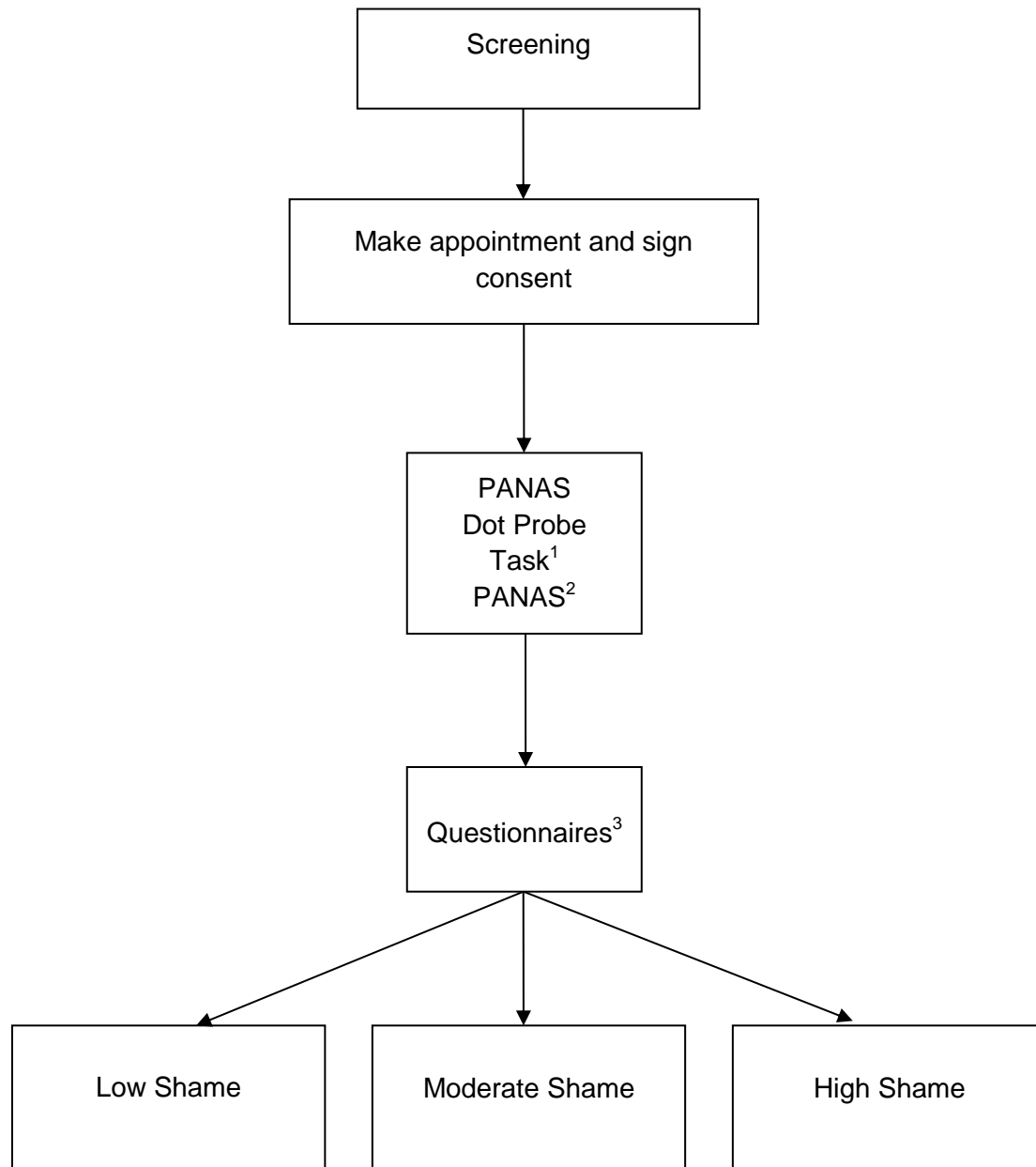
Figure 1. *Study Design Overview*

[1] The order of administration of the questionnaires and the dot probe task was counterbalanced across participants.

[2] The PANAS was also administered during the break within the dot probe task.

[3] The Experience of Shame Scale was used *post hoc* to divide participants among the three groups.

Dot probe design overview. The current study evaluated attention biases in shameful affect using pictorial stimuli based on a few considerations. First, comparable results were found in dot probe studies using word stimuli compared to pictorial stimuli (Bar-Haim et al., 2007). Second, theorists argue that showing pictorial stimuli bypasses semantic processing that showing words would require (Pishyar et al., 2004). Third, utilizing pictorial stimuli bypasses the confounding variable of differences in word familiarity (Bradley, 1997).

Due to the fact that some research suggests that attentional bias may be different for short vs. long durations of critical stimuli, short, medium, and long exposure times were utilized in order to capture the time course of attentional biases in shame. Specifically, our dot probe presented stimuli for 150 ms, 500 ms, and 1000 ms. Each face was displayed at each exposure length.

Based on the premise that we sought to measure biases in participants experiencing shame, we suggested that the critical face stimuli be chosen based on its shame-inducing potential. We hypothesized that presenting faces portraying shame may not have an adequate "contagion-effect" of inducing shame in the participant. By contrast, we hypothesized that faces expressing disgust would be more effective in inducing shame, particularly among those prone to feeling shame. Thus, faces portraying disgust served as the critical stimuli in the dot probe task. Furthermore, in order to investigate domain-specificity of shame, faces displaying alternate affect were also included in the dot probe. In order to rule out the impact of general negative affect, we presented sad faces. In order to rule out the impact of any valenced affect, we presented happy faces. Presenting happy faces could also help rule out if shameful individuals' attention patterns are characterized by a lack of positive bias compared to controls. Therefore, our valenced stimuli included faces displaying disgust, sadness, and happiness.

Methods

Recruitment and Screening

Participants were recruited from a population of undergraduate women taking psychology classes at the University of Wisconsin-Milwaukee. Exclusion criteria for our study will be: (1) identification as male and (2) less than 18 years of age or more than 60. Potential participants were screened for eligibility using a screener questionnaire in SONA, the university web-portal for research participation. We used the Experience of Shame Scale (ESS; described below) as the shame screener in the attempt recruit equivalently for a priori determined low, moderate, and high levels of shame. No data was retained from the screener. As noted previously, our initial recruitment and screening plan failed to produce the desired distribution of ESS scores, with individuals scoring at or above 55 being over represented and those scoring at or below 37 being seriously underrepresented. As a result, we subsequently adopted a post hoc grouping strategy based on dividing participants into groups based on the bottom, middle, and top thirds of ESS scores obtained during the in-person study session.
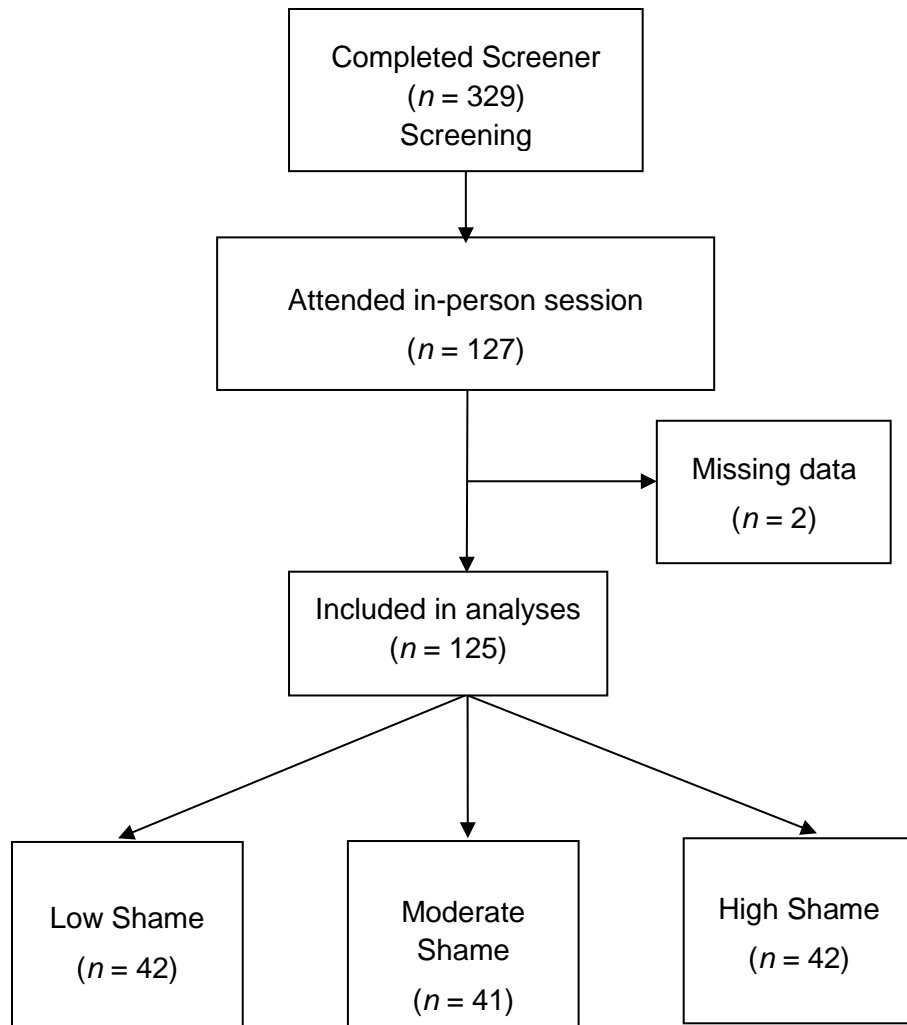
Figure 2. *Participant Flow*

The flow of participants from screening through final grouping is illustrated in Figure 2. A total of 381 participants opened the screener, of which 329 (86.4%) completed it. Based on the original a priori grouping criteria, based on the SONA screening procedure, 100% of those who were identified as low shame were invited to participate. Of those who were identified as experiencing moderate shame, 60% were initially invited, but this was decreased to 30% in order to increase the proportion of participants in the low category. Of those who were identified in the screener as high shame, 100% were initially invited but this was decreased to 5% in order to reduce the proportion of high shame participants. Of the individuals invited to participate in the study, 127 actually participated in the in-person study session. Due to a procedural error, we do not have ESS scores on two participants. Accordingly, the final sample comprised 125 participants who were then categorized into low (ESS scores $\leq$ 43, $n = 42$), moderate (ESS scores between 44 – 62, inclusive; $n = 41$), and high (ESS scores $\geq$ 63, $n = 42$) shame categories, based on their ESS scores obtained in during the in-person session. The majority of participants were white (76.8%), non-Hispanic (92%), and had mean age of 22.1 (ranging between 18 and 50, $SD = 4.3$). A χ^2 was conducted to examine shame group by racial status (i.e. white vs. non-white). No significant relationship was found ($\chi^2(2) = .718$, $p > .05$). Table 1 presents participant age and baseline scores for psychopathology measures.

Power Analysis

A power analysis was conducted utilizing G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). With a minimum of 40 participants per group, and assuming a two-tailed t-test independent samples with $\alpha = 0.05$, we have 80% power to detect an effect size of $d \geq .64$. Power to detect an effect size of $d = .50$ is 64%.

Table 1. *Baseline Scores and ANOVA Summary.*

Variable	Overall	Shame Category			F (df), p	t(df), p
		Low	Mod.	High		
Age	22.1(4.3)	22.3(5.1)	21.6(3.1)	22.2(4.4)	.38 (2,124), .69	
ESS	54.9(17.0)	36.5(5.3)	53.7(5.3)	74.4(9.0)	330.16 (2,122), .000***	Low vs. Mod.: -14.7 (81), .000*** Low vs. High: -23.6 (82), .000*** Med. vs. High: -12.7 (81), .000***
ESS-Character.	24.1(8.3)	15.9(2.9)	22.9(3.3)	33.3(5.6)	189.04 (2,122), .000***	Low vs. Mod.: -10.3 (81), .000*** Low vs. High: -17.8 (82), .000*** Med. vs. High: -10.2 (81), .000***
ESS-Behav.	20.6(7.0)	13.6(3.3)	20.1(2.8)	28.0(4.7)	162.4 (2,122), .000***	Low vs. Mod.: -9.8 (81), .000*** Low vs. High: -16.4 (82), .000*** Med. vs. High: -9.3 (81), .000***
ESS-Bodily	10.2(3.5)	7.0(2.1)	10.7(2.6)	13.0(2.7)	61.5 (2,122), .000***	Low vs. Mod.: -6.9 (81), .000*** Low vs. High: -11.3 (82), .000*** Med. vs. High: -4.1 (81), .000***
TOSCA-Shame	46.2(11.4)	37.7(9.6)	46.3(8.5)	54.5(9.0)	36.14(2,122), .000***	Low vs. Mod.: -4.3 (81), .000*** Low vs. High: -8.3 (82), .000*** Med. vs. High: -4.2 (81), .000***
TOSCA-Guilt	64.7(8.0)	64.2(6.1)	62.4(10.1)	67.4(6.6)	4.39(2,122), .01*	Low vs. Mod.: 1.0 (81), .34 Low vs. High: -2.3 (82), .02* Med. vs. High: -2.7 (81), .009**
TOSCA-Pride	19.1(3.8)	19.8(3.6)	18.6(4.4)	19.1(3.6)	1.05(2,122), .35	

DASS-Depression	10.2(9.3)	4.8(5.5)	9.7(8.1)	16.2(9.9)	21.14(2,122), .000***	Low vs. Mod.: -3.2 (81), .000*** Low vs. High: -6.5 (82), .000*** Med. vs. High: -3.3 (81), .002**
DASS-Anxiety	8.8(8.9)	3.7(4.0)	8.6(7.2)	14.2(10.8)	18.78(2,122), .000***	Low vs. Mod.: -3.8 (81), .000*** Low vs. High: -5.9 (82), .000*** Med. vs. High: -2.8 (81), .007**
DASS-Stress	16.4(9.8)	9.4(6.9)	16.3(6.9)	23.5(9.6)	33.37(2,122), .000***	Low vs. Mod.: -4.6 (81), .000*** Low vs. High: -7.7 (82), .000*** Med. vs. High: -3.9 (81), .000***
STAI-State	40.8(10.3)	35.2(8.8)	40.5(8.6)	46.8(10.1)	16.62(2,122), .000***	Low vs. Mod.: -2.8 (81), .000*** Low vs. High: -5.6 (82), .000*** Med. vs. High: -3.0 (81), .003**
STAI-Trait	45.5(11.2)	36.1(7.2)	46.0(7.8)	54.4(9.6)	51.49(2,122), .000***	Low vs. Mod.: -6.0 (81), .000*** Low vs. High: -9.9 (82), .000*** Med. vs. High: -4.4 (81), .000***
SPIN	19.8(14.3)	8.4(6.5)	18.4(11.1)	32.4(12.6)	56.43(2,122), .000***	Low vs. Mod.: -5.0 (81), .000*** Low vs. High: -11.0 (82), .000*** Med. vs. High: -5.4 (81), .000***

Note. For the mean columns, standard deviations are in parentheses. * p < .05, ** p <.01, *** p <.001

Materials

Experience of Shame Scale (ESS; Andrews, Qian, & Valentine, 2002; see Appendix B). The ESS is a 25- item questionnaire that assesses proneness to experience shame with a global shame score and on three dimensions: characterological shame, behavioral shame, and bodily shame. This instrument shows strong psychometric properties.

Test of Self-Conscious Affect (TOSCA-3; Tangney, Wanger, & Gramzow, 1989; see Appendix C). The TOSCA-3 provides 16 scenarios and measures shame along the dimensions of shame, guilt, pride, externalization, and detachment. This instrument demonstrates good validity and reliability.

Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995; see Appendix D). The DASS-21 is the short form of the 42-item DASS. The DASS-21 measures constructs of Anxiety, Depression, and Stress using a four-point scale ranging from 'Does not apply to me at all' to 'Applied to me very much, or most of the time.' Higher scores indicate greater symptom severity. The DASS-21 shows strong psychometric properties

State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, 1970; see Appendix E). The STAI is a 40-item questionnaire that assesses state (temporary) and trait (stable) anxiety on a 4-point Likert scale. This instrument shows strong psychometric properties and has been used extensively in research.

Social Phobia Inventory (SPIN; Connor et al., 2000; see Appendix F). The SPIN is a 17-item self-report questionnaire that utilizes a 5-point Likert scale from 0 (Not at all) to 4 (Extremely). Participants are asked to rate how much each statement applies to them. The SPIN has demonstrated good reliability and validity.

Positive and Negative Affect Scale (PANAS; Watson, et al., 1988; see Appendix G). The PANAS is a 20-item self-report measure that evaluates current positive (e.g., excited, proud, active, enthusiastic) and negative (e.g., ashamed, scared, irritable, nervous) emotional experiences (Watson, et al., 1988). Participants will be asked to rate 20 emotional states (10 positive; 10 negative) on a 5 point scale (1 = slightly or not at all; 5 = extreme) based on how they feel at the time of completion. Scores yield a positive affect score and a negative affect score. The PANAS has demonstrated adequate internal consistency and test-retest reliability.

Dot Probe Task. The dot probe task was developed for use on laptop computers using E-Prime software and was based on the original visual dot probe task developed by MacLeod, Mathews, and Tata (1986). E-Prime reports millisecond accuracy of reaction times. The laptop was placed on a stand, yielding an approximate downward visual angle of 10º. A keyboard attached to the computer was placed on the desk at the level of participant's forearms for ease of responding. Participants were seated approximately 50 cm from the screen. All participants completed two practice trials with no facial stimuli, in which they simply indicated the number of probes that appeared. The remaining trials are considered critical trials, which presented a standardized set of black and white photographs of actors and actresses portraying facial expressions (Ekman & Friesen, 1976). The current study utilized three types of valenced emotional faces, characterized as disgusted (D), sad (S), and happy (H). Each valenced face was paired with one neutral (N) face of the same actor or actress. Utilizing the same actor or actress allowed us to match each photograph pair with respect to race, gender, age, attractiveness, etc. There were 10 photograph pairs for each affect (D-N, S-N, H-N). Half of the photographs pairs were males; half were females. All photographs measured

5.5 cm in width and 8 cm in height. There was 11 cm from the center of one photograph to the center of the other.

Additionally, three N-N face pairs were presented at each of the three durations. These three face pairs were novel faces not included in the valenced trials. Each neutral face was paired with the same neutral face. N-N trials were used to measure attentional engagement and disengagement by comparing attentional biases scores to these baseline N-N trials (Koster, Crombez, Verschuere, Houwer, 2004). The D-N, S-N, H-N, and N-N will be combined and presented in a random order to each participant.

Each probe detection trial began with a fixation cross at the center of the screen displayed for 500 ms (see Figure 3). In the critical trials, the cross was replaced by a face pair, displayed for one of three durations: 150ms, 500 ms, or 1000 ms. Immediately following the offset up the photographs, a probe (one or two "*") appeared in the location of one of the faces. The probe remained on the screen until the participant made a response. Participants were instructed to indicate the type of probe that appeared by making a key press (i.e. "1" or "2") with the fingers of their (usually right) hand.

We counterbalanced valenced-face location (valenced face on top or bottom), the probe type (1 or 2 dots), and probe location (top or bottom). Thus, the valenced faces appeared an equivalent number of times in the top and bottom positions with the neutral face appearing in the other position. Additionally, the probe appeared an
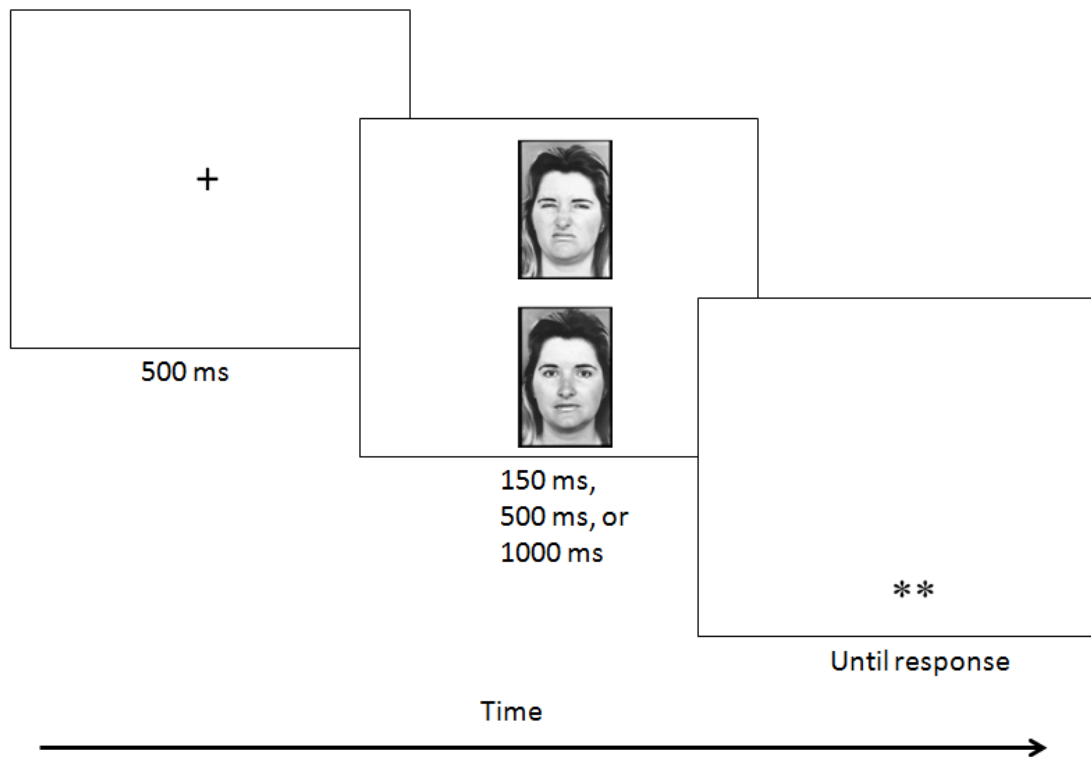
Figure 3. *Sequence of events in an incongruent dot probe trial with a valenced face pair*

equivalent number of times in the top and bottom positions, and replaced the valenced

face as often as a neutral face. Due to counterbalancing a high number of variables,

each of the D-N, S-N, H-N, and N-N pairs were presented twelve times, resulting in a

total of 398 trials (120 trials for each affect + 36 neutral-neutral trials + 2 practice trials).

Participants were given a break to rest their eyes following the 199th trial. During the

break, participants completed the PANAS.

Scoring. Three attention biases indices were calculated for each participant,

including the conventional attention bias index (AB), the facilitated engagement index

(FE), and the difficulty disengaging index (DD; Koster et al., 2004; see Table 2). The AB

index for each participant was calculated by taking the mean response time of trials in which the probe appeared at the location of the neutral face (incongruent trial reaction times) and subtracting the mean response time of trials in which the probe appeared at the location of the valenced face (congruent trial reaction times). Positive scores indicate a bias towards the emotional face, with faster reaction times on congruent trials than incongruent trials (vigilance). In terms of the disgust trials, positive scores indicate an attentional bias towards threatening information, or threat vigilance. On these trials, negative scores indicate an attentional bias away from threat (i.e. threat avoidance).

To calculate the FE and DD indices, we included N-N trials as suggested by Koster et al (2004). The N-N trials function as a baseline measure in that there is no affective information to shift participants' attention. Comparing trials that contain affective information to trials with neutral-only information allows us to evaluate components of visual attention, such as enhanced engagement or difficulty disengaging, which we cannot do using the conventional bias index. For the FE index we took the mean reaction times for N-N trials and subtracted the mean reaction times of congruent trials. When participants were faster to respond to congruent trials compared to neutral trials, (positive FE scores), this reflects facilitated engagement to the valenced faces. Negative scores indicated slowed engagement to the valenced face pairs compared to neutral face pairs. For the DD index, we took the mean reaction times of incongruent trials and subtracted the mean reaction times for N-N trials. Positive scores reflect difficulty disengaging, indicating that the participant was faster to respond to the N-N baseline trials than the incongruent trials. Negative scores reflect eased disengagement, indicating that participants had no difficulty disengaging.

Table 2. *Calculation and Interpretation of Indices of Attention Bias.*

Attention Index	Conventional Attention Bias (AB)	Facilitated Engagement (FE)	Difficulty Disengaging (DD)
Formula	AB = IRT - CRT	FE = NRT - CRT	DD = IRT - NRT
Interpretation of positive scores	+ AB = Vigilance for emotional faces (faster to respond on congruent trials than incongruent trials)	+FE = Facilitated engagement for emotional (faster to respond on congruent trials than neutral trials)	+ DD = Difficulty disengaging from emotional faces (faster to respond on neutral trials than incongruent trials)
Interpretation of negative scores	-AB = Avoidance of emotional faces (slower to respond on congruent trials than incongruent trials)	-FE = Slowed engagement to emotional faces (slower to respond on congruent trials than neutral trials)	-DD = Eased disengagement from emotional faces (slower to respond on neutral trials than incongruent trials)

Note. IRT = mean reaction time on incongruent trials; CRT = mean reaction time on congruent trials; and NRT = mean reaction time on neutral trials.

Procedure

Participants were screened prior to arrival to the lab to determine their level of shame. Prescreening data was not retained. Eligible participants were provided with a code that allowed them to sign-up for a study timeslot. Participants were asked to attend one two-hour session. Upon arrival to the laboratory, an experimenter led the participant into a private room and explained the informed consent document for the study. After written consent was obtained, the experimenter directed the participant's attention to a laptop computer that was used to administer all the self-report measures and the attention task. All materials were administered on a 14-inch Dell Latitude E6410 laptop with an Intel Core i7 processor. Approximately half of the participants then completed the demographic questionnaires and self-report measures first, followed by the attention task; the remaining participants completed the attention task first, followed by the

demographics questionnaires and self-report measures. The order with which

participants completed these tasks was determined by a random number generator, and

was recorded for analyses. For all participants, the PANAS was administered three

times: before, during (at the break), and after the attention task in order to evaluate any

changes in positive and negative affect.

Demographic and self-report measures were administered using the program

Qualtrics. The experimenter provided brief instructions for the completion of the self-

report measures. The participant completed these forms in private and informed the

experimenter upon completion.

For the attention task, the experimenter provided a brief introduction to the task,

and initiated the dot probe program using E-Prime. The experimenter left the room

during testing but was available for questions from the participant. Detailed instructions

for responding were provided within the dot probe program, described as follows.

Participants were instructed that their goal was to identify the number of dots as quickly

and accurately as possible. They were informed that a dot may appear at the top or

bottom position of the screen and they were to press the *1* key if there was one dot and

the *2* key if there were two dots. Participants were instructed to keep two fingers from

the same hand on the *1* and *2* keys. They were given a break halfway through the trials,

in which they were instructed to rest their eyes for one minute and complete the PANAS.

Participants completed a total of 398 trials, and they were instructed to contact the

experimenter upon completion.

After the participant completed the self-report measures (including the PANAS

before and after the attention task) and the attention task, the experimenter conducted a

debriefing that described the purposes of the study and provided available resources for

local mental health services. The debriefing procedure occurred for all participants who

have given consent to participate. All experimenters were trained by the principle

investigators of the study. Any participant indicating she was experiencing acute distress

upon completing the study was directed to a graduate student in clinical psychology.

This occurred one time. Furthermore, Dr. Cahill, the faculty adviser for this study, was

also available for providing assistance to distressed participants.

Results

All error and outlier trials were excluded from analyses. The number of errors

made by participants ranged from 0 to 144 ($M = 13.5$, $SD = 17.27$).   Errors occurred on

3.46% of trials. Additionally, trials with reaction times shorter than 100 ms (considered

an anticipation error) or longer than 1,000 ms (considered a concentration error) were

excluded from analyses. The number of outliers per participant ranged from 0 to 111 (M

$= 8.43$, $SD = 16.94$). Overall there were 2.06% outlier trials. Analyses were performed

on the remaining data.

Attention biases were measured by reaction times to probes following

presentation of faces. Scoring procedures for our three attention bias indices are

described in Materials. We computed average reaction times of the trials that are used

to compute each of the three bias indices (i.e., congruent, incongruent, neutral-neutral)

by shame group at each stimulus exposure duration (e.g., 150, 500, 1000ms). These

means are presented in Table 3.

Table 3. *Mean Dot Probe Reaction Times (ms) by Trial Type and Mean Differences for Bias Scores*

Affect		Low Shame (*n* = 42)			Moderate Shame (*n* = 41)			High Shame (*n* = 42)		
		150 ms	500 ms	1000 ms	150 ms	500 ms	1000 ms	150 ms	500 ms	1000 ms
Disgust	Incongruent	555 (60)	552 (62)	552 (61)	536 (53)	535 (48)	533 (50)	564 (60)	570 (63)	569 (65)
	Congruent	547 (67)	541 (68)	548 (69)	533 (51)	539 (54)	536 (48)	560 (64)	559 (69)	561 (61)
Sad	Incongruent	546 (61)	540 (72)	551 (67)	531 (49)	538 (50)	535 (51)	567 (57)	566 (63)	563 (57)
	Congruent	541 (64)	553 (60)	548 (66)	530 (44)	531 (49)	532 (51)	564 (59)	565 (59)	568 (66)
Happy	Incongruent	550 (66)	551 (62)	549 (62)	538 (50)	534 (52)	534 (47)	562 (61)	564 (61)	562 (60)
	Congruent	541 (67)	547 (62)	542 (59)	536 (42)	536 (48)	535 (51)	563 (59)	561 (61)	557 (64)
Neutral		557 (75)	545 (64)	554 (66)	542 (52)	538 (52)	544 (57)	558 (61)	558 (72)	562 (69)
Disgust	AB Index	8 (29)	11 (38)	4 (39)	3 (30)	-4 (30)	-3 (28)	4 (24)	11 (26)	8 (32)
	FE Index	10 (39)	4 (47)	6 (40)	9 (35)	-1 (38)	8 (37)	-2 (30)	-1 (37)	1 (37)
	DD Index	-2 (39)	7 (37)	-2 (37)	-6 (37)	-3 (44)	-11 (32)	6 (32)	12 (30)	7 (31)
Sad	AB Index	5 (32)	-13 (61)	3 (30)	1 (36)	7 (31)	3 (36)	3 (29)	1 (46)	-5 (37)
	FE Index	16 (41)	-8 (35)	6 (39)	12 (34)	7 (46)	12 (47)	-6 (29)	-7 (31)	-6 (32)
	DD Index	-11 (40)	-5 (31)	-3 (38)	-11 (40)	0 (38)	-9 (39)	9 (31)	8 (35)	1 (39)
Happy	AB Index	9 (33)	4 (32)	7 (31)	2 (27)	-2 (32)	-1 (35)	-1 (28)	3 (25)	5 (30)
	FE Index	16 (42)	-2 (40)	12 (38)	6 (36)	2 (38)	9 (42)	-5 (28)	-3 (33)	5 (29)
	DD Index	-7 (49)	6 (39)	-5 (35)	-4 (39)	-4 (48)	-10 (39)	4 (36)	6 (30)	-0.3 (30)

Note. Standard Deviations are shown in parentheses.

44

Table 4. *ANOVA Summary of Conventional Attention Bias Index*

Source of Variance	F	Df	p
Affect	1.24	(2,238)	.29
Duration	0.47	(2,238)	.62
Order	1.14	(1,119)	.29
Group	1.06	(2,119)	.35
Affect X Duration	0.30	(4,476)	.88
Affect X Group	2.04	(4, 238)	.09
Affect X Order	0.80	(2,238)	.45
Duration X Group	0.70	(4,238)	.60
Duration X Order	0.14	(2,238)	.87
Group X Order	1.02	(2,119)	.36
Affect X Duration X Group	1.20	(8, 476)	.30
Affect X Duration X Order	1.60	(4,476)	.17
Affect X Order X Group	0.20	(4,238)	.94
Duration X Order X Group	2.62	(4,238)	.03*
Affect X Duration X Order X Group	0.44	(8,476)	.90

Note. * indicates significance at the .05 level.

For each of the three attention bias indices, we calculated separate 4-way mixed factorial ANOVAs to compare the effects of affect (disgust, sad, and happy), stimulus exposure duration (150 ms, 500 ms, and 1,000 ms), order of administration (questionnaires first or dot-probe first), and shame group (low, medium, or high) on bias scores. Order of administration and shame group served as the between-group variables.

ANOVA results for the conventional bias index are summarized in Table 4. This analysis yielded a significant duration X group X order interaction, $F(4,238) = 2.62$, $p < .05$). Following the strategy of Fisher's test (Keppel & Zedick, 1989), we investigated simple main effects for the significant duration X group X order interaction. More specifically, for each order we invested the simple main effect of duration within each shame group.

The means for this interaction are presented in Figures 4a (dot probe first) and 4b (questionnaires first). Beginning with participants who completed the dot probe first, separate t-tests for repeated measures were conducted for each shame group comparing attentional bias for 150 ms trials with performance for 500 ms trials, 150 ms trials with 1,000 ms trials, and 500 ms trials with 1,000 ms trials. The same analyses were then conducted for participants who completed the questionnaires first. For participants who completed the dot probe first, none of the pairwise comparisons were significant. For those who completed the questionnaires first, our findings showed that duration made a difference for low shame participants. Specifically, low shame participants displayed an attentional bias away from the emotional faces at the 500 ms duration (attention avoidance; $M = -8.42$, $SD = 23.03$), which was significantly different from an attentional bias toward emotional faces at the 1,000 ms duration (attention vigilance; $M = 6.59$, $SD = 21.05$) ($t(20) = -2.19$, $p = .04$). There was a similar trend
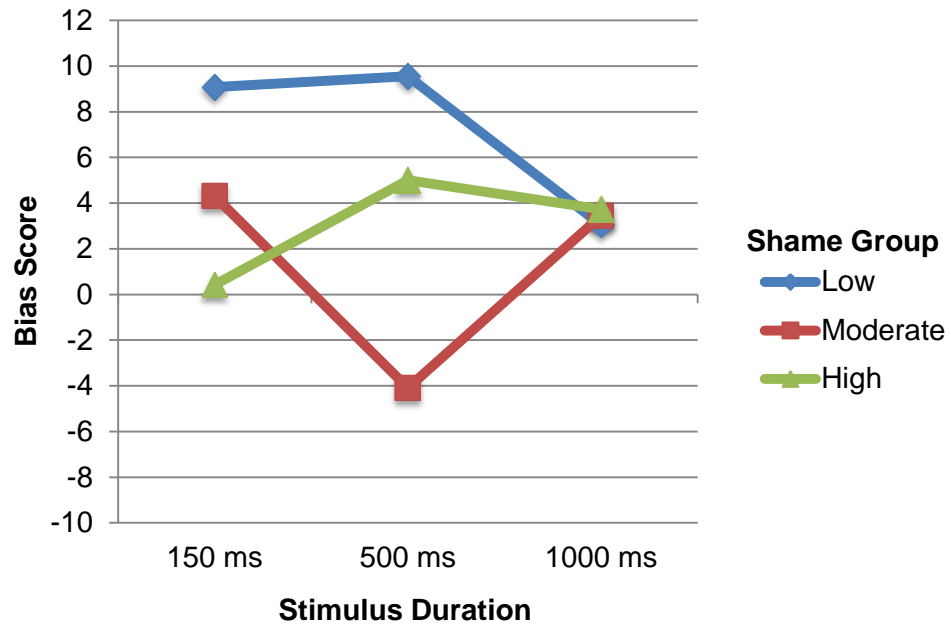
Figure 4a. *Conventional Attention Bias scores: Dot Probe First*
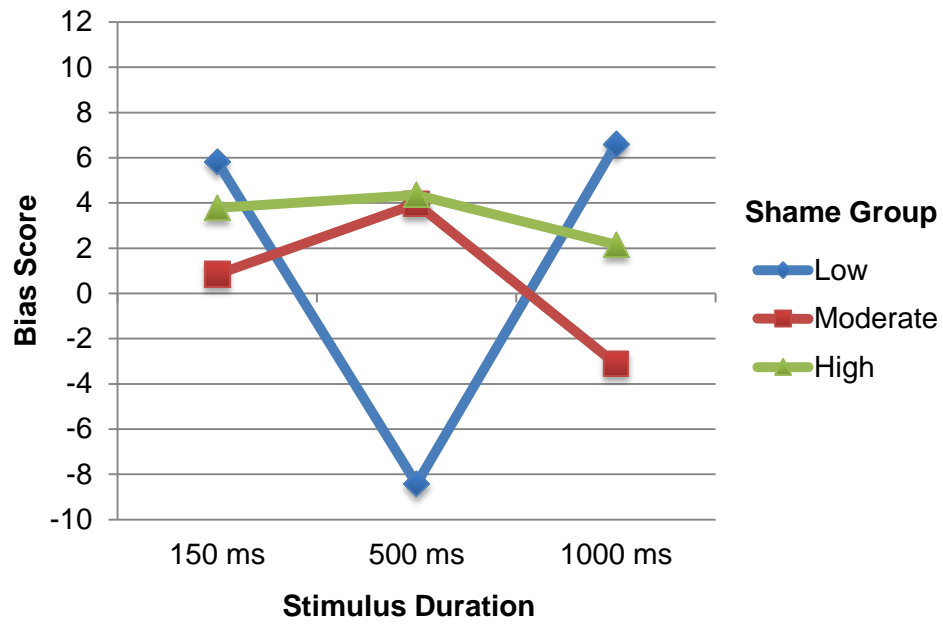
Figure 4b. *Conventional Attention Bias scores: Questionnaires First*

for a difference between the attention avoidance at 500 ms and attention vigilance at 150 ms (M = 5.82, SD = 25.86) (t(20) = 1.70, p = .11). There was no significant difference between biases at the 150 ms and 1000 ms durations.

We also evaluated the simple main effect of group at each duration for each order. We conducted three ANOVAs for each order to investigate the effect of group at 150 ms, 500 ms, and 1, 000 ms. Results for participants who completed the dot probe first indicated a trending group main effect at the 500 ms stimulus exposure duration, F(2, 57) = 2.74, p = .07. For completeness, the follow-up analyses for the 500 ms duration using the LSD method indicated low shame individuals displayed an attentional bias toward emotional faces (M = 9.56, SD = 15.63), which was significantly different from the moderate shame individuals' bias away from emotional faces (M = -4.08, SD = 21.27; p = .02). There were no group main effects at the 150 ms, F(2, 57) = 2.0, p = .15, nor the 1,000 F(2, 57) < 1, p = .99) durations. Analyses for participants who completed questionnaires first also demonstrated a trending group main effect at the 500 ms stimulus exposure duration, F(2, 62) = 2.84, p = .07. However, follow-up analyses for the 500 ms duration using the LSD method indicated that when questionnaires were administered first, low shame individuals displayed an attentional bias away emotional faces (M = -8.42, SD = 23.03), which was significantly different from the bias towards emotional faces among moderate shame individuals (M = 4.00, SD = 19.09; p = .04) and low shame individuals' avoidance was significantly different from high shame individuals' vigilance towards emotional faces (M = 4.35, SD = 17.05; p = .04). Moderate and high shame individuals were not significantly different (p = .95) at this duration and order. Group main effects at neither the 150 ms (p = .72) nor the 1,000 ms (p = .22) durations approached significance.
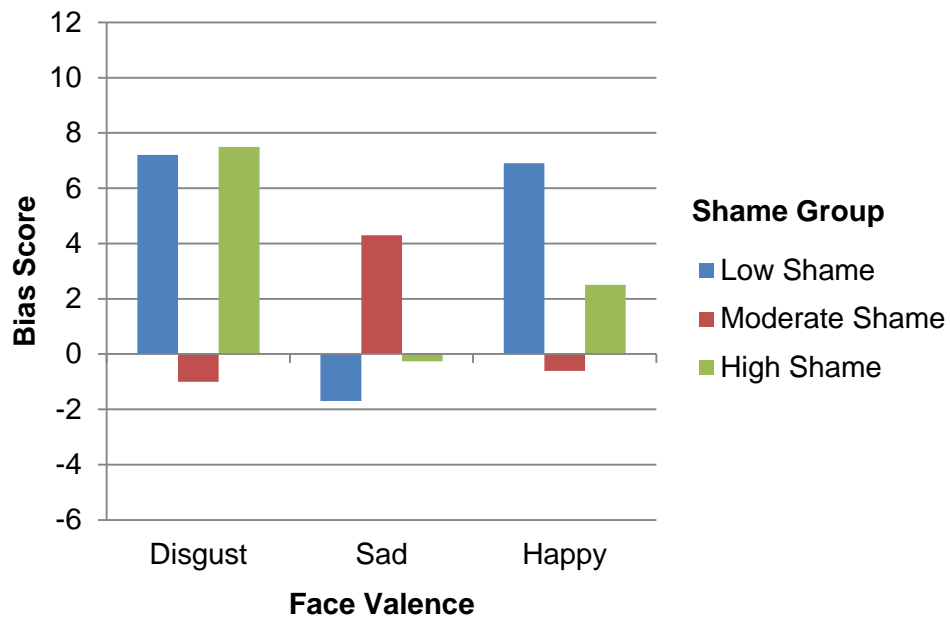
Figure 5. *Bias Scores by Group and Stimulus Valence in the AB Index*

In addition, there was a trend towards significance for the affect X group interaction, $F(4, 238) = 2.04$, $p = .09$ (see Figure 5 for AB scores by group and stimulus valence). For completeness, we followed the trending affect X group interaction with analyses of the effects of affect for each shame group. Repeated measures *t*-tests were used to compare disgust faces with sad faces, disgust faces with happy faces, and sad faces with happy faces separately for low, medium, and high shame groups. Results indicated that there was a trend for high shame participants to exhibit attention vigilance to disgust faces ($M = 7.50$, $SD = 16.49$) compared to sad faces ($M = -.17$, $SD = 17.75$), $t(41) = 2.02$, $p = .05$. There was no significant difference between biases to sad and happy stimuli ($M = 2.37$, $SD = 14.7$), $t(41) = 0.70$, $p = .49$, nor disgust stimuli and happy stimuli, $t(41) = 1.5$, $p = .13$. There were no significant pairwise comparisons for the moderate and low shame groups (all *p*-values $\geq$ .12). We also evaluated the simple main effect of group for each affect by conducting three one-way ANOVAs. There was a

trending main effect for group for the disgust faces, $F(2, 122) = 2.86$, $p = .06$. Follow-up tests using the LSD post hoc test revealed that attention vigilance in the low shame group ($M = 7.72$, $SD = 22.14$) was significantly different than the slight attention avoidance in the moderate shame group ($M = -1.15$, $SD = 18.53$; $p = .04$). Likewise, the attention vigilance observed in the high shame group ($M = 7.50$, $SD = 16.49$; $p = .04$) was significantly different than the slight attention avoidance in the moderate shame group. Interestingly, there was no significant difference in biases to disgust faces between the low and high shame group ($p = .96$). The simple main effect of shame group was not significant for either sad, $F(2, 122) < 1$, $p = .39$, or happy trials, $F(2, 122) = 1.4$, $p = .25$.

ANOVA results for the analysis of the FE index are summarized in Table 5. The analysis indicated a significant main effect for shame group ($F(2,119) = 3.65$, $p = .02$). We utilized the LSD post hoc analysis to further investigate group differences. Results indicated that low shame participants oriented to affective stimuli significantly faster (facilitated engagement; $M = 6.61$, $SE = 2.89$) than high shame participants who showed slightly slowed engagement ($M = -2.77$, $SE = 2.90$; $p = .02$). Similarly, facilitated engagement scores for moderate shame ($M = 7.09$, $SE = 2.97$) were significantly different than the slowed engagement scores for the high shame group ($p = .02$) (See Figure 6).

Table 5. *ANOVA Summary of Facilitated Engagement Index*

Source of Variance	*F*	*df*	*p*
Affect	0.26	(2,238)	.77
Duration	2.26	(2,238)	.11
Order	0.73	(1,119)	.40
Group	3.65	(2,119)	.02*
Affect X Duration	0.90	(4,476)	.50
Affect X Group	1.95	(4,238)	.10
Affect X Order	0.29	(2,238)	.75
Duration X Group	0.64	(4,238)	.64
Duration X Order	0.36	(2,238)	.70
Group X Order	0.83	(2,119)	.44
Affect X Duration X Group	1.04	(8, 476)	.41
Affect X Duration X Order	1.79	(4,476)	.13
Affect X Order X Group	0.14	(4,238)	.97
Duration X Order X Group	1.35	(4,238)	.25
Affect X Duration X Order X Group	0.99	(8,476)	.44

Note. * indicates significance at the .05 level.
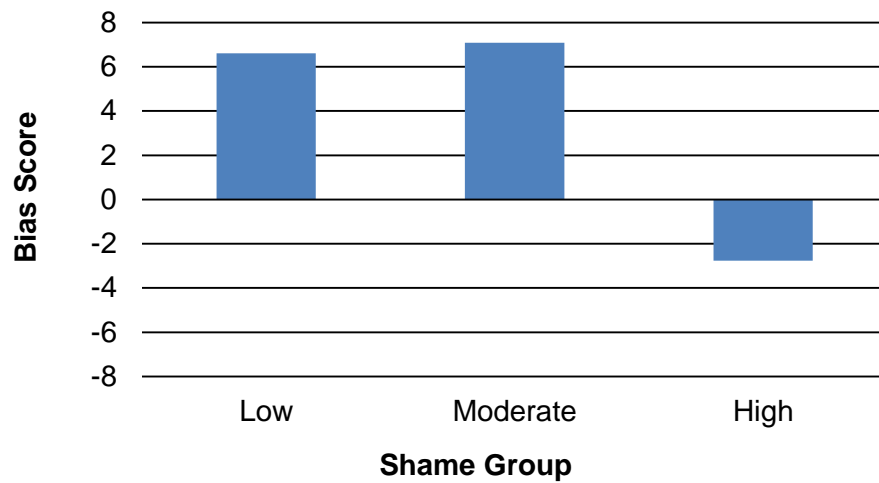
Figure 6. *Means of FE Scores by Group*

In addition, there was a trend toward a significant affect X group interaction, $F(4, 238) = 1.95$, $p = .10$ (see Figure 7 for FE scores by group and stimulus valence). We used repeated measures *t*-tests to follow up this interaction, which revealed that high shame participants were slower to engage with sad stimuli ($M = -5.98$, $SD = 17.84$) compared to both disgust stimuli ($M = -.57$, $SD = 21.77$) ($t(41) = 2.37$, $p = .02$) and happy stimuli ($M = -1.13$, $SD = 18.37$) ($t(41) = 2.14$, $p = .04$), and there was no significant difference in FE scores between happy and disgust stimuli ($t(41) = 0.18$, $p = .86$). For the moderate and low shame groups, there were no significant pairwise comparisons (all p-values $\geq$ .12). To further follow up this interaction, we also investigated the simple main effect of shame group at each affect. The main effect for group was significant with sad faces $F(2,122) = 5.61$, $p = .005$. The low shame group showed facilitated engagement to the sad faces ($M = 4.70$, $SD = 25.81$), which was significantly different from the slowed engagement to sad faces in the high shame group ($M = -6.0$, $SD = 17.84$; $p = .03$) as indicated by LSD post hoc analyses.
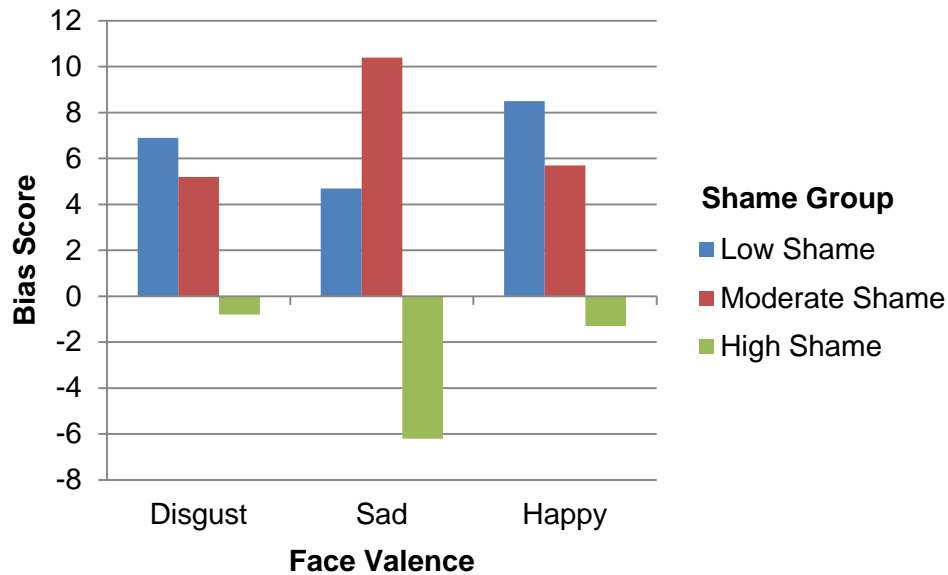
Figure 7. *Bias Scores by Group and Stimulus Valence in the FE Index*

The facilitated engagement to the sad faces among the moderate shame group ($M = 10.51$, $SD = 24.00$) was also significantly different from the slowed engagement to sad faces in the high shame group ($p = .001$). There also was a trend for an effect of group with happy faces, $F(2, 122) = 2.36$. $p = .10$. We observed that low shame participants displayed enhanced engagement for happy faces ($M = 8.46$, $SD = 22.27$) compared to high shame participants' slightly slowed engagement ($M = -1.13$, $SD = 18.37$, $p = .04$). There were no significant differences in engagement to happy faces when comparing moderate shame participants ($M = 5.83$, $SD = 21.85$) to either low shame participants ($p = .57$) or high shame participants ($p = .13$). There was no effect of group for disgust faces disgust faces, $F(2, 122) = 1.28$, $p = .28$.

ANOVA results for the DD index are presented in Table 6. The analysis indicated a significant main effect for shame group $F(2,119) = 4.44$, $p = .01$).

Table 6. *ANOVA Summary of Difficulty Disengaging Index*

Source of Variance	F	df	p
Affect	1.87	(2,238)	.16
Duration	1.45	(2,238)	.24
Order	0.20	(1,119)	.65
Group	4.44	(2,119)	.01*
Affect X Duration	0.32	(4,476)	.86
Affect X Group	0.59	(4, 238)	.67
Affect X Order	0.17	(2,238)	.85
Duration X Group	0.29	(4,238)	.89
Duration X Order	0.41	(2,238)	.67
Group X Order	1.07	(2,119)	.35
Affect X Duration X Group	0.70	(8, 476)	.69
Affect X Duration X Order	1.00	(4,476)	.41
Affect X Order X Group	1.08	(4,238)	.37
Duration X Order X Group	0.44	(4,238)	.78
Affect X Duration X Order X Group	1.24	(8,476)	.28

Note. * indicates significance at the .05 level.

Follow-up tests utilizing the LSD method indicated that the high shame group took longer to disengage attention from affective trials than neutral trials (difficulty disengaging; $M = 6.1$, $SE = 3.11$) trials compared to the moderate shame group (eased disengagement; $M = -7.06$, $SE = 3.19$; $p = 0.004$); the low shame group ($M = -1.62$, $SE = 3.1$) did not differ significantly from the moderate ($p = .21$) shame group. The high shame group exhibited a trend towards having greater difficulty disengaging from affective stimuli compared to the low shame group ($p = .09$) (See Figure 8). None of the other main effects or interactions in our ANOVA were significant.

We also investigated participants' change in affect over time. We conducted two mixed-factorial ANOVAs to evaluate the effects of shame group and time for positive and negative affect (see Table 7 and Table 8, respectively). In terms of positive affect, we found a main effect of time $F(2,240) = 53.4$, $p < .001$). We conducted three repeated measures t-tests as a follow-up. Results indicated a significant decrease in positive affect from Time 1 ($M = 27.2$, $SD = 7.5$) to Time 2 ($M = 23.5$, $SD = 8.0$), $t(122) = 6.94$, $p < .001$ (See Figure 9). There was a further significant decrease from Time 2 to Time 3 ($M = 21.9$, $SD = 8.3$), $t(122) = 4.01$, $< .001$. Accordingly, the overall decline from Time 1 to Time 3 was also significant, $t(123) = 8.64$, $< .001$.

In addition, the main effect of group was trending towards significance $F(2,120) = 3.06$, $p = .051$). Follow up analyses using LSD indicated significantly greater positive affect in low shame participants ($M = 26.44$, $SE = 1.11$) compared to both moderate shame participants ($M = 23.01$, $SE = 1.12$; $p = .03$) and high shame participants ($M = 23.15$, $SE = 1.10$; $p = .04$) (See Figure 10). There was no significant difference in positive affect between moderate and high shame groups ($p = .93$) . Analyses yielded no significant interaction between time and shame group, $F(4, 240) = 1.09$, $p = .36$).
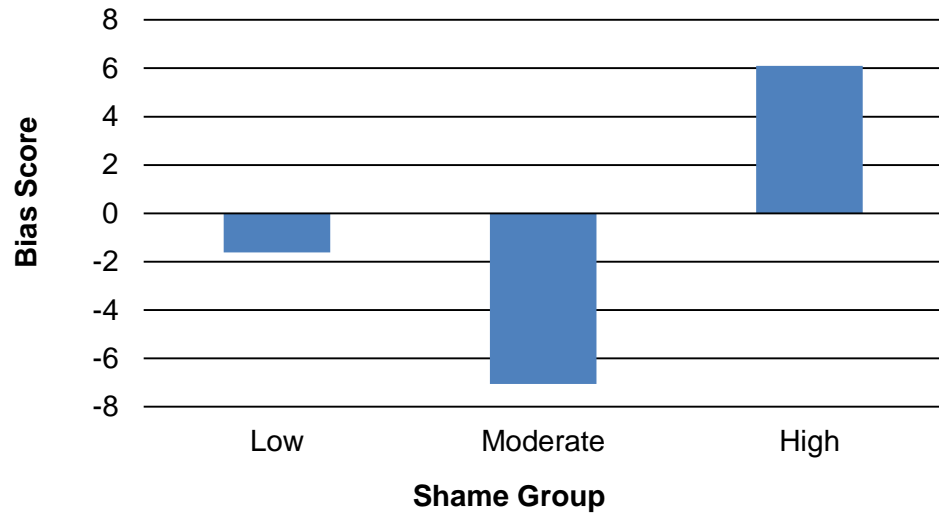
Figure 8. *Means of DD Scores by Group*

Table 7. *ANOVA Summary of Positive Affect*

Source of Variance	F	df	p
Time	53.40	(2,240)	.000*
Group	3.06	(2,120)	.051
Time X Group	1.09	(4,240)	.36

Note. * indicates significance at the .05 level.
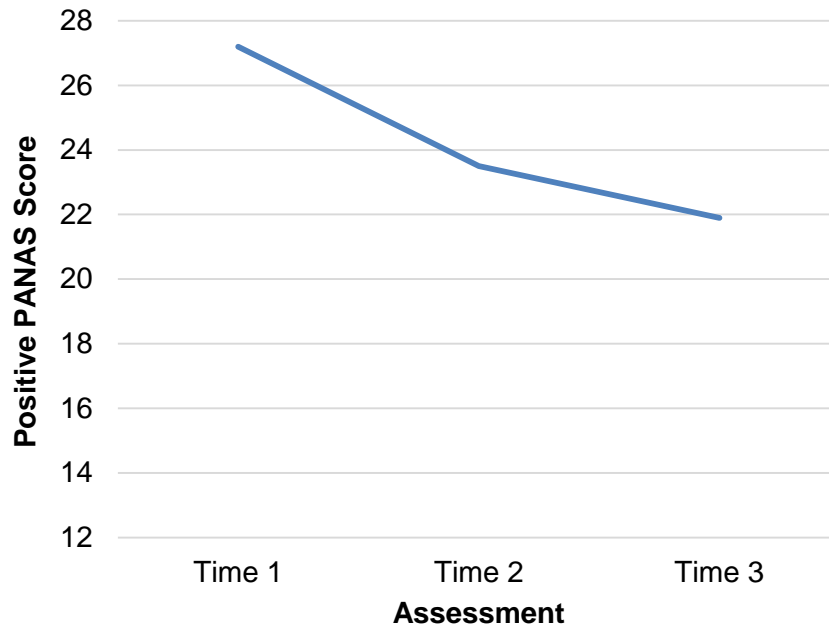
Figure 9. *Change in Positive Affect in Participants Overall*
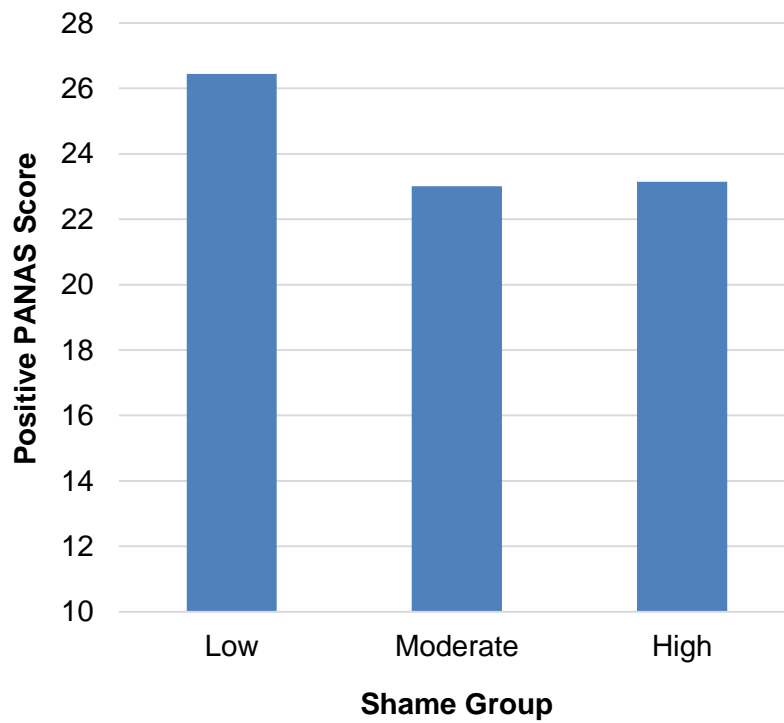
Figure 10. *Trend of Group Differences in Negative Affect*

Table 8. *ANOVA Summary of Negative Affect*

Source of Variance	F	df	p
Time	11.43	(2,240)	.000*
Group	17.20	(2,120)	.000*
Time X Group	0.32	(4,240)	.87

Note. * indicates significance at the .05 level.
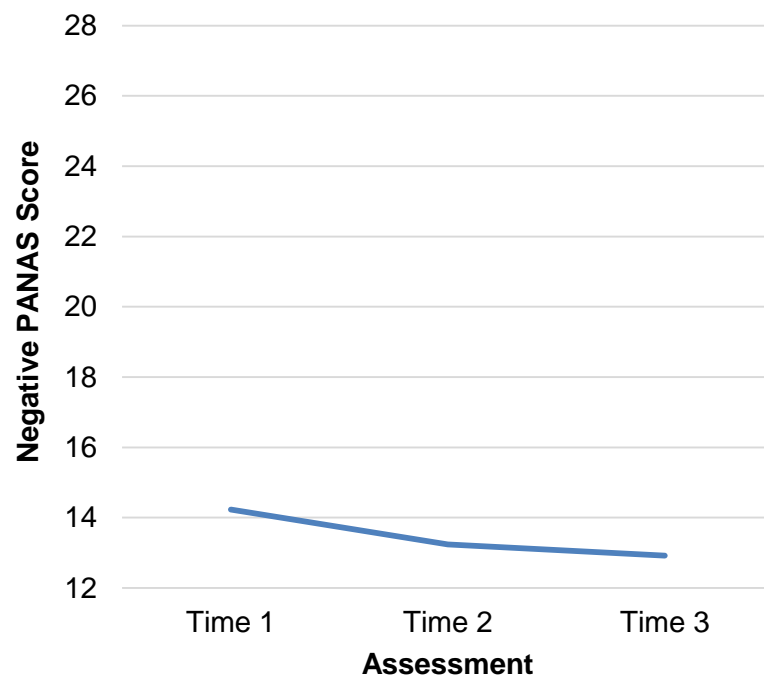
Figure 11. *Change in Negative Affect in Participants Overall*
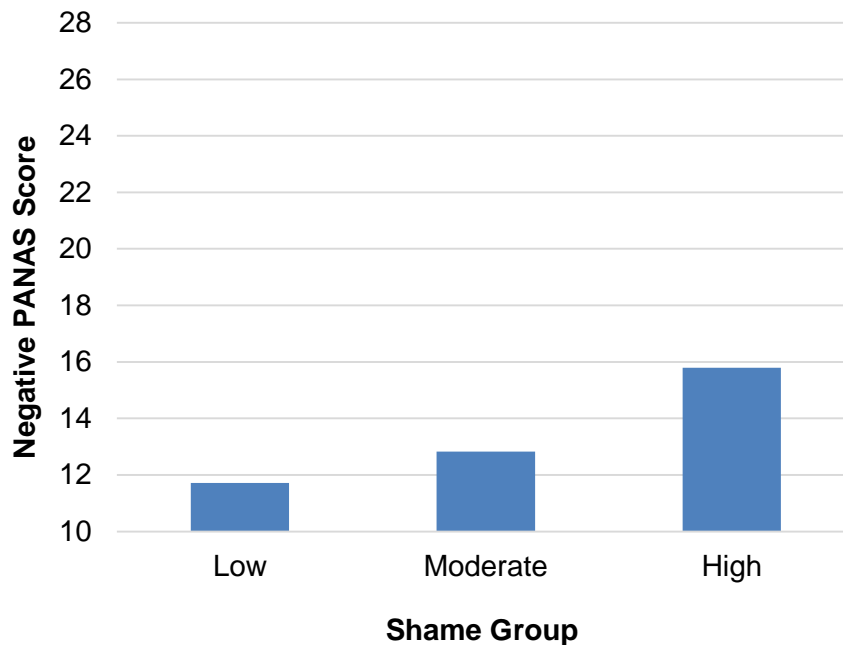
Figure 12. *Group Differences in Negative Affect*

In terms of negative affect, we found a main effect of time $F(2,240)$ = 11.43, $p < .001$). Our follow-up using three repeated measures t-tests indicated a significant decrease in negative affect from Time 1 (M =14.23, SD = 4.4) to Time 2 (M = 13.24, SD = 3.9) ($t(122)$ = 3.71, $p < .001$), and an overall decline from Time 1 (M =14.21 , SD = 4.4) to Time 3 (M = 12.92, SD = 3.9) ($t(123)$ = 4.19, $p < .001$) (See Figure 11). There was no significant difference in negative affect from Time 2 to Time 3 (p = .24).

The main effect of group was also significant $F(2,120)$ = 17.2, $p < .001$). Follow up analyses using LSD indicated significantly greater negative affect in high shame participants (M = 15.79, SE =.50) compared to both moderate shame participants (M = 12.83, SE = .52; $p < .001$) and low shame participants (M = 11.72, SE =.51; $p <.001$) (See Figure 12). There was no significant difference in negative affect between low and moderate shame groups (p = .13). We found no significant interaction between time and shame group F(4,240) = 0.32, p = .87.

Discussion

Shameful affect is associated with a range of anxiety and depressive mood disorders (Gilbert, 2000; Fergus et al., 2010; Kim, Thibodeau, & Jorgensen, 2011; Carvalho, 2013). In addition, prior research has demonstrated biases in attention processing among anxious and depressed participants. The current study sought to investigate components of attention processing that may be influenced by shameful affect. In order to evaluate attentional biases in shame, we compared dot probe performance of individuals with low, moderate, and high levels of trait shame. Additionally, we investigated the effect of the affective valence of test stimuli and time course of such biases by exposing stimuli portraying disgust, sad, and happy faces at short (150 ms), medium (500 ms), and long (1,000 ms) durations. The order of administration of the dot probe and various study-related self-report questionnaires was counterbalanced (i.e., dot probe task followed by questionnaires; questionnaires followed by dot probe task) across participants.

Consistent with prior research on shame, we found at baseline that the high shame group also had higher levels of guilt, depression, state and trait anxiety, social anxiety, and stress. The high shame group, as defined by scores on the Experience of Shame Scale (ESS) also had higher shame scores on the Test of Self Conscious Affect (TOSCA), suggesting convergent validity of these measures. Although the high group had higher guilt scores than both the low and moderate shame groups, the low and moderate shame groups did not differ from one another. However, it should also be noted that there were no differences among the three shame groups on pride as measured by the TOSCA, suggesting that shame and pride may be unrelated constructs despite broad perceptions they may reflect opposite ends of the same variable.

Unexpectedly, we found evidence of an order effect in the context of a three-way duration X shame group X order interaction when examining the conventional attention bias index. When the questionnaires were administered first, we observed that the stimulus exposure duration impacted individuals with low amounts of shame, whereas duration had no effect for the other shame groups. Averaging reaction times across affective trials, low shame participants showed a vigilant-avoidant-vigilant pattern, where they demonstrated vigilance of emotional stimuli at short and long exposure durations and avoidance at a mid-range exposure duration. The impact of the stimulus duration was absent for individuals with moderate-high levels of shame. These findings are contrary to our hypotheses, in which we predicted a vigilant-avoidant pattern of attention biases to threatening stimuli in those experiencing high shame and avoidance of threatening stimuli at all durations in those with low levels of shame. Notably, we found no effect of duration when the dot probe was administered first. Thus, it is likely that the questionnaires influenced the low shame group's performance, perhaps by altering the affective state of this group. It is possible that completing questionnaires first may induce affect or increase affective awareness in the low shame group that does not otherwise occur if the dot probe was completed first. In turn, this may influence where low shame participants allocate their attention. In other words, completing the questionnaires may have induced an emotional or cognitive state that then influenced how they performed on the dot probe. Perhaps the dot probe first condition reflects participants' performance without this additional influence.

In addition to these findings, we observed trends for shame groups to differ at the 500 ms duration and that the direction of that effect differed for the two administration orders. Specifically, when questionnaires were administered first, the low shame group demonstrated avoidance of emotional faces and the moderate and high shame groups

demonstrated emotion vigilance. Interestingly, when the dot probe was administered first, this pattern was partially reversed in that the low shame group exhibited vigilance to emotional faces and the moderate shame group exhibited slight avoidance of emotional faces at the mid-range duration. It seems that the low shame group is driving the differences in attentional bias patterns across each of the orders of administration, although the reason that order made a difference for the conventional attention bias is not clear. It is possible that the dot probe is vulnerable to order effects, or this could be reflective of a Type I error. Moreover, it is unclear why these differences appeared only at the mid-range duration. Future research should be sensitive to the possibility of order effects in regards to the dot probe.and should administer the dot probe first in order to minimize any effects that prior testing, that is not of specific theoretical interest, may have on dot probe performance. Additionally, future studies utilizing the dot probe paradigm should continue to assess the time course of biases by exposing stimuli at multiple durations. It may be that the 500 ms stimulus exposure duration is important in capturing between-group differences for shame.

We extended these findings by exploring the constructs of facilitated engagement (faster orienting toward) and difficulty disengaging (slowed shifting of attention away). Based on our prediction of observing a bias toward threat, we expected to observe facilitated engagement to disgust stimuli in high shame individuals. However, our results showed that individuals who reported high levels of shame were slower to engage in all affective stimuli compared to individuals with low or moderate levels of shame. As a possible explanation for this unexpected finding, we note that shame is marked by fear of negative social evaluation (Clark, 2005; Leary, 2004). Accordingly, slowed engagement in response to the emotional stimuli used in this study may be reflective of avoidance of social stimuli in particular, regardless of emotional valence. Future

research could investigate whether non-social, emotional stimuli influence attention allocation differently than social, emotional stimuli.

Further extending our investigation of attention biases, we expected that high shame individuals would demonstrate difficulty disengaging from threatening stimuli. This prediction was partially supported in that high shame individuals experienced more difficulty disengaging from all affective stimuli compared to individuals with moderate shame, and this pattern was trending in regards to individuals with high compared to low shame. Thus, individuals with high levels of shame exhibited slowed engagement to- but delayed disengagement from all affective stimuli. The results from the facilitated engagement and difficulty disengaging indices indicate highly shame individuals have a delay in attending to affective stimuli, similar to attention avoidance, but once information is attended to there may be a delay in shifting attention and/or interference in making a response (Matlow, Gard, and Berg, 2012).

Disengagement difficulties have been found in previous studies on anxiety (Fox, Russo, Dutton, 2002; Koster er al., 2004; Klumpp and Amir, 2009; Matlow, Gard, and Berg, 2012). Particularly surprising was our observation that delayed disengagement was seen for both positively and negatively valenced stimuli. We expected that individuals experiencing high levels of shame would be particularly concerned with shame-inducing stimuli (i.e. disgust faces). However, high shame individuals demonstrated increased dwell-time to all stimuli regardless of valence. Researchers suggest that deficiencies in disengaging are particularly problematic in anxiety because prolonged attention to threatening cues may prolong distressful states and inhibit attention allocation to positive stimuli and alternate coping strategies (Koster et al., 2004). Perhaps those with high levels of shame experience prolonged attention to all affective stimuli due to all affective stimuli being perceived as threatening. Other

possibilities are that dwelling on emotional faces regardless of valence may be reflective of high shame individuals having difficulty interpreting facial expressions or having a biased interpretation of facial expressions as threatening regardless of the affect displayed. Future research should investigate interpretation biases in those with varying levels of shame.

These observed group differences for the facilitated engagement and difficulty disengaging indices were consistent across affective stimuli and duration of stimulus exposure, contrary to our predictions. Research on domain-specificity (i.e., bias only to emotionally-relevant stimuli) has yielded mixed results. For example, Mogg et al., (1995) observed attentional biases to anxiety-relevant threatening words ("attack", "hostile") and depression-relevant words ("sad", worthless") in a GAD sample. Schofield, Inhoff, and Coles (2013) found no differences in attention biases between angry, afraid, and happy faces in a socially anxious sample. A potential explanation for our findings is that all affective information may be threatening to high shame individuals. In their research on social anxiety, Weeks, Heimberg, and Rodebaugh (2008) found that in addition to fear of negative evaluation, fear of positive public evaluation was also related to social anxiety, suggesting that fear of evaluation in general may increase distress in those with social anxiety. Perhaps those who experience high levels of shame experience similar distress associated with both negatively and positively valenced, social stimuli. Future research on shame should continue to evaluate the effect of both negative and positive valenced stimuli as well as both social and non-social stimuli on attention allocation

Although not significant, we observed some trends of domain-specificity. There was a trending effect for highly ashamed individuals to demonstrate attention vigilance to disgust faces and to avoid sad faces as measured by the conventional attention bias index. Interestingly, there was no difference in bias scores between disgust and happy

faces. Furthermore, there was a trending effect for the high shame group to exhibit

disgust vigilance compared to the moderate shame group's slight disgust avoidance.

This is partly consistent with our hypothesis that attention biases would be specific to

disgust stimuli and not sad stimuli; however, it is not clear why attention biases to

disgust were comparable to attention biases to happy stimuli nor why disgust vigilance

was comparable between low and high shame groups. Additionally, there was generally

slowed engagement to affective stimuli for high shame individuals and engagement was

particularly slow to sad faces compared to either disgust or happy faces. We also

observed a trending effect of shame group for sad faces and happy faces. While the

high shame group exhibited slowed engagement to sad faces, the low and moderate

shame groups exhibited facilitated engagement to sad faces. Likewise, while the high

shame group exhibited slightly slowed engagement to happy faces, the low and

moderate shame groups exhibited facilitated engagement to happy faces. The trends for

the conventional attention bias index and facilitated engagement index converge to

suggest that high shame individuals demonstrate increased vigilance to disgust faces

compared to sad, and high shame individuals are not as slow to engage disgust faces as

they are to engage sad and happy faces. This pattern provides some evidence of

disgust vigilance for high shame individuals, partially consistent with our hypotheses.

Alternatively, the significantly slower engagement with sad stimuli may indicate that

individuals with high shame perceive sad stimuli as more threatening than other affect.

Future studies should investigate the perception of various affect as threatening among

highly ashamed individuals.

Our data using the enhanced engagement and difficulty disengaging indices

provided valuable information that would have been absent if we relied solely on the

conventional attention bias scoring method. Therefore, future research should include

neutral-neutral trials for analyzing indices of engagement and disengagement, which detects more specific components of visual attention than the conventional attention bias index. Moreover, our inclusion of multiple affective faces provided us valuable information into domain-specificity. If we had relied solely on disgust stimuli, we may have inferred our biases were particular to shame-inducing, disgust faces. It follows that future studies should include multiple affective stimuli.

Our shame groups reported different levels of negative affect and a trend towards differences for positive affect. High shame participants reported greater negative affect than those in the low and moderate shame groups, whereas the latter two groups did not differ. In addition, low shame participants reported greater positive than either moderate or high shame participants, whereas there was no difference between the latter two groups.

We predicted a decline in positive affect and an increase in negative affect over the course of the lab visit for all participants. Partially consistent with this hypothesis, we observed a decline in positive affect, but we also observed a decline in negative affect throughout the course of the visit. For positive affect there were significant declines across all three time points, whereas for negative affect there was a significant decline from baseline to midway through the dot probe task, with no further change to the end of the task. Thus, contrary to expectations, we did not induce negative affect. In fact, we observed a decline in all affect over the course of the lab visit. It is possible that if we had included a mood induction manipulation in our study, and specifically shame induction, we may have observed different results. Perhaps future studies could investigate whether trait and state shame make different contributions to attention biases.

There are several limitations within our study that should be noted. First, our high shame group also reported higher levels of depression and anxiety. This presents interpretive limitations in that our results may be driven by elevations of affect other than, or in addition to, shame. We could have used one or more measures of alternate affects as covariates, which may have allowed us to determine whether our results were specific to shame, or a reflection of attention biases in shame, anxiety, and/or depression. However, covarying anxiety and depression also may have attenuated any effects because shame is inherently confounded with depression and anxiety. Accordingly, removing depression and anxiety symptoms fundamentally shifts the phenomenon to something other than shame.

Second, our dot probe task was quite lengthy, and our error rates were higher than other error rates in the literature. However, the high error rates were driven by relatively few participants ($n = 4$ with error rates over 25%). Moreover, all errors were deleted from our analyses and we believed the benefit of counterbalancing several variables, which lengthened our task, outweighed the consequences. Third,, our dot probe provided three stimulus exposure durations, but did not include methods to measure biases at durations shorter than 150 ms, or at durations in between 150 ms and 500 ms and 500 ms to 1,000 ms, such as by utilizing eye tracking software. Fourth, our sample was nonclinical, making it possible that our participants may not be experiencing shame at levels as severe as a clinical population. For example, our results may have been different had we intentionally recruited individuals diagnosed with PTSD, secondary to childhood sexual assault. Fifth, we examined trait shame, and may have witnessed different patterns of biases had we evaluated individuals with varying levels of state shame, such as by utilizing mood induction methods. Sixth, we employed a post hoc grouping strategy due to insufficient recruitment of our initial low shame group. It is

possible that our shame screener contributed to low shame individuals self-selecting themselves out of the study. Lastly, our evidence for domain-specificity is relatively weak because we included interpretation of trends in our data.

Measurement of shame has relied on assessing cognitions, typically regarding fear of negative evaluation from others and the propensity to negatively evaluate oneself. Examining information processing mechanisms in shame allows researchers to further understand automatic processing that occurs in shameful affect. Thus, future research should continue to focus on components of information processing in shame.

REFERENCES

Andrews, B. (1995). Bodily shame as a mediator between abusive experiences and depression. *Journal of Abnormal Psychology, 104*(2), 277-285.

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD symptoms in victims of violent crime: The role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology, 109*(1), 69-73.

Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The experience of shame scale. *The British Journal of Clinical Psychology / the British Psychological Society, 41*(Pt 1), 29-42.

Bar-Haim, Y. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin, 133*(1), 1-24.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* Oxford England: International Universities Press.

Beck, A. T., & S. (1996). *Manual for the beck depression inventory.*

Bradley, B., Mogg, K., & Millar, N. (1997). Attentional biases for emotional faces. *Cognition and Emotion, 11*, 25-42.

Bradley, B., Mogg, K., & Millar, N. (2000). Covert and overt orienting of attention to emotional faces in anxiety. *Cognition and Emotion, 14*, 789-808.

Broadbent, D., & Broadbent, M. (1988). Anxiety and attentional bias: State and trait. *Cognition and Emotion, 2*(3), 165-183. doi:10.1080/02699938808410922

Bryan, C. J., Morrow, C. E., Etienne, N., & Ray-Sannerud, B. (2013). Guilt, shame, and suicidal ideation in a military outpatient clinical sample. *Depression and Anxiety, 30*(1), 55-60. doi:10.1002/da.22002

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

Carvalho, S., Dinis, A., Pinto-Gouveia, J., & Estanqueiro, C. (2013). Memories of shame

    experiences with others and depression symptoms: The mediating role of

    experiential avoidance. *Clinical Psychology & Psychotherapy,*

    doi:10.1002/cpp.1862; 10.1002/cpp.1862

Chen, N. T., Clarke, P. J., MacLeod, C., & Guastella, A. J. (2012). Biased attentional

    processing of positive stimuli in social anxiety disorder: An eye movement study.

    Cognitive Behaviour Therapy, 41(2), 96-107.

    doi:10.1080/16506073.2012.666562; 10.1080/16506073.2012.666562

Clark, D. M. (2005). A cognitive perspective on social phobia. In W. R. Crozier, & L. E.

    Alden (Eds.), (pp. 193-218). New York, NY US: John Wiley & Sons Ltd.

Connor, K. M., Davidson, J. T., Churchill, L., Sherwood, A., Foa, E., & Weisler, R. H.

    (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-

    rating scale. *The British Journal Of Psychiatry*, 176379-386.

    doi:10.1192/bjp.176.4.379

Dalgleish, T., & Watts. (1990). Biases of attention and memory in disorders of anxiety

    and depression. *Clinical Psychology Review, 10*, 589-604.

De Rubeis, S., & Hollenstein, T. (2009). Individual differences in shame and depressive

    symptoms during early adolescence. *Personality and Individual Differences,*

    46(4), 477-482. doi:10.1016/j.paid.2008.11.019

Ekman, P., Friesen, W.V. (1976). *Pictures of Facial Affect .* San Francisco: CA:

    Consulting Psychologists Press.

Eysenck, M. W., MacLeod, C., & Mathews, A. (1987). Cognitive functioning and anxiety.

    Psychological Research, 49(2-3), 189-195. doi:10.1007/BF00308686

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible

    statistical power analysis program for the social, behavioral, and biomedical

    sciences. Behavior Research Methods, 39, 175-191.

Feiring, C., & Taska, L. S. (2005). The persistence of shame following sexual abuse: A

    longitudinal look at risk and recovery. *Child Maltreatment, 10*(4), 337-349.

    doi:10.1177/1077559505276686

Feiring, C., Taska, L., & Lewis, M. (1996). A process model for understanding adaptation

    to sexual abuse: The role of shame in defining stigmatization. *Child Abuse &*

    Neglect, 20(8), 767-782. doi:10.1016/0145-2134(96)00064-6

Fergus, T. A., Valentiner, D. P., McGrath, P. B., & Jencius, S. (2010). Shame- and guilt-

    proneness: Relationships with anxiety disorder symptoms in a clinical sample.

    Journal of Anxiety Disorders, 24(8), 811-815. doi:10.1016/j.janxdis.2010.06.002

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective

    information. *Psychological Bulletin*, 99(1), 20-35. doi:10.1037/0033-2909.99.1.20

Foa, E. B., & Kozak, M. J. (1991). Emotional processing: Theory, research, and clinical

    implications for anxiety disorders. In J. D. Safran, & L. S. Greenberg (Eds.), (pp.

    21-49). New York, NY US: Guilford Press.

Fox, E., Russo, R., Dutton, K. (2002). Attention bias for threat: Evidence for delayed

    disengagement from emotional faces. *Cognition and Emotion, 16*(3), 355-379.

Frewen, P. A., Schmittmann, V. D., Bringmann, L. F., & Borsboom, D. (2013). Perceived

    causal relations between anxiety, posttraumatic stress and depression:

    Extension to moderation, mediation, and network analysis. *European Journal of*

    Psychotraumatology, 4, 10.3402/ejpt.v4i0.20656. doi:10.3402/ejpt.v4i0.20656;

    10.3402/ejpt.v4i0.20656

Gilbert, P. (2000). The relationship of shame, social anxiety and depression: The role of the evaluation of social rank. *Clinical Psychology & Psychotherapy, 7*(3), 174-189. doi:10.1002/1099-0879(200007)7:3<174::AID-CPP236>3.0.CO;2-U

Goss, K., & Allan, S. (2009). Shame, pride and eating disorders. *Clinical Psychology & Psychotherapy, 16*(4), 303-316. doi:10.1002/cpp.627; 10.1002/cpp.627

Gotlib, I. H., Krasnoperova, E., Yue, D. N., & Joormann, J. (2004). Attentional biases for negative interpersonal stimuli in clinical depression. *Journal of Abnormal Psychology, 113*(1), 127-135. doi:10.1037/0021-843X.113.1.121

Helfinstein, S. M., White, L. K., Bar-Haim, Y., & Fox, N. A. (2008). Affective primes suppress attention bias to threat in socially anxious individuals. *Behaviour Research and Therapy, 46*(7), 799-810. doi:10.1016/j.brat.2008.03.011

Izard, C. E. (1991). *The psychology of emotions.* New York, NY US: Plenum Press.

Keppel, G., & Zedeck, S. (1989). *Data analysis for research designs: Analysis of variance and multiple regression/correlation approaches.* New York, NY, US: W H Freeman/Times Books/ Henry Holt & Co.

Kim, S., Thibodeau, R., & Jorgensen, R. S. (2011). Shame, guilt, and depressive symptoms: A meta-analytic review. *Psychological Bulletin, 137*(1), 68-96. doi:10.1037/a0021466

Klumpp, H., & Amir, N. (2009). Examination of vigilance and disengagement of threat in social anxiety with a probe detection task. *Anxiety, Stress & Coping: An International Journal, 22*(3), 283-296. doi:10.1080/10615800802449602

Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., & ... White, J. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology Of Women Quarterly, 31*(4), 357-370. doi:10.1111/j.1471-6402.2007.00385.x

Koster, E. W., Crombez, G., Verschuere, B., & De Houwer, J. (2004). Selective attention to threat in the dot probe paradigm: Differentiating vigilance and difficulty to disengage. *Behaviour Research And Therapy*, 42(10).

Kraemer, H. C., Mintz, J., Noda, A., Tinklenberg, J., & Yesavage, J. A. (2006). Caution regarding the use of pilot studies to guide power calculations for study proposals. *Archives of General Psychiatry*, 63(5), 484-489. doi:10.1001/archpsyc.63.5.484

Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *The American Psychologist, 46*(8), 819-834.

Leary, M. R., & Atherton, S. C. (1986). Self-efficacy, social anxiety, and inhibition in interpersonal encounters. *Journal of Social and Clinical Psychology, 4*(3), 256-267. doi:10.1521/jscp.1986.4.3.256

Lee, D. A., Scragg, P., & Turner, S. (2001). The role of shame and guilt in traumatic events: A clinical model of shame-based and guilt-based PTSD. *The British Journal of Medical Psychology, 74*(Pt 4), 451-466.

Leskela, J., Dieperink, M., & Thuras, P. (2002). Shame and posttraumatic stress disorder. *Journal of Traumatic Stress, 15*(3), 223-226. doi:10.1023/A:1015255311837

Levin, S. (1971). The psychoanalysis of shame. *The International Journal Of Psychoanalysis, 52(*4), 355-362.

Leweke, F., Leichsenring, F., Kruse, J., & Hermes, S. (2012). Is alexithymia associated with specific mental disorders?. *Psychopathology*, 45(1), 22-28.

Lewis, H. B. (1971). Shame and guilt in neurosis. *Psychoanalytic Review,* 58(3), 419-438.

Lovibond, S.H.; Lovibond, P.F. (1995). Manual for the Depression Anxiety Stress Scales

(2nd ed.). Sydney: Psychology Foundation. (Available from The Psychology

Foundation, Room 1005 Mathews Building, University of New South Wales,

NSW 2052, Australia.

MacLeod, C., Mathews, A., and Tata, P. (1986). Attentional bias in emotional disorders.

Journal of Abnormal Psychology, 95, 15-20.

Mathews, A., & MacLeod, C. (1994). Cognitive approaches to emotion and emotional

disorders. *Annual Review of Psychology, 45*, 25-50.

Mathews, A., Ridgeway, V., & Williamson, D. A. (1996). Evidence for attention to

threatening stimuli in depression. *Behaviour Research and Therapy, 34*(9), 695-

705.

Matlow, R., Gard, D., & Berg, D. (2012). Difficulty Disengaging from Threat in Anxiety:

Preliminary Evidence for Delayed Response Execution. *Journal of Experimental

Psychopathology, 3*(3), 455-469.

Matos, M., Pinto-Gouveia, J., & Gilbert, P. (2013). The effect of shame and shame

memories on paranoid ideation and social anxiety. *Clinical Psychology &

Psychotherapy, 20*(4), 334-349. doi:10.1002/cpp.1766

Mogg, K., & Bradley, B. (2005). Attentional bias in generalized anxiety disorder versus

depressive disorder. *Cognitive Therapy and Research, 29*, 29-45.

Mogg, K., & Millar, N. (2000). Biases in eye movements to threatening facial

expressions in generalized anxiety disorder and depressive disorder. *Journal of

Abnormal Psychology, 109*, 695-704.

Mogg, K., Bradley, B. P., & Williams, R. (1995). Attentional bias in anxiety and

depression: The role of awareness. *British Journal of Clinical Psychology, 34*(1),

17-36. doi:10.1111/j.2044-8260.1995.tb01434.x

Mogg, K., Philippot, P., & Bradley, B. P. (2004). Selective attention to angry faces in

    clinical social phobia. *Journal of Abnormal Psychology, 113*(1), 160-165.

    doi:10.1037/0021-843X.113.1.160

Mogg, K., Holmes, A., Garner, M., & Bradley, B. P. (2008). Effects of threat cues on

    attentional shifting, disengagement and response slowing in anxious individuals.

    Behaviour Research and Therapy, 46, 656-667.

Morrison, A. S., & Heimberg, R. G. (2013). Social anxiety and social anxiety disorder.

    Annual Review of Clinical Psychology, 9, 249-274. doi:10.1146/annurev-clinpsy-

    050212-185631; 10.1146/annurev-clinpsy-050212-185631

Muris, P., & Meesters, C. (2013). Small or big in the eyes of the other: On the

    developmental psychopathology of self-conscious emotions as shame, guilt, and

    pride. *Clinical Child and Family Psychology Review,* doi:10.1007/s10567-013-

    0137-z

Oatley, K., & J. (1987). Towards a cognitive theory of emotions. *Cognition and Emotion,*

    1, 29-50.

Orth, U., Berking, M., & Burkhardt, S. (2006). Self-conscious emotions and depression:

    Rumination explains why shame but not guilt is maladaptive. *Personality and*

    Social Psychology Bulletin, 32(12), 1608-1619. doi:10.1177/0146167206292958

Parker, J., Bagby, R., Taylor, G., & Endler, N. (1993). Factorial validity of the 20-item

    Toronto Alexithymia Scale. *European Journal of Personality, 7*(4), 221-232.

Peckham, A. D., McHugh, R. K., & Otto, M. W. (2010). A meta-analysis of the magnitude

    of biased attention in depression. *Depression and Anxiety, 27*(12), 1135-1142.

    doi:10.1002/da.20755

Peschard, V., Philippot, P., Joassin, F., & Rossignol, M. (2013). The impact of the

stimulus features and task instructions on facial processing in social anxiety: An

ERP investigation. *Biological Psychology, 93*(1), 88-96.

doi:10.1016/j.biopsycho.2013.01.009; 10.1016/j.biopsycho.2013.01.009

Pishyar, R., Harris, L. M., & Menzies, R. G. (2004). Attentional bias for words and faces

in social anxiety. *Anxiety, Stress & Coping: An International Journal, 17*(1), 23-

36. doi:10.1080/10615800310001601458

Power, M. J. (2009). Cognitive psychopathology: The role of emotion. *Análise*

Psicológica, 27(2), 127-141.

Schofield, C. A., Inhoff, A. W., & Coles, M. E. (2013). Time-course of attention biases in

social phobia. *Journal of Anxiety Disorders, 27*(7), 661-669.

doi:10.1016/j.janxdis.2013.07.006; 10.1016/j.janxdis.2013.07.006

Shahar, B. (2013). Emotion-focused therapy for the treatment of social anxiety: An

overview of the model and a case description. *Clinical Psychology &*

Psychotherapy, doi:10.1002/cpp.1853; 10.1002/cpp.1853

Spielberger, C. D., Gorsuch, R.L., and Lushene. R.E. (1970). *Manual for the State-Trait*

Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Staugaard, S. R. (2010). Threatening faces and social anxiety: A literature review.

Clinical Psychology Review, 30(6), 669-690. doi:10.1016/j.cpr.2010.05.001;

10.1016/j.cpr.2010.05.001

Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised

Conflict Tactics Scales (CTS2): Development and preliminary psychometric data.

Journal Of Family Issues, 17(3), 283-316. doi:10.1177/019251396017003001

Tangney, J. P., Wagner, P. E., & Gramzow, R. (1989). *The Test of Self-Conscious*

Affect. Fairfax, VA: George Mason University.

Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt*. New York, NY US: Guilford Press.

Wald, I., Degnan, K. A., Gorodetsky, E., Charney, D. S., Fox, N. A., Fruchter, E., Bar-Haim, Y. (2013). Attention to threats and combat-related posttraumatic stress symptoms: Prospective associations and moderation by the serotonin transporter gene. *JAMA Psychiatry, 70*(4), 401-408. doi:10.1001/2013.jamapsychiatry.188; 10.1001/2013.jamapsychiatry.188

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal Of Personality And Social Psychology, 54*(6), 1063-1070. doi:10.1037/0022-3514.54.6.1063

Weeks, J.W., Heimberg, R.G., Rodebaugh, T.L. (2008). The Fear of Positive Evaluation Scale: Assessing a proposed cognitive component of social anxiety disorder. *Journal of Anxiety Disorders, 22*, 44-55.

APPENDICES

Appendix A: Demographics

Age _____

Race:_____

      1 – Asian or Pacific Islander

      2 – Black/African American

      3 – Native American

      4 – White

      5 –Other (please specify): _____

      99 – I do not wish to disclose this

Ethnicity: Are you Hispanic? _____

      1 – Yes

      2 – No

      99 – I do not wish to disclose this

Relationship status:_____

      1-Single, not dating

      2-In a committed relationship

      3-Married

      4-Divorced/Separated

Appendix B: ESS

ESS

Everybody at times can feel embarrassed, self-conscious, or ashamed. These questions are about such feelings if they have occurred at any time in the past year. There are no 'right' or 'wrong' answers. Please indicate the response which applies to you with a tick.

	not at all	a little	moderately	very much
1. Have you felt ashamed of any of your personal habits?	( )	( )	( )	( )
2. Have you worried about what other people think of any of your personal habits?	( )	( )	( )	( )
3. Have you tried to cover up or conceal any of your personal habits?	( )	( )	( )	( )
4. Have you felt ashamed of your manner with others?	( )	( )	( )	( )
5. Have you worried about what other people think of your manner with others?	( )	( )	( )	( )
6. Have you avoided people because of your manner?	( )	( )	( )	( )
7. Have you felt ashamed of the sort of person you are?	( )	( )	( )	( )

	not at all	a little	moderately	very much
8. Have you worried about what other people think of the sort of person you are?	( )	( )	( )	( )
9. Have you tried to conceal from others the sort of person you are?	( )	( )	( )	( )
10. Have you felt ashamed of your ability to do things?	( )	( )	( )	( )
11. Have you worried about what other people think of your ability to do things?	( )	( )	( )	( )
12. Have you avoided people because of your inability to do things?	( )	( )	( )	( )
13. Do you feel ashamed when you do something wrong?	( )	( )	( )	( )
14. Have you worried about what other people think of you when you do something wrong?	( )	( )	( )	( )
15. Have you tried to cover up or conceal things you felt ashamed of having done?	( )	( )	( )	( )
16. Have you felt ashamed when you said something stupid?	( )	( )	( )	( )

	not at all	a little	moderately	very much
17. Have you worried about what other people think of you when you said something stupid?	( )	( )	( )	( )
18. Have you avoided contact with anyone who knew you said something stupid?	( )	( )	( )	( )
19. Have you felt ashamed when you failed in a competitive situation?	( )	( )	( )	( )
20. Have you worried about what other people think of you when you failed in a competitive situation?	( )	( )	( )	( )
21. Have you avoided people who have seen you fail?	( )	( )	( )	( )
22. Have you felt ashamed of your body or any part of it?	( )	( )	( )	( )
23. Have you worried about what other people think of your appearance?	( )	( )	( )	( )
24. Have you avoided looking at yourself in the mirror?	( )	( )	( )	( )
25. Have you wanted to hide or conceal your body or any part of it?	( )	( )	( )	( )

TOSCA-3

Below are situations that people are likely to encounter in day-to-day life, followed by several common reactions to those situations.

As you read each scenario, try to imagine yourself in that situation. Then indicate how likely you would be to react in each of the ways described. We ask you to rate *all* responses because people may feel or react more than one way to the same situation, or they may react different ways at different times.

For example:

You wake up early one Saturday morning. It is cold and rainy outside.

a) You would telephone a friend to catch up on news. ①- 2 - - 3 - - 4 - - 5
not likely   very likely

b) You would take the extra time to read the paper. 1 - - 2 - - 3 - - 4 - ⑤
not likely   very likely

c) You would feel disappointed that it's raining. 1 - - 2 - ③- 4 - - 5
not likely   very likely

d) You would wonder why you woke up so early. 1 - - 2 - - 3 - ④- 5
not likely   very likely

In the above example, I've rated *all* of the answers by circling a number. I circled a "1" for answer (a) because I wouldn't want to wake up a friend very early on a Saturday morning—so it's not at all likely that I would do that. I circled a "5" for answer (b) because I almost always read the paper if I have time in the morning (very likely). I circled a "3" for answer (c) because for me it's about half and half. Sometimes I would be disappointed about the rain and sometimes I wouldn't—it would depend on what I had planned. And I circled a "4" for answer (d) because I would probably wonder why I had awakened so early.

Please do not skip any items—rate all responses.

1. *You make plans to meet a friend for lunch. At 5 o'clock, you realize you stood your friend up.*

   a) You would think: "I'm inconsiderate."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   b) You would think: "Well, my friend will understand."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   c) You'd think you should make it up to your friend as soon as possible.
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   d) You would think: "My boss distracted me just before lunch."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

2. *You break something at work and then hide it.*

   a) You would think: "This is making me anxious. I need to either fix it or get someone else to."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   b) You would think about quitting.
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   c) You would think: "A lot of things aren't made very well these days."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

   d) You would think: "It was only an accident."
   1 - - 2 - - 3 - - 4 - - 5
   not likely   very likely

3. *You are out with friends one evening, and you're feeling especially witty and attractive. Your best friend's spouse seems to particularly enjoy your company.*

a) You would think: "I should have been aware of what my best friend was feeling."

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

b) You would feel happy with your appearance and personality.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

c) You would feel pleased to have made such a good impression.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

d) You would think your best friend should pay attention to his/her spouse.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

e) You would probably avoid eye contact for a long time.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

4. *At work, you wait until the last minute to plan a project, and it turns out badly.*

a) You would feel incompetent.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

b) You would think: "There are never enough hours in the day."

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

c) You would feel: "I deserve to be reprimanded for mismanaging the project."

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

d) You would think: "What's done is done." pay attention to his/her spouse.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

5. *You make a mistake at work and find out a coworker is blamed for the error.*

    a) You would think the company did not like   1 - - 2 - - 3 - - 4 - - 5
        the coworker.   not likely   very likely

    b) You would think: "Life is not fair."   1 - - 2 - - 3 - - 4 - - 5
                                               not likely   very likely

    c) You would keep quiet and avoid the   1 - - 2 - - 3 - - 4 - - 5
        coworker.   not likely   very likely

    d) You would feel unhappy and eager to   1 - - 2 - - 3 - - 4 - - 5
        correct the situation.   not likely   very likely

6. *For several days you put off making a difficult phone call. At the last minute you make the call and are able to manipulate the conversation so that all goes well.*

    a) You would think: "I guess I'm more   1 - - 2 - - 3 - - 4 - - 5
        persuasive than I thought."   not likely   very likely

    b) You would regret that you put it off.   1 - - 2 - - 3 - - 4 - - 5
                                               not likely   very likely

    c) You would feel like a coward.   1 - - 2 - - 3 - - 4 - - 5
                                               not likely   very likely

    d) You would think: "I did a good job."   1 - - 2 - - 3 - - 4 - - 5
                                               not likely   very likely

    e) You would think you shouldn't have to   1 - - 2 - - 3 - - 4 - - 5
        make calls you feel pressured into.   not likely   very likely

7. *While playing around, you throw a ball and it hits your friend in the face.*

    a) You would feel inadequate that you can't
       even throw a ball.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    b) You would think maybe your friend needs
       more practice at catching.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    c) You would think: "It was just an accident."

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    d) You would apologize and make sure your
       friend feels better.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

8. *You have recently moved away from your family, and everyone has been very helpful. A few times you needed to borrow money, but you paid it back as soon as you could.*

    a) You would feel immature.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    b) You would think: "I sure ran into some
       bad luck."

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    c) You would return the favor as quickly
       as you could.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    d) You would think: "I am a trustworthy
       person."

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

    e) You would be proud that you repaid
       your debts.

        1 - - 2 - - 3 - - 4 - - 5
        not likely   very likely

9. *You are driving down the road, and you hit a small animal.*

    a) You would think the animal shouldn't   1 - - 2 - - 3 - - 4 - - 5
       have been on the road.   not likely   very likely

    b) You would think: "I'm terrible."   1 - - 2 - - 3 - - 4 - - 5
                                    not likely   very likely

    c) You would feel: "Well, it was an accident."   1 - - 2 - - 3 - - 4 - - 5
                                    not likely   very likely

    d) You'd feel bad you hadn't been more alert   1 - - 2 - - 3 - - 4 - - 5
       driving down the road.   not likely   very likely

10.   *You walk out of an exam thinking you did extremely well. Then you find out you did poorly.*

    a) You would think: "Well, it's just a test."   1 - - 2 - - 3 - - 4 - - 5
                                    not likely   very likely

    b) You would think: "The instructor doesn't   1 - - 2 - - 3 - - 4 - - 5
       like me."   not likely   very likely

    c) You would think: "I should have   1 - - 2 - - 3 - - 4 - - 5
       studied harder."   not likely   very likely

    d) You would feel stupid.   1 - - 2 - - 3 - - 4 - - 5
                                      not likely   very

likely

11. *You and a group of coworkers worked very hard on a project. Your boss singles you out for a bonus because the project was such a success.*

a) You would feel the boss is rather short-sighted.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

b) You would feel alone and apart from your colleagues.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

c) You would feel your hard work had paid off.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

d) You could feel competent and proud of yourself.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

e) You would feel you should not accept it.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

12. *While out with a group of friends, you make fun of a friend who's not there.*

a) You would think: "It was all in fun; it's harmless."

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

b) You would feel small … like a rat.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

c) You would think that perhaps that friend should have been there to defend him/herself.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

d) You would apologize and talk about that person's good points.

1 - - 2 - - 3 - - 4 - - 5
not likely   very likely

13. *You make a big mistake on an important project at work. People were depending on you, and your boss criticizes you.*

   a) You would think your boss should have   1 - - 2 - - 3 - - 4 - - 5
       been more clear about what was   not likely   very likely
        expected of you.

   b) You would feel like you wanted to hide   1 - - 2 - - 3 - - 4 - - 5
                                        not likely   very likely

   c) You would think: "I should have recognized   1 - - 2 - - 3 - - 4 - - 5
       the problem and done a better job."   not likely   very likely

   d) You would think: "Well, nobody's perfect."   1 - - 2 - - 3 - - 4 - - 5
                                        not likely   very likely

14. *You volunteer to help with the local Special Olympics for handicapped children. It turns out to be frustrating and time-consuming work. You think seriously about quitting, but then you see how happy the kids are.*

   a) You would feel selfish, and you'd think you   1 - - 2 - - 3 - - 4 - - 5
       are basically lazy.   not likely   very likely

   b) You would feel you were forced into doing   1 - - 2 - - 3 - - 4 - - 5
       something you did not want to do.   not likely   very likely

   c) You would think: "I should be more   1 - - 2 - - 3 - - 4 - - 5
       concerned about people who are less   not likely   very likely
        fortunate."

   d) You would feel great that you had helped   1 - - 2 - - 3 - - 4 - - 5
       others.   not likely   very likely

   e) You would feel very satisfied with yourself.   1 - - 2 - - 3 - - 4 - - 5
                                        not likely   very likely

15. *You are taking care of your friend's dog while your friend is on vacation, and th dog runs away.*

    a) You would think: "I am irresponsible   1 - - 2 - - 3 - - 4 - - 5
and incompetent."   not likely   very likely

    b) You would think your friend must not take   1 - - 2 - - 3 - - 4 - - 5
very good care of the dog or it wouldn't   not likely   very likely
have run away.

    c) You would vow to be more careful next time.   1 - - 2 - - 3 - - 4 - - 5
                                          not likely   very likely

    d) You would think your friend could just get   1 - - 2 - - 3 - - 4 - - 5
a new dog.   not likely   very likely

16. *You attend your coworker's housewarming party and you spill red wine on a new cream-colored carpet, but you think no one notices.*

    a) You think your coworker should have   1 - - 2 - - 3 - - 4 - - 5
expected some accidents at suck a   not likely   very likely
big party.

    b) You would stay late to help clean up the   1 - - 2 - - 3 - - 4 - - 5
stain after the party.   not likely   very likely

    c) You would wish you were anywhere   1 - - 2 - - 3 - - 4 - - 5
but at the party.   not likely   very likely

    d) You would wonder why your coworker   1 - - 2 - - 3 - - 4 - - 5
chose to serve red wine with the new   not likely   very likely
light carpet.

Appendix D: DASS-21

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement
applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time
on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1. I found it hard to wind down

0   1   2   3

2. I was aware of dryness of my mouth

0   1   2   3

3. I couldn't seem to experience any positive feeling at all

0   1   2   3

4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)

0   1   2   3

5. I found it difficult to work up the initiative to do things

0   1   2   3

6. I tended to over-react to situations

0   1   2   3

7. I experienced trembling (e.g., in the hands)

0   1   2   3

8. I felt that I was using a lot of nervous energy

0   1   2   3

9. I was worried about situations in which I might panic and make a fool of myself

0   1   2   3

10. I felt that I had nothing to look forward to

0   1   2   3

11. I found myself getting agitated

0   1   2   3

12. I found it difficult to relax

0   1   2   3

13. I felt down-hearted and blue

0   1   2   3

14. I was intolerant of anything that kept me from getting on with what I was doing

0   1   2   3

15. I felt I was close to panic

0   1   2   3

16. I was unable to become enthusiastic about anything

0   1   2   3

17. I felt I wasn't worth much as a person

0   1   2   3

18. I felt that I was rather touchy

0   1   2   3

19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)

0   1   2   3

20. I felt scared without any good reason

0   1   2   3

21. I felt that life was meaningless

0   1   2   3

Appendix E: STAI

Please provide the following information:

Name_____**Date**_____**S**____

Age_____ **Gender (Circle) M F** **T**____

Directions:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

VERY MUCH SO
MODERATELY SO
SOMEWHAT
NOT AT ALL

1.	I feel calm	1	2	3	4
2.	I feel secure	1	2	3	4
3.	I feel tense	1	2	3	4
4.	I feel strained	1	2	3	4
5.	I feel at ease	1	2	3	4
6.	I feel upset	1	2	3	4
7.	I am presently worrying over possible misfortunes	1	2	3	4
8.	I feel satisfied	1	2	3	4
9.	I feel frightened	1	2	3	4
10.	I feel comfortable	1	2	3	4
11.	I feel self-confident	1	2	3	4
12.	I feel nervous	1	2	3	4
13.	I feel jittery	1	2	3	4
14.	I feel indecisive	1	2	3	4
15.	I feel relaxed	1	2	3	4
16.	I feel content	1	2	3	4
17.	I feel worried	1	2	3	4
18.	I feel confused	1	2	3	4
19.	I feel steady	1	2	3	4
20.	I feel pleasant	1	2	3	4

SELF-EVALUATION QUESTIONNAIRE
STAI Form Y-2

Name_____**Date**_____

DIRECTIONS

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel.

ALMOST NEVER — SOMETIMES — OFTEN — ALMOST ALWAYS

21. I feel pleasant.………………………………………………………………………………	**1**	**2**	**3**	**4**
22. I feel nervous and restless.…………………………………………………………	**1**	**2**	**3**	**4**
23. I feel satisfied with myself.…………………………………………………………	**1**	**2**	**3**	**4**
24. I wish I could be as happy as others seem to be.…………………………	**1**	**2**	**3**	**4**
25. I feel like a failure.……………………………………………………………………	**1**	**2**	**3**	**4**
26. I feel rested.………………………………………………………………………………	**1**	**2**	**3**	**4**
27. I am "calm, cool, and collected".…………………………………………………	**1**	**2**	**3**	**4**
28. I feel that difficulties are piling up so that I cannot overcome them.………………	**1**	**2**	**3**	**4**
29. I worry too much over something that really doesn't matter.…………………	**1**	**2**	**3**	**4**
30. I am happy.………………………………………………………………………………	**1**	**2**	**3**	**4**
31. I have disturbing thoughts.…………………………………………………………	**1**	**2**	**3**	**4**
32. I lack self-confidence.…………………………………………………………………	**1**	**2**	**3**	**4**
33. I feel secure.……………………………………………………………………………	**1**	**2**	**3**	**4**
34. I make decisions easily.………………………………………………………………	**1**	**2**	**3**	**4**
35. I feel inadequate.………………………………………………………………………	**1**	**2**	**3**	**4**
36. I am content.……………………………………………………………………………	**1**	**2**	**3**	**4**
37. Some unimportant thought runs through my mind and bothers me.………………	**1**	**2**	**3**	**4**
38. I take disappointments so keenly that I can't put them out of my mind.……………	**1**	**2**	**3**	**4**
39. I am a steady person.…………………………………………………………………	**1**	**2**	**3**	**4**
40. I get in a state of tension or turmoil as I think over my recent concerns and interests…	**1**	**2**	**3**	**4**

Appendix F: SPIN

Social Phobia Inventory (SPIN)

Please read each statement and select a number **0, 1, 2, 3, or 4 whi**ch indicates how much the statement applied to you over the past week.

0 = Not at all   1 = A little bit   2 = Somewhat   3 = Very much   4 = Extremely

1. I am afraid of people in authority _____

2. I am bothered by blushing in front of people _____

3. Parties and social events scare me _____

4. I avoid talking to people I don't know _____

5. Being criticized scares me a lot _____

6. I avoid doing things or speaking to people for fear of embarrassment _____

7. Sweating in front of people causes me distress _____

8. I avoid going to parties _____

9. I avoid activities in which I am the center of attention _____

10. Talking to strangers scares me _____

11. I avoid giving speeches _____

12. I would do anything to avoid being criticized _____

13. Heart palpitations bother me when I am around people _____

14. I am afraid of doing things when people might be watching _____

15. Being embarrassed or looking stupid are my worst fears _____

16. I avoid speaking to anyone in authority _____

17. Trembling or shaking in front of others is distressing to me _____

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent you feel this way RIGHT NOW.

1	2	3	4	5
slightly	a little	moderately	quite a bit	extreme
or				
not at all				

_____	interested		_____	irritable
_____	distressed		_____	alert
_____	excited		_____	ashamed
_____	upset		_____	inspired
_____	strong		_____	nervous
_____	guilty		_____	determined
_____	scared		_____	attentive
_____	hostile		_____	jittery
_____	enthusiastic		_____	active
_____	proud		_____	afraid

KATHLEEN M. GROUT, M.S.

CURRICULUM VITAE

EDUCATION
UNIVERSITY OF WISCONSIN – MILWAUKEE, MILWAUKEE, WI
Doctoral Program in Clinical Psychology, APA accredited, Member of The Academy of Psychological Clinical Science (APCS)
Dissertation Proposal Passed, July 2014: *Evaluating Attentional Bias in Shame Using the Dot Probe Task*
Unanimous Pass on all Preliminary Examination items, March 2014
Master of Science, 2013 with Thesis: *Reliability and Validity of the Implicit Association Test Measuring Shame*
Minor: Neuroscience
Cumulative GPA 3.9/4.0

UNIVERSITY OF HOUSTON - CLEAR LAKE, Houston, Texas
Master's Degree in Clinical Psychology, 2011
Current GPA: 4.0/4.0

BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE,
College Station, TX
Master's of International Affairs, 2008
Specializations: Regional Studies, National Security
GPA: 3.7/4.0

TEXAS A&M UNIVERSITY, College Station, TX
Bachelor of Science, 2006
Major: Psychology; Minor: Dance
GPA: 3.5/4.0
Graduated Cum Laude

CLINICAL EXPERIENCE

08/14-Present
POSTDEPLOYMENT OUTPATIENT TEAM, CLEMENT J. ZABLOCKI VA MEDICAL CENTER, Milwaukee, WI
Community Placement/Advanced Therapy Student
Supervisors: David Baruch, Ph.D., and Cathy Coppolillo, Ph.D.

As part of the postdeployment team I conducted individual and group therapy with OEF/OIF veterans. My primary responsibilities included co-facilitating a symptom management group and a trauma processing group. I also met with male veterans for individual therapy for PTSD. For individual therapy, I implemented elements of Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT). I received intensive weekly supervision under Drs. Baruch and Coppolillo.

08/13-06/14   **WOMEN'S RESOURCE CENTER,** CLEMENT J. ZABLOCKI VA MEDICAL
                                 CENTER, Milwaukee, WI
                                 Community Placement/Advanced Therapy Student
                                 Supervisors: Katie Frost, Ph.D., Colleen Heinkel, Ph.D., and Cathy
                                 Coppolillo, Ph.D.

I conducted individual and group therapy with female veterans at the women's health specialty
clinic. One of my primary responsibilities was treating individual clients with depression, anxiety,
and military sexual trauma (MST)-related difficulties. Another primary responsibility I had was
recruiting women for a variety of groups at the clinic. I also conducted intake screenings of
women for multiple groups. Additionally, I co-facilitated MST coping, CPT for MST, and
Cognitive Behavioral Therapy for Depression (CBT-D) groups. Therapy protocols that I utilized
for individual and group treatment included: CPT for PTSD, CBT-D, PE, elements of Dialectical
Behavior Therapy (DBT), and Motivational Interviewing (MI). I received intensive weekly
supervision under Drs. Frost and Heinkel.

08/13-06/14   **PTSD OUTPATIENT TEAM,** CLEMENT J. ZABLOCKI VA MEDICAL
                                 CENTER, Milwaukee, WI
                                 Community Placement/Advanced Therapy Student
                                 Supervisors: Katie Frost, Ph.D., Cathy Coppolillo, Ph.D.

On the PTSD outpatient team I conducted individual and group therapy with male veterans. My
primary responsibilities included co-facilitating a trauma processing group and a suicide
prevention group with Vietnam-era veterans. As part of the trauma processing group, I met
individually with a number of veterans to assist veterans in identifying their target trauma.
Additionally, I met with male veterans for individual therapy for PTSD. Therapy protocols I
utilized for individual and groups included CPT, Acceptance and Commitment Therapy (ACT),
and PE. I received intensive weekly supervision under Drs. Frost and Coppolillo and attended
weekly PTSD team staff meetings.

04/12– Present   **UWM PSYCHOLOGY CLINIC,** Milwaukee, WI
                                 University of Wisconsin-Milwaukee
                                 Therapy Practicum Student
                                 Specialty Team: Behavioral Activation for Depression
                                 Supervisor: Jonathan Kanter, Ph.D. and Christopher Martell, Ph.D.

My main role on the depression specialty team was providing weekly individual therapy services
for adults from the community suffering from depression. Treatment included a variety of
approaches including Functional Analytic Psychotherapy, Behavioral Activation (BA), ACT, and
Cognitive Therapy. I received weekly individual and group supervision, including regularly
reviewing videotaped sessions.

                                 Generalist Team
                                 Supervisor: Robyn Ridley, Ph.D.

My main role on the generalist team was providing weekly individual therapy for adults from the
community and UWM students who suffered from a range of Axis I and II disorders. Treatments
included elements of many approaches including: DBT, CBT, PE, and MI. I received weekly
individual and group supervision, including regularly reviewing videotaped sessions.

08/11-05/12   **UWM PSYCHOLOGY CLINIC,** Milwaukee, WI
University of Wisconsin-Milwaukee
Assessment Practicum Student

I administered, scored, and interpreted projective measures of personality and objective measures of personality, achievement, memory, and intelligence. I administered the Wechsler Adult Intelligence Scale (WAIS-IV), the Wechsler Individual Achievement Test (WIAT-III), the Structured Clinical Interview for the DSM-IV-TR (SCID), and other instruments as needed. In addition, I prepared integrated assessment reports, recommended treatment options, and provided feedback to clients and their families.

05/10-07/11   **HARRIS COUNTY PSYCHIATRIC CENTER,** Houston, TX
Intern
Supervisor: Samoan Johnson, Ph.D.

My primary responsibility was administering, scoring, and interpreting objective personality, memory, intelligence, achievement, neuropsychology assessments, and malingering screenings at an acute psychiatric hospital. In addition, I frequently administered projective measures, such as the Rorschach. I prepared integrated assessment reports, recommended treatment options, and reported findings to a multidisclinary team of psychiatrists and social workers. In addition, I provided brief individual Cognitive Behavioral Therapy (CBT) therapy for adults who were suicidal, homicidal, or had other serious mental illness.

05/09 – 05/10   **PSYCHOLOGICAL SERVICES CLINIC,** Houston, TX
University of Houston - Clear Lake
Practicum Student
Supervisor: Raymond Pledger, Ph.D.

I provided individual therapy services for low-income adults at a community clinic. This practice focused on the acquisition of basic therapy skills. I received close individual supervision with the director of the clinic, Dr. Pledger, for two semesters. I also received weekly group supervision, which included weekly live observation of sessions.

SUPERVISION AND TEACHING EXPERIENCE

08/14-Present   **ADVANCED GRADUATE STUDENT SUPERVISOR**
SPECIALTY TEAM: BEHAVIORAL ACTIVATION FOR DEPRESSION, UWM
Supervisor: Christopher Martell, Ph.D.

In this role, I participate in weekly group co-supervision with Dr. Martell of third year Clinical Psychology Ph.D. students on the BA team for the treatment of depression. My supervisory role also includes individual supervision of my peers and viewing videotapes of sessions. I provide verbal feedback to my peers and complete the Quality of Behavior Activation Scale to assess for the quality of adherence to the BA model.

08/12-Present	**PEER SUPERVISOR** *FIRST YEAR PRACTICUM, UWM* Supervisors: Drs. Bonnie P. Klein-Tasman and Han Joo Lee

I am currently in my third year supervising first year Clinical Psychology Ph.D. students. I hold weekly classes, in which I engage students in role-playing activities and didactics. Topics include report-writing, interviewing (unstructured and structured) and assessment (WAIS, WIAT, WJ-Achievement and WJ-Cognitive) skills. In addition, one of my primary responsibilities is conducting live observation of the students. During these sessions, I proactively guide students, providing feedback both during and after the sessions. I was also responsible for editing drafts of reports. I received weekly group supervision.

08/11-05/12	**TEACHING ASSISTANT** *PERSONALITY PSYCHOLOGY, UWM* Supervisors: Shawn Cahill, Ph.D. and Flint Espil, M.S.

As the teaching assistant for this undergraduate class, I led five weekly discussion classes for two semesters. I facilitated meaningful discussions, elicited questions, prepared students for exams, proctored exams, attended lectures, and taught new class material.

PROFESSIONAL WORKSHOPS ATTENDED

11/2013	**ASSOCIATION FOR BEHAVIORAL AND COGNITIVE THERAPIES (ABCT),** Nashville, TN "Psychotherapy for the Interrupted Life: An Evidence-Based Treatment for Adult Survivors of Childhood Abuse" By: Drs. Tamar Gordon, Christie Jackson, Susan Trachtenberg Paula
11/2012	**ABCT,** National Harbor, MD "Core Skills and Competencies of the Contextual CBT Clinician" 2-Day Workshop with Dr. Steven Hayes
3/2012	**ASSOCIATION FOR CONTEXTUAL BEHAVIORAL SCIENCE (ACBS)**, *Chicago, IL* "One Day Experiential Workshop - Introduction to ACT Core Processes and Interventions" By: Dr. Patty Bach
11/2010	**ABCT**, San Francisco, CA "Using the Case Formulation Approach to Guide Treatment of Complicated PTSD in Clinical Practice"

RESEARCH EXPERIENCES

03/13– Present **EXAMINING NEGATIVE AFFECT IN PSYCHOPATHOLOGY**
Milwaukee, WI

IMPLICIT ASSESSMENT OF SHAME
Supervisor: Shawn P. Cahill, Ph.D.
- o Dissertation study: Determine attentional biases in shame using a dot probe task with a sample of college women. Data collection ongoing.
- o Masters thesis: Determine the internal and test-retest reliability as well as convergent and discriminant of a novel adaptation of the Implicit Association Task to measure shame.

SHAME IN PSYCHOPATHOLOGY
Supervisor: Shawn P. Cahill, Ph.D.
- o Examined the role of shame and guilt following non-suicidal self-injury (NSSI). Chronic cutting behaviors were associated with an increase in reported shame and guilt compared to low frequency cutters. Role: Co-I.
- o Examined the cycle of revictimization in women, with a focus on the role of shame. Our results indicated that a history of childhood sexual assault increases the chances of greater shame and psychopathology as an adult. Role: Co-I.

PREDICTORS OF ALEXITHYMIA
Supervisor: Chad Wetterneck, Ph.D
- o Investigated predictors of alexithymia. Emotion regulation difficulties and perceiving negative emotions as threatening were the greatest predictors of alexithymia. Role: Co-I.

03/13– Present **ADDITIONAL CAHILL LAB RESEARCH EXPERIENCES**
UWM**,** Milwaukee, WI

SEXUAL VICTIMIZATION
Supervisor: Shawn P. Cahill, Ph.D
- o Examining sexual orientation and victimization in college men. Preliminary data analysis shows that men who considered themselves homosexual or bisexual were more than twice as likely to report a history of sexual victimization compared to heterosexual men. Role: Co-I.

POLYPHARMACY PRACTICES IN AN INPATIENT SETTING
Supervisor: Shawn P. Cahill, Ph.D
- o Investigated patterns of polypharmacy among patients with comorbid eating disorder and obsessive compulsive disorder.

COMPLEX PTSD AND RELATED CONSTRUCTS
Supervisor: Shawn P. Cahill, Ph.D
- o Conducting a meta-analysis of the academic literature published since 1992 on complex trauma, complex PTSD, and DESNOS. Role: Co-I.
  - ▪ Stage 1: Objective was to describe the basic characteristics of the approximately 400 academic publications/products and evaluate as empirical. Stage 1 has been completed.

- **Stage 2:** Objective to evaluate the empirical articles using structured validated assessments of research methodology quality.

02/10 – 08/11   **RESEARCH INVOLVING VETERAN POPULATIONS**
Michael E. DeBakey VA Medical Center (MEDVAC), Houston, TX

DSM-5 APA FIELD TRIALS
Supervisors: Deleene Menefee, Ph.D. and Laura Marsh, MD
  o Received training in Washington D.C. at the American Psychological Association headquarters for the multi-site APA field trials investigating proposed diagnostic criteria for the DSM-5. Responsible for training clinicians in study procedures, administering assessments to veterans, assigning veterans to a diagnostic study group, scheduling interviews with study clinicians, updating clinicians on study progress, monitoring study budget, and maintaining regulatory binders. Role: Study Coordinator

SUICIDALITY
Supervisors: Herbert Hendin, MD and Rayan Al Jurdi, MD.
  o Contributed to a study assessing for suicide in veterans in inpatient care. Administered and scored Affective States Questionnaire, which inquires about experiences of eight different affective states. Recorded observations, including any discrepancies between what I found and what the veterans reported. Role: Research Assistant.

CLINICAL OUTCOMES
Supervisor: Deleene Menefee, Ph.D.
  o Contributed to studies evaluating clinical outcomes in inpatient units (Returning OEF/OIF Veterans Environment of Recovery and Women's Inpatient Specialty Environment of Recovery) for the treatment of veterans who experienced combat-related trauma or military sexual trauma. Responsible for maintaining regulatory and research compliance, updating IRB protocol, entering, cleaning, and coding data, ensuring informed consent processes and questionnaire completion, collecting measures for questionnaires, and assisting with poster construction and manuscript preparation. Role: Research Assistant.

05/02 – 08/02   **TRANSITION TO PARENTHOOD STUDY**
Texas A&M University, College Station
Supervisors: Drs. Carol Wilson and Jeffry Simpson
  o Contributed to a longitudinal study investigating couple's transition to parenthood following the birth of their first child. Responsible for recruiting participants, administering questionnaires to participants, entering data, providing childcare, and operating video equipment. Role: Research Assistant.

CONFERENCE POSTER PRESENTATIONS

Grout, K.M., Geier, T.J, Omelian, S.C, Cahill, S.P. (Accepted, 2015). *Evaluating Attentional Bias in Shame Using a Dot Probe Task.* Poster to be presented at the Association of Behavioral and Cognitive Therapies 49th Annual Convention in Chicago, IL.

Grout, K.M., Franklin, S., Cahill, S.P. (2014). *Examining the Role of Shame and Guilt in Nonsuicidal Self-Injury.* Poster presented at the Association of Behavioral and Cognitive Therapies 48th Annual Convention in Philadelphia, PA.

Franklin, S., **Grout,** K.M., Cahill, S.P. (2014) *Functions of Nonsuicidal Self-Injury: Examination of Automatic Positive Reinforcement.* Poster presented at the Association of Behavioral and Cognitive Therapies 48th Annual Convention in Philadelphia, PA.

Grout, K.M., Cahill, S.P. (2014). *Towards Understanding Repeated Victimization in Women.* Poster presented at the Interpersonal Violence Symposium in Milwaukee, WI.

Grout, K.M., Franklin, S., Cahill, S.P. (2014) *A Preliminary Examination of Shame and Guilt in a College Sample of Cutters.* Poster presented at the Wisconsin Psychological Association Convention in Madison, WI.

Franklin, S., **Grout,** K.M., Cahill, S.P. (2014) *Reinforcement and Punishment in Non-suicidal Self Injury.* Poster presented at the Wisconsin Psychological Association Convention in Madison, WI.

Grout, K.M., Cahill, S.P. (2013). *Developing the Implicit Association Test to Measure Shame in a Sample of College Women.* Poster presented at the Women's Special Interest Group at the Association of Behavioral and Cognitive Therapies 47th Annual Convention in Nashville, TN.

Grout, K.M., Cahill, S.P., Simpson, H. B., Wetterneck, C. Franklin, S., and Riemann, B. (2013) *Patterns and Challenges of Polypharmacy Among Patients with Comorbid Eating Disorder and Obsessive Compulsive Disorder*. Poster presented at the Association of Behavioral and Cognitive Therapies 47th Annual Convention in Nashville, TN

Geier, T.J., **Grout**, K.M., Anderson, R.E., & Cahill, S.P. (2012). C*linical characteristics of Posttraumatic stress disorder among black and white adults in the US population.* Poster Presented at the Association of Behavioral and Cognitive Therapies 46th Annual Convention in National Harbor, MD.

Patrick, C. J., **Grout**, K.M., Bayne, A.M., & Cahill, S.P. (2012) *Emotional reactivity and competitive behavior: Does an economic prisoner's dilemma game respond to changes in state anger?* Poster presented at the Wisconsin Psychological Association Convention in Madison, WI.

Menefee, D.S., Smitherman, W., Monteith, L., Wanner, J., Yip, S., Parker, M., Batiste, M., & **Grout, K.M.** (2011). *An Examination of the Characteristics of Women Veterans Seeking Post Deployment Mental Health Treatment: Comparisons of OEF/OIF, Gulf War I, and Post Vietnam Veterans with Complex Comorbid Presentations.* Presented at the Conference for Building the Evidence Base to Improve Health Care and Outcomes for Women Veterans. Washington, D.C.

Menefee, D.S., Smitherman, W., Monteith, L., Hiatt, E., & **Grout, K**.M. (July 2010). *Examining Change in PTSD and Perceived Coping among Women Veterans: Preliminary analyses of clinical outcomes following multimodal, evidence-based, inpatient treatment.* Poster Presented at the Conference for Building the Evidence Base to Improve Health Care and Outcomes for Women Veterans. Washington, D.C.

Anderson, G.C., Blandon, J., **Grout, K.M.,** Rinehart, K.L. (April 2010). *Demographic relation to social anxiety and drinking behaviors in college students.* Poster presented at the 16th Annual Student Conference for Research and Creative Arts at the University of Houston - Clear Lake, Houston, TX.

Andorn, A.C., Bennet, T.L., and **Grout, K.M.** (August 2002). *Investigating the effects of lipid peroxidation on brain tissue.* Poster presented at the University of Texas Medical Branch Internship Conference in Galveston, TX.

SCHOLARLY AND COMMUNITY PRESENTATIONS

11/21/14	**ASSOCIATION OF BEHAVIORAL AND COGNITIVE THERAPIES,** Philadelphia, PA. *Suicide and Self-Injury SIG Datablitz* "Shame and Guilt in Nonsuicidal Self-Injury: Shedding Light on the Reinforcement Contingencies"
11/21/14	**ASSOCIATION OF BEHAVIORAL AND COGNITIVE THERAPIES,** Philadelphia, PA. *Suicide and Self-Injury SIG Datablitz* "Why do People Self-Injure? Examination of Automatic Positive and Negative Reinforcement"
4/18/14	**UWM WOMEN'S RESOURCE CENTER,** Milwaukee, WI "Stalking and Cyberstalking"
4/4/14	**UWM ASSOCIATION FOR GRADUATE STUDENTS IN PSYCHOLOGY SYMPOSIUM,** Milwaukee, WI "Why Does this Keep Happening to me? Psychological factors and the cycle of Repeated Sexual Victimization"
10/21/13	**CLEMENT J. ZABLOCKI** VA **MEDICAL CENTER,** Milwaukee, WI "Understanding and Coping with Suicide"

PROFESSIONAL ORGANIZATIONS

01/14– Present	**WISCONSIN PSYCHOLOGICAL ASSOCIATION, STUDENT MEMBER**
08/11– Present	**AMERICAN PSYCHOLOGICAL ASSOCIATION, STUDENT MEMBER**
01/10 – 08/11	**PSI CHI NATIONAL HONOR SOCIETY IN PSYCHOLOGY**
10/09 – Present	**ASSOCIATION FOR BEHAVIORAL AND COGNITIVE THERAPIES, STUDENT MEMBER**

ACADEMIC HONORS AND AWARDS

08/10 – 08/11	**UNIVERSITY OF HOUSTON- CLEAR LAKE,** Houston, TX UHCL Alumni Scholarship Recipient ($750)
01/07 – 12/08	**BUSH SCHOOL OF GOVERNMENT**, College Station, TX George and Barbara Bush Presidential Fellowship Recipient ($2,000)
08/02 – 12/06	**TEXAS A&M UNIVERSITY**, College Station, TX President's Endowed Scholarship Recipient ($12,000)
08/02 – 12/06	**TEXAS A&M UNIVERSITY**, College Station, TX Dean's List
08/04 – 05/05	**TEXAS A&M UNIVERSITY**, College Station, TX San Jacinto Corvette Club Scholarship Recipient ($500)
08/03 – 12/03	**TEXAS A&M UNIVERSITY**, College Station, TX Bay Area Police Scholarship Recipient ($500)
1/02– 08/06	**CLEAR LAKE HIGH SCHOOL**, Houston, TX Coca-Cola Scholarship Recipient ($500)