Predicting Cognitive and Behavioural Responses to Social Situations: Exploring the Roles of Anxiety Sensitivity and Perfectionism

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Abstract

Despite their relevance to social anxiety (SA), few studies have examined the influence of perfectionism and anxiety sensitivity on SA-maintaining factors such as anticipatory and post-event processing (i.e., repetitive negative thinking before and after social situations), self-focused attention (i.e., detailed self-monitoring in response to anxiety), safety behaviours (i.e., strategies aimed at reducing anxiety), and observer perspective self-imagery (i.e., spontaneously occurring mental self-images from an observer perspective). This study explored the relative effects of multidimensional anxiety sensitivity (physical/cognitive/social concerns) and perfectionism (trait socially prescribed perfectionism/perfectionistic self-presentation/perfectionistic cognitions) on each of these SA-maintaining factors. Additionally, we explored whether differences emerged when SA-maintaining factors were measured at a trait (i.e., dispositional) or state (i.e., situational) level. In Part One, university students (N = 376) completed online measures of trait SA, perfectionism, and anxiety sensitivity, as well as perfectionistic self-presentation and cognitions, SA-maintaining factors, and depression. Fear of the social consequences of anxiety (anxiety sensitivity social concerns) and perfectionistic self-presentation uniquely predicted trait anticipatory and post-event processing, self-focused attention, and safety behaviours. Perfectionistic cognitions also predicted anticipatory processing, while post-event processing was additionally influenced by a tendency to fear cognitive symptoms of anxiety (cognitive concerns) and socially prescribed perfectionism. In Part Two, a subsample of participants (N = 158) attended an in-lab session where they engaged in two prototypical social situations (speech and interaction) and reported on state levels of each SA-maintaining factor in response to the stressor. Fear of the social consequences of anxiety (social concerns) and perfectionistic cognitions uniquely predicted most state responses. Additionally, fear of the cognitive symptoms

of anxiety (cognitive concerns) displayed a unique effect specifically on self-focused attention. Finally, 139 participants completed Part Three, which entailed re-rating their engagement in post-event processing approximately 2 days following the speech and interaction. Here only social concerns emerged as a unique predictor of post-event processing. Overall, our findings suggest that while anxiety sensitivity influences trait and state responses to social situations, the effects of perfectionism vary based on how SA-maintaining factors are measured. The pertinence of expression-based features of perfectionism are also highlighted.

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Predicting Cognitive and Behavioural Responses to Social Situations: Exploring the Roles of Anxiety Sensitivity and Perfectionism

According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), social anxiety (SA) disorder is defined as persistent "fear or anxiety about one or more social situations, in which [an] individual is exposed to possible scrutiny by others" (American Psychiatric Association, 2013, p. 202). For instance, an individual with SA may experience fears of social interaction (e.g., meeting a new person or engaging in a conversation with a stranger), performing in front of others (e.g., giving a speech or playing a musical instrument), or being observed engaging in everyday activities (e.g., walking, eating, or drinking; American Psychiatric Association, 2013). Regardless of the particular type of social situation, the anxious individual worries they will behave in a way that will be negatively evaluated and that will ultimately be embarrassing, lead to rejection, or offend others (American Psychiatric Association, 2013). Among those meeting diagnostic criteria for SA disorder, anxiety is considered to be excessive and persistent (i.e., lasting at least six months), and therefore leads to social situations being "avoided or endured with intense fear or anxiety" (American Psychiatric Association, 2013, pp. 202-203). As a result, the individual experiences "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (American Psychiatric Association, 2013, pp. 202-203). Additionally, while SA disorder is differentiated from other forms of psychopathology in the DSM, research has repeatedly demonstrated that it tends to be highly comorbid, particularly with depression and other types of anxiety disorders (e.g., Kessler, Chiu, Demler, & Walters, 2005; Ruscio, Brown, Chiu, Sareen, Stein, & Kessler, 2008).

Although SA disorder represents a severe form of SA, it may also exist at subclinical

levels. For instance, an individual may experience moderately distressing levels of anxiety during social situations, but to a degree they consider tolerable and not detrimental to their overall well-being. Although this individual might struggle at times when confronted with social situations, they would ultimately fail to meet diagnostic criteria for SA disorder. Accordingly, research increasingly supports the notion that subclinical and clinically significant SA exist along the same continuum (Ruscio, 2010). Many researchers have therefore started to adopt a dimensional conceptualization of SA.

Dimensional Conceptualizations of Social Anxiety

Although SA is currently conceptualized as a discrete condition warranting the presence of ten DSM-5 criteria for a diagnosis, many researchers have discussed the potential utility of adopting a dimensional conceptualization (e.g., McNeil, 2001; Rettew, 2000; Ruscio, 2010; Stein, Torgrud, & Walker, 2000). More specifically, researchers have proposed that rather than existing as a discrete disorder, SA falls along a continuum of severity, ranging from shyness and sub-threshold levels to more extreme SA and avoidant personality disorder (Hook, Valentiner, & Connelly, 2013; Rettew, 2000; Ruscio, 2010). Previous research supports this notion and has demonstrated that a dimensional diagnosis outperforms a categorical one in predicting the onset of various clinically significant outcomes such as mood disorders, suicidal ideation and attempts, and treatment seeking (Ruscio, 2010). Research has also shown that individuals who experience subclinical SA display more similarities to those meeting diagnostic criteria for SA disorder than to healthy controls on a number of variables including family history, income, academic performance, and healthcare utilization (Davidson, Hughes, George, & Blazer, 1994; Merikangas, Avenevoli, Acharyya, Zhang, & Angst, 2002). Furthermore, sub-threshold and diagnostically significant SA appear to be associated with similar clinical characteristics,

disease-specific disabilities, and reduced quality of life and work productivity (Wittchen, Fuetsch, Sonntag, Muller, & Liebowitz, 2000). Thus, for the purpose of the present study, SA will be conceptualized as a dimensional construct existing along a continuum of severity ranging from mild and sub-threshold, to severe and diagnostically significant levels.

Social Anxiety Disorder and Subtyping

When social phobia was initially included in the DSM-III, the diagnosis encapsulated those who experienced clinically significant anxiety in response to one particular social situation such as public speaking, using public restrooms, and eating or drinking in front of others (Blöte, Klint, Miers, & Westenberg, 2009). In the subsequent revision (i.e., DSM-IIIR), SA disorder was recognized to commonly extend across various types of social situations, and a generalized subtype of the disorder was identified (Blöte et al., 2009). This subtype included those who reported primary anxiety surrounding the possibility of humiliation, embarrassment, and being negatively evaluated by others in most social situations (Blöte et al., 2009). Alternatively, though not formally defined in the DSM-IIIR, researchers began identifying a non-generalized or circumscribed subtype to describe those who experienced primary anxiety regarding performance-type scenarios, or those who experienced anxiety regarding more than one, but not "most", social situations (Blöte et al., 2009).

By the time of the publication of the DSM-IV, both circumscribed and non-generalized subtypes of SA were omitted. Instead, SA disorder was recognized as clinically significant anxiety in response to one or more social situations in which the individual is exposed to unfamiliar others or possible public scrutiny (Blöte et al., 2009). If an individual experienced anxiety in response to most social situations, a "generalized" label was added (Blöte et al., 2009). Conversely, if one's anxiety was restricted to performance only situations (e.g., public speaking),

they were categorized as meeting or not meeting diagnostic criteria (Blöte et al., 2009). More recently, with the publication of the DSM-5, the "generalized" label for SA has been eliminated and a "performance only" specifier has been added. This label is intended to encapsulate those who experience severe anxiety specifically in response to performance situations such as public speaking or performing in front of others (American Psychiatric Association, 2013). Despite the many changes made to diagnostic criteria over the years, researchers continue to categorize SA in terms of subtypes (e.g., Blöte, 2009; Hook & Valentiner, 2002; Hughes et al., 2006), with distinctions frequently made between fears of social interaction (i.e., dyadic and group interactions) and performance/scrutiny (i.e., being observed or scrutinized by others; for a review see Hook et al., 2013). Accordingly, research supports the utility of making this distinction (for reviews see Hook & Valentiner, 2002; Hughes et al., 2006). Moreover, Hook et al. (2013) have noted that while generalized and non-generalized SA are often defined categorically using the DSM, these aspects of SA may also fall along a continuum of severity, in which those without SA fall at one end, followed (in order) by those with subclinical SA, non-generalized SA, generalized SA, and generalized SA with avoidant personality disorder.

State and Trait Anxiety

In addition to distinguishing between SA subtypes, researchers have often studied SA from both trait and state perspectives. More specifically, trait anxiety has been conceptualized as a dispositional tendency to experience anxiety across a variety of situations (for a review see Endler & Kocovski, 2001), whereas state anxiety has been described as a more variable emotional response to one's environment (Endler & Kocovski, 2001). Accordingly, researchers have distinguished between trait and state components of SA (e.g., Modini & Abbott, 2016; Rapee & Abbott, 2007; Rapee & Heimberg, 1997); with trait SA reflecting "an individual's

relatively stable tendency to perceive social situations as anxiety provoking", and state SA describing a "temporary response to a feared social event" (Modini & Abbott, 2016, p. 153). Although conceptually related, theory suggests that assessment of general traits will often disregard the influence of single responses and context (Zuckerman, 1976). Conversely, an emphasis on state anxiety may be limited by the fact that it tends to display substantial within-person variability across situations (Gerstorf, Siedlecki, Tucker-Drob, & Salthouse, 2009; Zuckerman, 1976). Thus, for the purposes of this study, both trait and state components of SA will be considered.

Cognitive Models of Social Anxiety

When SA was first included in the DSM, one of the most notable features was that unlike other phobias, a diagnosis did not require avoidance of the feared object or scenario. More specifically, while it was believed that those with other phobias continued experiencing distress because of their persistent avoidance, those with social phobia could either avoid social situations altogether or endure them with extreme distress (American Psychiatric Association, 1994). Furthermore, researchers noted that although a frontline treatment for anxiety and phobias was often exposure to the feared stimuli, SA frequently persisted even with repeated exposure to social situations (Clark, 2001; Clark & Wells, 1995). In an effort to explain this and the persistent nature of SA disorder, a number of researchers developed theoretical maintenance models. Two of the most widely supported have been Clark and Wells' (1995) Cognitive Model (since updated by Clark, 2001) and Rapee and Heimberg's (1997) Cognitive Behavioural Model (since updated by Heimberg, Brozovich, & Rapee, 2010).[1] While both models were developed to

[1] Although Clark and Wells used the term Cognitive Model, their model incorporated both cognitive and behavioural components.

explain the maintenance of diagnostically significant SA, numerous studies have tested their tenants among those with subclinical levels of SA as well (Clark, 2001; Heimberg et al., 2010). In fact, Rapee and Heimberg (1997) state explicitly that the processes outlined in their model exist along a continuum and can therefore be applied across the SA spectrum.

While both theoretical models contributed unique perspectives on the cognitive and behavioural factors believed to maintain SA, a number of similarities can be observed. Both models discuss the role of anticipatory and post-event processing, with the Cognitive Model (Clark, 2001; Clark & Wells, 1995) making a more deliberate distinction between these maintaining processes. Both models also acknowledge the role of negative self-focused attention, with the Cognitive Model placing greater emphasis on internally-directed attention (Clark, 2001; Clark & Wells, 1995) and the Cognitive Behavioural Model highlighting the importance of considering external focus as well (Heimberg et al., 2010; Rapee & Heimberg, 1997). Finally, both models address the anxiety-maintaining properties of in-situ safety behaviours and negative self-imagery among those who experience SA disorder (Clark, 2001; Clark & Wells, 1995; Heimberg et al., 2010; Rapee & Heimberg, 1997).

Anticipatory processing. According to the pertinent theoretical models, prior to entering a feared social situation those with SA engage in a biased form of cognitive processing commonly referred to as anticipatory processing. Theory suggests that while engaging in anticipatory processing, the anxious individual recalls and dwells on negative social cues (e.g., distorted self-images and memories of past social failures) and uses this information to form premature, and often negative, conclusions about how they will perform during the upcoming social event. This mode of processing is problematic as it leads to an increase in self-monitoring and a surge in anxiety prior to entering the feared social situation (Clark & Wells, 1995; Clark

2001; Rapee & Heimberg, 1997; Heimberg et al., 2010).

To date, research has provided empirical support for the presence of anticipatory processing prior to anxiety-provoking social situations. For instance, an early study of undergraduates revealed a significant positive correlation between engagement in anticipatory processing and levels of SA even once trait anxiety and depression were controlled for; thereby providing evidence of a distinct relationship between SA and this cognitive process (Vassilopoulos, 2004). Other research with undergraduates has also provided evidence of a relationship between anticipatory processing and physiological symptoms of anxiety prior to anxiety-provoking social situations. For instance, Cornwell et al. (2006) compared startle and autonomic reactivity among undergraduates during an anticipatory period prior to a speech, and during a control condition in which participants were instructed to count backwards. In addition to eliciting strong subjective feelings of anxiety, the anticipation condition elicited stronger startle and heart rate reactivity. Similarly, Mills et al. (2014) found that when highly socially anxious undergraduates were led to engage in anticipatory processing prior to a social interaction, they too displayed increases in their heart rate. Finally, research by Wong and Moulds (2011) demonstrated that among undergraduate students, a period of anticipatory processing versus distraction prior to a speech task resulted in a number of adverse effects; these included heightened self-reported anxiety among all participants and increased skin conductance, high conditional beliefs (e.g., ""If I make mistakes, others will reject me"), and high standard beliefs ("I have to get everyone's approval") specifically among those who were high in SA.

Previous research with non-clinical populations has also explored the content and consequences of anticipatory processing. More specifically, Vassilopoulos (2004) found that when asked to think of a recent social stressor, undergraduates high (versus low) in SA reported

experiencing anticipatory thoughts that were more intrusive, recurrent, and anxiety-provoking, and that interfered more with their ability to concentrate. Similarly, Hinrichsen and Clark (2003) found that when asked to describe their cognitive processing prior to a social interaction, undergraduates high in SA were significantly more likely to report recalling perceived social failures from their past, experiencing more bodily sensations (which they perceived negatively), thinking about how to escape or avoid the situation, and experiencing thoughts that were classified as catastrophic by objective raters. Interestingly, research has demonstrated that even when presented with vignettes depicting hypothetical anticipation of a social stressor, undergraduates high in SA are significantly more likely to report a number of mental processes consistent with anticipatory processing. These include engaging in mental preparation, thinking of ways to conceal anxiety or avoid the situation, experiencing fewer thoughts about how to improve performance, generating fewer positive autobiographical memories, and generating more negative self-evaluative thoughts (Vassilopoulos, 2008). Research has also demonstrated that undergraduates report more unhelpful and negative self-images when asked to engage in a brief period of anticipatory processing prior to giving a speech (Brown & Stopa, 2006). Thus, prior research with undergraduates supports theoretical depictions of anticipatory processing.

Although the vast majority of studies in this area have recruited non-clinical undergraduate samples, some researchers have also provided evidence for the pertinence of anticipatory processing among those with clinically significant SA. For instance, in an fMRI study, Lorberbaum et al. (2004) found that compared to healthy controls, those with SA disorder reported experiencing significantly more anxiety while at rest and while anticipating an upcoming speech. Additionally, findings revealed that those with SA displayed greater cortical activity in neural regions associated with emotional processing (i.e., amygdala/uncus/anterior

parahippocampus, insula, temporal pole, anterior pons, and ventral striatum), and less activity in regions implicated in cognitive processing (e.g., the dorsal anterior cingulate/prefrontal cortex). The researchers concluded that these findings may show those with SA disorder experienced so much anxiety during the anticipatory period that their reasoning ability was noticeably reduced. Interestingly, at least one other study has also provided evidence that pregabalin, a drug known to reduce symptoms of SA, influences activity in some of these brain regions during an anticipatory period (i.e., the anterior insula and anterior cingulate; Aupperle et al., 2011). Thus, prior research supports theoretical depictions of anticipatory processing by demonstrating that it occurs within the context of clinical and subclinical SA, leads to an increase in state anxiety during social situations, and is associated with a number of problematic mental processes that may help sustain SA over time (e.g., decreased reasoning ability and negative self-evaluative, high standard, and conditional beliefs).

Self-focused attention. Various cognitive behavioural maintenance models (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997; Clark, 2001; Heimberg et al., 2010) have also discussed the relevance of self-focused attentional processes in SA. In fact, Clark and Wells (1995) identified self-focused attention as one of the most notable changes to occur when a socially anxious individual enters a social situation. According to the Cognitive Model (Clark & Wells, 1995), self-focused attention is the process whereby an individual directs attention away from external stimuli and focuses on internally-relevant information such as physiological, behavioural, emotional, and/or physical cues of anxiety. Clark and Wells (1995) propose this is problematic as it tends to increase an individual's level of self-awareness while simultaneously decreasing their ability to process positive cues from their environment.

To date, researchers have provided ample support for the role of self-focused attention in

SA (for a review see Spurr & Stopa, 2002). Studies involving undergraduate samples have compared levels of self-focused attention among those high versus low in SA. These studies have demonstrated that during an anxiety-provoking speech, those high in speech anxiety report experiencing more negative thoughts and display a greater proportion of self-focused thoughts (Daly, Vangelisti, & Lawrence, 1989). Similarly, during social interactions, undergraduates high in SA report significantly higher levels of self-focused attention (Glick & Orsillo, 2011; Mellings & Alden, 2000), and recall less information about a confederate and more negative information about themselves (Mellings & Alden, 2000). Studies with undergraduates have also experimentally manipulated attention during social situations and revealed a number of undesirable consequences. For instance, studies have demonstrated that when led to self-focus during social tasks, men and women report subsequent increases in post-event processing (Gaydukevych & Kocovski, 2012), and at least men experience increased levels of cortisol (Denson, Creswell, & Granville-Smith, 2012). As such, prior research supports the notion that self-focused attention plays a role in subclinical SA.

Several studies have also provided evidence for self-focused attention among clinical populations. Early research on those seeking treatment for SA examined the relationship between SA and public self-consciousness; a construct closely associated with self-focused attention (Hope & Heimberg, 1988).[2] The researchers found that higher levels of public self-consciousness were associated with higher levels of anxiety (via self-report and observer-rating), as well as poorer observer-rated performance during an anxiety-provoking social task. Furthermore, those high versus low in public self-consciousness reported a greater number of negative thoughts

[2] Public self-consciousness has been defined as a trait tendency to "be aware of the outwardly observable aspects of the self", such as one's physical appearance and impression on others (Spurr & Stopa, 2002, p. 956).

during the social task (Hope & Heimberg, 1988).

Subsequent studies have also examined self-focused attention by manipulating attentional focus directly. For instance, Woody (1996) had participants with SA disorder engage in two public speaking tasks (one intended to increase self-focus, and another intended to elicit other-focused attention) while adopting the role of an active speaker or passive observer. Findings revealed that eliciting self-focused attention led to higher anticipatory anxiety and anxious appearance regardless of the role participants adopted during the social interaction. Furthermore, self-focused attention increased self-reported anxiety among those adopting a passive role. In a subsequent study, Woody and Rodriguez (2000) used the same public speaking manipulation to compare the effects of self-focused attention among those with SA disorder versus a healthy control group. The researchers found that compared to those in the other-focused condition, participants in the self-focused group experienced more anxiety in anticipation of the task, reported higher levels of anxiety during the task, and were rated more negatively by objective raters. Notably, the researchers found similar results for both groups, thereby suggesting self-focused attention had detrimental effects on participants regardless of their baseline levels of SA.

In addition to examining the consequences of self-focused attention, researchers have studied the therapeutic effects of altering socially anxious individuals' focus of attention. For instance, researchers have demonstrated that individuals display notable reductions in self-focused thoughts following psychotherapy for SA disorder (Hofmann, 2000; Hofmann, Moscovitch, Kim, & Taylor, 2004; Woody, Chambless, & Glass, 1997). Moreover, changes in self-focused thoughts are significantly correlated with changes in symptoms of SA disorder from pre- to post-treatment (Hofmann, 2000). Additional research has also revealed that when instructed to refrain from engaging in self-focused attention (and use of safety behaviours)

during anxiety-provoking tasks, those with SA disorder experience significant reductions in visible and unobservable signs of anxiety, and also show improvements in overall performance (Furukawa et al., 2009). Finally, by reducing engagement in self-focused attention, the therapeutic effects of exposure therapy may become even greater for those with SA disorder (Wells & Papageorgiou, 1998). Thus, while research has supported theory by showing that self-focused attention increases anxiety and hinders performance during social situations, it also indicates that targeting and reducing it may allow for more favourable psychotherapeutic outcomes.

Negative observer-perspective self-imagery. Various cognitive behavioural models have also discussed the role of negative observer-perspective self-imagery in SA (Clark & Wells, 1995; Clark, 2001; Heimberg et al., 2010; Rapee & Heimberg, 1997). In particular, Clark and Wells (1995) suggest that anxious individuals begin excessively self-monitoring upon entering a feared social situation, and use the obtained information (including somatic sensations, thoughts, and feelings) to form an impression of how others perceive them. According to Clark and Wells (1995), socially anxious individuals often experience this impression as a spontaneously occurring visual image that is highly idiosyncratic and often reflective of an early anxiety-provoking social memory. This image tends to be negatively distorted, reflecting how the individual *believes* they are perceived by others rather than how they are actually perceived (Clark & Wells, 1995; Clark, 2001). Additionally, it tends to occur from an observer rather than field perspective, in which the individual views one's self through the eyes of others rather than directly through their own eyes (Clark & Wells, 1995; Clark, 2001). Theory states this may serve to further increase the image's authenticity as an accurate portrayal of one's self (Spurr & Stopa, 2002).

To date, several studies have provided empirical support for the role of negative observer perspective self-imagery within the context of SA (for reviews see Ng & Abbott, 2014; Ng, Abbott, & Hunt, 2014). In regard to non-clinical populations, researchers have generally recruited university/college samples and attempted to elicit this type of negative self-imagery during anxiety-provoking social situations. For instance, a number of studies have demonstrated that when individuals are instructed to hold a negative versus positive/neutral self-image in mind, they experience a number of undesirable effects, including higher anxiety (Brozovich & Heimberg, 2013; Hirsch, Mathews, Clark, Williams, & Morrison, 2006; Hirsch, Maynen, & Clark, 2004; Makkar & Grisham, 2011; Stopa & Jenkins, 2007), more negative thoughts (Hirsch et al., 2006; Makkar & Grisham, 2011), more negative perceptions of one's performance (Hirsch et al., 2006; Hirsch et al., 2004; Stopa & Jenkins, 2007; Vassilopoulos, 2005), greater negative post-event processing (Makkar & Grisham, 2011), greater use of safety behaviours (Hirsch et al., 2004), more self-focused attention (Makkar & Grisham, 2011), greater autonomic arousal (Vassilopoulos, 2005), and greater ratings of the believability or accuracy of the image (Spurr & Stopa, 2003; Vassilopoulos, 2005). Similarly, research has shown that regardless of whether undergraduates are high or low in SA, adopting an observer versus field perspective results in the use of more safety behaviours, more frequent negative thoughts, poorer self-rated performance, marginally higher levels of anxiety, and marginally stronger ratings regarding the believability of the mental image (Spurr & Stopa, 2003).

A number of researchers have also provided evidence of negative self-imagery among those with clinically significant SA. Consistent with theory, early research suggested that among those with SA disorder, negative self-imagery was temporally stable, implicated various sensory modalities, and was often associated with memories of a previous negative event that occurred

near the onset of the individual's SA (Hackmann, Clark, & McManus, 2000). Similarly, during anxiety-provoking social situations those with SA disorder are significantly more likely than those without to experience spontaneously occurring negative self-imagery (Hackmann, Surawy, & Clark, 1998). Accordingly, attempts to elicit negative self-imagery have shown that when socially anxious participants are instructed to adopt a negative versus neutral self-image during a social interaction, they experience subjectively higher anxiety, and subjectively and objectively poorer ratings of performance, than when they adopt a neutral self-image (Hirsch, Clark, Matthews, & Williams, 2003).

In regard to imagery perspective, there is also evidence that those with SA disorder tend to adopt a more observer versus field perspective during social situations. For instance, research has found that socially anxious individuals report adopting a more observer perspective when anxiety-provoking events are social versus non-social in nature (Wells, Clark, & Ahmad, 1998). Prior research also suggests that compared to non-anxious counterparts, those with SA disorder report adopting a more observer perspective specifically when social situations elicit high, but not low or moderate, levels of anxiety (Coles, Turk, Heimberg, & Fresco, 2001). Conversely, prior research has provided evidence that individuals with SA disorder may shift back to a field perspective during situations that are non-social and non-anxiety provoking in nature (Wells & Papageorgiou, 1999). Fortunately, despite evidence that this type of self-imagery increases anxiety, hinders performance, and elicits various problematic processes during social situations (e.g., distorted thinking, self-focused attention, post-event processing, and safety behaviours), interventions aimed at re-scripting self-images have been successful in reducing image vividness and overall levels of anxiety among those with SA disorder (Nilsson, Lundh, & Viborg, 2012; Wild, Hackmann, & Clark, 2007; Wild, Hackmann, & Clark, 2008).

In-situ safety behaviours. Central to many cognitive behavioural models of SA is the notion that SA is maintained via in-situ safety behaviours (Clark, 2001; Clark & Wells, 1995; Heimberg et al., 2010; Hofmann, 2007; Moscovitch, 2009; Rapee & Heimberg, 1997). While not unique to SA, safety behaviours within the context of social situations have been defined as cognitive or behavioural strategies intended to reduce anxiety or fear of negative evaluation by others (Clark & McManus, 2002; Salkovskis, 1991; Salkovskis, 1996). For instance, when forced to enter a social situation, an individual with SA may employ safety behaviours aimed at avoiding the feared situation (e.g., avoiding eye contact or reducing frequency of speech), or managing one's impression on others (e.g., trying to disguise one's trembling or thinking very carefully about what to do or say next; Plasencia, Alden, & Taylor, 2011). Unfortunately, despite their intended purpose, safety behaviours often promote anxiety over time by preventing individuals from disconfirming their erroneous feared beliefs (e.g., that they will not survive a social interaction; Clark & Wells, 1995). In fact, theory suggests that safety behaviours may inadvertently result in an individual misattributing any positive social outcomes to their use of safety behaviours in the first place (Salkovskis, 1991). As such, those who experience SA are prevented from confronting, and ultimately overcoming, their feared social situations.

Research to date largely supports the role of safety behaviours in maintaining SA (for a review see Picirillo, Dryman, & Heimberg, 2016). Regarding clinical populations, studies have shown that compared to non-anxious controls, those with SA disorder engage in more self-reported (Stangier, Heidenreich, & Schermelleh-Engel, 2006; Stevens et al., 2010) and observer-rated safety behaviours during social situations (e.g., avoiding eye contact; Stevens et al., 2010). Studies comparing those with and without SA disorder have also demonstrated that safety behaviours have a number of detrimental effects on those who experience SA. For instance,

research has shown that compared to control participants, those with SA disorder perform more poorly during social situations, and that their greater use of safety behaviours may serve to explain this relationship (Stangier et al., 2006; Rowa et al., 2015). Additionally, researchers have demonstrated that although individuals with and without SA disorder report using safety behaviours, engagement in these behaviours is a stronger predictor of negative beliefs and anxiety among those with a diagnosis (Okajima, Kanai, Chen, & Sakano, 2009). Alternatively, a number of studies have shown that attempts to reduce safety behaviours are often associated with significant improvements during treatment for SA disorder (Furukawa et al., 2009; Kim, 2005; Taylor & Alden, 2010; Wells et al., 1995).

Although safety behaviours may be more problematic among those with diagnostically significant SA, researchers have also provided evidence for their relevance in subclinical SA. For instance, research has shown that compared to those low in SA, individual high in SA (but not diagnosed) report using a greater number of safety behaviours, use these behaviours more frequently, and employ these behaviours in a greater variety of social situations (McManus, Sacadura, & Clark, 2008). Research findings have also provided evidence of the negative effects of safety behaviours among those with subclinical SA. For example, McManus et al. (2008) had non-clinical participants who were high or low in SA engage in a social interaction under two conditions: while engaging in safety behaviours and self-focused attention and while refraining. The researchers found that when participants were in the safety behaviour and self-focused attention condition, both self-report and observer ratings indicated higher levels of anxiety and poorer ratings of performance. Moreover, objective raters judged these conversations more negatively, and the participants as less likable, than when participants did not use safety behaviours and self-focused attention. Similarly, research by Alden and Bieling (1998)

demonstrated that when female undergraduates employed safety behaviours during a social interaction, study confederates rated those high in SA as significantly less likeable and more inappropriate than their non-anxious counterparts. Thus, while the effects of safety behaviours may be more pronounced among those with SA disorder, research supports the notion that they increase anxiety and negatively impact interpersonal functioning for those with subclinical SA as well. Interestingly, studies have also demonstrated a relationship between safety behaviours and other SA-maintaining factors, including post-event processing (Piccirillo et al., 2016).

Post-event processing. According to cognitive behavioural models, immediately following exposure to a feared social situation, those with SA engage in a ruminative form of thinking commonly referred to as post-event processing (Brozovich et al., 2010; Clark & Wells, 1995; Clark, 2001; Rapee & Heimberg, 1997). Post-event processing has been conceptualized as a period in which the individual passively and repeatedly reflects on the negative details of the social situation, such as their actual or perceived social inadequacies, mistakes, and imperfections (Clark & Wells, 1995; Kocovski, Endler, Rector, & Flett, 2005). Hence, although leaving or avoiding the social situation eliminates the immediate social threat, the individual continues to relive their anxiety via a subsequent "post-mortem" (Clark & Wells, 1995; Clark, 2001).

Since its inclusion in Clark and Wells' (1995) Cognitive Model, researchers have generated support for a relationship between SA and post-event processing (for reviews see Brozovich & Heimberg, 2008; Wong, 2016). Research involving clinical samples has provided evidence that post-event processing is associated with significantly higher levels of trait SA among those with a diagnosis of SA disorder (Kiko et al., 2012). Similarly, findings have revealed significant positive correlations between post-event processing and state anxiety in

response to specific social situations (e.g., speech or social interaction; Kiko et al., 2012; McEvoy & Kingsep, 2006). Studies involving clinical samples have also compared those with and without SA disorder, with findings showing that individuals with SA engage in more post-event processing in response to public speaking (Abbott & Rapee, 2004; Kiko et al., 2012; Perini, Abbott & Rapee, 2006) and performance tasks (Kiko et al., 2012). Additionally, research has demonstrated that compared to non-anxious counterparts, those with SA disorder engage in more post-event processing in the week following an impromptu speech, and provide more negative appraisals of their performance, which remain negative over time (Abbott & Rapee, 2004). Conversely, those without SA disorder have been found to experience greater improvement (i.e., reduction) in these negative appraisals over time (Abbott & Rapee, 2004).

Previous research with clinical samples has also examined post-event processing among those seeking treatment for SA disorder. In one study, Kocovski and Rector (2008) examined post-event processing in regard to two anxiety-provoking social situations; attending the first session of group Cognitive Behavioural Therapy (CBT) for SA (time one) and completing an individualized exposure task during a subsequent group session (time two). The researchers found that higher levels of baseline SA predicted more post-event processing in the week following each social task, and that higher state anxiety during the exposure task predicted subsequent post-event processing. Additionally, post-hoc analyses demonstrated a positive correlation between level of post-event processing at time one and state anxiety during the exposure task (time two). More recently, Rowa, Antony, Swinson, and McCabe (2014) also had socially anxious treatment seekers engage in a period of post-event processing or distraction immediately following a speech task. Although the manipulation was not successful in eliciting post-event processing, they found that those in the distraction condition reported a quicker

reduction in anxiety following the task. The researchers concluded that although this type of distraction period may not prevent individuals from engaging in post-event processing, it could produce an anxiolytic effect. Interestingly, while research has demonstrated that higher levels of SA disorder are associated with greater post-event processing, attempts to reduce SA often result in reductions in post-event processing as well (Abbott & Rapee, 2004).

In addition to studies with clinical populations, researchers have provided evidence for the role of post-event processing in subclinical SA. More specifically, research has repeatedly demonstrated that post-event processing is associated with higher levels of trait SA among post-secondary students (Brozovich & Heimberg, 2011; Fehm, Schneider, & Hoyer, 2007; Gaydukevych & Kocovski, 2012; Kocovski & Rector, 2007; Makkar & Grisham, 2011; Pitura & Maranzan, 2018; Rachman, Grüter-Andrew, & Shafran, 2000; Wong, 2015). Higher levels of SA have also been shown to relate to greater engagement in post-event processing following in-lab social interactions (Brozovich & Heimberg, 2011; Dannahy & Stopa, 2007; Kashdan & Roberts, 2007; Mellings & Alden, 2000), in-lab public speaking tasks (Edwards, Rapee, & Franklin, 2003; Kocovski, MacKenzie, & Rector, 2011; Makkar & Grisham, 2011), and social vignettes depicting interactions and public speaking scenarios (Kocovski et al., 2005). In addition, research has demonstrated that undergraduates high in SA who tend to engage in more post-event processing evaluate their social performance more negatively one week following a social interaction (Brozovich & Heimberg, 2011). Thus, in addition to demonstrating a relationship between SA and post-event processing, research has provided some evidence that post-event processing may maintain SA by eliciting increases in anxiety following social stressors and negatively affecting self-appraisals regarding social situations.

Anxiety Sensitivity and Social Anxiety

Anxiety sensitivity has been defined as a dispositional tendency to fear anxiety-related sensations due to the belief they carry harmful physical, psychological, and/or social consequences (Reiss & McNally, 1985; Reiss, 1991; Reiss, Peterson, Gursky, & McNally, 1986). More specifically, while any individual might experience symptoms of anxiety as unpleasant, one high in anxiety sensitivity would find it more difficult to tolerate anxiety, would be more likely to catastrophize regarding the seriousness of their symptoms, and would accordingly be more likely to experience a subsequent increase in distress. In previous literature, anxiety sensitivity has been conceptualized as a unidimensional construct, as well as a multi-dimensional one comprised of physical, cognitive, and social concerns (Reiss & McNally, 1985; Reiss, 1991). An individual high in physical concerns may, for example, misattribute anxiety-related heart palpitations to the onset of a heart attack, thereby assuming their life is at risk. Alternatively, an individual high in cognitive concerns may misinterpret racing thoughts as evidence that they are losing mental control, while one high in social concerns may fear their nervous trembling will be noticed and criticized by others.

Although anxiety sensitivity was initially implicated in the onset of panic disorder (Reiss et al., 1986; for a review see Taylor, 1999), researchers have since extended the construct to apply to depression and various forms of anxiety, including SA (Olthuis, Watt, & Stewart, 2014; Naragon-Gainey, 2010). Early research by Orsillo, Lilienfeld, and Heimberg (1994) examined the relationship between SA and unidimensional anxiety sensitivity by having individuals diagnosed with SA disorder engage in two anxiety-related tasks: a Stroop task assessing selective attention to socially or physically-threatening stimuli, and a behaviour test in which participants engaged in an idiosyncratic anxiety-provoking stressor. The researchers found that anxiety

sensitivity interacted with trait anxiety to predict selective attention to words that were socially threatening in nature. Similarly, anxiety sensitivity and trait anxiety interacted to predict anxiety during anticipation of the social stressor (Orsillo et al., 1994). Subsequent research extended findings on the relationship between SA and anxiety sensitivity by examining how unidimensional anxiety sensitivity combined with event expectancy to influence levels of anxiety in response to an embarrassing social vignette (Moore, Chung, Peterson, Katzman, & Vermani, 2009). In one of four studies, Moore et al. (2009) recruited adults seeking treatment for at least one anxiety disorder. They found that higher levels of anxiety sensitivity were related to higher state anxiety in response to the social vignette; with those having moderate versus low levels of anxiety sensitivity reporting significantly more anxiety. The findings also provided evidence that for those with low to moderate levels of anxiety sensitivity, event expectancy and anxiety sensitivity independently predicted level of anxiety in response to the social vignette. Notably, when Moore et al. (2009) ran the same procedure with two undergraduate samples, they found additional support for these findings, thereby supporting the notion that anxiety sensitivity shows a similar effect among clinical and non-clinical populations.

A number of other studies involving undergraduate samples have also provided evidence that a relationship exists between unidimensional anxiety sensitivity and subclinical SA. For instance, Norton, Cox, Hewitt, and McLeod (1997) examined the relationship between SA and various personality factors, including anxiety sensitivity. They found that anxiety sensitivity was associated with significantly higher levels of social interaction and evaluation anxiety, and uniquely predicted SA beyond the effect of other personality factors. Interestingly, though not specifically noted by the researchers, the findings in this study also revealed that anxiety sensitivity was more strongly associated with fears of social performance versus interaction.

Finally, a number of studies with undergraduates have demonstrated that unidimensional anxiety sensitivity is associated with significantly higher levels of trait SA (Kocovski & Rector, 2007; Thibodeau, Gómez-Pérez, & Asmundson, 2012) and higher state anxiety in response to social interaction (Kocovski & Rector, 2007) and performance tasks (Kocovski & Rector, 2007; Thibodeau et al., 2012).

More recently, researchers have also explored the relationship between SA and the lower-order dimensions that comprise anxiety sensitivity. In regard to clinical samples, studies have repeatedly found support for a relationship between SA and social and/or cognitive concerns. For instance, in a cross-sectional and retrospective study, Naragon-Gainey, Rutter, and Brown (2014) found significant positive correlations between level of SA and the social and cognitive concerns dimensions among a diagnostically diverse clinical sample (i.e., anxiety, obsessive-compulsive, and mood disorders). Similarly, research by Drost et al. (2012) found that a combination of social and cognitive concerns uniquely predicted a current and prior diagnosis of SA disorder beyond the effects of other demographic, personality, and cognitive variables. Alternatively, research by Rector, Szacun-Shimizu, and Leybman (2007) found that while all individuals diagnosed with an anxiety disorder (i.e., SA, panic disorder with agoraphobia, or generalized anxiety) displayed elevated levels of anxiety sensitivity, those with a diagnosis of SA disorder scored significantly higher on the social concerns dimension. Thus, it appears that while social concerns may be uniquely related to a diagnosis of SA disorder, those who experience clinically significant SA also display elevations on cognitive concerns.

Conversely, research examining these relationships within the context of subclinical SA has produced more variable findings. For instance, a cross-sectional study of undergraduates demonstrated that all three dimensions of anxiety sensitivity were correlated with significantly

higher levels of social interaction, performance, and evaluation anxiety (Belcher & Peters, 2009) However, when facets of anxiety sensitivity were used to predict specific measures of SA, only cognitive and physical concerns uniquely predicted social interaction anxiety, only physical concerns uniquely predicted social performance anxiety, and only cognitive concerns uniquely predicted evaluation anxiety (Belcher & Peters, 2009). In another study of undergraduates, Grant, Beck, and Davila (2007) used a longitudinal design to examine the relationship between multidimensional anxiety sensitivity and SA over a one-year interval. The researchers found that although each dimension of anxiety sensitivity was significantly correlated with SA at baseline and one-year follow-up, anxiety sensitivity failed to uniquely predict subsequent levels of SA using structural equation modelling. Although the researchers concluded that their findings suggested anxiety sensitivity does not confer risk for SA, certain limitations must be recognized. In particular, the researchers used the Anxiety Sensitivity Index (Reiss et al., 1986), which was developed as a unidimensional measure and contains fewer items on some of the subscales (i.e., social and cognitive concerns). Relatedly, unidimensional measures of anxiety sensitivity have been criticized for having an unstable factor solution when used in a multidimensional way (Taylor et al., 2007). Lastly, Grant et al. (2007) only assessed level of trait SA, which tends to be highly stable over time (Gautreau, Sherry, Mushquash, & Stewart, 2015). Thus, results may have differed had the researchers considered state SA as well.

Anxiety sensitivity and social anxiety-maintaining factors. While a growing body of research has examined the relationship between anxiety sensitivity and SA, few studies have explored whether anxiety sensitivity relates to the anxiety-maintaining factors implicated in cognitive behavioural models of SA. More specifically, there has been a paucity of research examining the role that anxiety sensitivity might play in anticipatory and post-event processing,

self-focused attention, observer-perspective self-imagery, and safety behaviours. This is surprising given that theory states explicitly that those with SA are especially concerned with bodily and cognitive symptoms of anxiety that could be observed by others (Clark, 2001).

Anxiety sensitivity and anticipatory processing. We are aware of only two studies to date that have examined the relationship between anxiety sensitivity and anticipatory processing. In the first, Pitura (2015) asked undergraduates to report on a number of variables including anxiety sensitivity and general tendency to engage in anticipatory processing. Findings from this unpublished study showed that both uni- and multidimensional anxiety sensitivity were significantly and positively correlated with engagement in anticipatory processing. In regard to the specific dimensions of anxiety sensitivity, the findings revealed that anticipatory processing was most strongly associated with the social concerns subscale. Additionally, Pitura (2015) found that unidimensional anxiety sensitivity predicted anticipatory processing once other SA-maintaining factors were controlled for (i.e., anxious rumination, post-event processing, self-focused attention, and safety behaviours). In the second study, Vassilopoulos, Brouzos, and Moberly (2017) had university students recall a previous anxiety-provoking social situation and report on a number of variables including trait interaction anxiety, the type of social situation (later coded as social interaction, performance, or unspecified), anxiety sensitivity, perfectionistic self-presentation, and anticipatory processing in response to the event. Among other results, the researchers found that unidimensional anxiety sensitivity was significantly and positively correlated with anticipatory processing. Anxiety sensitivity also emerged as a unique positive predictor of anticipatory processing once other variables were controlled for. Notably, the researchers found evidence that anxiety sensitivity predicted anticipatory processing regardless of the specific type of social event reported by participants. Although these findings

provide preliminary evidence of a relationship between these variables, they are limited by the retrospective nature of the study and the fact that anxiety sensitivity was conceptualized as a unidimensional construct. As such, additional research is warranted.

Anxiety sensitivity and self-focused attention. Despite the fact that anxiety sensitivity involves a tendency to attend to and catastrophically react to bodily sensations, research examining its relationship with SA-related self-focused attention is limited. More specifically, the aforementioned study by Pitura (2015) is the only one we are aware of that has directly tested whether anxiety sensitivity relates to engagement in self-focused attention during social situations. In this study, Pitura (2015) found that both uni- and multidimensional anxiety sensitivity were associated with significantly greater tendency to self-focus during social situations; the social concerns dimension of anxiety sensitivity displayed the strongest effect. Moreover, regression-based findings showed that overall levels of anxiety sensitivity uniquely predicted self-focused attention once other SA-maintaining factors were controlled for (i.e., general anxious rumination, anticipatory and post-event processing, and safety behaviours). Previously published research has also provided evidence of a relationship between self-focused attention and constructs closely resembling aspects of anxiety sensitivity. More specifically, researchers have revealed a relationship between self-focused attention and factors conceptually similar to the social concerns dimension of anxiety sensitivity, including fear of blushing, trembling, and shaking in front of others (Bögels, Alberts, & de Jong, 1996; Bögels, Mulkens, & de Jong, 1997; Edelmann, 1990). In fact, some researchers have advocated for the recognition of a distinct subtype of SA disorder characterized by a tendency to experience excessive fear of blushing, trembling, or sweating (Bögels et al., 1997; Edelmann, 1990; Pelissolo, Moukheiber, Lobjoie, Valla, & Lambrey, 2012). Although such fears appear theoretically similar to the social

concerns dimension of anxiety sensitivity, additional research is warranted to explicitly test this relationship. Furthermore, given unpublished findings by Pitura (2015), future studies should seek to further explore the roles of elevated cognitive and physical concerns.

Anxiety sensitivity and observer-perspective self-imagery. Pertinent theoretical models (Clark & Wells, 1995; Clark, 2001; Heimberg et al., 2010; Rapee & Heimberg, 1997) propose that during anxiety-provoking social situations, those with SA use anxiety-related interoceptive cues to generate a negative image or impression of how they are coming across to others. Furthermore, theory states that individuals with SA show a tendency to equate feeling anxious with looking anxious, which results in clear cognitive distortions and catastrophic thinking regarding the visibility of one's anxiety (Clark, 2001). Despite the conceptual similarities this holds with anxiety sensitivity, no research has directly examined whether anxiety sensitivity plays a role in observer-perspective self-imagery. However, it seems plausible that a tendency to fear symptoms of anxiety (i.e., anxiety sensitivity) would increase hypervigilance towards anxious symptoms, which would subsequently make negative self-imagery more readily accessible. Future research might therefore seek to further elucidate this relationship.

Anxiety sensitivity and safety behaviours. According to theory, higher levels of anxiety sensitivity should increase an individual's motivation to avoid situations that might evoke feelings of anxiety (Reiss et al., 1987). However, if an individual were forced to enter a feared social situation, it is conceivable they would turn to safety behaviours as a means of reducing their anxious distress. Unfortunately, despite its potential relevance to SA-related safety behaviours, researchers have generally failed to consider the role of anxiety sensitivity. In particular, we are aware of only one (unpublished) study examining the relationship between anxiety sensitivity and use of safety behaviours during social situations (Pitura, 2015). Findings

revealed that both uni- and multidimensional anxiety sensitivity were significantly and positively correlated with general tendency to engage in safety behaviours, with anxiety sensitivity social concerns displaying the strongest effect. In addition, regression-based findings showed that once other SA-maintaining variables were controlled for (i.e., general anxious rumination, anticipatory and post-event processing, and self-focused attention), unidimensional anxiety sensitivity uniquely predicted tendency to engage in safety behaviours. Thus, future research might benefit from verifying these findings and exploring whether anxiety sensitivity also predicts safety behaviour in response to a more controlled social stressor.

Anxiety sensitivity and post-event processing. Similar to the literature on anticipatory processing, only two previous study have directly examined the relationship between anxiety sensitivity and post-event processing. In the first, Kocovski and Rector (2007) examined predictors of post-event processing by having undergraduates recall a recent anxiety-provoking social situation and report on a number of variables including trait SA, general anxious rumination, and post-event processing regarding the event. The researchers found that although unidimensional anxiety sensitivity was significantly and positively correlated with post-event processing, it did not uniquely predict this variable once trait SA and anxious rumination were controlled for. Certain limitations, however, could have influenced the findings from this study. In particular, participants were asked to recall and report on any social event occurring over the previous few months. This may have led to participants having difficulty accurately recalling their engagement in post-event processing and may have resulted in responses being influenced by variables other than exposure to a feared social situation. For instance, given that some participants reported on a prior party or date they had attended, it is plausible they consumed alcohol at the time. Kocovski and Rector (2007) noted that if this were the case, those

participants may have experienced difficulty even recalling the event well enough to engage in post-event processing in the first place. Alternatively, given the conceptual overlap between variables, it is possible that controlling for anxious rumination decreased the unique effect of post-event processing.

Interestingly, however, in a subsequent study of undergraduates, Pitura (2015) found evidence that anxiety sensitivity did, in fact, predict post-event processing. More specifically, once other SA-maintaining factors were controlled for (including general anxious rumination, anticipatory processing, self-focused attention, and safety behaviours), anxiety sensitivity predicted general tendency to engage in higher levels of post-event processing. Moreover, by examining the individual facets of anxiety sensitivity, Pitura (2015) demonstrated that post-event processing was most strongly correlated with the social concerns dimension. Hence, future research might benefit from further exploring these relationships under more controlled conditions, and by examining the predictive effects of multidimensional anxiety sensitivity.

Perfectionism and Social Anxiety

Perfectionism has been broadly defined as a dispositional tendency towards striving for perfection and/or evaluating one's self based on excessively high standards (Flett & Hewitt, 2006). In an attempt to define perfectionism, researchers have debated both the dimensional structure and inherent nature of the trait. While some researchers have described perfectionism as a multidimensional concept (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001; Stoeber & Otto, 2006), others have advocated for the value of a unidimensional conceptualization often referred to as clinical perfectionism (Shafran, Cooper, & Fairburn, 2003). Furthermore, some researchers have proposed that perfectionism is inherently maladaptive in nature (Shafran et al., 2003), whereas others have

identified both maladaptive and adaptive features (e.g., Frost et al., 1990; Hewitt & Flett, 1990; Slaney et al., 2001; Stoeber & Otto, 2006). Despite such discrepancies, research findings have often favoured multidimensional conceptualizations (e.g., Bieling, Israeli, & Antony, 2004; Blankstein & Dunkley, 2002; Cox, Enns, & Clara, 2002; Dunkley, Blankstein, & Berg, 2012; Frost et al., 1990; Slaney, Ashby, & Trippi, 1995), with at least two higher-order dimensions verified using factor analytic approaches (Dunkley, Blankstein, & Berg, 2012).

The first dimension, often referred to as personal standards (PS) perfectionism, has been described as a dispositional tendency to set and strive towards high personal standards and goals (Dunkley et al., 2012). In previous research, this dimension has most commonly been measured using the Self-Oriented Perfectionism subscale of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS), the High PS subscale of Frost's Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), or the High Standards subscale of Slaney, Mobley, Trippi, Ashby, and Johnson's (1996) Revised Almost Perfect Scale (APS-R). Alternatively, the second dimension, often referred to as evaluative concerns (EC) perfectionism, has been described as a tendency to engage in "constant and harsh self-scrutiny and self-evaluation, an inability to derive satisfaction from successful performance, and chronic concerns about others' criticism and disapproval" (Dunkley et al., 2012, p. 233). In prior research, this dimension has been most commonly measured using the Socially Prescribed Perfectionism subscale of the HMPS, the Concern Over Mistakes, Doubts About Actions, Parental Expectations, and Parental Criticism subscales of the FMPS, or the Discrepancy (between standards and actual performance) subscale of the APS-R.

Despite the use of diverse terminology, previous studies have repeatedly demonstrated that perfectionism acts as a transdiagnostic factor across various forms of psychopathology,

including (but not limited to) depression and anxiety disorders (Limburg, Watson, Hagger, & Egan, 2017). Moreover, various theoretical models have acknowledged the role of perfectionistic tendencies among those who experience SA. For instance, some models have proposed that socially anxious individuals possess high standards for social performance (e.g., Arkin, Lake, & Baumgardner, 1986; Clark, 2001; Clark & Wells, 1995; Leary & Kowalski, 1995; Schlenker & Leary, 1982), while others have suggested these individuals hold rigid social rules (Beck & Emery, 1985) or overly perfectionistic beliefs regarding social situations (e.g., Heimberg & Becker, 2002; Heimberg et al., 2010). While many theoretical depictions of SA have emphasized the role of high standards, previous research has most consistently found relationships with measures assessing perfectionistic EC. For instance, prior research on those seeking treatment for SA disorder found that at baseline, levels of social interaction and evaluation anxiety were significantly and positively correlated with perfectionistic concern over mistakes (Rosser, Issakidis, & Peters, 2003). Additionally, the researchers found significant positive correlations between social interaction anxiety and doubts about actions, even after controlling for levels of depression and neuroticism (Rosser et al., 2003). Previous cross-sectional studies have also consistently demonstrated that those with SA disorder score significantly higher than those without on aspects of EC perfectionism including concern over mistakes, doubts about actions, and parental expectations and criticism (Jain & Sudhir, 2010; Kumari, Sudhir, & Mariamma, 2012; Lundh & Öst, 1996; Rukmini, Sudhir, & Math, 2014). Alternatively, most studies have failed to find a significant difference in PS perfectionism between those with and without SA disorder (Jain & Sudhir, 2010; Lundt & Öst, 1996; Rukmini et al., 2014).

In addition to research with clinical samples, prior studies have demonstrated similar relationships between EC perfectionism and subclinical SA. For instance, in a cross-sectional

study of undergraduates, Nepon, Flett, Hewitt, and Molnar (2011) found significant positive correlations between trait socially prescribed perfectionism and social avoidance and distress in response to interaction and performance-type scenarios. Cross-sectional findings by Brown and Kocovski (2014) also revealed that socially prescribed perfectionism, concern over mistakes, and doubts about actions were all significantly positively correlated with fear and avoidance of social interactions and performance-type situations. Similarly, cross-sectional findings by Levinson et al. (2013) and Levinson et al. (2015) revealed significant positive correlations between SA and levels of EC perfectionism, which was measured using a composite of concern over mistakes, doubts about actions, parental expectations, and parental criticism. Interestingly, Levinson et al. (2015) also found evidence to suggest that an interaction of high EC and low PS perfectionism served as the strongest predictor of SA.

While a number of previous studies have demonstrated correlational links between SA and EC perfectionism, relatively few studies have tested this relationship in a prospective manner. Of those studies that have, at least three examined how perfectionism influenced changes in anxiety among those seeking treatment for SA disorder. For instance, Lundh and Öst (2001) examined changes in perfectionism from pre- to post-treatment among a group of individuals undergoing group, individual, or self-help CBT for SA disorder. The researchers found that with the exception of perfectionistic organization (measured via the FMPS), participants showed significant reductions on all aspects of trait perfectionism. Additionally, the researchers noted that at post-treatment, therapy responders reached levels of perfectionism comparable to those seen in a non-clinical sample (Lundh & Öst, 2001). In a subsequent treatment study, Rosser et al. (2003) examined levels of SA and trait perfectionism before and after participants completed group CBT for SA disorder. Using the FMPS, perfectionism was

measured across the domains of concern over mistakes, doubts about actions, and parental criticism. The researchers found that at pre-treatment, certain aspects of perfectionism (i.e., concern over mistakes and doubts about actions) were correlated with significantly higher levels of interaction and evaluation anxiety. Perfectionistic concern over mistakes also showed significant reductions from pre- to post-treatment. Moreover, although the researchers found that concern over mistakes at pre-treatment predicted post-treatment levels of SA, this relationship failed to reach significance once baseline levels of SA were controlled for.

Conversely, in another study evaluating group CBT for SA, Ashbaugh et al. (2007) found that from pre- to post-treatment, participants reported significant reductions in perfectionistic concern over mistakes, doubts about actions, and organization. Additionally, the researchers found that when changes in general anxiety and depression were controlled for, changes in concern over mistakes and doubts about actions uniquely predicted post-treatment levels of SA. Thus, although methodological discrepancies make it difficult to say with certainty which dimensions of perfectionism most strongly relate to treatment outcomes, prior research supports the notion that changes in trait perfectionism are associated with improvements in SA following treatment.

Finally, two studies have experimentally tested the relationship between perfectionism and subclinical SA. In the first, DiBartolo, Frost, Dixon, and Almodovar (2001) had female undergraduates who were high or low in perfectionistic concern over mistakes complete an impromptu speech prior to engaging in a brief cognitive restructuring or distraction condition. The researchers found that those high in perfectionism experienced significantly more problematic cognitive and affective responses to the task, but that cognitive restructuring was successful in reducing some cognitive responses, including cost and probability estimates

regarding their most feared predictions. Furthermore, changes in these estimates were associated with lower self-reported levels of anxiety. In a more recent study, Gautreau et al. (2015) examined the relationship between self-critical perfectionism (relatively similar to EC perfectionism) and SA among a group of undergraduates using a three-wave, 12-month, longitudinal study. Overall, the researchers found that trait SA at time one predicted trait perfectionism at time two, which subsequently predicted trait perfectionism at time three. Alternatively, trait perfectionism at time one, did not predict trait SA at times two or three; thereby suggesting that self-critical perfectionism arose as a consequence, rather than cause, of SA. However, as stated by the researchers, trait SA had strong stability over time, which would have made it difficult for perfectionism to show an effect beyond this variable. Additionally, the six-month measurement interval may not have captured shorter-term relationships between perfectionism and SA (Gautreau et al., 2015). Relatedly, the researchers did not consider the role of expression-based features of perfectionism, which may play a greater role in the short-term relationship between these variables.

Social anxiety and interpersonal expressions of perfectionism. Despite traditionally being studied from a trait perspective, researchers have more recently extended the concept of perfectionism to include expression-based features. In particular, Hewitt, Flett, and associates have proposed that regardless of the particular type of perfectionism one considers, perfectionistic individuals express the trait publicly through perfectionistic self-presentation tactics (Flett, Hewitt, Blankstein, & Gray, 1998; Hewitt et al., 2003). These might include attempts to conceal public displays or disclosures of imperfection, or to actively promote a perfectionistic façade (Hewitt et al., 2003). For example, one high in concealment tactics might avoid situations in which others are likely to observe them making a mistake (e.g., a piano

recital) or refrain from disclosing mistakes to others (e.g., not telling a boss about an error at work). In contrast, an individual high in perfectionistic self-promotion might openly boast about their successes to others.

A number of studies have provided evidence supporting a relationship between SA and perfectionistic self-presentation. Among clinical samples, researchers have demonstrated positive associations between level of social interaction anxiety and tendency to engage in nondisplay of imperfection, nondisclosure of imperfection, and perfectionistic self-promotion (Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008). Moreover, findings have shown interaction anxiety to display a stronger association with each perfectionistic self-presentation tactic than to trait levels of perfectionism (Hewitt et al., 2008). In contrast, using a sample of adults diagnosed with SA disorder, Jain and Sudhir (2010) demonstrated that compared to healthy controls, those with SA scored significantly higher on nondisplay of imperfection, but not on the other self-presentation tactics (i.e., nondisclosure and self-promotion; Jain & Sudhir, 2010).

Researchers have also previously demonstrated links between perfectionistic self-presentation and SA among non-clinical samples. Studies with adults have focused exclusively on undergraduate samples and have revealed significant correlations between SA and overall levels of perfectionistic self-presentation (Mackinnon, Battista, Sherry, & Stewart, 2014). Likewise, researchers have established associations between SA and each subtype of perfectionistic self-presentation outlined by Hewitt and colleagues (Hewitt et al., 2003). While most of these studies have found SA to be associated with a greater tendency to engage in perfectionistic concealment (Cowie, Nealis, Sherry, Hewitt, & Flett, 2008; Hewitt et al., 2003; Nepon, Flett, Hewitt, & Molnar, 2011; Newby et al., 2017), some researchers have reported significant and positive correlations with perfectionistic self-promotion as well (Hewitt et al.,

2003; Nepon et al., 2011; Newby et al., 2017).

Research with non-clinical samples has also previously explored which perfectionistic self-presentation tactics uniquely predict SA beyond the effects of trait perfectionism. These studies have repeatedly demonstrated that concealment tactics emerge as a unique predictor of SA (Hewitt et al., 2003; Nepon et al., 2011; Newby et al., 2017), although inconsistencies have been found depending on the particular type of SA one considers. For instance, Newby et al. (2017) found that although nondisplay and nondisclosure of imperfection predicted higher levels of social interaction anxiety, they failed to predict social evaluation anxiety once trait perfectionism and neuroticism was controlled for. Conversely, when explored as a predictor of SA, perfectionistic self-promotion has repeatedly failed to exert unique effects (Hewitt et al., 2003; Nepon et al., 2011; Newby et al., 2017), or has been found to predict lower levels of SA (Cowie et al., 2008). Thus, research to date suggests that while SA may be correlated with various forms of perfectionistic self-presentation, concealment tactics display the most consistent relationship with SA. Moreover, these effects may be stronger for fears of social interaction versus evaluation/scrutiny.

Social anxiety and private expressions of perfectionism. In addition to public expressions of perfectionism, Hewitt, Flett, and colleagues have suggested that individuals express the trait privately through domain-specific automatic thoughts commonly referred to as perfectionistic cognitions (e.g., Flett, Hewitt, Blankstein, & Gray, 1998; Flett, Hewitt, Whelan, & Martin, 2007). For instance, while experiencing perfectionistic cognitions an individual might have frequent and recurrent thoughts about their need to achieve a certain standard (e.g., “I need to do better”) or their inability to meet certain expectations (e.g., “No matter how much I do, it’s never enough”). Theory suggests that perfectionistic cognitions emerge when an individual

perceives a discrepancy between their level of goal attainment and high ideals, and that they make individuals susceptible to experiencing negative affect such as anxiety and depression (Flett, Hewitt, Whelan, & Martin, 2007; Flett et al., 1998). Theory also suggests that among those high in trait perfectionism, elevated perfectionistic cognitions and the desire to appear perfect may serve to increase levels of SA (Flett & Hewitt, 2014).

Interestingly, despite the potential applicability of perfectionistic cognitions to SA (Hewitt & Flett, 2014), research examining this relationship is sparse. In particular, we are aware of only two published studies that have assessed this relationship directly. In the first, MacKinnon et al. (2014) used a 21-day experience-sampling method to examine the dynamic relationships between trait perfectionism, perfectionistic self-presentation, perfectionistic cognitions, and SA among undergraduates. Significant positive correlations emerged between SA and perfectionistic cognitions at both the within and between-person levels. At the within-person level, perfectionistic cognitions also uniquely predicted level of SA while controlling for perfectionistic self-presentation and depressed mood. In the second study, which included a sample of Japanese musicians, Kobori, Yoshie, Kudo, and Ohtsuki (2011) examined the relationship between perfectionistic cognitions and performance anxiety. Notably, the researchers of this study used a multidimensional Japanese measure of perfectionistic cognitions. The findings revealed significant positive correlations between performance anxiety and dimensions of perfectionistic cognitions assessing pursuit of perfection and concern over mistakes. They also found that the concern over mistakes dimension uniquely predicted performance anxiety after controlling for other variables, including trait perfectionism.

Finally, we are aware of one additional unpublished study that examined the relationship between perfectionistic cognitions and SA. In this study, Flett, Swiderski, Hewitt, and Nepon (as

cited in Flett & Hewitt, 2014) administered a battery of self-report questionnaires to undergraduates and examined the relationship between SA and various perfectionism-related variables; these included trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions. The researchers found that SA was associated with each measure of perfectionism, and that perfectionistic cognitions and facets of self-presentation uniquely predicted SA after controlling for trait perfectionism. Although Hewitt and Flett (2014) did not report on the direction of these relationships, these findings provide further evidence of a relationship between SA and various aspects of perfectionism, including perfectionistic cognitions.

Perfectionism and SA-maintaining factors. While findings from numerous studies have supported the notion that perfectionism plays a role in SA, less is understood about how it relates to anxiety-maintaining factors implicated in cognitive behavioural models of SA. In fact, although perfectionistic tendencies are discussed in various theoretical models of SA (e.g., Arkin et al., 1986; Clark, 2001; Clark & Wells, 1995; Heimberg & Becker, 2002; Heimberg et al., 2010; Leary & Kowalski, 1995; Schlenker & Leary, 1982), few studies have examined how perfectionism relates to cognitive behavioural factors such as anticipatory and post-event processing, self-focused attention, observer-perspective self-imagery, and safety behaviours.

Perfectionism and anticipatory processing. Despite the fact that numerous studies have provided evidence of a relationship between perfectionism and worry (for reviews see Flett, Nepon, & Hewitt, 2016; Xie, Kong, Yang, & Chen, 2015), we are aware of only two published studies that have examined the relationship between perfectionism and anticipatory processing. In the first, Scott, Yap, Francis, and Schuster (2014) considered whether maladaptive perfectionism (measured via concern over mistakes, doubts about actions, and parental criticism) predicted anticipatory processing among a non-clinical sample of adults. The researchers elicited

anticipatory processing by having participants read two social vignettes: one in which they anticipated an upcoming social interaction and another in which they imagined having to perform a speech. Participants then reported on their level of anticipatory processing in response to each vignette. Overall, the researchers found significant positive correlations between maladaptive perfectionism and negative anticipatory processing prior to the imagined social event. Exploratory analyses also revealed that negative anticipatory processing mediated the relationship between maladaptive perfectionism and social avoidance and distress prior to the anticipated task. While such findings provide support for a relationship between trait perfectionism and anticipatory processing, the researchers noted that future studies might benefit from having participants actually engage in an anxiety-provoking social task (Scott et al., 2014). Moreover, the researchers did not consider expression-based aspects of perfectionism.

More recently, Vassilopoulos et al. (2017) examined the relationship between perfectionism and anticipatory processing by focusing more specifically on perfectionistic self-presentation. In this study, undergraduate students were asked to recall a recent anxiety-provoking social situation and report on a number of variables, including the type of social situation (which was later coded as an interaction, performance, or unspecified), social interaction anxiety, perfectionistic self-presentation, anxiety sensitivity, and anticipatory processing in response to the social situation. The researchers found that total levels of perfectionistic self-presentation were significantly and positively correlated with anticipatory processing, but did not emerge as a unique predictor once other variables were controlled for. Notably, however, perfectionistic self-presentation interacted with type of social situation to predict anticipatory processing, thereby suggesting that individuals high in perfectionistic self-presentation scored even higher on anticipatory processing specifically in regard to social

performance situations. Unfortunately, the researchers in this study did not consider trait perfectionism nor perfectionistic cognitions. As such, future research could be improved by considering how various aspects of perfectionism (e.g., trait levels, self-presentation, and cognitions) influence anticipatory processing prior to different types of social situations.

Perfectionism and self-focused attention. Despite the fact that some have conceptualized perfectionism as an inherently self-focused trait (e.g., Rice, Suh, & Davis, 2018), there appears to be a lack of research examining whether perfectionism influences self-focused attention within the context of SA. In fact, while no studies have specifically considered self-focused attention regarding social stressors, two previous studies have examined how perfectionism relates to public self-consciousness. In the first study, Lundh and Öst (1996) examined the relationship between trait perfectionism and public self-consciousness among those with a diagnosis of SA disorder and a group of healthy control participants. The researchers found that although those with SA scored significantly higher on measures of trait perfectionism and public self-consciousness, significant positive correlations emerged between perfectionism and public self-consciousness across both groups of participants. In a subsequent study of undergraduates, Hewitt et al. (2003) examined the relationship between perfectionistic self-presentation and public self-consciousness. The findings revealed that in addition to being significantly positively correlated with public self-consciousness, each facet of perfectionistic self-presentation emerged as a unique predictor of this variable once others were controlled for (i.e., gender, narcissism, and imposterism). In particular, nondisplay and self-promotion tactics emerged as unique positive predictors of pubic self-consciousness, whereas nondisclosure of imperfection emerged as a unique negative predictor. Overall, while both studies provided evidence of a relationship between perfectionism and tendency to focus on publicly observable aspects of the self, it is

worth noting that neither assessed self-focused attention within the context of social situations. Additionally, both studies failed to consider the effects of perfectionistic cognitions. Future research might therefore benefit from addressing these limitations.

Perfectionism, observer-perspective self-imagery, and safety behaviours. To date, there has been a complete lack of research examining how perfectionism relates to the use of safety behaviours and observer-perspective self-imagery in response to social situations. In fact, we are aware of only one published study examining these relationships, with the researchers focusing specifically on perfectionism-related imagery and safety behaviours. In this study, Lee, Roberts-Collins, Coughtrey, Phillips, and Shafran (2011) had undergraduates complete a number of self-report questionnaires, including measures of trait perfectionism and behavioural expressions of perfectionism across the following life domains: housework, work, social, hobbies, and appearance. Participants also completed a semi-structured interview designed to assess intrusive mental thoughts, images, and sensations related to a specific perfectionism-related memory. Among other results, the researchers found that safety behaviours were the most common behavioural expression of perfectionism, and that undergraduates high versus low in perfectionism reported significantly greater engagement in safety behaviours across life domains. Furthermore, individuals who scored high in trait perfectionism reported significantly more distress as a result of perfectionism-related mental imagery, found the imagery more difficult to dismiss, and reported a more negative impact of the imagery on their lives.

While findings by Lee et al. (2011) provided preliminary evidence of a relationship between perfectionism, mental imagery, and safety behaviours, once again the researchers did not explore these relationships within the context of SA. Nor did they consider expression-based features of perfectionism such as perfectionistic self-presentation and cognitions. Such

relationships might, however, be expected given recent theoretical depictions of the relevance of perfectionism in SA. More specifically, Flett and Hewitt (2014) have recently suggested that frequent perfectionistic cognitions should increase the saliency and vividness of negative self-imagery during anxiety-provoking social situations. Moreover, in addition to conceptualizing safety behaviours as fear-driven attempts at self-presentation (Clark, 2001), researchers have demonstrated that certain types of safety behaviours involve attempts at self-concealment (Kocovski et al., 2016; Plasencia et al., 2011). Thus, one would anticipate that a greater tendency to conceal imperfections around others would predict greater use of safety behaviours during anxiety-provoking social situations.

Perfectionism and post-event processing. Finally, while numerous studies have provided evidence that a relationship exists between trait perfectionism and more general forms of negative rumination (e.g., Blankstein & Lumley, 2008; Flett, Madorsky, Hewitt, & Heisel, 2002; Rudolph, Flett, & Hewitt, 2007; Flett et al., 2016; Rukmini et al., 2014; Xie et al., 2019), very few studies have examined how perfectionism relates to the ruminative thinking commonly observed within the context of SA; namely post-event processing. This is surprising, given that theory suggests perfectionism is associated with faster and more frequent onset of rumination, and contributes to more persistent and prolonged rumination once it begins (Flett, Hewitt, Nepon, & Besser, 2018). To date, we are aware of only two studies that have examined the relationship between perfectionism and post-event processing regarding social situations. In the first, Brown and Kocovski (2014) had undergraduates perform an impromptu speech task in order to explore whether trait perfectionism predicted post-event processing two days later. The researchers assessed perfectionism at baseline (trait perfectionism) and immediately following the speech task (state perfectionism) using a combination of the concern over mistakes/doubt

about actions and socially prescribed perfectionism. The researchers found significant positive correlations between post-event processing and both trait and state perfectionism. Moreover, they found that regardless of which measures were used, either trait or state perfectionism uniquely predicted post-event processing beyond the effects of trait SA, state anxiety, and symptoms of depression.

More recently, Cox and Chen (2015) also examined the relationship between perfectionism and post-event processing by having undergraduates engage in a 3-minute impromptu speech task. During this study, participants also reported on levels of trait perfectionism (doubts about actions and socially prescribed perfectionism) and SA at baseline, state anxiety and self-perception of performance during the task, and post-event rumination 24-hours following the speech. The researchers found evidence of significant positive correlations between post-event rumination and trait perfectionism. Moreover, using structural equation modelling they demonstrated that trait perfectionism predicted post-event rumination indirectly through trait SA, and through a sequence involving trait SA, state SA, and self-perception of performance. Thus, research has provided evidence that trait perfectionism predicts post-event processing in response to speech tasks among undergraduate samples. Researchers, however, have not yet examined these relationships within the context of a social interaction. Nor have they explored how post-event processing relates to public and private expressions of perfectionism.

Present Study

In summary, previous research has demonstrated that both anxiety sensitivity and perfectionism are related to SA. More specifically, studies have provided evidence of relationships between SA and both unidimensional (Kocovski & Rector, 2007; Norton et al.,

1997; Orsillo et al., 1994; Thibodeau et al., 2012) and multidimensional conceptualizations of anxiety sensitivity (Belcher & Peters, 2009; Drost et al., 2012; Grant et al., 2007; Naragon-Gainey et al., 2014; Rector et al., 2007). Similarly, researchers have demonstrated that SA is related to higher levels of trait perfectionism (Brown & Kocovski, 2014; Gautreau et al., 2015; Jain & Sudhir, 2010; Kumari et al., 2012; Levinson et al., 2013; Levinson et al., 2015; Lundt & Öst, 1996; Lundh & Öst, 2001; Nepon et al., 2011; Rosser et al., 2003; Rukmini et al., 2014), as well as higher levels of expression-based features of the trait such as perfectionistic self-presentation (Cowie et al., 2008; Hewitt et al., 2003; Hewitt et al., 2008; Jain & Sudhir, 2010; Mackinnon et al., 2014; Newby et al., 2017) and cognitions (Flett et al., 2014; Kobori et al., 2011; MacKinnon et al., 2014).

Notably, however, few studies have explored how anxiety sensitivity and perfectionism relate to anxiety-maintaining factors implicated in cognitive behavioural models of SA (i.e., anticipatory and post-event processing, self-focused attention, observer-perspective self-imagery, and safety behaviours). To date, studies have generated preliminary evidence that higher levels of anxiety sensitivity are associated with a greater tendency to experience SA-related anticipatory processing (Pitura, 2015; Vassilopoulos et al., 2017), self-focused attention (Pitura, 2015), safety behaviours (Pitura, 2015), and post-event processing (Kocovski & Rector; Pitura, 2015). Conversely, studies have yet to directly test whether anxiety sensitivity relates to observer-perspective self-imagery in response to social situations. Likewise, studies examining the role of perfectionism have provided evidence that various aspects of this trait are related to higher levels of anticipatory (Scott et al., 2014; Vassilopoulos et al., 2017) and post-event processing (Brown & Kocovski, 2014; Cox & Chen, 2015). However, researchers have yet to directly test how perfectionistic tendencies relate to other SA-maintaining factors.

Although research in this area is growing, previous studies have contained a number of limitations. Firstly, researchers have generally considered the role of either anxiety sensitivity *or* perfectionism but have failed to simultaneously examine the relative effects of each. This is surprising, given that prior research has provided evidence that both anxiety sensitivity and trait perfectionism contribute unique variance in predicting trait anxiety (Korajlija & Jokic-Begic, 2011). Secondly, there have been inconsistencies in how these relationships are examined. While a number of studies have assessed more general tendencies to engage in the aforementioned anxiety-maintaining factors (e.g., Hewitt et al., 2003; Lee et al., 2011; Lundh & Öst, 1996; Newby et al., 2017; Pitura, 2015), others have assessed these variables in response to specific types of social situations such as social vignettes (Scott et al., 2014), in-lab speeches (Brown & Kocovski, 2014; Cox & Chen, 2015), or retrospective social situations (Kocovski & Rector, 2007; Vassilopoulos et al., 2017). Moreover, despite evidence supporting the value of distinguishing between fears of social interaction and evaluation/scrutiny (Hook & Valentiner, 2002; Hughes et al., 2006), researchers have failed to explore how these relationships might vary across types of social situations. Interestingly, however, prior studies have provided some evidence that anxiety sensitivity is more strongly associated with fears of social performance (Norton et al., 1997) whereas perfectionism is more strongly associated with fears of social interaction (Hewitt et al., 2003; Rosser et al., 2003).

Thus, the overall purpose of this study was to examine the relative effects of multidimensional anxiety sensitivity and perfectionism on the following SA-maintaining factors: anticipatory and post-event processing, self-focused attention, safety behaviours, and observer-perspective self-imagery. Given that we sought to explore various aspects of perfectionism, we focused specifically on Hewitt and Flett's conceptualization of perfectionism, which considers

both trait and expression-based components. As such, we used trait socially prescribed perfectionism as our measure of EC perfectionism. In order to extend the prior literature, each SA-maintaining factor was assessed first at a trait-level (e.g., how often participants *typically* engage in anticipatory processing prior to social situations), and then as a state response to two prototypical anxiety-provoking social situations; a speech and social interaction. Through the use of both tasks, we sought to explore whether differences emerged depending on the particular type of social situation. Additionally, given the established relationships between depression and SA, anxiety sensitivity, and perfectionism, we sought to explore whether the aforementioned relationships emerged beyond the effects of depression.

Part One

Part one of this study served to first establish whether anxiety sensitivity and trait socially prescribed perfectionism predicted general (i.e., trait) tendency to engage in each SA-maintaining factor beyond the effects of SA and depression (given the aforementioned relationships between depression and SA). Next, it aimed to determine whether expression-based components of perfectionism (i.e., perfectionistic self-presentation and cognitions) contributed additional unique variance beyond the effects of trait perfectionism and anxiety sensitivity. In particular, the hypotheses for Part One were as follows:

Hypothesis 1: Anticipatory Processing

a) Based on prior research (Blankstein & Lumley, 2008; Flett et al., 2002; Rudolph et al., 2007; Rukmini et al., 2014; Scott et al., 2014) and theoretical models of the relationship between perfectionism and SA (Hewitt & Flett, 2014), we hypothesized that socially prescribed perfectionism would uniquely and positively predict anticipatory processing. Given previous research (Pitura, 2015; Vassilopoulos et al., 2017), we also expected anxiety sensitivity to

have a unique and positive effect.

b) In light of prior research (Vassilopoulos et al., 2017), we hypothesized perfectionistic self-presentation would uniquely and positively predict anticipatory processing once anxiety sensitivity and trait perfectionism were controlled for.

c) Based on the ruminative nature of perfectionistic cognitions (Hewitt & Flett, 2014), we hypothesized perfectionistic cognitions would also uniquely and positively predict tendency to engage in anticipatory processing.

Hypothesis 2: Self-Focused Attention

a) Given prior evidence of a relationship between perfectionism and public self-consciousness (Hewitt et al., 2003; Lundh & Öst, 1996), we hypothesized socially prescribed perfectionism would uniquely and positively predict general tendency to engage in self-focused attention. Based on prior research (Bögels et al., 1996; Bögels et al., 1997; Edelmann, 1990; Pitura, 2015; Pelissolo et al., 2012), we also hypothesized that anxiety sensitivity would uniquely and positively predict self-focused attention.

b) Based on theory and research (Hewitt et al., 2003; Hewitt & Flett, 2014), we hypothesized that elements of perfectionistic self-presentation would positively predict tendency to engage in self-focused attention. Exploratory analyses would determine whether perfectionistic cognitions also contributed unique variance.

Hypothesis 3: Safety Behaviours

a) Based on preliminary research (Lee et al., 2014; Pitura, 2015), we hypothesized that both socially prescribed perfectionism and anxiety sensitivity would emerge as unique and positive predictors of SA-specific safety behaviours.

b) Given that safety behaviours may in fact reflect attempts at self-presentation during social

situations (Clark, 2001; Kocovski et al., 2016; Plasencia et al., 2011), we hypothesized that a higher tendency to engage in perfectionistic self-presentation would also predict greater use of safety behaviours. Exploratory analyses would determine whether perfectionistic cognitions also predicted safety behaviours.

Hypothesis Four: Post-Event Processing

a) In light of prior research (Brown & Kocovski, 2014; Makkar & Grisham, 2011), we hypothesized socially prescribed perfectionism would uniquely and positively predict tendency to experience post-event processing. Based on findings by Vassilopoulos et al. (2017), we also anticipated anxiety sensitivity (particularly social concerns) would emerge as a unique positive predictor of post-event processing.

b) Given its conceptual similarities with anticipatory processing, we expected that post-event processing would be predicted by higher perfectionistic self-presentation as well.

c) Finally, given their ruminative nature (Hewitt & Flett, 2014; Hewitt et al., 2003), we hypothesized that perfectionistic cognitions would uniquely and positively predict tendency to engage in post-event processing.

Hypothesis 5: Observer-Perspective Self-Imagery

a) As noted previously, we are aware of no research examining the relationship between SA-related self-imagery and anxiety sensitivity or perfectionism. However, given its conceptual similarity with self-focused attention (Clark & Wells, 1995; Clark, 2001), we hypothesized that self-focused imagery would also be uniquely and positively predicted by socially prescribed perfectionism and anxiety sensitivity. Moreover, we expected that perfectionistic self-presentation would predict this variable. Exploratory analyses would explore whether perfectionistic cognitions also emerged as a unique predictor.

Method - Part One

Participants

A convenience sample of male and female students from Lakehead University were recruited for participation in a three-part study titled "Anxiety Sensitivity, Perfectionism, and Responses to Social Situations". Prior to data collection, we conducted a series of a priori power analyses using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009). Based on the R-squared values obtained in similar studies (i.e., Brown & Kocovski, 2011; Kocovski & Rector, 2008), which coincided with small-to-moderate effect sizes, we determined that a sample size of at least approximately 110 participants would be required to conduct our primary analyses with a power of .80. In order to ensure we had enough participants following any necessary data cleaning, we ultimately aimed have a minimum of 140 participants for each analysis. As such, we continued recruiting participants for Part One until we had exceeded this number for the final part of our study (Part Three). Aside from being a Lakehead University student, there were no eligibility restrictions. Participation in the study was voluntary and individuals were compensated with course credit and/or entries into cash draws (see Appendix A).

A total sample of 411 participants began Part One. Of these participants, 2 declined consent, 3 provided consent but discontinued immediately afterwards, 7 provided duplicate data (i.e., filled out questionnaires twice), and 16 discontinued immediately following the demographic questionnaire. Two additional individuals were removed due to significant missing data, which involved missing all but one measure following demographics. As such, the final sample was comprised of 376 participants who were primarily female (n = 318; 84.6%) and ranged in age from 17 to 52 years (M = 20.88, SD = 4.98). The majority of participants self-identified as Caucasian (81.1%), single (50.5%), in their first year of university (54.5%), and

approximately half (43.9%) were completing a major or minor in psychology. See Table 1 for a complete report of demographic information.

Measures

The primary measures for Part One included self-report questionnaires assessing perfectionism, anxiety sensitivity, trait SA, and general tendency to experience the following in response to social situations: anticipatory processing, self-focused attention, observer-perspective self-imagery, safety behaviours, and post-event processing. Secondary measures included questionnaires on demographics and depressive symptoms.

Hewitt and Flett's Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991). Hewitt and Flett's MPS was used as our measure of trait perfectionism (see Appendix B). It was selected over the FMPS given that it was developed within the same theoretical framework as the measures we used to assess perfectionistic self-presentation and cognitions. The HMPS is a 45-item self-report questionnaire that asks respondents to rate how characteristic of them each statement is on a scale of 1 ("Strongly Disagree") to 7 ("Strongly Agree"). Respondents receive scores on three subscales: Self-Oriented Perfectionism (self-imposed high personal standards), Other-Oriented Perfectionism (self-imposed high standards for others), and Socially Prescribed Perfectionism (high personal standards one believes are imposed by others; Flett, Greene, & Hewitt, 2004). Total scores for each subscale range from 15 to 107, with higher scores reflecting higher levels of each type of trait perfectionism. Prior research has demonstrated that the HMPS has acceptable-to-good internal consistency, good convergent and discriminant validity, and high three-month test-retest reliability across clinical and undergraduate samples (Hewitt & Flett, 1990). Similarly, in the current study, internal consistency was acceptable-to-excellent (see Table 2).

Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al. 2003). The PSPS was used to assess general tendency to engage in perfectionistic self-presentation (see Appendix C). The PSPS is a 27-item self-report questionnaire that assesses a respondent's interpersonal expression of perfectionism across three subscales: Perfectionistic Self-Promotion ("focusing on proclaiming and displaying one's perfection"), Nondisplay of Imperfection ("concentrating on concealing and avoiding behavioral demonstrations of one's imperfection"), and Nondisclosure of Imperfection ("centering on evading and avoiding verbal admissions of one's imperfections"; Flett & Hewitt, 2014, p. 169). Sample items include: "I try always to present a picture of perfection" (Perfectionistic Self-Promotion), "Errors are much worse if they are made in public rather than in private" (Nondisplay of Imperfection), and "Admitting failure to others is the worst possible thing" (Nondisclosure of Imperfection). Respondents completing the PSPS are instructed to rate their level of agreement with each statement, from 1 ("Strongly Disagree") to 7 ("Agree Strongly"). Total scores range from 10 to 70 on the Self-Promotion and Nondisplay subscales, and 7 to 49 on the Nondisclosure subscale. Higher scores reflect a greater tendency to engage in the specified self-presentation tactic. Prior research on the PSPS has demonstrated good psychometric properties with acceptable-to-good internal consistency, adequate convergent and discriminant validity, and high test-retest reliability after three-week and four-month intervals (Hewitt et al., 2003). In the present study, the PSPS displayed good-to-excellent internal consistency across subscales (see Table 2).

Perfectionistic Cognitions Inventory (PCI; Flett, Hewitt, Blankstein, & Gray, 1998). The PCI was used to assess tendency to experience perfectionism-related automatic thoughts (Appendix D). The PCI is a 25-item self-report measure that asks respondents to rate how frequently, from 0 ("Not at All") to 4 ("All of the Time"), they experienced each perfectionistic

thought over the preceding week. Respondents receive an overall score of 0 to 100, with higher scores reflecting a greater tendency to experience perfectionistic cognitions (Flett et al., 2007). Although the PCI assesses perfectionistic cognitions over the previous week, it has been shown to be relatively stable over time, with moderate-to-high test-retest reliability after three months among student and clinical samples (Flett et al., 1998). Prior research has also provided evidence of excellent internal consistency (Flett et al., 1998). Similarly, internal consistency was excellent in the current study (see Table 2).

Anxiety Sensitivity Index - 3 (ASI-3; Taylor et al., 2007). The ASI-3 was used to assess levels of anxiety sensitivity (see Appendix E). Respondents completing the measure were asked to rate the degree to which they experience various negative effects of anxiety on a scale from 0 ("Very Little") to 4 ("Very Much"). The ASI-3 serves as a multidimensional measure of anxiety sensitivity and is comprised of three subscales assessing physical, cognitive, and social concerns about anxiety symptoms. Sample items include: "When I feel pain in my chest, I worry that I'm going to have a heart attack" (Physical Concerns), "It scares me when I am unable to keep my mind on a task" (Cognitive Concerns), and "When I tremble in the presence of others, I fear what people might think of me" (Social Concerns). Prior research has provided evidence that the ASI-3 has good convergent validity and acceptable-to-excellent internal consistency across samples from different countries (Taylor et al., 2007). In the present study, the ASI-3 displayed good-to-excellent internal consistency (see Table 2).

Social Interaction Anxiety Scale - 6 (SIAS-6) and Social Phobia Scale – 6 (SPS-6; Peters, Sunderland, Andrews, Rapee, & Mattick, 2012). The SIAS-6 and SPS-6 were used to assess general tendency to experience anxiety in response to social interaction and evaluation-type scenarios (see Appendix F). These self-report measures serve as shortened versions of

Mattick and Clarke's (1998) original SIAS and SPS. Respondents completing these measures are asked to rate how characteristic of them each statement is, on a scale from 0 ("Not at all") to 4 ("Extremely"). Total scores range from 0 to 24 on each measure, with higher scores reflecting higher severity of SA symptoms. In the present study, scores were calculated separately for the SIAS-6 and SPS-6, and a SA composite was also formed by adding both measures together. Total scores ranged from 0 to 48 on each measure and 0 to 96 on the composite. Prior research on the SIAS-6 and SPS-6 has provided evidence of strong psychometric properties (Le Blanc et al., 2014; Peters et al., 2012). In the current study we also found evidence of good-to-excellent internal consistencies (see Table 2).

Anticipatory Social Behaviours Questionnaire (ASBQ; Hinrichsen & Clark, 2003). The ASBQ was used to assess general tendency to engage in anticipatory processing prior to social situations (see Appendix G). The ASBQ is self-report measures comprised of 12-items that were developed using items from the Social Behaviours Questionnaire (SBQ; Clark, Butler, Fennell, Hackmann, & McManus, 1995). Respondents completing the ASBQ are instructed to indicate how often, from 1 ("Never") to 4 ("Always"), they engage in various anticipatory behaviours, or experience various anticipatory thoughts, prior to social situations. Total scores range from 12 to 48, with higher scores reflecting a greater tendency to engage in anticipatory processing. Prior research on the ASBQ has provided evidence of good internal consistency and the ability to discriminate between undergraduates who are high versus low in SA (Hinrichsen & Clark, 2003; Mills, Grant, Lechner, & Judah, 2013; Pitura & Maranzan, 2017). In the current study, the ASBQ provided evidence of excellent internal consistency (see Table 2).

Trait Self-Focused Attention Questionnaire (TSFAQ; Gaydukevych & Kocovski, 2012). The TSFAQ was used to assess general tendency to engage in self-focused attention

during social situations (see Appendix H). The TSFAQ is a self-report questionnaire comprised of 16-items, which were generated from items of the Self-focused Attention Scale (SFAS; Bögels et al., 1996) and the Self-focused subscale of the Focus of Attention Questionnaire (FAQ; Woody, 1996). While completing the TSFAQ, respondents are instructed to rate how often, from 0 ("Not at all") to 4 ("Extremely"), they typically engage in various signs of self-focused attention. Total scores range from 0 to 64, with higher ones reflecting greater tendency to self-focus. Prior research on the TSFAQ has provided evidence of good-to-excellent internal consistency among general and socially-anxious undergraduate samples (Gaydukevych & Kocovski, 2012; Pitura & Maranzan, 2017). The TSFAQ also showed evidence of excellent internal consistency in the current study (see Table 2).

Observer versus Field Visual Analogue Scale (VAS). The VAS was used to assess general tendency to adopt an observer versus field perspective when experiencing self-imagery in response to social situations (see Appendix I). The VAS has been used previously in research as a self-report measure of one's perspective while experiencing a mental image related to a prior social situation (Hackmann et al., 1998; Pearson, Deeprose, Wallace-Hadrill, Heyes, & Holmes, 2013; Wells et al., 1998). In prior studies, individuals with SA disorder were found to adopt a more observer versus field perspective when evoking the image/impression in their mind (Hackmann et al., 1998; Wells et al., 1998). In the current study, participants were asked whether or not they ever experience a mental image, or form a mental impression of themselves, during anxiety-provoking social situations. Those who responded "yes" were instructed to evoke the image in their mind and rate whether it tends to be from a more field (-3) or observer (+3) perspective along a 7-point Likert-type scale (see Appendix E).

Social Phobia Safety Behaviour Scale (SPSBS; Pinto-Gouveia, Cunha, & do Céu

Salvador, 2003). The SPSBS was used to assess general tendency to employ safety behaviours in response to social situations (see Appendix J). Respondents completing the SPSBS are asked to rate how frequently, from 1 ("Never") to 4 ("Usually"), they employ various safety behaviours (e.g., "trying to look at ease" and "avoiding eye contact"). The measure is comprised of 17 items, with total scores ranging from 17 to 68, and higher scores reflecting more frequent use of safety behaviours. Prior research has provided evidence of good internal consistency among individuals with and without SA disorder, as well as good concurrent validity with other closely related measures among undergraduates (Pinto-Gouveia et al., 2003). In the current study, the SPSBS displayed excellent internal consistency (see Table 2).

Post-Event Processing Inventory - Trait Version (PEPI-T; Blackie & Kocovski, 2017). The PEPI-T was used to assess general tendency to engage in post-event processing following social situations (see Appendix K). The PEPI-T is a 12-item self-report measure that asks respondents to rate how much they agree with a number of statements pertaining to post-event processing on a scale of 1 ("Strongly Disagree") to 5 ("Strongly Agree"). It is comprised of one higher-order post-event processing factor and three lower-order subfactors; intensity of thoughts, frequency of thoughts, and thoughts reflecting self-judgment. In the present study, the total factor was used as the measure of post-event processing. This factor has a score ranging from 12 to 60, with higher scores reflecting a greater tendency to experience post-event processing following social situations. Prior research has provided evidence of strong psychometric properties among undergraduates, including good-to-excellent internal consistency and excellent test-retest reliability (Blackie & Kocovski, 2017). Internal consistency in the current study was excellent (see Table 2).

Demographic Questionnaire. A demographic questionnaire was used to assess age, sex,

educational level, occupation, marital status, prior mood and/or anxiety disorder diagnoses, and use of prescribed medication for mood and/or anxiety (see Appendix L).

Depression Subscale of the Depression Anxiety Stress Scale – 21 (DASS-21-Depression; Lovibond & Lovibond, 1995). Given that prior research has demonstrated a relationship between SA and depression (e.g., Kessler et al., 2005; Le Blanc et al., 2014; Ruscio et al., 2008), levels of depressive symptoms were assessed using the Depression subscale of the DASS-21 (see Appendix M). Respondents completing the DASS-21 are asked to rate how much each statement applied to them over the previous week on a scale of 0 ("Did not apply to me at all") to 3 ("Applied to me very much, or most of the time"). Scores range from 0 to 21 on each subscale, which are then multiplied by 2 to obtain the final score. Higher scores reflect more severe/frequent depressive symptoms. Prior research has demonstrated that the Depression subscale has excellent internal consistency in clinical and non-clinical samples (Antony, Bieling, Cox, Enns, & Swinson, 1998). Likewise, the DASS-21-Depression displayed excellent internal consistency in the current study (see Table 2).

Procedure

Participants were recruited through the introductory psychology research pool and posters displayed across campus (see Appendix A). Although their participation was voluntary, they were informed that this was designed as a three-part study and instructed not to participate unless they intended on completing each portion. Eligible students wishing to participate were provided with a link to SurveyMonkey.com where they completed all questionnaires for Part One. All participants began by reading the information letter, providing consent, and completing the demographic questionnaire. Then they completed all other questionnaires, which were administered in a randomized order. Only those who read the information letter and provided

informed consent (see Appendix N) were permitted to participate. Participants were encouraged to complete all measures independently to ensure confidentiality.

Upon completion of Part One, participants were invited to sign up for Part Two of the study. Those who explicitly chose not to continue were immediately provided with the final debriefing form (see Appendix O) and were no longer considered eligible for the subsequent parts. Participants were assigned 1.0 bonus credit towards an eligible undergraduate psychology course and received one ballot into a draw for a $50 cash prize. Those who were not eligible to obtain course credit, or did not wish to, received an additional ballot into the cash draw.

Results – Part One

Data Screening

Of those participants who completed Part One, 80.32% were missing at least one self-report item. The overall proportion of missing data, however, was small (1.54%) and Little's (1998) Missing-Completely-At-Random (MCAR) test suggested data were MCAR, $\chi 2 = 36940.62$, $df = 36565$, $p = .08$. Given that many participants had item-level missing data, a decision was made to handle missing data using multiple imputation. A total of ten imputations were conducted. Multiple imputed data were then examined for the presence of univariate and multivariate outliers. Univariate outliers were defined as scales/subscales that had z-scores ±3.29 standard deviations from the mean and were disconnected from the rest of the distribution. Only one univariate outlier was identified, which was on the Other-Oriented Perfectionism subscale of the HMPS. Its influence was reduced by adjusting it to the next closest non-outlier value plus one (Tabachnick & Fidell, 2013). We then assessed for multivariate outliers using Mahalanobis Distance (Tabachnick & Fidell, 2013), which identified a total of five cases. Data from these individuals were excluded, leaving a final sample of 376. See Table 2 for a report of descriptive

statistics from Part One.[3]

Potential violations to the assumption of normality were also explored. Analyses revealed a number of variables with skewness and/or kurtosis z-scores greater than a recommended cut-off of ±3.29 (see Table 2). However, the degree of skewness and kurtosis for all Part One measures was mild to moderate, and all absolute values were within the recommended cut-offs for substantial deviation from normality (i.e., no absolute skewness values were greater than two and no absolute kurtosis values were greater than seven; West, Finch, & Curran, 1995). Quantile-Quantile (QQ)-plots were also examined, with a particular focus on those variables that previously displayed evidence of non-normality. These plots further supported the presence of minor deviations from normality on a number of variables. In an attempt to improve normality, a series of transformations were applied (i.e., log10, square root, and reciprocal). However, these had a relatively minor effect on normality and often improved skewness at the expense of kurtosis. A decision was therefore made to use non-transformed variables for Part One.

Correlational Analyses

Prior to testing the main hypotheses, several exploratory analyses were conducted to establish baseline relationships among the variables of interest. First, Pearson correlations were conducted to examine the relationship between each continuously-measured SA-maintaining factor and measures of SA, anxiety sensitivity, perfectionism, and depression. The measure of self-imagery perspective was treated as an ordinal variable so all correlations involving this measure were examined using Spearman's Rank correlations. As displayed in Table 3, most correlations reached statistical significance. More specifically, scores on the measures of trait anticipatory processing, self-focused attention, safety behaviours, and post-event processing

[3] Appendix P also displays descriptive statistics for the non-imputed data.

were significantly and positively correlated with all variables except for other-oriented perfectionism. In contrast, scores on self-imagery perspective were only significantly (and positively) correlated with scores on the measures of trait SA.

Next, exploratory analyses were conducted to examine potential relationships between measures of trait SA, anxiety sensitivity, perfectionism, and depressive symptoms. As displayed in Table 4, scores on most variables were significantly and positively correlated with each other. The only variable not consistently correlated with others in Table 4 was trait other-oriented perfectionism; this variable only showed significant and positive associations with self-oriented perfectionism, socially prescribed perfectionism, perfectionistic cognitions, and perfectionistic self-promotion. Other-oriented perfectionism also displayed a significant and negative correlation with depressive symptoms.

Due to the large number of comparisons (i.e., 161) that resulted from running numerous correlations simultaneously, an adjustment was applied to account for type I error. Despite its relatively frequent use in research, the Bonferroni correction has been criticized for being overly conservative (Benjamini & Hochberg, 1995; Nakagawa, 2004) and researchers have more recently suggested alternative techniques, including Benjamini and Hochberg's (1995) false discovery rate (FDR) correction. This correction provides a more moderate adjustment by balancing the need to control for type I error with an acceptance of a predetermined level of type I error determined by the researcher; most often an alpha of .05 to .10 (Benjamini & Hochberg, 1995). The FDR correction is conducted using the formula (i/m) * Q, where i represents a p-value's ranking, m represents the number of corrections, and Q represents the acceptable level of type I error (i.e., the critical value). In the present study, p-values for all correlations in Part One were ranked in ascending order from 1 through 161. Each ranking was then divided by the total

number of statistical tests (m = 161), and the quotient was subsequently multiplied by a critical value of 5%. For instance, the formula used for the smallest ranked p-value was (1/161) * .05, which resulted in an FDR critical value of .0003. Given that the original p-value ($p < .0001$) was smaller than this critical value, this correlation satisfied the criterion for significance at an alpha of .05. Once a variable satisfied this FDR-corrected criterion for significance, all smaller p-values were also deemed significant regardless of whether their p-values were smaller than their corresponding critical values. FDR adjustments were applied to all correlational analyses in Part One and all p-values remained significant.

Regression Analyses

In order to test the study's main hypotheses for Part One, we conducted a series of four hierarchical multiple regressions and one ordinal logistic regression.

Hierarchical multiple regressions. For each of the hierarchical regressions, trait SA and depressive symptoms were controlled for at step one and trait socially prescribed perfectionism and anxiety sensitivity were subsequently added to the model. Perfectionistic cognitions and each dimension of perfectionistic self-presentation were then added at the final step. Scores on trait anticipatory and post-event processing, self-focused attention, and safety behaviours were set as the dependant variables for regressions one through four, respectively.

Trait anticipatory processing. As displayed in Table 5, scores on trait SA and depression emerged as unique predictors of anticipatory processing, but only SA reached an FDR-corrected level of significance. These variables accounted for 34.42% of variance in anticipatory processing, $F(2, 373) = 97.89$, $p \leq .001$, $f^2 = .52$. At step two, inclusion of socially prescribed perfectionism and anxiety sensitivity contributed significantly to the model, $F(4, 369) = 13.02$, $p \leq .001$, $f^2 = 14$, accounting for an additional 8.11% of variance. Following a more stringent FDR

correction, trait SA retained its significance and anxiety sensitivity social concerns emerged as a unique predictor. Finally, inclusion of the variables at the final step contributed significantly, $F(4, 365) = 11.40$, $p \leq .001$, $f^2 = .12$, accounting for an additional 6.37% of variance in anticipatory processing. Trait SA and social concerns remained significant and socially prescribed perfectionism, perfectionistic self-promotion, nondisplay of imperfection, and perfectionistic cognitions emerged as additional unique predictors. All variables excluding socially prescribed perfectionism also reached an FDR-corrected level of significance. Overall, the final pooled model accounted for 48.91% variance in anticipatory processing.

Trait self-focused attention. As displayed in Table 5, scores on trait SA and depression contributed significantly to self-focused attention, $F(2, 373) = 200.20$, $p \leq .001$, $f^2 = 1.07$, accounting for 51.77% variance. Although both variables emerged as unique predictors, only trait SA reached an FDR-corrected level of significance. At step two, the addition of socially prescribed perfectionism and anxiety sensitivity resulted in a significant model, $F(4, 369) = 45.52$, $p \leq .001$, $f^2 = .49$, accounting for an additional 15.93% variance. Trait SA and anxiety sensitivity social concerns emerged as unique predictors and both retained their significance following an FDR correction. Finally, inclusion of perfectionistic self-presentation and cognitions added significantly to the model, $F(4, 365) = 4.19$, $p \leq .01$, $f^2 = .05$, accounting for an additional 1.40% of variance. Trait SA and social concerns retained significance and nondisplay and nondisclosure of imperfection emerged as additional unique predictors. All variables excluding nondisplay of imperfection also reached an FDR-corrected level of significance. The final model accounted for 69.14% variance in self-focused attention.

Trait safety behaviours. As shown in Table 5, scores on trait SA and depression contributed significantly to the use of safety behaviours, $F(2, 373) = 294.68$, $p \leq .001$, $f^2 = 1.58$,

accounting for 61.23% variance. Although both variables emerged as unique predictors, only trait SA reached an FDR-corrected level of significance. At step two, addition of socially prescribed perfectionism and anxiety sensitivity added significantly to the model, $F(4, 369) = 13.14$, $p \leq .001$, $f^2 = 14$, accounting for an additional 4.83% variance. Trait SA remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. Both variables also remained significant following an FDR correction. Finally, addition of perfectionistic self-presentation and cognitions contributed significantly to the model, $F(4, 365) = 6.66$, $p \leq .001$, $f^2 = .07$, accounting for an additional 2.32% variance in safety behaviours. Trait SA and social concerns remained significant and nondisplay of imperfection emerged as an additional unique predictor. Each reached an FDR-corrected level of significance. Overall, the final model accounted for 68.37% variance in safety behaviours.

Trait post-event processing. As indicated in Table 5, scores on trait SA and depression contributed significantly to post-event processing, $F(2, 373) = 177.78$, $p \leq .001$, $f^2 = .95$, accounting for 48.80% variance. Both variables reached significance and remained so following an FDR correction. At step two, the addition of socially prescribed perfectionism and anxiety sensitivity also generated a significant model, $F(4, 369) = 16.83$, $p \leq .001$, $f^2 = .18$, contributing an additional 7.88% variance. Trait SA and depression remained significant and socially prescribed perfectionism and anxiety sensitivity social and cognitive concerns also emerged as unique predictors. Each retained their significance following an FDR correction. Finally, inclusion of perfectionistic self-presentation and cognitions at step three contributed significantly, $F(4, 365) = 8.84$, $p \leq .001$, $f^2 = .10$, accounting for an additional 3.82% variance in post-event processing. The previous predictors remained significant and nondisplay of imperfection emerged as an additional unique predictor. Each variable also reached an FDR-

corrected level of significance. Overall, the final model accounted for 60.52% variance in post-event processing.

Multiple ordinal logistic regression. Following the hierarchical regressions, a cumulative odds ordinal logistic regression with proportional odds was used to determine the effects of each predictor on self-imagery perspective. Given that ordinal logistic regression does not allow inclusion of predictors in a hierarchical manner, all variables were added simultaneously to the model.

Trait observer perspective self-imagery. As displayed in Table 6, only an increase in trait SA was associated with increased odds of adopting an observer perspective; the results showed an odds ratio of 1.05 (95% CI = 1.01 to 1.09), $\chi 2(1) = 4.96$, $p < .05$. This result did not reach significance when a more stringent FDR correction was applied. Given that all of the predictor variables were measured on a continuous scale, several cells were identified as having zero frequencies (i.e., 85.7%). As such, goodness-of-fit tests were judged to be unreliable and were not used. As displayed in Table 6, the final model did not significantly predict observer perspective self-imagery over and above the intercept-only model, $\chi^2(10) = 17.04$, $p > .05$. Measures of pseudo R2 (Nagelkerke and McFadden) also indicated small effects (see Table 6).

Discussion

The primary purpose of Part One was to determine a) whether anxiety sensitivity and/or trait socially prescribed perfectionism predicted general tendency to engage in each SA-maintaining factor, and b) whether perfectionistic self-presentation or cognitions contributed additional variance.

Anxiety Sensitivity and Trait Perfectionism

As hypothesized, our findings demonstrated that those higher in anxiety sensitivity

reported a tendency to experience more anticipatory processing, self-focused attention, safety behaviours, and post-event processing. These findings emerged beyond the effects of trait SA and depression. While social concerns emerged as a consistent predictor of these SA-maintaining factors, higher cognitive concerns also predicted higher levels of post-event processing. Conversely, anxiety sensitivity did not increase the likelihood of adopting an observer perspective during social situations. Contrary to our hypotheses, we also found that trait socially prescribed perfectionism did not predict a tendency to engage in any SA-maintaining factors beyond the effects of anxiety sensitivity.

Consistent with previous research (Pitura, 2015), our findings identified anxiety sensitivity as a unique predictor of anticipatory processing, self-focused attention, safety behaviours, and post-event processing among university students. This, however, is the first study to specify that it is higher social concerns in particular that influence one's tendency to engage in these SA-maintaining factors. While our study is consistent with prior research linking self-focused attention to constructs such as fear of blushing, trembling, or sweating in front of others (Bögels, 2006; Bögels et al., 1996; Bögels et al., 1997; Edelmann, 1990; Scholing & Emmelkamp, 1993), we are the first to demonstrate that self-focused attention is influenced by anxiety sensitivity more broadly. This finding suggests that those who are fearful of others noticing their anxiety may engage in self-focused attention as a means of monitoring for symptoms of anxiety. Unfortunately, theory indicates that self-focused attention actually serves to increase interoceptive awareness (Clark, 2001), which may subsequently serve to promote higher levels of anxiety sensitivity. Interestingly, while this is the first study to demonstrate that anxiety sensitivity influences engagement in SA-related safety behaviours, these findings are consistent with theoretical notions that safety behaviours are used as a means of preventing

feared outcomes such as blushing or trembling during social situations (Clark, 2001).

Regarding the effects of anxiety sensitivity on post-event processing, our study is the second to provide evidence that contradicts earlier research by Kocovski and Rector (2007). Similar to Pitura (2015), we demonstrated that anxiety sensitivity predicts this SA-maintaining factor among university students, and our findings clarify that more than one facet of anxiety sensitivity (i.e., social and cognitive concerns) has an effect on post-event processing. Although one might suspect that the discrepancy with Kocovski and Rector's (2007) study was due to the fact that they controlled for anxious rumination whereas we did not, earlier research by Pitura (2015) controlled for this variable and found similar results to the current study. As such, it appears that the effect of anxiety sensitivity on post-event processing was not attributable to differences in anxious rumination. We therefore believe this relationship warrants further empirical investigation. Finally, our study is the first to examine the relationship between anxiety sensitivity and self-imagery perspective, with preliminary evidence that higher levels of anxiety sensitivity do not predict this SA-maintaining factor.

The results from Part One also demonstrated that once other variables were accounted for, socially prescribed perfectionism did not influence tendency to engage in most SA-maintaining factors. Consistent with previous research with undergraduates (Brown & Kocovski, 2014; Cox & Chen, 2015), we found that higher socially prescribed perfectionism predicted higher levels of post-event processing. However, this facet of perfectionism did not influence the other SA-maintaining factors. Although previous research has demonstrated a relationship between trait perfectionism and public self-consciousness (Lundh & Ost, 1996), our findings indicate that the socially prescribed component does not predict self-focused attention specifically in response to social situations. Similarly, while research has identified mental

imagery and safety behaviours as expression-based components of perfectionism (Lee et al., 2011), our study failed to identify socially prescribed perfectionism as a predictor of these factors within the context of social situations. Finally, results from Part One are inconsistent with previous research by Scott et al. (2014), in which EC perfectionism (measured using the FMPS) was found to influence anticipatory processing regarding social vignettes. Our study indicates that while socially prescribed perfectionism may be related to each of these SA-maintaining factors, it does not predict them beyond the effects of anxiety sensitivity. These findings indicate the presence of shared variance between these variables and suggest that previous research (Scott et al., 2014) may have over-estimated the effect of EC perfectionism on anticipatory processing. Alternatively, our findings may indicate that the socially prescribed aspect of EC perfectionism in particular does not exert unique effects.

Expression-Based Features of Perfectionism

Although trait perfectionism failed to predict most SA-maintaining factors, expression-based features of perfectionism did. In particular, concealment elements of perfectionistic self-presentation predicted tendency to experience anticipatory processing, self-focused attention, safety behaviours, and post-event processing. Anticipatory processing was also influenced by how frequently participants experienced perfectionistic cognitions. Conversely, self-imagery perspective was not influenced by any expression-based features of perfectionism.

In accordance with recent literature (Flett & Hewitt, 2014), these findings highlight the relevance of expression-based features of perfectionism to SA. We found that a tendency to hide physical displays of imperfection positively predicted engagement in safety behaviours during social situations. While this is the first study to demonstrate this relationship, our findings are consistent with notions that safety behaviours serve as a means of self-presentation during

anxiety-provoking social situations (Clark, 2001; Kocovski et al., 2016; Plasencia et al., 2011). Additionally, our study demonstrated that tendency to experience anticipatory and post-event processing was also influenced by nondisplay of imperfection. While Vassilopoulos et al. (2017) previously identified perfectionistic self-presentation as a predictor of anticipatory processing, our study highlights the role of nondisplay tactics in particular. It also demonstrates that this aspect of perfectionistic self-presentation influences processing before and after social situations (i.e., anticipatory and post-event processing). This finding is consistent with the idea that even when individuals attempt to hide their perceived imperfections, they may doubt their ability to make a good impression (MacKinnon et al., 2014), which may manifest as excessive concern before and after social situations.

Consistent with previous research (Hewitt et al., 2003), we also found that perfectionistic self-presentation predicted levels of self-focused attention. However, once trait variables were accounted for, only nondisclosure of imperfection had a unique effect. Although one might expect those higher in nondisclosure tactics to engage in more self-focused attention in order to manage their impression on others, our findings revealed the opposite (i.e., that a tendency to conceal verbal disclosures actually predicted lower levels of self-focused attention). This finding is consistent with prior research (Hewitt et al., 2003) and suggests this aspect of perfectionism alone may serve a protective function in regard to self-focused attention. In fact, it seems plausible that engaging in self-disclosure may actually serve to increase anxiety and self-focused attention among those high in this interpersonal style. Nevertheless, further research is warranted to clarify the meaning of this relationship.

Lastly, our findings revealed that only trait anticipatory processing was influenced by private expressions of perfectionism. Although this is the first study to link perfectionistic

cognitions to anticipatory processing, our results are consistent with the notion that private expressions of perfectionism sustain and amplify negative self-views (Flett & Hewitt, 2014), particularly in anticipation of social situations. Notably, the fact that perfectionistic cognitions did not predict post-event processing highlights the importance of distinguishing between these forms of cognitive processing in research. Finally, although Flett and Hewitt (2014) suggested that perfectionistic cognitions should increase the saliency and vividness of negative self-imagery during social situations, this study indicates that perfectionistic cognitions do not influence the perspective from which these images are seen. Likewise, a tendency to experience perfectionistic cognitions did not influence self-focused attention or safety behaviours beyond the effects of more stable aspects of perfectionism.

Limitations

While Part One provided evidence that both anxiety sensitivity and perfectionism influence general tendency to engage in SA-maintaining factors, a number of limitations should be noted. Firstly, although we recruited a random sample of university students, this study used a convenience sample in which individuals were self-selected for participation. This process may have led to selection bias, which we were unable to explore given the lack of information on those who chose not to participate in the first place. As such, our findings may not be representative of the broader university population, which may affect their generalizability. Furthermore, as previous researchers have noted (e.g., Artnett, 2008; Henrich, Heine, & Norenzayan, 2010), by using a relatively heterogeneous university population, our findings may not extend to the general adult population.

Secondly, we asked participants to rate their cognitive and behavioural responses to any prior social situations. Although this was done as a means of assessing SA-maintaining factors at

a trait-level, it prevented us from distinguishing between how participants generally respond to performance versus interaction scenarios. An alternative approach would have been to have participants report on a recent social stressor, which has been done frequently in the past (e.g., Gaydukevych & Kocovski, 2012; Kiko et al., 2012; Kocovski et al., 2016; Kocovski & Rector, 2007; Makkar & Grisham, 2011). Additionally, researchers have noted concerns with the use of retrospective ratings, including the fact that they may result in memory bias (Makkar & Grisham, 2011). For instance, although one would expect personality factors to precede cognitive and behavioural responses to social situations, this may not be the case. In fact, it is possible that more dynamic aspects of perfectionism (particularly perfectionistic cognitions) are influenced by a person's characteristic ways of responding to social situations (i.e., trait SA-maintaining factors). Similarly, researchers have indicated that retrospective ratings may elicit uncertainty regarding the directionality of relationships (Makkar & Grisham, 2011). Although a prospective study may have helped clarify this issue, our use of a cross-sectional design prevented us from demonstrating causal-ordering among our variables. As such, study two aimed to address some of these limitations by examining the relationships of interest under more controlled conditions.

Part Two

Part Two of this study sought to explore the roles of anxiety sensitivity and perfectionism in predicting state responses to two prototypical social situations. In Condition One (speech), participants were asked to give a three-minute speech in front of a researcher while led to believe they were being videotaped. In Condition Two (interaction), participants engaged in a five-minute social interaction with a partner of the opposite sex. Once again, we were interested in testing 1) whether trait socially prescribed perfectionism and anxiety sensitivity predicted state levels of each SA-maintaining factor beyond the effects of SA and depression, and 2) whether

expression-based components of perfectionism (i.e., perfectionistic self-presentation and cognitions) contributed additional variance beyond trait variables. Given that we anticipated differences across each social task, separate hypotheses were generated for each condition.

Hypothesis One: Speech

a) Based on prior research (Norton et al., 1997), we hypothesized that for the speech, anxiety sensitivity would play a greater role than trait perfectionism in predicting each SA-maintaining factor. Specifically, anxiety sensitivity would emerge as a unique positive predictor, while socially prescribed perfectionism would show little, if any, predictive effect.
b) Based on theory regarding SA and perfectionism (Flett & Hewitt, 2014), we expected that elements of perfectionistic self-presentation would emerge as unique positive predictors of each SA-maintaining factor beyond the effects of anxiety sensitivity and SPP.
c) In light of their shared ruminative nature (e.g., Clark, 2001; Hewitt & Flett, 2014; Hewitt et al., 2003), we hypothesized that tendency to experience perfectionistic cognitions would also uniquely and positively predict anticipatory and post-event processing. Exploratory analyses would determine whether perfectionistic cognitions also uniquely predicted the other SA-maintaining factors.

Hypothesis Two: Interaction

a) Given previous research (Hewitt et al., 2003; Rosser et al., 2003), we expected that for the social interaction, trait socially prescribed perfectionism would play a greater role than anxiety sensitivity in predicting each SA-maintaining factor. More specifically, we hypothesized that socially prescribed perfectionism would emerge as a unique positive predictor of each factor, whereas anxiety sensitivity would show little, if any, predictive effect. Given recent findings (Vassilopoulos et al., 2017), we hypothesized that anxiety

sensitivity would uniquely predict anticipatory processing, but that the effect would be weaker than that of trait perfectionism. Given its conceptual similarity with anticipatory processing, we also expected similar findings for post-event processing.

b) Elements of perfectionistic self-presentation would positively predict self-focused attention, safety behaviours, and self-imagery perspective beyond the effects of anxiety sensitivity and trait perfectionism. However, based on research (Vassilopoulos et al., 2017), we hypothesized perfectionistic self-presentation would not contribute uniquely to anticipatory processing. Given the conceptual similarity between anticipatory and post-event processing, we did not expect perfectionistic self-presentation to predict post-event processing either.

c) In light of their shared ruminative nature (e.g., Clark, 2001; Hewitt & Flett, 2014; Hewitt et al., 2003), we expected that perfectionistic cognitions would uniquely and positively predict anticipatory and post-event processing. Exploratory analyses would determine whether perfectionistic cognitions uniquely predicted the other SA-maintaining factors as well.

Method – Part Two

Participants

All individuals who completed Part One were eligible to participate in the second part of this study. Participation was voluntary and individuals were compensated with course credit and/or entry into cash draws (see Appendix A). A total of 164 participants from Part One proceeded to the in-lab session. Of those participants, four were excluded due to procedural errors during the in-lab session and two were deemed ineligible given that they had not completed any Part One measures following demographics; as a result they did not have scores on certain Part One measures that were deemed necessary to conduct the analyses (i.e., measures of trait perfectionism, perfectionistic self-presentation, and anxiety sensitivity). As such, the final

sample for Part Two consisted of 158 participants, who were primarily female (n = 134; 84.8%) and ranged in age from 17 to 52 years (M = 21.56, SD = 6.03). The majority of these individuals self-identified as Caucasian (79.1%), single (50.0%), in their first year of university (51.9%), and approximately half (46.2%) were completing a psychology major or minor. See Table 1 for a complete report of demographic information from Part Two.

Measures

The primary measures for Part Two consisted of several self-report questionnaires that were completed during Part One, as well as a number of questionnaires participants completed during the in-lab portion.

Measures administered during part one. Trait SA, trait perfectionism, perfectionistic self-presentation[4], and anxiety sensitivity were measured using the self-report questionnaires administered during Part One. Cronbach's alphas were for each of these variables were good-to-excellent among those who completed the in-lab portion (see Table 7).

Measures administered during part two. Measures completed during the in-lab portion (see below) consisted of self-report questionnaires assessing state anxiety, anticipatory processing, self-focused attention, safety behaviours, self-imagery perspective, and post-event processing, as well as perfectionistic cognitions and depression.

Subjective Units of Distress Scale (SUDS; Wolpe, 1958). SUDS ratings were used to assess levels of state anxiety at baseline, immediately prior to each social task, and during each task (see Appendices Q to S). The SUDS is a single-item self-report measure that asks respondents to indicate their level of distress, from 0 ("No anxiety") to 100 ("Highest possible

[4] Given that perfectionistic self-presentation has been conceptualized as a "general and stable aspect of personality" (Hewitt et al., 2003, p. 1304), this variable was assessed with other trait variables during Part One.

anxiety"). In this study, we used the SUDS ratings pertaining to anxiety during the speech and interaction as the main measures of state SA.

State Version of the Anticipatory Social Behaviours Questionnaire (ASBQ-S). Slightly modified versions of the ASBQ were used to assess levels of anticipatory processing specifically in anticipation of the speech and interaction (see Appendices T and U). Similar to the original ASBQ, participants were instructed to rate how frequently, from 1 ("Never") to 4 ("Constantly"), they engaged in various anticipatory thoughts or behaviours prior to the social situation. The tense of certain items was also adjusted (e.g., "I think about similar situations in which I have failed in the past" became "I thought about similar situations in which I have failed in the past"). The ASBQ-S displayed good internal consistency for the speech task and excellent internal consistency for the social interaction (see Table 7).

***State Version of the Trait Self-focused Attention Questionnaire (*SFAQ-S).** Modified versions of the TSFAQ were used to assess levels of self-focused attention during the speech and interaction (see Appendices V and W). More specifically, participants were asked to indicate how characteristic, from 0 ("Not at all") to 4 ("Extremely"), each statement was of them while engaging in the social task. In addition to changing the tense of certain items (e.g., "Whether I look tense" became "Whether I looked tense"), the following items were modified to be more applicable to the particular social task: Item 14 of the TSFAQ ("How well I am taking part in the social situation") was changed to "How well I was taking part in the social interaction" and Item 16 ("Whether I understand what the other person is saying") was omitted from the measure assessing self-focused attention during the speech. Both SFAQ-S measures displayed excellent internal consistency (see Table 7).

15-Item Social Phobia Safety Behaviour Scale (SPSBS-15; Kocovski et al., 2016). The

SPSBS-15 was used to assess safety behaviours during each social task (see Appendices X and Y). The SPSBS-15 is an adapted version of the original SPSBS (Pinto-Gouveia et al., 2003), and has been previously used with undergraduates to assess safety behaviours during a social interaction and speech (Kocovski et al., 2016). Respondents are instructed to rate how frequently, from 1 ("Never") to 4 ("Usually"), they used each safety behaviour while engaging in a specified social situation. The SPSBS-15 retains 15 of the original 17 items from the SPSBS, with total scores ranging from 15 to 60. Higher scores reflect more frequent use of in-situ safety behaviours. During initial psychometric testing, Kocovski et al. (2016) demonstrated that the SPSBS-15 had acceptable (interaction) to good (speech) internal consistency. In the present study, it displayed good internal consistency across tasks (see Table 7).

State Version of the Frequency of Observer versus Field Visual Analogue Scale (VAS-S). Adapted versions of the VAS were used to assess if participants experienced self-imagery during the speech and interaction, and whether their imagery adopted an observer versus field perspective (see Appendices Z and AA). These measures were identical to the VAS in Part One except for the fact that participants were asked to recall and report on any mental image/ impression they experienced during the social task.

Post-Event Processing Inventory – State Version (PEPI-S; Blackie & Kocovski, 2017). The PEPI-S was used to assess engagement in post-event processing following the speech and interaction tasks (see Appendices BB and CC). The PEPI-S is a 12-item self-report measure that asks respondents to rate how much, from 1 ("Strongly Disagree") to 5 ("Strongly Agree"), they agree with each statement regarding a particular social situation. Similar to the PEPI-T, the PEPI-S is comprised of one higher-order post-event processing factor and three lower-order subfactors (Intensity, Frequency, and Self-Judgment). Final scores range from 12 to 60 on the

Total factor, 5 to 25 on the Intensity subfactor, 4 to 20 on the Frequency subfactor, and 3 to 15 on the Self-Judgment subfactor. Higher scores reflect greater tendency to experience each aspect of post-event processing following the specified social situation. During initial psychometric testing, Blackie and Kocovski (2017) provided evidence of validity and good-to-excellent internal consistency among undergraduates. In the present study, the PEPI-S displayed good-to-excellent internal consistency across social tasks (see Table 7).

Perfectionistic Cognitions Inventory (PCI; Flett et al., 1998). The PCI was also re-administered during Part Two to assess for perfectionistic cognitions over the previous week. It displayed excellent internal consistency (see Table 7).

Depression Subscale of the Depression Anxiety Stress Scale – 21 (DASS-21-Depression; Lovibond & Lovibond, 1995). The depression subscale of the DASS-21 was re-administered during Part Two to assess for depressive symptoms over the preceding week. It displayed excellent internal consistency (see Table 7).

Procedure

Following Part One, interested participants were invited to the Mental Health Research Lab for a 45-minute session involving completion of additional self-report questionnaires and engagement in two brief social tasks (see below). Participants were given limited prior information about what the tasks entailed (see Appendix N).

Upon arriving to the lab, participants were directed to a computer and informed that they would be completing a number of self-report measures on SurveyMonkey.com. First, participants completed measures of perfectionistic cognitions and depressive symptoms over the past week, followed by a measure of baseline anxiety. They were then informed about which social task they would complete first and subsequently engaged in a three-minute anticipatory

period (see below). At the end of the anticipatory period, participants completed measures of anticipatory processing and state anxiety, and subsequently engaged in their first social task (speech or interaction). Afterwards participants were asked to return to the computer where they completed measures of the following in response to the social manipulation: state anxiety, self-focused attention, safety behaviours, self-imagery perspective, and post-event processing. They then completed the second study condition. Upon completion, participants were asked to sign up for Part Three (online follow-up), which they were told would take place two days following the in-lab session and involve answering additional questions about their in-lab experience. As compensation for Part Two, participants were assigned 1.25 course credits towards an eligible undergraduate psychology course as well as one ballot for a $100 cash draw.[5] Those who were not eligible to receive course credit, or who did not wish to, received an extra ballot into the draw. See Figure 1 for a summary of the procedure for Part Two.

Condition one (speech). In Condition One, participants were required to perform a three-minute impromptu speech in front of a researcher on a predetermined topic ("What are your thoughts about the rising cost of tuition?"). Consistent with prior research, all researchers involved in this manipulation were instructed to "listen attentively but not smile or nod during the presentation" (Coles, Turk, & Heimberg, 2002, p. 418). If participants stopped talking before the required three-minute interval, the researcher instructed them to continue speaking, even if it required them to repeat previously stated information. In order to mimic the presence of a larger audience, participants were also informed their speech would be videotaped and later reviewed by a group of researchers. Although the camera was turned on and off to appear as if it was

[5] Part Two was initially expected to take 60 minutes (and bonus credits are allocated based on time), and compensation was therefore initially set to 1.5 bonus credits + entry into a $100 draw. Seven individuals participated prior to the adjustment and were therefore assigned 1.5 credits.

recording, speeches were not taped as the recordings were deemed unnecessary for the study. Participants were given a three-minute waiting period immediately prior to this task, during which they were instructed to mentally prepare for their speech.

Condition two (interaction). In Condition Two, participants completed a five-minute social interaction with a researcher. We decided to make this task slightly longer than the speech as prior research has shown an interaction task to be less anxiety-provoking (Kiko et al., 2012). Consistent with past research using social interaction manipulations (e.g., Kiko et al., 2012; Mellings & Alden, 2000), researchers were of the opposite sex as the participant. It was expected that for the majority of participants, this would be more anxiety-inducing than interactions with a same-sex partner. Participants were instructed to engage in five minutes of conversation with the researcher as a means of "getting to know each other". Each researcher was instructed to place the burden of speaking on the participant. For instance, in accordance with prior research (Coles et al., 2002), the researcher was instructed to allow the participant to lead the conversation, remain quiet during pauses, provide brief answers to questions, and to as much as possible ask questions that were open-ended.[6] To remain consistent across conditions, participants were also required to complete an anticipatory period prior to the interaction condition. During this period, they were simply instructed to "sit and wait".

Results – Part Two

Data Screening

Of those participants who completed Part Two, 48.10% were missing at least one self-report item across Parts One and Two. The overall proportion of missing data, however, was

[6]Although researcher adherence to the speech and interaction was not monitored, all researchers were trained before data collection via role-play and corrective feedback.

small (i.e., 0.94 %) and Little's (1998) MCAR test suggested data were MCAR, $\chi 2 = 11314.99$, $df = 27333$, $p = 1.00$. Given that a substantial portion of the sample was missing at least one self-report item, missing data were again dealt with using multiple imputation (10 imputations). Multiple imputed data were examined for the presence of univariate and multivariate outliers. Univariate outliers were once again defined as z-scores that were ±3.29 standard deviations from the mean and disconnected from the rest of the distribution. Four univariate outliers were identified; one on other-oriented perfectionism, one on speech-related safety behaviours, and two on interaction-related safety behaviours. Their influences were reduced by adjusting their values to the next closest non-outlier plus one. Mahalanobis Distance was then calculated and failed to provide evidence for the presence of multivariate outliers. Table 7 displays descriptive statistics for the final sample from Part Two ($N = 158$).[7]

Potential violations to the assumption of normality were also explored in this group of participants. Analyses revealed that some of the variables had skewness and/or kurtosis z-scores greater than a recommended cut-off of ±3.29 (see Table 7). However, the degree of skewness and kurtosis was mild to moderate for each variable, and all absolute values were within recommended cut-offs provided by West et al. (1995). QQ-plots were then examined, with a particular focus on variables that previously displayed evidence of non-normality. These plots further supported the presence of only minor deviations from normality. As such, a decision was made not to transform these variables.

Manipulation Check

As manipulation checks for the anxiety inductions, we intended to compare scores across

[7] Appendix DD also displays descriptive statistics for the non-imputed data.

phases of each social task (i.e., at baseline, following the anticipatory period, and during the social task). However, due to a procedural error a number of participants were not administered the measures of state anxiety at baseline. As such, we were only able to conduct manipulation checks among those who completed the baseline SUDS ratings for the speech (n = 83) and interaction (n = 74). We used repeated measures analysis of variances (ANOVAs) to examine changes in state anxiety across both social tasks. The results of the speech ANOVA indicated a significant effect of phase, Wilks' Lambda = .36, $F(2, 81) = 71.54$, $p < .001$, $n^2 = .64$. Post-hoc tests revealed that state anxiety increased significantly across each timepoint (ps < .001). In contrast, the ANOVA for the social interaction indicated no difference in anxiety across phases, Wilks' Lambda = .99, $F(2, 71) = .43$, $p = .65$, $n^2 = .01$. Thus, the speech task elicited significant increases in anxiety whereas the interaction task did not.

Dropouts Versus Completers

Given that participants in this study were permitted to discontinue immediately following Part One, we conducted a series of independent samples t-tests to compare those who proceeded to Part Two with those who dropped out following Part One. The findings revealed significant differences on a number of variables from Part One. More specifically, those who continued to Part Two reported significantly higher scores on trait SA, trait anticipatory processing, trait safety behaviours, self-oriented and socially prescribed perfectionism, and each aspect of perfectionistic self-presentation (see Appendix EE). We also conducted a Mann-Whitney U test to compare these groups on the measure of trait self-imagery perspective and found no significant difference between those who discontinued (Mdn = -2.00, n = 3) and those who proceeded to the second part of the study (Mdn = -1.00, n = 130), U = 123.50, p = .27.

Correlational Analyses

Prior to testing the main hypotheses, we conducted exploratory correlations to establish relationships among the variables of interest.

Correlations between SA, anxiety sensitivity, perfectionism, and depression. Pearson correlations were conducted to examine relationships between measures of SA (trait and state), anxiety sensitivity, perfectionism, and depressive symptoms. As displayed in Table 8, most correlations reached statistical significance. The only variable that consistently failed to correlate significantly with others was other-oriented perfectionism. This variable was, however, significantly correlated with scores on self-oriented perfectionism, socially prescribed perfectionism, perfectionistic cognitions (part two), and perfectionistic self-presentation. The correlation between depression and self-oriented perfectionism also failed to reach statistical significance. Once again, all *p*-values remained significant when an FDR correction was applied.

Correlations with SA-maintaining factors in response to the speech. Pearson correlations were then conducted for the speech to examine the relationships between each continuously measured SA-maintaining and measures of trait SA, anxiety sensitivity, perfectionism, and depressive symptoms. In contrast, we treated self-imagery perspective as an ordinal variable and correlations involving this measure were therefore examined using Spearman's Rank correlations. As displayed in Table 9, most correlations reached statistical significance. More specifically, scores on anticipatory processing, self-focused attention, and post-event processing were significantly and positively correlated with all variables except other-oriented perfectionism. Safety behaviours were also significantly correlated with all variables except for other-oriented perfectionism and anxiety sensitivity physical concerns. In contrast, self-imagery perspective was not significantly correlated with any of the measures in Table 9.

All significant coefficients remained so following an FDR adjustment.

Correlations with SA-maintaining factors in response to the interaction. Pearson correlations were also conducted for the interaction task to examine the relationships between each continuously-measured SA-maintaining factor and measures of trait SA, anxiety sensitivity, perfectionism, and depression. All correlations involving self-imagery perspective were again examined using Spearman's Rank correlations. As displayed in Table 10, most correlations reached statistical significance. In particular, scores on anticipatory processing, self-focused attention, safety behaviours, and post-event processing were significantly and positively correlated with all variables except for other-oriented perfectionism. In contrast, scores on self-imagery perspective were not significantly correlated with any of the measures in Table 10. All *p*-values remained significant following an FDR correction.

Regression Analyses

To test the main hypotheses for Part Two, a series of four hierarchical multiple regressions and one ordinal logistic regression were conducted for each of the social tasks.

Hierarchical multiple regressions - speech. For each of the hierarchical regressions pertaining to the speech, trait SA, state SA during the speech, and depressive symptoms were controlled for at step one. Trait socially prescribed perfectionism and each facet of anxiety sensitivity were added next, followed by perfectionistic self-presentation and cognitions at the final step. Scores on anticipatory processing, self-focused attention, safety behaviours, and post-event processing in response to the speech were set as the dependant variables for regressions one through four, respectively.

Anticipatory process – speech. As displayed in Table 11, inclusion of the variables at step one contributed significantly to the model, $F(3, 151) = 41.35$, $p \leq .001$, $f^2 = .82$, accounting

for 45.09% variance in anticipatory processing. Only state SA and depression emerged as unique predictors and both retained their significance following an FDR correction. At step two, addition of socially prescribed perfectionism and anxiety sensitivity contributed significantly, $F(4, 147) = 2.49$, $p \leq .05$, $f^2 = .07$, accounting for an additional 3.49% variance. Scores on state SA and depression retained their significance, and anxiety sensitivity social concerns emerged as an additional unique predictor. Each retained its significance following an FDR correction. Finally, the addition of perfectionistic self-presentation and cognitions at step three further contributed to the model, $F(4, 143) = 11.49$, $p \leq .001$, $f^2 = .32$, accounting for an additional 12.51% variance in anticipatory processing. At this step, perfectionistic cognitions emerged as a unique predictor and state SA, depression, and anxiety sensitivity social concerns remained significant. Socially prescribed perfectionism also reached statistical significance. Each of these *p*-values remained significant following an FDR correction. The final pooled model accounted for 61.10% variance in anticipatory processing regarding the speech.

Self-focused attention - speech. As displayed in Table 11, scores on trait SA, state SA, and depression emerged as unique predictors of self-focused attention, $F(3, 151) = 70.04$, $p \leq .001$, $f^2 = 1.39$, accounting for 58.19% variance. All predictors retained their significance following an FDR correction. At step two, inclusion of socially prescribed perfectionism and anxiety sensitivity contributed significantly to the model, $F(4, 147) = 7.66$, $p \leq .001$, $f^2 = .21$, accounting for an additional 7.21% variance. State SA and depression remained significant and anxiety sensitivity social and cognitive concerns emerged as additional unique predictors. Each retained their significance following an FDR correction. Finally, the addition of perfectionistic self-presentation and cognitions at step three further contributed to the model, $F(4, 143) = 5.34$, $p \leq .001$, $f^2 = .15$, accounting for an additional 4.50% variance in self-focused attention. The

unique predictors from step two remained significant and perfectionistic cognitions emerged as an additional unique predictor. All variables but depression retained their significance following an FDR correction. The final pooled model accounted for 69.90% variance in self-focused attention during the speech.

Safety behaviours - speech. As displayed in Table 11, inclusion of the variables at step one contributed significantly in predicting speech-related safety behaviours, $F(3, 151) = 22.33$, $p \leq .001$, $f^2 = .44$. These variables accounted for 30.72% variance and state SA and depression emerged as unique predictors. Both retained their significance following an FDR correction. At step two, inclusion of socially prescribed perfectionism and anxiety sensitivity did not contribute significantly, $F(4, 147) = 1.99$, $p = .10$, $f^2 = .05$, and only accounted for 3.56% additional variance. State SA and depression remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. However, only state SA and social concerns retained their significant *p*-values following an FDR correction. Finally, when perfectionistic self-presentation and cognitions were included at step three, they added significantly to the model, $F(4, 143) = 4.39$, $p \leq .01$, $f^2 = .12$, accounting for an additional 7.18% variance in safety behaviours. State SA and anxiety sensitivity social concerns remained significant and non-disclosure of imperfection emerged as an additional unique predictor. At this step, anxiety sensitivity physical concerns also reached statistical significance. All unique predictors remained significant following an FDR correction. The final pooled model accounted for 41.48% variance in safety behaviours during the speech.

Post-event processing - speech. As displayed in Table 11, scores on trait SA, state SA, and depression emerged as unique predictors of post-event processing, $F(3, 151) = 64.41$, $p \leq .001$, $f^2 = 1.28$, accounting for 56.12% variance. Each of these predictors remained significant

following an FDR correction. At step two, addition of socially prescribed perfectionism and anxiety sensitivity contributed significantly, $F(4, 147) = 4.35$, $p < .01$, $f^2 = .12$, accounting for an additional 4.66% variance. State SA and depression remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. Following an FDR correction, only *p*-values for state SA and social concerns remained significant. Finally, the addition of perfectionistic self-presentation and cognitions at step three contributed significantly to the model, $F(4, 143) = 2.49$, $p \leq .05$, $f^2 = .07$, accounting for an additional 2.55% variance. At this step, state SA and social concerns remained significant and perfectionistic cognitions emerged as an additional unique predictor. Each *p*-value retained its significant following an FDR correction. The final model accounted for 63.34% variance in post-event processing following the speech.

Multiple ordinal logistic regression - speech. Following the hierarchical regressions, a cumulative odds ordinal logistic regression with proportional odds was conducted to determine the effects of each predictor on self-imagery perspective. Similar to Part One, all variables were added simultaneously to the model.

Observer-perspective self-imagery – speech. As displayed in Table 12, only an increase in anxiety sensitivity social concerns was associated with increased odds of adopting an observer perspective; the obtained odds ratio was 1.11 (95% CI = 1.02 to 1.21), $\chi2(1) = 5.30$, $p < .05$. However, this variable failed to reach significance following an FDR correction. Given that all of the predictor variables were measured continuously, there were again several cells (85.7%) with zero frequencies. As such, goodness-of-fit tests were judged to be unreliable and were not used. As displayed in Table 15, the final model did not significantly predict observer-perspective self-imagery over and above the intercept-only model, $\chi2(11) = 10.94$, $p > .05$. Measures of pseudo R^2 (Nagelkerke and McFadden) also indicated small effects (see Table 12).

Hierarchical multiple regressions - interaction. For each of the hierarchical multiple regressions pertaining to the social interaction, trait SA, state SA during the task, and depressive symptoms were controlled for at step one. Next, socially prescribed perfectionism and anxiety sensitivity were added. Finally, perfectionistic self-presentation and cognitions were added to the model. Scores on anticipatory processing, self-focused attention, safety behaviours, and post-event processing regarding the interaction were set as the dependant variables for regressions one through four, respectively.

Anticipatory processing – interaction. As displayed in Table 13, inclusion of the variables at step one contributed significantly to the model, $F(3, 153) = 52.17$, $p \leq .001$, $f^2 = 1.08$, accounting for 51.95% variance in anticipatory processing. Scores on trait SA, state SA, and depression emerged as unique predictors, and each retained its significance following an FDR correction. When socially prescribed perfectionism and anxiety sensitivity were added, the model reached significance, $F(4, 149) = 4.14$, $p \leq .01$, $f^2 = .11$, and accounted for an additional 4.80% variance. All variables from step one remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. All significant *p*-values except for trait SA retained their significance following an FDR correction. Finally, the inclusion of perfectionistic self-presentation and cognitions at step three contributed significantly, $F(4, 145) = 7.70$, $p \leq .001$, $f^2 = .21$, accounting for an additional 7.56% variance. State SA, depression, and social concerns remained significant and perfectionistic cognitions emerged as an additional unique predictor. At step three, anxiety sensitivity physical concerns also reached significance. All unique predictors remained significant following an FDR correction. The final pooled model accounted for 64.34% variance in anticipatory processing regarding the interaction.

Self-focused attention - interaction. As displayed in Table 13, scores on trait SA, state

SA, and depression emerged as unique predictors of self-focused attention, $F(3, 153) = 66.20$, $p \leq .001$, $f^2 = 1.30$, accounting for 56.48% variance. Each p-value retained its significance following an FDR correction. At step two, the addition of socially prescribed perfectionism and anxiety sensitivity also contributed significantly, $F(4, 149) = 7.14$, $p \leq .001$, $f^2 = .19$, accounting for an additional 7.00% variance. At this step, state SA and depression remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. Only state SA and social concerns remained significant following an FDR correction. Finally, inclusion of the variables at step three contributed significantly to self-focused attention, $F(4, 145) = 5.55$, $p \leq .001$, $f^2 = .15$, accounting for an additional 4.85% variance. At the final step, state SA and anxiety sensitivity social concerns remained significant and perfectionistic cognitions and trait SA emerged as additional unique predictors. Each of these variables except trait SA retained its significance following an FDR correction. The final pooled model accounted for 68.31% variance in self-focused attention during the interaction.

Safety behaviours - interaction. As displayed in Table 13, inclusion of the variables at step one contributed significantly to safety behaviours, $F(3, 153) = 36.53$, $p \leq .001$, $f^2 = .72$, accounting for 41.72% variance. Each variable emerged as a unique predictor and retained its significance following an FDR correction. At step two, inclusion of trait socially prescribed perfectionism and anxiety sensitivity also contributed significantly, $F(4, 149) = 6.22$, $p \leq .001$, $f^2 = .17$, accounting for an additional 8.33% variance. State SA and depression retained their significance and anxiety sensitivity social concerns emerged as an additional unique predictor. Each retained its significance following an FDR correction. Finally, perfectionistic self-presentation and cognitions contributed significantly at step three, $F(4, 145) = 2.72$, $p \leq .05$, $f^2 = = .07$, accounting for an additional 3.48% variance. At this step, state SA and social concerns

remained significant and perfectionistic cognitions also emerged as a unique predictor. Each *p*-value reached an FDR-corrected level of significance. The final pooled model accounted for 53.56% variance in safety behaviours during the interaction.

Post-event processing - interaction. The final multiple regression examined predictors of post-event processing during the interaction. As shown in Table 13, scores on trait SA, state SA, and depression contributed significantly, $F(3, 153) = 91.88$, $p \leq .001$, $f^2 = 1.80$, explaining 64.31% variance. Each variable emerged as a unique predictor and each retained its significance following an FDR correction. The inclusion of socially prescribed perfectionism and anxiety sensitivity at step two contributed significantly, $F(4, 149) = 3.01$, $p \leq .05$, $f^2 = .08$, and accounted for an additional 2.67% variance. Scores on state SA and depression remained significant and anxiety sensitivity social concerns emerged as an additional unique predictor. Each variable retained its significance following an FDR correction. Finally, the addition of perfectionistic self-presentation and cognitions at step three did not contribute significantly, $F(4, 145) = 1.07$, $p = .37$, $f^2 = .03$, accounting for only 0.01% additional variance in post-event processing. At this step, only state SA, depression, and social concerns emerged as unique predictors, and each retained its significance following an FDR correction. The final pooled model accounted for 67.92% variance.

Multiple ordinal logistic regression - interaction. Following the hierarchical regressions, a cumulative odds ordinal logistic regression with proportional odds was conducted to determine the effects of each predictor on self-imagery perspective. Once again, all variables were added simultaneously to the model.

Observer-perspective self-imagery – interaction. As displayed in Table 14, none of the predictors were associated with increased odds of adopting an observer perspective during the

social interaction (*p*s > .05). Given that there were again several cells with zero frequencies (i.e., 85.7%), goodness-of-fit tests were deemed unreliable and were not used. As displayed in Table 14, the final model did not significantly predict observer-perspective self-imagery over and above the intercept-only model, $\chi 2(11) = 7.65$, $p > .05$. Accordingly, measures of pseudo R^2 (Nagelkerke and McFadden) indicated small effects (see Table 14).

Discussion

In the second part of our study, we used two prototypical social situations to determine whether trait socially prescribed perfectionism and anxiety sensitivity predicted state levels of each SA-maintaining factor. We also explored whether expression-based features of perfectionism further explained these variables beyond trait predictors. Although the data supported most of our hypotheses regarding the speech task, we failed to support most hypotheses for the interaction condition. Instead, these findings largely mirrored those we obtained for the speech. Specifically, we found that anxiety sensitivity predicted most SA-maintaining factors, with the social concerns facet in particular demonstrating a number of unique effects. Although this anxiety sensitivity facet also showed a trend towards predicting self-imagery perspective during the speech, this relationship failed to reach significance once we accounted for multiple comparisons. Surprisingly, once other variables were controlled for, our findings also showed that higher cognitive concerns predicted lower levels of speech-related self-focused attention.

In contrast to anxiety sensitivity, socially prescribed perfectionism consistently failed to predict anxiety-maintaining factors across both in-lab social tasks. Interestingly, however, experiencing more frequent perfectionistic cognitions predicted higher levels of anticipatory and post-event processing, self-focused attention, and safety behaviours. Although a number of

variables also suddenly reached significance in the final steps of some models (i.e., the models predicting anticipatory processing during the speech and safety behaviours during both social tasks), we believe these findings indicate the likely presence of suppressor effects (Tabachnick & Fidell, 2013). More specifically, it seems likely that the shared variance between trait and expression-based features of perfectionism served to artificially inflate the relationship between trait perfectionism and anticipatory processing regarding the speech. Similarly, we believe the shared variance between anxiety sensitivity physical concerns and expression-based features of perfectionism artificially inflated the effect of physical concerns on safety behaviours during both in-lab tasks. Thus, our overall findings from Part Two suggest that facets of anxiety sensitivity and private expressions of perfectionism had the greatest influence on participants' responses to the speech and interaction.

Trait Anxiety Sensitivity and Perfectionism

In accordance with Part One, we found that higher levels of anxiety sensitivity predicted state responses to social situations. While previous research has provided some evidence of these relationships (Pitura, 2015; Vassilopoulos et al., 2017), this is the first study to demonstrate these effects prospectively. Moreover, we are the first to highlight the role of social concerns in particular, and to show that similar patterns emerge across different types of social situations. Although cognitive concerns also predicted self-focused attention during the speech, this relationship was not in the expected direction. Instead it appeared that higher cognitive concerns predicted lower levels of self-focused attention once other variables were controlled for. While this finding was unexpected, it is worth noting that we obtained a positive bivariate correlation between these variables. Thus, even though our models did not suggest problems with multicollinearity, it is likely that our results reflect shared variance between anxiety sensitivity

facets. Alternatively, these results could be due to the type of self-focused attention we studied. More specifically, in accordance with cognitive behavioural models of SA (e.g., Clark, 2001; Clark & Wells, 1995), we focused more specifically on public aspects of self-focused attention such as awareness of anxious arousal, impression management, and interpersonal behaviour. Although this is recognized as one component of self-focused attention, researchers have also discussed private self-awareness, which involves the process of directing attention toward psychological aspects of one's self such as thoughts, feelings, and attitudes (Carver & Scheier, 1981; Fenigstein, Scheier, & Buss, 1975). It is therefore possible that anxiety sensitivity cognitive concerns would have predicted higher levels of private self-awareness during the social situations.

In contrast to anxiety sensitivity, trait socially prescribed perfectionism did not uniquely influence cognitive or behavioural responses to the in-lab tasks. While previous research has suggested that EC perfectionism predicts state levels of anticipatory (Scott et al., 2014) and post-event processing (Brown & Kocovski, 2014), these relationships did not extend beyond the effects of anxiety sensitivity in this study. Similar to Part One, these findings suggest that the effects of EC perfectionism may have been over-estimated in prior studies that did not control for anxiety sensitivity (i.e., Brown & Kocovski, 2014; Scott et al., 2014). Alternatively, they may indicate that socially prescribed perfectionism in particular does not predict these SA-maintaining factors. Notably, however, our findings are consistent with those by Cox and Chen (2015), who found that EC perfectionism did not directly predict anticipatory processing once SA was controlled for. Interestingly, although we found an effect of trait perfectionism on tendency to engage in post-event processing in Part One, this relationship did not emerge for the in-lab tasks (Part Two). Given that state anxiety has been identified as a predictor of post-event

processing (Kiko et al., 2012; McEvoy & Kingsep, 2006), we believe this finding could be attributable to the fact that we included state SA in the models for Part Two. Accordingly, our findings indicate that while socially prescribed components of EC perfectionism may be associated with state levels of post-event processing, state SA is a stronger predictor of this SA-maintaining factor.

Expression-Based Features of Perfectionism

As in Part One, we found that expression-based features of perfectionism had a greater influence than trait perfectionism on various SA-maintaining factors. Those with more frequent perfectionistic cognitions reported higher levels of anticipatory processing, self-focused attention, safety behaviours, and post-event processing in response to the impromptu speech. With the exception of post-event processing, these maintaining factors also predicted responses to the social interaction. While this is the first study to provide evidence of these relationships, our findings are consistent with previous research identifying perfectionistic cognitions as a robust predictor of SA among undergraduate students (MacKinnon et al., 2014). Moreover, given its prospective nature, Part Two offers stronger support for the notion that expression-based features of perfectionism may be particularly relevant to SA (Flett & Hewitt, 2014).

Given that researchers have conceptualized both perfectionistic cognitions and post-event processing as forms of ruminative thinking (Clark, 2001; Clark & Wells, 1995; Heimberg et al., 2010; Flett & Hewitt, 2014), we find it surprising that perfectionistic cognitions did not predict post-event processing in response to the social interaction. Nevertheless, correlational findings demonstrated that these variables were positively associated. Similarly, although perfectionistic self-presentation tactics were correlated with cognitive and behavioural responses to the in-lab tasks, they failed to predict these factors beyond the effects of other variables. Overall, these

findings suggest that while perfectionistic self-presentation predicts general tendency to engage in SA-maintaining factors (Part One), perfectionistic cognitions are a stronger predictor of state responses to social situations. These findings make sense given that perfectionistic cognitions have been conceptualized as a state-like component of perfectionism (Flett et al., 2007), whereas perfectionistic self-presentation has been identified as more trait-like in nature (Hewitt et al., 2003). In addition to providing the first evidence of these effects, our study highlights the value of assessing these relationships at both a trait and state-level. Finally, our study is the first to consider the effects on self-imagery perspective during social situations, with our findings demonstrating that expression-based features of perfectionism do not influence the likelihood of adopting an observer-perspective in response to an impromptu speech or interaction.

Limitations

Although Part Two provided evidence that both anxiety sensitivity and perfectionism influenced state responses to social situations, a number of limitations should be noted. Firstly, although the prospective nature of this study provides more compelling evidence of the directionality of these relationships, we did not use an experimental design and our findings therefore fail to demonstrate cause-and-effect relationships. As such, future researchers might extend our findings by experimentally manipulating anxiety sensitivity and perfectionism. For instance, researchers could use previously studied interoceptive exposure exercises to manipulate social concerns before a social manipulation (e.g., vigorous exercise to elicit sweating, lifting weights to cause trembling, or eating hot sauce to trigger sensations of blushing; Dixon et al., 2015). Similarly, they might manipulate relevant aspects of perfectionism by eliciting perfectionistic concerns in some participants prior to a social situation (e.g., informing them ahead of time that the researcher experts a certain level of performance).

Secondly, this study attempted to manipulate state anxiety as a means of eliciting higher levels of SA-maintaining factors. Although only a portion of participants completed baseline ratings of state anxiety, those who did indicated no significant increase in anxiety in response to the social interaction. This may have been due to the fact that the interaction task was not videotaped, which could have made it less anxiety-provoking than the speech condition. Notably, however, we chose not to record the interaction due to concerns that doing so would have also elicited fears of social scrutiny. Though previous research with undergraduates has also demonstrated higher levels of anxiety in response to a speech versus social interaction (Kiko et al., 2012), this finding has an important impact on the interpretation of our findings. Rather than demonstrating how anxiety sensitivity and perfectionism influence responses to an anxiety-provoking interaction, our findings reflect their effects on a relatively neutral interaction task. Future studies should therefore attempt to replicate this aspect of our study using a more anxiety-provoking interaction task (e.g., using a real-life scenario such as a first date).

Another limitation of Part Two was that we did not assess researcher adherence to the social manipulations during the in-lab stressors. Notably, however, we conducted post-hoc analyses to examine whether participants' levels of anxiety during each task varied according to the researcher who was present. A one-way ANOVA indicated that participants'

A one-way ANOVA indicated that participants' mean level of state anxiety during the speech was significantly different across researchers, $F(7, 147) = 2.55$, $p < .02$. However, Tukey-Kramer post-hoc analyses revealed no significant differences between each researcher (all p-values > .05 and all 95% CIs contained 0). Conversely, another one-way ANOVA indicated that participants' level of state anxiety during the interaction was significantly different across researchers, $F(5, 151) = 3.19$, $p < .01$. Tukey-Kramer post-hoc analyses revealed that participants

experienced significantly higher state anxiety while interacting with one of the male researchers (M = 46.56, SD = 28.07) versus another (M = 25.17, SD = 21.94; 95% CI = 4.58 to 38.20, p = .005). While we cannot conclude that researcher adherence was the cause of this difference, such findings indicate these discrepancies may have had an influence on how anxiety-provoking participants found the task. As such, future research might benefit from more closely monitoring research adherence to this type of social manipulation.

A third limitation of Part Two was that we invited all students who completed Part One to participate in the second portion of our study. Unfortunately, a number of individuals chose not to continue, and those who did scored significantly higher on a number of baseline variables (i.e., perfectionistic self-presentation, socially prescribed and self-oriented perfectionism, trait SA, trait anticipatory processing, and trait safety behaviours). Although we are unable to determine why these individuals discontinued, it is possible that our recruitment strategy played a role. In particular, although participants were able to withdraw at any time, they were encouraged from the start not to participate unless they intended on completing the entire study. It possible those higher in perfectionism were more inclined to comply with this request as a result of higher personal standards or concerns about not meeting the researcher's expectations. Similarly, those higher in SA may have been concerned about the possibility of being negatively evaluated for discontinuing. These differences could have impacted our findings in a number of ways. For instance, they could have influenced how representative our sample was of the broader university population, which may have influenced the generalizability of our findings and resulted in a final sample that was more homogeneous in regard to these variables (McKnight, McKnight, Sidani, & Figueredo, 2007). As noted by McKnight et al. (2007), a homogeneous sample could inflate the magnitude of parameter estimates and impact the replicability of our findings (McKnight et

al., 2007). Nevertheless, we believe it would have been more problematic to our study had participants who were higher on these variables chose not to proceed to the in-lab portion.

Finally, participants completed measures of state SA, self-focused attention, safety behaviours, and self-imagery perspective immediately after the social manipulations. Although this was an improvement over our procedure in Part One, and a relatively common approach in SA research (e.g., Brown & Kocovski, 2014; Kocovski et al., 2016; Makkar & Grisham, 2011), it is possible we would have obtained more accurate scores had participants rated these variables during the social situation. Additionally, we assessed post-event processing immediately following the social manipulations, which may have been problematic. Although theory indicates that post-event processing begins once a social stressor has ended (Clark, 2001), we may not have given participants sufficient time to begin engaging in a detailed "post-mortem". Moreover, given that participants rated their post-event processing while still in the presence of a researcher, one could argue that the social stressor had not in fact ended. Thus, engagement in post-event processing may not have commenced and may have increased further had it been assessed after participants left the social situation. Part Three served to address these limitations by examining post-event processing in the days following the in-lab task, without the presence of a researcher.

Part Three

The final part of this study examined the relative roles of perfectionism and anxiety sensitivity in predicting post-event processing over the days following the in-lab tasks. Initially, we anticipated the same pattern of results for post-event processing across Parts Two and Three. As such, our hypotheses were as follows:

Impromptu Speech

a) Based on prior research (Norton et al., 1997; Pitura, 2015), we anticipated that for the speech, anxiety sensitivity would uniquely and positively predict post-event processing. Conversely, socially prescribed perfectionism would show little, if any, predictive effect.
b) In light of their shared ruminative nature (e.g., Clark, 2001; Hewitt & Flett, 2014; Hewitt et al., 2003), we hypothesized that tendency to experience perfectionistic cognitions would uniquely and positively predict post-event processing. Given theory (Hewitt & Flett, 2014), we also expected that perfectionistic self-presentation would display unique effects.

Social Interaction

a) Based on prior research (Hewitt et al, 2003; Rosser et al., 2003), we hypothesized that socially prescribed perfectionism would play a greater role than anxiety sensitivity in predicting post-event processing regarding the social interaction. However, given research on anticipatory processing (Vassilopoulos et al., 2017), we anticipated that anxiety sensitivity would still exert a unique effect on post-event processing regarding the social interaction.
b) In light of their shared ruminative nature (e.g., Clark, 2001; Hewitt & Flett, 2014; Hewitt et al., 2003), we expected that perfectionistic cognitions would uniquely and positively predict post-event processing. Conversely, given prior research (Vassilopoulos et al., 2017), we anticipated perfectionistic self-presentation would not predict post-event processing for the interaction.

After Part Two analyses revealed a similar pattern of results for post-event processing in response to the speech and interaction tasks, we adjusted our hypotheses for Part Three to account for these findings. More specifically, we predicted that for the social interaction task, anxiety sensitivity and perfectionism would display similar effects on post-event processing as

those obtained for the speech condition.

Method – Part Three

Participants

All individuals who completed Part Two were eligible to participate in the final part of this study. Participation was voluntary and individuals were compensated with course credit and/or entries into cash draws (see Appendix A). A total of 156 participants consented to proceed to the final portion of the study, and 144 of these individuals completed Part Three. Five of these participants were excluded due to procedural issues during earlier parts of the study. As such, the final sample consisted of 139 participants who were primarily female (n = 121, 87.1%) and ranged in age from 17 to 52 years (M = 21.47, SD = 5.84). Once again, the majority of participants self-identified as Caucasian (79.9%), single (53.2%), in their first year of university (52.5%), and approximately half (46.80%) were completing a psychology major or minor. See Table 1 for a complete report of demographic information.

Measures

Participants completed the PEPI-S twice during Part Three; once for the speech and once for the interaction task (see Appendices BB and CC). These measures were identical to those administered during the in-lab portion. Both measures displayed good-to-excellent internal consistency (see Table 15).

Procedure

Two days after the in-lab session, participants were emailed a SurveyMonkey.com link with a reminder to complete Part Three by the end of the day. The two measures of post-event processing were presented in a randomized order. Participants then completed a brief mood booster exercise (see Appendix FF), which was intended to increase their positive affect

following study completion. Lastly, participants were fully debriefed via an online debriefing form (see Appendix O). Participants were asked to complete Part Three two days after the in-lab session but were permitted to do so up until one week had passed. Participants who had not completed it after two days were sent a reminder email, and those who had still not completed it within the one-week timeframe were sent the final debriefing form via email. Participants were compensated with 0.25 course credit towards an eligible undergraduate psychology course and one ballot for a $25 cash draw. Those who were ineligible for course credit, or did not wish to obtain it, once again received an additional entry into the draw.

Results – Part Three

Data Screening

Of those participants who completed Part Three, 46.76% were missing at least one self-report item throughout the course of the study. However, the overall proportion of missing data was small (0.60 %) and Little's (1998) MCAR test suggested that data were MCAR, $\chi 2 = 1806.71$, $df = 25673$, $p = 1.00$. Given the number of individuals missing at least partial data, we once again used multiple imputation (10 imputations). Multiple imputed data were examined for the presence of univariate and multivariate outliers. Three univariate outliers were identified on the following variables (one on each): other-oriented perfectionism and speech and interaction-related safety behaviours. Their influences were reduced by adjusting their values to the next closest non-outlier plus one. Mahalanobis Distance once again failed to provide evidence for the presence of multivariate outliers. Table 15 displays descriptive statistics for Part Three. [8]

Potential violations to the assumption of normality were also explored in this sample.

[8] Appendix GG also displays descriptive statistics for the non-imputed data.

Analyses revealed that a number of Part Three variables had skewness and/or kurtosis z-scores greater than a recommended cut-off of ±3.29 (see Table 15). However, the degree of skewness and kurtosis was mild to moderate for all variables, and all absolute values were within the recommended cut-offs provided by West et al. (1995). QQ-plots were again examined and supported the presence of only minor deviations from normality. As such, a decision was made to use non-transformed variables in all Part Three analyses.

Dropouts Versus Completers

We conducted a series of independent samples *t*-tests (and Mann-Whitney U tests for categorical variables) to determine whether participants who dropped out after Part Two differed significantly from those who continued to the final part of the study. Although there were no significant differences between these groups on most Part Two variables, those who proceeded to Part Three reported significantly higher scores on perfectionistic self-promotion and post-event processing immediately following the in-lab speech (see Appendices HH and II).

Correlational Analyses

Prior to testing the main hypotheses for Part Three, exploratory correlations were again conducted to establish relationships among the variables of interest.

Correlations with post-event processing. Pearson correlations were conducted to examine relationships between measures of post-event processing during the speech/interaction and measures of trait SA, state SA, anxiety sensitivity, perfectionism, and depressive symptoms. As displayed in Table 16, most correlations reached statistical significance. Specifically, all measures except for other-oriented perfectionism were significantly and positively correlated with scores on post-event processing following the speech and interaction. Each of these *p*-values retained their significance following an FDR correction.

Correlations between SA, anxiety sensitivity, perfectionism, and depression. Next a series of Pearson correlations were conducted to examine relationships between measures of SA, anxiety sensitivity, perfectionism, and depressive symptoms among those who completed Part Three. As displayed in Table 17, most correlations reached statistical significance, and the only variable that consistently failed to correlate with others was other-oriented perfectionism. This variable was only significantly correlated with scores on self-oriented and socially prescribed perfectionism, perfectionistic cognitions, and perfectionistic self-promotion. As shown in Table 17, depression was also unrelated to scores on self-oriented perfectionism. Finally, the following correlations just failed to reach statistical significance: the correlation between anxiety sensitivity physical concerns and state SA during the speech ($p = .054$) and the relationship between anxiety sensitivity cognitive concerns and state SA during the interaction ($p = .056$). All significant p-values reached an FDR-corrected level of significance.

Regression Analyses

Two hierarchical multiple regressions were subsequently conducted to test the main hypotheses for Part Three. These regressions were set up identically to those in Part Two except the dependant variables were changed to post-event processing in the days following the speech and interaction.

Post-event processing – speech. As displayed in Table 18, inclusion of the variables at step one contributed significantly to the model, $F(3, 134) = 40.42$, $p \leq .001$, $f^2 = .91$, accounting for 47.51% variance in post-event processing. Scores on trait SA, state SA, and depression emerged as unique predictors, but only trait and state SA retained their significance when an FDR correction was applied. At step two of this regression, the inclusion of socially prescribed perfectionism and anxiety sensitivity did not contribute significantly, $F(4, 130) = 2.00$, $p = .10$, f^2

= .06, accounting for only 3.05% unique variance in post-event processing. At this step, scores on state SA and depression retained their significance and anxiety sensitivity social concerns emerged as an additional unique predictor. Only state SA retained its significant following an FDR correction. Finally, inclusion of perfectionistic self-presentation and cognitions did not contribute significantly to the model, $F(4, 126) = .70$, $p = .59$, $f^2 = .02$, and accounted for only 1.08% unique variance. At this step, only state SA emerged as a unique predictor and it remained significant following an FDR correction. The final model accounted for 51.61% variance in post-event processing following the speech.

Post-event processing - interaction. As displayed in Table 18, inclusion of the variables at step one also contributed significantly in predicting post-event processing following the social interaction, $F(3, 134) = 35.19$, $p \leq .001$, $f^2 = .79$. These variables accounted for 44.06% variance in post-event processing. Scores on trait and state SA emerged as unique predictors, and each retained its significance following an FDR correction. At step two, the inclusion of socially prescribed perfectionism and anxiety sensitivity added significantly to the model, $F(4, 130) = 3.25$, $p \leq .05$, $f^2 = .10$, accounting for 5.09% additional variance. Only state SA retained its significance and anxiety sensitivity social concerns emerged as an additional unique predictor. Both retained their significant *p*-values following an FDR correction. Finally, inclusion of perfectionistic self-presentation and cognitions did not contribute significantly to the model, $F(4, 126) = .73$, $p = .57$, $f^2 = .02$, and accounted for only 1.14% unique variance. At this step, only state SA and social concerns emerged as unique predictors and they retained their significant *p*-values following an FDR correction. The final model accounted for 50.31% variance in post-event processing following the interaction.

Discussion

The purpose of Part Three was to determine whether anxiety sensitivity or trait socially prescribed perfectionism predicted post-event processing in the days following the in-lab tasks. We also explored whether expression-based features of perfectionism explained additional variance beyond the trait variables. The results from Part Three partially supported our revised hypotheses. As expected, a tendency to fear publicly observable symptoms of anxiety predicted higher levels of post-event processing regarding the social interaction. This facet of anxiety sensitivity also showed a trend towards predicting post-event processing for the speech task (i.e., before the FDR correction). While other aspects of anxiety sensitivity and perfectionism were positively correlated with post-event processing for the in-lab tasks, these variables did not emerge as unique predictors.

Overall, these findings are partially consistent with prior research. Similar to Pitura (2015), we found that anxiety sensitivity predicted higher levels of post-event processing in response to social situations. However, our findings contradict those by Kocovski and Rector (2007) and suggest that under more controlled conditions, certain aspects of anxiety sensitivity do influence state levels of post-event processing. They also show that even among a non-clinical sample, these effects are sustained for days following a social interaction (and marginally so for an impromptu speech). In fact, we found that for the social interaction condition, the effect of social concerns was larger after a two-day delay, which was particularly surprising as participants did not report a significant increase in anxiety in response to this social manipulation. In contrast, socially prescribed perfectionism did not influence post-event processing regarding either social situation. These findings are consistent with those obtained from Part Two and indicate that even though some researchers have identified socially

prescribed perfectionism as a predictor of post-event processing following a speech (Brown & Kocovski, 2014), this relationship does not emerge beyond the effect of anxiety sensitivity.

Of note from Part Three, was also the fact that we found no effect of expression-based features of perfectionism on post-event processing. Consistent with Part Two, we found that public expressions of perfectionism did not influence post-event processing regarding the speech or social interaction. Thus, while a tendency to conceal imperfections may predict higher scores on general post-event processing (Part One), self-presentation does not influence post-event processing at a state-level. These findings support the idea of assessing post-event processing as both a state and trait variable (Blackie & Kocovski, 2017). Conversely, similar to Part Two, these findings may indicate that the effects of perfectionistic self-presentation dissipate under conditions of more rigorous research design.

In regard to private expressions of perfectionism, perfectionistic cognitions did not predict post-event processing in the days following the in-lab tasks. This suggests that perfectionistic cognitions may predict post-event processing immediately following social situations (as in Part Two), but that their effects may diminish over time. Notably, researchers have conceptualized perfectionistic cognitions as a personality state (Flett & Hewitt, 2014). Therefore, it is possible that private expressions of perfectionism have a more dynamic relationship with post-event processing. For instance, while more frequent perfectionistic cognitions may predict higher post-event processing immediately following a social situation, engaging in post-event processing may subsequently elicit further perfectionistic cognitions. As suggested by Flett and Hewitt (2014), this may ultimately result in a self-fulling prophecy in which ruminating about prior social blunders elicits pressure to improve and cognitive preoccupation in the form of perfectionistic cognitions. Unfortunately, this cycle may then

interfere with one's ability to function during subsequent social situations (Flett & Hewitt, 2014). Future research should explore this possibility using more dynamic methods of data collection (e.g., daily diary or ambulatory assessment techniques; Helbig-Lang, von Auer, Neubauer, Murray, & Gerlach, 2016; Mackinnon et al., 2014). Overall, however, findings from Part Three indicate that while private expressions of perfectionism may predict post-event processing immediately following social situations (Part Two), these effects dissipate over longer intervals and are less robust than those of anxiety sensitivity.

Limitations

Despite further clarifying the roles of anxiety sensitivity and perfectionism in post-event processing, Part Three also contained a number of limitations. Firstly, participants were permitted to complete the post-event processing questionnaires anywhere from between two and seven days following the in-lab session. As a result of this variability, responses from those who waited longer to complete the questionnaires may have been influenced by a greater amount of recall bias. Although we permitted this flexibility as a means of reducing the likelihood of dropout, it would have been preferable to assess post-event processing within the same timeframe for all participants.

Secondly, in accordance with earlier portions of the study, a number of participants chose not to continue to Part Three. While we found few differences between these participants and those who proceeded to the final part of the study, our findings indicated that those who discontinued reported significantly lower levels of perfectionistic self-promotion and less post-event processing immediately following the speech. Once again, while we cannot determine the exact reason for this, it is possible our recruitment strategy played a role. Although these discrepancies were relatively minor in magnitude, they may once again influence the

representativeness, generalizability, and replicability of our findings (McKnight et al., 2007). Nevertheless, we believe it would have been more problematic had the participants who were higher on these variables opted to discontinue, as we would have been unable to collect data from the students our findings may be most relevant to (i.e., those who engage in high levels of post-event processing or perfectionistic self-promotion).

General Discussion

Overall, the purpose of our study was to explore the relative roles of anxiety sensitivity and perfectionism in predicting various anxiety-maintaining factors implicated in cognitive behavioural models of SA. In order to get a more thorough understanding of these relationships, we explored individual facets of anxiety sensitivity and conceptualized perfectionism as a multidimensional construct comprised of trait and expression-based features. In Part One, we explored their influence on trait levels of anticipatory processing, self-focused attention, self-imagery perspective, safety behaviours, and post-event processing. Then we used two prototypical social situations to examine these relationships at a state level (Parts Two and Three).

Throughout all portions of our study we established predictive effects of anxiety sensitivity on SA-maintaining factors. While previous research has linked anxiety sensitivity to a number of these factors (Kocovski & Rector, 2007; Pitura, 2015; Vassilopoulos et al., 2017), our findings contribute to the existing literature in a number of important ways. Our study is the first to demonstrate that the social concerns facet of anxiety sensitivity in particular influences cognitive and behavioural responses to social situations. While cognitive concerns also exerted some specific effects (i.e., a positive effect on trait post-event processing and negative effect on self-focused attention during the speech), these relationships were inconsistent. Although this is

the first study to directly examine these relationships, our findings are consistent with prior research linking the social concerns facet of anxiety sensitivity to SA more broadly (e.g., Naragon-Gainey et al., 2010; Olatunji & Wolitzky-Taylor, 2009; Rector et al., 2007). Furthermore, we are the first to show that the effects of anxiety sensitivity emerge across different types of social situations, and that these relationships extend beyond the effects of socially prescribed perfectionism.

While previous research has repeatedly linked trait perfectionism to most of the SA-maintaining factors (Brown & Kocovski, 2014; Cox & Chen, 2015; Scott et al., 2014; Vassilopoulos et al., 2017), our findings demonstrated that the socially prescribed component of perfectionism does not predict these variables beyond the effects of anxiety sensitivity. In fact, the only variable influenced uniquely by socially prescribed perfectionism was general tendency to experience post-event processing. These findings indicate a reasonable amount of overlap between anxiety sensitivity and this facet of EC perfectionism. They are consistent with theory suggesting those higher in perfectionism also experience higher levels of anxiety sensitivity, perhaps as a result of the individual applying their all-or-nothing mentality to anxiety itself (Ellis, 2002). Similarly, these findings are in accordance with research showing relationships between aspects of perfectionism and anxiety sensitivity (Ellis, 2002; Erozkan, 2016; Flett et al., 2004). Interestingly, correlational findings from our study indicate that perfectionism, similar to SA, is most strongly associated with the social concerns facet of anxiety sensitivity.

Although socially prescribed perfectionism generally failed to predict the SA-maintaining factors, our study revealed unique effects of expression-based features of this trait. More specifically, we found that perfectionistic self-presentation and/or cognitions influenced a number of cognitive and behavioural responses to social situations. While previous research has

provided evidence of a relationship between perfectionistic self-presentation and anticipatory processing (Vassilopoulos et al., 2017), ours is the first study to link expression-based features of perfectionism to SA-related self-focused attention, safety behaviours, and post-event processing. It is also the first to establish a relationship between anticipatory processing and perfectionistic cognitions. Overall, these findings emphasize the relevance of expression-based aspects of perfectionism to SA (Flett & Hewitt, 2014).

Interestingly, we found that when respondents rated how often they typically responded to social situations, perfectionistic self-presentation influenced a number of SA-maintaining factors, and perfectionistic cognitions influenced anticipatory processing. In contrast, when participants were asked to rate how they responded to the specific in-lab tasks, only perfectionistic cognitions influenced cognitive and behavioural responses. Although these patterns may indicate that different variables predict trait and state responses to social situations, they could also reflect differences in the designs used across portions of our study. More specifically, in Part Two we assessed our independent variables before participants engaged in either social situation. As such, we were able to demonstrate directionality in the relationships between perfectionistic cognitions and responses to the social stressors. Conversely, in Part One we assessed our variables simultaneously. Thus, while perfectionistic self-presentation may predict general tendency to experience SA-maintaining factors, it is possible that the opposite is true (i.e., that dispositional tendency to experience these SA-maintaining factors actually serves to increase perfectionistic self-presentation). Although future research should explore this possibility, these findings highlight the importance of not relying exclusively on cross-sectional methods.

A notable strength of our study was our consideration of how anxiety sensitivity and perfectionism influenced both trait and state responses to social situations. This an important contribution as researchers have repeatedly distinguished between dispositional tendencies (i.e., traits) and state-like fluctuations in these traits across situations (Steyer, Schmitt, & Eid, 1999). However, researchers have also voiced concerns regarding the usefulness of the trait model. For instance, Steyer et al. (1999) noted that while temporal stability and cross-situational consistency are inherent characteristics of a trait, they tend to display relatively poor consistency across situations. Moreover, given the influence that testing conditions can have on an individual's responses to self-report questionnaires (Naragon-Gainey, Gallagher, & Brown, 2013; Steyer, Mayer, Geiser, & Cole, 2015), researchers have cautioned about the limitations of assessing trait variables on a single occasion. More specifically, Steyer et al. (2015) emphasized how cross-sectional assessment of a trait makes it impossible to distinguish between the effects of the trait, the situation, or a combination the two at a particular moment in time. This may serve as a confound while assessing trait variables, thereby threatening their validity and reliability. Accordingly, some researchers have discussed the potential value of using multiple state-like assessments to capture trait variables (for a review see Steyer et al., 1999; Zuckerman, 1983), and theoretical approaches have been developed that enable researchers to better assess the proportion of variance in a construct that is attributable to the trait, the situation, a combination of the two, and measurement error (Steyer et al., 1999; Steyer et al., 2015). Thus, it may be beneficial for researchers to re-examine the effects of anxiety sensitivity and perfectionism using these types of research methods in the future.

With the exception of self-imagery perspective, the current study found that anxiety sensitivity and perfectionism displayed largely similar relationships with each SA-maintaining.

Given that researchers have previously distinguished between these cognitive and behavioural factors (Clark, 2001; Clark & Wells, 1995; Heimberg, 2010; Rapee & Heimberg, 1997), one might have anticipated differences to have emerged across our outcome variables. Our findings are consistent with the notion that these anxiety-maintaining factors are conceptually-related, despite distinctions being made within research contexts. Additionally, they highlight the possibility that each factor serves as a manifestation of a broader cognitive and/or behavioural variable (e.g., fear of negative evaluation or general tendency to self-focus).

Although previous researchers have typically used public speaking or conversation tasks as behavioural tests of SA, few studies have compared outcomes across these social stressors (Kiko et al., 2012). By subjecting our participants to both types of social situations, we were able to examine whether the effects of anxiety sensitivity and perfectionism varied based on the nature of the social situation. Unexpectedly, we found relatively few differences, thereby suggesting the effects of these variables are not situation specific. Nevertheless, future research should attempt to replicate these findings and extend them to different types of social situations (e.g., attending a party, a date, or a job interview).

Interestingly, while anxiety sensitivity and perfectionism predicted most SA-maintaining factors, they consistently failed to predict self-imagery perspective. More specifically, aside from some trends (i.e., effects of trait SA in Part One and social concerns in Part Two), all variables across our study failed to influence the likelihood of adopting an observer-perspective. In Part Two we also failed to find correlations between this variable and measures of SA. Although this is the first study to examine these relationships, the findings are surprising for a number of reasons. First, they fail to support theory linking a shift in perspective to increased levels of SA (Clark, 2001; Clark & Wells, 1995). Furthermore, given that we found anxiety sensitivity and

perfectionism to influence other self-focused processes (i.e., anticipatory processing, self-focused attention, and post-event processing), one would expect similar results to emerge for this variable. While these findings suggest anxiety sensitivity and perfectionism do not influence the likelihood of adopting an observer-perspective, a number of potential limitations should be noted. Firstly, although previous studies have used the VAS as a measure of self-imagery perspective (Hackmann et al., 1998; Wells et al., 1998), both used this variable to examine differences between those with and without SA disorder, and neither examined predictors of this variable among non-clinical samples. In fact, while researchers have manipulated self-imagery perspective among those without SA disorder (Ng, Abbott, & Hunt, 2014), some have suggested that only those with clinically significant SA experience this shift in perspective naturally (Coles, 2001). Moreover, unlike our other dependent variables, the VAS was comprised of a single item, which may threaten its validity and/or reliability. Finally, while our study focused specifically on imagery perspective, it is possible that anxiety sensitivity and perfectionism influence other aspects of self-imagery such as the frequency, intensity, or vividness at which it occurs, or how long it persists.

Clinical Implications

Although evidently warranting replication in clinical samples, the findings from our study could have a number of clinical implications. Widely supported cognitive behavioural interventions for SA often target the anxiety-maintaining factors examined in this study (e.g., Clark, 2005; Heimberg et al., 2010). However, if dispositional variables like anxiety sensitivity and perfectionism also influence these factors, it may be more effective to directly target these dispositions. Although some treatment protocols do incorporate strategies to address fears of publicly observable symptoms of anxiety or high standards or expectations regarding social

performance (e.g., Hope, Heimberg, & Turk, 2006), it is less common for protocols to focus specifically on these personality characteristics. Furthermore, researchers have previously noted relatively small reductions in trait perfectionism in response to traditional CBT for SA disorder (Flett & Hewitt, 2014), which has led some researchers to emphasize the importance of tailoring treatment to directly address this trait (Ashbaugh et al., 2006).

In addition to providing support for the value of more focused interventions, our findings could help identify which aspects of anxiety sensitivity and perfectionism to target. Regarding anxiety sensitivity, our findings support the notion of focusing specifically on reducing fears of publicly observable symptoms of anxiety. Although this might be accomplished using conventional cognitive techniques (e.g., restructuring), interoceptive exposure may also be particularly helpful in this regard. Unfortunately, relatively few empirically-supported interoceptive exposure tasks have been developed specifically to target fears of blushing, sweating, or trembling in front of others (Dixon et al., 2015). Our study suggests additional research into this topic is warranted. Similarly, the results from our study could help identify those aspects of perfectionism worth addressing during treatment for SA disorder. More specifically, they highlight the relevance of expression-based features of perfectionism, which may easily lend themselves to traditional cognitive behavioural techniques such as cognitive restructuring or behavioural experiments. Notably, although the majority of clients will likely respond to traditional cognitive behavioural treatments for SA, our findings suggest that for those failing to make progress, it might be beneficial to explore the possible role of anxiety sensitivity and perfectionism. Nevertheless, future research is warranted to explore these relationships among those with diagnostically significant SA.

General Limitations and Future Directions

Despite its contribution to the SA literature, this study has a number of general limitations. Firstly, across all portions of our study we used socially prescribed perfectionism as the primary measure of EC perfectionism. Although research has demonstrated that this variable represents one aspect of evaluative concerns (Dunkley et al., 2012), it is possible other components (e.g., concern over mistakes, doubt about actions, parental expectations, parental criticism, and the discrepancy between standards and performance) play a more significant role in SA and would have exerted unique effects beyond anxiety sensitivity. Future research should explore this possibility. Additionally, we consider it a strength that our study simultaneously examined the roles of multidimensional anxiety sensitivity and perfectionism. Although we found that overall, our predictor variables explained a substantial amount of variance in the SA-maintaining factors, anxiety sensitivity and perfectionism generally exerted small to medium effects as per Cohen's (1988) guidelines. Notably, however, previous research has established relationships between SA and other dispositional variables, including (but not limited to) neuroticism and (low) extraversion (Naragon-Gainey & Watson, 2011; Naragon-Gainey & Watson, 2018; Newby et al., 2017). As such, further research is warranted to explore the influence of anxiety sensitivity and perfectionism in relation to other personality-related variables.

Additionally, across all three parts of the study we used a convenience sample of university students who were primarily Caucasian and female. This limits the generalizability of our findings for a number of reasons. Firstly, researchers have criticized the field for using convenience samples drawn from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies, which may not be representative of the larger population (Henrich et al.,

2010; Arnett, 2008). Additionally, while our study was comprised primarily of female participants, sex differences have been noted when it comes to SA (Jalnapurkar, Allen, & Pigott, 2018), as well as certain aspects of anxiety sensitivity (Stewart, Taylor, & Baker, 1997) and perfectionism (Macsinga & Dobrița, 2010). Furthermore, while it is unclear whether ethnicity is related to anxiety sensitivity (Peterson & Plehn, 2014), research has provided evidence for ethnic variations in SA (e.g., Krieg & Xu, 2015; Lesure-Lester & King, 2004) and perfectionism (Castro & Rice, 2003). Therefore, future research is warranted to explore whether the relationships observed in our study also apply to more diverse populations.

Another major limitation of our study is that we relied exclusively on a non-clinical sample, which may similarly limit the generalizability of our findings. Although theory has suggested the cognitive and behavioural processes implicated in SA should extend to subclinical levels of anxiety (Rapee & Heimberg, 1997), it is possible our findings would have differed had we used a sample of individuals diagnosed with SA disorder. Interestingly, researchers have previously established cutoffs for discriminating between clinical and subclinical levels of SA using the SIAS-6 and SPS-6 (i.e., scores of ≥ 7 and ≥ 2, respectively). In our sample, the majority of participants exceeded these cutoffs (i.e., SIAS-6: 55.59% and SPS-6: 75.27%), with 52.39% of participants exceeding them on both measures. While these findings suggest that the majority of our participants experienced relatively high levels of SA, they do not mitigate the importance of replicating these findings with a clinical sample.

Although one of the strengths of our study was the inclusion of a social interaction task, a major limitation of this task was that it failed to consider sexual preference. More specifically, consistent with prior research (Kiko et al., 2012; Mellings & Alden, 2000), we had participants interact with a member of the opposite sex. This was done under the assumption that for the

majority of participants, this would elicit higher levels of anxiety. Notably, however, this may not have been true for all participants; especially those with same sex preferences or equal attraction to both sexes. As such, a more inclusive approach may have been to tailor the social interaction by asking participants in advance whether they generally find same- or opposite-sex interactions more anxiety-provoking (e.g., by including a questionnaire item on Part One).

Another major limitation of our study is the fact that we relied exclusively on self-report data. Although commonly used in the SA literature (Kampmann, Emmelkamp, & Morina, 2018), researchers have noted limitations with these methods and recommended they be accompanied by alternative ones (Paulhus & Vazire, 2007). These might include informant-ratings, behavioural observations, and physiological data. In fact, prior research has shown unique variance between self-report and observer-ratings of personality (Connolly, Kavanagh, & Viswesvaran, 2007). As such, we may have obtained valuable information had we included observer or more objective ratings of perfectionism and anxiety sensitivity. Future studies might therefore benefit from re-examining these relationships using a multi-method approach.

Finally, given the problems associated with using complete case analysis to handle missing data (Plumpton, Morris, Hughes, & White, 2016; Sinharay, Stern & Russel, 2001), we opted to use multiple imputation. Although most of our results were consistent across the original and imputed datasets, we found some minor discrepancies in which the magnitude of the effects varied across datasets; most often failing to reach significance using complete case analysis. Notably, however, the direction of these effects was consistent across datasets (e.g., positive predictors remained positive and negative ones remained negative). Moreover, researchers have emphasized the accuracy of multiple imputation over complete case analysis

(Plumpton et al., 2016), and have accordingly recommended that multiple imputed results be given preference when discrepancies emerge (Mackinnon, 2010).

Conclusion

This study is the first to simultaneously examine the effects of anxiety sensitivity and perfectionism on various SA-maintaining factors. It is also the first to explore whether these relationships vary across types of social situations. Overall, our findings suggest that anxiety sensitivity uniquely predicts various SA-maintaining factors (i.e., anticipatory processing, self-focused attention, safety behaviours, and post-event processing) at both a trait and state-level. While the effects of socially prescribed perfectionism were less consistent, this variable also predicted significantly higher levels of trait post-event processing. In contrast, expression-based features of perfectionism showed more consistent effects on SA-maintaining factors. In particular, our findings suggest that perfectionistic self-presentation predicts general tendency to experience anticipatory processing, self-focused attention, safety behaviour, and post-event processing in response to social situations. Trait levels of post-event processing are also influenced by perfectionistic cognitions. Alternatively, our findings provide evidence that private expressions of perfectionism have a greater influence on state responses to social situations (i.e., a speech and interaction) under more controlled conditions. In regard to post-event processing, our results from Part Three indicate that these effects seem to dissipate relatively quickly after the social stressor has ended. Despite warranting replication, the results from this study help clarify the relative roles of anxiety sensitivity and perfectionism in SA and those cognitive and behavioural factors posited to maintain it.

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Table 1

Demographic Information for Participants Across Parts One, Two, and Three

Demographic variable	Part One (N = 376)		Part Two (N = 158)		Part Three (N = 139)	
Sex:	*n*	%	*n*	%	*n*	%
Male	58	15.4%	24	15.2%	18	12.9%
Female	318	84.6%	134	84.8%	121	87.1%
Ethnicity:						
White/Caucasian	305	81.1%	125	79.1%	111	79.9%
Asian	18	4.8%	8	5.1%	7	5.0%
Black/African Canadian	18	4.8%	11	7.0%	9	6.5%
Indigenous (First Nations/Métis/Inuit)	15	4.0%	3	1.9%	2	1.4%
Other	18	4.8%	10	6.3%	9	6.5%
Year of university:						
Year one	205	54.5%	82	51.9%	73	52.5%
Year two	72	19.1%	33	20.9%	27	19.4%
Year three	55	14.6%	19	12.0%	17	12.2%
Year four	26	6.9%	11	7.0%	10	7.2%
Year five or more	18	4.8%	13	8.2%	12	8.6%
Enrollment status:						
Full-time student	349	92.8%	149	94.3%	132	95.0%
Part-time student	19	5.1%	6	3.8%	5	3.6%
Both	1	0.3%	1	0.6%	1	0.7%
Psychology status:						
Completing psychology major	133	35.4%	58	36.7%	51	36.7%
Completing psychology minor	32	8.5%	15	9.5%	14	10.1%
Neither	211	56.1%	85	53.8%	74	53.2%
Employment status:						
Part-time	124	33.0%	50	31.6%	44	31.7%
Full-time	10	2.7%	5	3.2%	4	2.9%
Both	1	0.3%	0	0%	0	0%
Unemployed	40	10.6%	24	15.2%	21	15.1%
Relationship status:						
Married/common law	24	6.4%	14	8.9%	11	7.9%
In a relationship but not married/common law	162	43.1%	65	41.1%	54	38.8%
Single	190	50.5%	79	50.0%	74	53.2%
Lifetime mood/anxiety disorder diagnosis:						
Yes	102	27.1%	51	32.3%	46	33.1%
No	272	72.3%	107	67.7%	93	66.9%
Taking prescription for mood/anxiety disorder:						
Yes	52	13.8%	21	13.3%	18	12.9%
No	323	85.9%	137	86.7%	121	87.1%

Note. % represents valid percent.

Table 2

Part One Descriptive Statistics

Measure	*N*	*M*	*SE*	*α*	*Skewness z* [b]	*Kurtosis z* [b]
SA composite	376	16.58	0.61	.93	3.63 (3.56, 3.71)	-2.43 (-2.51, -2.36)
SIAS	376	8.23	0.29	.86	3.76 (3.68, 3.90)	-1.96 (-2.03, -1.82)
SPS	376	8.35	0.35	.92	3.85 (3.79, 3.91)	-3.17 (-3.26, -3.11)
ASBQ	376	31.76	0.40	.92	-3.62 (-3.71, -3.55)	0.40 (0.26, 0.49)
TSFAQ	376	30.22	0.80	.95	1.12 (1.04, 1.18)	-2.96 (-3.00, -3.92)
VAS trait	133	-2.00 [a]	—	—	—	—
SPSBS	376	39.78	0.56	.92	1.86 (1.80, 1.94)	-1.02 (-1.06, -0.99)
PEPI-T	376	36.68	0.61	.85	-0.24 (-0.27, -0.19)	-2.59 (-2.63, -2.57)
ASI total	376	24.93	0.83	.94	4.80 (4.71, 4.88)	-0.56 (-0.65, -0.45)
Physical	376	6.65	0.31	.89	7.02 (6.94, 7.10)	0.39 (0.24, 0.52)
Cognitive	376	7.14	0.32	.91	6.15 (6.03, 6.23)	-0.88 (-1.04, -0.79)
Social	376	11.14	0.32	.86	2.07 (1.95, 2.18)	-3.05 (-3.10, -3.02)
MPS SOP	376	68.78	0.81	.90	1.07 (1.01, 1.14)	-1.63 (-1.68, -1.59)
MPS SPP	376	58.85	0.69	.85	0.37 (0.26, 0.45)	-1.40 (-1.47, -1.31)
MPS OOP	376	56.74	0.54	.73	-1.82 (-1.93, -1.66)	1.06 (0.89, 1.15)
PSPS self-promotion	376	43.79	0.59	.90	-0.57 (-0.69, -0.48)	-1.78 (-1.85, -1.72)
PSPS nondisplay	376	47.06	0.63	.92	-2.31 (-2.41, -2.20)	-2.04 (-2.12, -1.95)
PSPS nondisclosure	376	27.16	0.42	.83	1.04 (0.95, 1.24)	-0.50 (-0.62, -0.39)
PCI	376	52.35	1.04	.95	-0.88 (-0.95, -0.83)	-1.53 (-1.56, -1.51)
DASS-21-D	376	13.06	10.67	.92	6.48 (6.41, 6.61)	0.05 (-0.06, 0.21)

Note. Data from the VAS Trait reflect only on those participants who acknowledged a tendency to experience a mental image/impression in response to social situations. All values except the VAS represent pooled estimates from multiple imputed data. *M* = mean, *SE* = standard error, α = Cronbach's alpha, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷ SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASBQ = Anticipatory Social Behaviours Questionnaire, TSFAQ = Trait Self-Focused Attention Questionnaire, VAS-Trait = Visual Analogue Scale-Trait, PEPI-T = Post-Event Processing Inventory-Trait, ASI-3 = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, and DASS-21-D = Depression Anxiety Stress Scale-21-Depression. [a] represents the mode given that the VAS was treated as an ordinal variable. [b] Pooled estimates are not provided in SPSS so values reflect researcher-generated means with minimum and maximum values in brackets.

Table 3

Bivariate Correlations Between SA-Maintaining Factors and Predictor Variables for Part One

	SA-Maintaining Factor				
Predictor variable	ASBQ-T	TSFAQ	VAS-T	SPSBS-T	PEPI-T
1. SA composite	.58***	.72***	.24**	.78***	.66***
2. SIAS	.50***	.62***	.24**	.74***	.59***
3. SPS	.59***	.72***	.21*	.74***	.65***
4. ASI physical	.41***	.55***	.01	.41***	.44***
5. ASI cognitive	.43***	.56***	.03	.47***	.56***
6. ASI social	.61***	.78***	.11	.69***	.66***
7. MPS SOP	.34***	.32***	-.05	.31***	.33***
8. MPS SPP	.32***	.35***	-.06	.36***	.41***
9. MPS OOP	.003	.001	-.08	-.02	-.06
10. PCI	.50***	.48***	.09	.49***	.50***
11. PSPS self-promotion	.50***	.47***	.03	.47***	.48***
12. PSPS nondisplay	.60***	.61***	.14	.65***	.66***
13. PSPS nondisclosure	.42***	.42***	.14	.49***	.47***
14. DASS-D	.40***	.46***	.14	.49***	.57***

Note. $N = 376$ for all analyses except those involving the VAS-T. Data from the VAS Trait reflect only on those participants who acknowledged a tendency to experience a mental image/impression in response to social situations ($n = 133$). Coefficients for the ASBQ-T, TSFAQ, SPSBS-T, and PEPI-T reflect Pearson's correlations. Coefficients for the VAS-T reflect Spearman's correlations. All values are based on multiple imputed data and pooled estimates provided by SPSS. All results remained consistent when the non-imputed data were analyzed. All significant results remained significant when a False Discovery Rate critical value was applied (critical value = .0425). ASBQ-T = Anticipatory Social Behaviours Questionnaire-Trait, TSFAQ = Trait Self-Focused Attention Questionnaire, VAS-T = Self-Imagery Visual Analogue Scale-Trait, SPSBS-T = Social Phobia Safety Behaviour Scale-Trait, PEPI-T = Post-Event Processing Inventory-Trait, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 4

Pearson Correlations Between Social Anxiety, Anxiety Sensitivity, Perfectionism, and Depression for Part One

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1. SA composite	—												
2. SIAS	.93***	—											
3. SPS	.95***	.78***	—										
4. ASI physical	.44***	.35***	.47***	—									
5. ASI cognitive	.52***	.43***	.54***	.66***	—								
6. ASI social	.68***	.59***	.69***	.64***	.63***	—							
7. MPS SOP	.30***	.25***	.31***	.20***	.24***	.38***	—						
8. MPS SPP	.41***	.35***	.41***	.28***	.37***	.40***	.53***	—					
9. MPS OOP	.01	-.05	.05	.09	-.01	.002	.30***	.22***	—				
10. PCI	.48***	.40***	.50***	.34***	.43***	.49***	.68***	.58***	.16**	—			
11. PSPS self-promotion	.40***	.31***	.43***	.28***	.38***	.52***	.66***	.54***	.16**	.67***	—		
12. PSPS nondisplay	.60***	.53***	.60***	.35***	.43***	.66***	.54***	.52***	.02	.63***	.73***	—	
13. PSPS nondisclosure	.52***	.46***	.51***	.28***	.40***	.49***	.43***	.53***	.04	.48***	.65***	.66***	—
14. DASS-D	.56***	.49***	.57***	.37***	.56***	.50***	.15**	.36***	-.11*	.42***	.38***	.49***	.48***

Note. $N = 376$. All values are based on multiple imputed data and pooled estimates. Results were consistent when the non-imputed data were analyzed. All significant results remained significant when a False Discovery Rate critical value was applied (critical value = .0435 for imputed data). SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression.

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 5

Summary of Hierarchical Multiple Regressions Predicting SA-Maintaining Factors During Part One

Predictor	ASBQ-T				TSFAQ				SPSBS-T				PEPI-T			
Step 1	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2
SA composite	**.34*****	.03	.52	.29	**.88*****	.06	.67	.63	**.67*****	.04	.73	.95	**.50*****	.05	.50	.33
DASS-D	.07*	.04	.10	.01	.13*	.06	.09	.01	.08*	.04	.08	.01	**.32*****	.05	.29	.11
Change in R^2		.34				.52				.61				.49		
F change		97.89***				200.20***				294.68***				177.78***		
Step 2																
SA composite	**.19*****	.04	.29	.07	**.46*****	.06	.35	.18	**.51*****	.04	.56	.42	**.27*****	.05	.26	.07
DASS-D	.02	.04	.03	.00	-.03	.06	-.02	.00	.05	.04	.05	.00	**.20*****	.05	.18	.04
MPS SPP	.02	.03	.04	.00	-.03	.04	-.02	.00	.01	.03	.01	.00	**.08**^{*a}	.03	.08	.01
ASI physical	.03	.07	.02	.00	.17	.11	.07	.01	-.10	.08	-.05	.00	-.11	.10	-	.00
ASI cognitive	.01	.08	.01	.00	.12	.11	.05	.00	-.05	.08	-.03	.00	**.24***	.10	.12	.01
ASI social	**.46*****	.08	. 37	.09	**1.22*****	.12	.49	.28	**.59*****	.09	.34	.13	**.61*****	.11	.32	.09
Change in R^2		.08				.16				.05				.08		
F change		13.02***				45.52***				13.14***				16.83***		
Step 3																
SA composite	**.17*****	.04	.25	.05	**.46*****	.06	.35	.16	**.48*****	.04	.52	.35	**.22*****	.05	.22	.05
DASS-D	-.01	.04	-.01	.00	-.03	.06	-.02	.00	.02	.04	.02	.00	**.17*****	.05	.16	.03
MPS SPP	-.06*	.03	-.11	.01	-.07^{b}	.05	-.06	.01	-.06^{c}	.03	-.07	.01	.02	.04	.03	.00
ASI physical	.08	.07	.06	.00	.21	.11	.08	.01	-.05	.08	-.03	.00	-.05	.10	-	.00
ASI cognitive	.003	.07	.00	.00	.12	.11	.05	.00	-.04	.08	-.03	.00	**.27****	.10	.14	.02
ASI social	**.25****	.08	.21	.03	**1.04*****	.13	.42	.17	**.41*****	.09	.23	.05	**.34****	.11	.18	.03
PSPS self-promo.	.09*	.04	.13	.01	.09	.07	.07	.01	.01	.05	.01	.00	-.004	.06	-	.00
PSPS nondisplay	**.12****	.04	.20	.02	.14*	.07	.11	.01	**.17*****	.05	.19	.04	**.30*****	.06	.31	.07
PSPS nondisclos.	-.05	.05	-.05	.00	**-.20**^{*a}	.09	-.10	.02	-.003	.06	-.002	.00	-.12	.07	-	.01
PCI	**.05**^{*a}	.02	.14	.02	.03	.03	.04	.00	.03^{b}	.02	.05	.00	.01	.03	.02	.00
Change in R^2		.06				.01				.02				.04		
F change		11.40***				4.19**				6.66***				8.84***		
FDR critical (5%)		.0238				.0214				.0214				.0357		

Note. $N = 376$. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Results were mainly consistent when the non-imputed data were analyzed; any discrepancies are noted in superscript. False Discovery Rate (FDR) corrections were applied only to the model coefficients of each regression. SA composite = Social Interaction Anxiety Scale-6 + Social Phobia Scale-6, DASS-D = Depression Anxiety Stress Scale-21-Depression, MPS SPP = Hewitt and Flett Multidimensional Perfectionism Scale-Social Prescribed Perfectionism, ASI-3 = Anxiety Sensitivity Index-3, PSPS = Perfectionistic Self-Presentation Scale, and PCI = Perfectionistic Cognitions Inventory. **Bolded values represent multiple imputed coefficients that remained significant following an FDR correction.** [a] $p > .05$ for non-imputed data. [b] $p \leq .05$ for non-imputed data. [c] $p \leq .01$ for non-imputed data. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 6

Summary of Ordinal Logistic Regression Predicting Self-Imagery Perspective during Part One

Predictor	*B*	SE B	Wald	*df*	*p*	Odds Ratio
SA composite	.05*[a]	.02	4.96	1	.03	1.05
DASS-D	.02	.02	.94	1	.34	1.02
MPS SPP	-.02	.01	2.11	1	.15	.98
ASI physical	.001	.04	.01	1	.97	1.00
ASI cognitive	-.05	.04	1.52	1	.22	.96
ASI social	-.03	.05	.45	1	.51	.97
PCI	.002	.01	.04	1	.84	1.00
PSPS self-promotion	-.02	.02	.66	1	.42	.98
PSPS nondisplay	.01	.03	.18	1	.67	1.01
PSPS nondisclosure	.04	.03	2.52	1	.11	1.05
Nagelkerke				.12		
McFadden				.04		
-2Log-Likelihood				467.76		
Likelihood ratio test				17.04 (df = 10, p = .07)		

Note. n = 123. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Results were mainly consistent when the non-imputed data were analyzed; any discrepancies are noted in superscript. False Discovery Rate (FDR) corrections were applied only to the model coefficients. No results remained significant following an FDR correction (multiple imputed critical value = .003). SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, DASS-D = Depression Anxiety Stress Scale-21-Depression, ASI = Anxiety Sensitivity Index-3, PCI = Perfectionistic Cognitions Inventory, and PSPS = Perfectionistic Self-Presentation Scale. [a] $p >$ .05 for non-imputed data.

* $p \leq .05$ for imputed data (two-tailed).

Table 7

Part Two Descriptive Statistics

Measure	*N*	*M*	*SE*	*α*	Skewness z [b]	Kurtosis z [b]
SA composite	158	17.98	0.94	.93	1.56 (1.54, 1.56)	-1.98 (-1.98, -1.97)
SIAS	158	8.86	0.45	.84	1.70 (1.67, 1.72)	-1.76 (-1.78, -1.75)
SPS	158	9.12	0.55	.91	1.76 (1.76, 1.76)	-2.45 (-2.45, -2.45)
ASI total	158	25.10	1.21	.93	3.44 (3.37, 3.50)	-0.25 (-0.29, -0.21)
Physical	158	6.53	0.45	.86	4.98 (4.88, 5.07)	0.99 (0.88, 1.09)
Cognitive	158	6.79	0.48	.90	5.25 (5.12, 5.35)	0.74 (0.58, 0.82)
Social	158	11.77	0.50	.87	1.04 (0.94, 1.18)	-2.36 (-2.42, -2.32)
MPS SOP	158	71.93	1.30	.92	0.25 (0.20, 0.30)	-1.19 (-1.22, -1.18)
MPS SPP	158	60.91	1.16	.89	-0.28 (-0.31, -0.21)	-1.54 (-1.58, -1.48)
MPS OOP	158	56.90	0.93	.80	-1.25 (-1.29, -1.21)	-1.54 (-1.58, -1.48)
PSPS self-promotion	158	45.32	0.96	.91	-0.73 (-0.78, -0.63)	-1.64 (-1.68, -1.62)
PSPS nondisplay	158	49.43	0.92	.91	-2.33 (-2.37, -2.28)	-0.66 (-0.68, -0.63)
PSPS nondisclosure	158	28.24	0.66	.85	0.42 (0.35, 0.47)	-0.83 (-0.85, -0.78)
PCI	158	50.08	1.60	.95	-0.97 (-1.00, -0.94)	-1.63 (-1.64, -1.61)
BL speech SUDS	83	34.40	25.34	—	1.44	-1.63
Pre-speech SUDS	156	55.62	1.85	—	-2.74 (-2.74, -2.74)	-0.88 (-0.88, -0.88)
During speech SUDS	155	66.78	1.98	—	-4.03 (-4.03, -4.03)	0.08 (0.08, 0.08)
ASBQ speech	156	30.30	0.62	.89	0.10 (0.06, 0.11)	-1.27 (-1.30, -1.25)
SFAQ speech	155	25.76	1.06	.95	-1.13 (-1.14, -1.12)	-2.75 (-2.76, -2.74)
VAS speech	140	1.00 [a]	—	—	—	—
SPSBS speech	155	30.99	0.63	.84	4.50 (4.47, 4.54)	2.76 (2.71, 2.83)
PEPI-S – speech	155	36.05	0.96	.94	-0.51 (-0.53, -0.49)	-1.40 (-1.45, -1.38)
BL interaction SUDS	74	42.20	24.74	—	0.58	-1.27
Pre-interaction SUDS	157	36.48	1.90	—	1.49 (1.49, 1.49)	-2.24 (1.49, 1.49)
During interaction SUDS	157	33.33	2.02	—	2.81 (2.77, 2.84)	-1.65 (-1.66, -1.64)
ASBQ interaction	157	25.93	0.67	.92	1.73 (1.73, 1.73)	-1.69 (-1.69, -1.69)
SFAQ interaction	157	27.54	1.35	.96	0.73 (0.72, 0.75)	-2.80 (-2.82, -2.80)
VAS interaction	134	0.00 [a]	—	—	—	—

Table 7 Continued

Measure	*N*	*M*	*SE*	*α*	Skewness z [a]	Kurtosis z [a]
SPSBS interaction	157	26.99	0.61	.88	4.44 (4.42, 4.46)	2.25 (2.21, 2.27)
PEPI-S – interaction	157	28.09	0.92	.95	1.71 (1.71, 1.71)	-2.07 (-2.07, -2.06)
DASS – D	158	10.44	9.30	.91	6.76 (6.76, 6.76)	3.82 (3.82, 3.82)

Note. Table includes those participants who completed parts one and two. Data from the VAS Trait reflect only on those participants who acknowledged a tendency to experience a mental image/impression in response to social situations. Values for all variables except the VAS and Baseline SUDS represent pooled estimates from multiple imputed data. Those for the VAS and Baseline SUDS measures reflect non-imputed data. *M* = mean, *SE* = standard error, α = Cronbach's alpha, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷ SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, BL = Baseline, SUDS = Subjective Units of Distress Scale, ASBQ = Anticipatory Social Behaviours Questionnaire, SFAQ = State Self-Focused Attention Questionnaire, VAS = Visual Analogue Scale-State, SPSBS = Social Phobia Safety Behaviours Scale, PEPI-S = Post-Event Processing Inventory-State, and DASS-D = Depression Anxiety Stress Scale-21-Depression.
[a] represents the mode given that the VAS measures were treated as ordinal variables. [b] Pooled estimates were not provided in SPSS so values reflect researcher-generated means with minimum and maximum values in brackets.

Table 8

Pearson Correlations Between Social Anxiety, Anxiety Sensitivity, Perfectionism, and Depression for Part Two

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SA composite	—														
2. SIAS	.93***	—													
3. SPS	.96***	.78***	—												
4. SUDS speech	.50***	.46***	.48***	—											
5. SUDS interaction	.38***	.36***	.35***	.49***	—										
6. ASI physical	.33***	.27***	.35***	.18*	.20*	—									
7. ASI cognitive	.47***	.38***	.49***	.29***	.22**	.54***	—								
8. ASI social	.67***	.57***	.68***	.43***	.38***	.60***	.58***	—							
9. MPS SOP	.30***	.28***	.28***	.30***	.25**	.18*	.22**	.32***	—						
10. MPS SPP	.38***	.32***	.39***	.31***	.25**	.23**	.33***	.34***	.52***	—					
11. MPS OOP	.02	-.06	.08	.11	.02	.07	-.02	.04	.34***	.22**	—				
12. PCI	.44***	.37***	.45***	.36***	.36***	.32***	.33***	.43***	.66***	.56***	.30***	—			
13. PSPS self-promo.	.38***	.30***	.41***	.40***	.29***	.26***	.36***	.48***	.66***	.49***	.21**	.61***	—		
14. PSPS nondispl.	.62***	.55***	.61***	.42***	.36***	.35***	.40***	.65***	.51***	.51***	.11	.61***	.72***	—	
15. PSPS nondiscl.	.50***	.45***	.49***	.38***	.34***	.26***	.40***	.49***	.48***	.46***	.08	.52***	.70***	.67***	—
16. DASS-D	.51***	.47***	.50***	.32***	.29***	.27***	.44***	.47***	.06	.26***	-.16 [a]	.42***	.34***	.47***	.41***

Note. $N = 158$. Values based on multiple imputed data and pooled estimates. Most results remained consistent when non-imputed data were analyzed; any discrepancies are noted by superscript. All significant results remained significant following an FDR correction (multiple imputed critical value = .0406). SA composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, SUDS = Subjective Units of Distress Scale during speech/interaction, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression. [a] $p \leq .05$ for non-imputed data. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 9

Bivariate Correlations Between SA-Maintaining Factors and Predictor Variables for Part Two Speech

Predictor variable	ASBQ-speech	SFAQ-speech	VAS-speech	SPSBS-speech	PEPI-S-speech
1. SA composite	.46***	.54***	.08	.35***	.54***
2. SIAS	.41***	.46***	.07	.32***	.51***
3. SPS	.45***	.56***	.07	.34***	.53***
4. During speech SUDS	.56***	.72***	.04	.52***	.70***
5. ASI physical	.22**	.31***	-.05	.10	.32***
6. ASI cognitive	.29***	.26***	-.01	21**	.37***
7. ASI social	.51***	.59***	.13	.39***	.59***
8. MPS SOP	.25***	.30***	.11	.19*	.30***
9. MPS SPP	.24**	.32***	.02	.19*	.34***
10. MPS OOP	.05	.04	-.09	.05	.11
11. PCI	.59***	.54***	.13	.44***	.50***
12. PSPS self-promotion	.39***	.41***	.03	.32***	.45***
13. PSPS nondisplay	.45***	.51***	.10	.32***	.55***
14. PSPS nondisclosure	.34***	.38***	.03	.30***	.41***
15. DASS-D	.53***	.44***	.02	.35***	.45***

Note. n = 155 for all analyses except those involving the VAS. Analyses with the VAS are based only on those participants who acknowledged a tendency to experience a mental image/impression in response to the speech (n = 140). Coefficients for the ASBQ, SFAQ, SPSBS, and PEPI-S reflect Pearson's correlations whereas those for the VAS reflect Spearman's correlations. All values are based on multiple imputed data and pooled estimates provided by SPSS. All results remained consistent when the non-imputed data were analyzed. All significant results also remained significant following a False Discovery Rate correction (multiple imputed critical value = .0406). ASBQ = Anticipatory Social Behaviours Questionnaire-State, SFAQ = Self-Focused Attention Questionnaire-State, SPSBS = Social Phobia Safety Behaviour Scale-State, PEPI-S = Post-Event Processing Inventory-State, SA composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, SUDS = Subjective Units of Distress Scale during the speech, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression.

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 10

Bivariate Correlations Between SA-Maintaining Factors and Predictor Variables for Part Two Interaction

Predictor variable	ASBQ-interaction	SFAQ-interaction	VAS-interaction	SPSBS-interaction	PEPI-S-interaction
1. SA composite	.59***	.60***	.01	.49***	.57***
2. SIAS	.54***	.53***	-.01	.45***	.53***
3. SPS	.58***	.60***	.02	.47***	.54***
4. During interaction SUDS	.54***	.62***	-.15	.53***	.71***
5. ASI physical	.27***	.35***	-.01	.29***	.33***
6. ASI cognitive	.37***	.39***	.01	.35***	.39***
7. ASI social	.61***	.67***	.03	.60***	.59***
8. MPS SOP	.38***	.35***	-.13	.27***	.28***
9. MPS SPP	.33***	.35***	-.08	.30***	.33***
10. MPS OOP	.10	.07	.04	.06	.04
11. PCI	.61***	.58***	-.03	.51***	.47***
12. PSPS self-promotion	.45***	.48***	.01	.42***	.43***
13. PSPS nondisplay	.57***	.57***	-.02	.51***	.50***
14. PSPS nondisclosure	.47***	.44***	-.08	.46***	.47***
15. DASS – D	.53***	.48***	.04	.47***	.50***

Note. n = 157 for all analyses except those involving the VAS. Analyses with the VAS are based only on those participants who acknowledged a tendency to experience a mental image/impression in response to the social interaction (n = 134). Coefficients for the ASBQ, SFAQ, SPSBS, and PEPI-S reflect Pearson's correlations whereas those for the VAS reflect Spearman's correlations. All values are based on multiple imputed data and pooled estimates provided by SPSS. All results remained consistent when the non-imputed data were analyzed. All significant results also remained significant following a False Discovery Rate correction (multiple imputed critical value = .0406). ASBQ = Anticipatory Social Behaviours Questionnaire-State, SFAQ = Self-Focused Attention Questionnaire-State, SPSBS = Social Phobia Safety Behaviour Scale-State, PEPI = Post-Event Processing Inventory-State, SA composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, SUDS = Subjective Units of Distress Scale during the interaction, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression.

*** $p \leq .001$ for imputed data (two-tailed).

Table 11

Summary of Hierarchical Multiple Regressions Predicting SA-Maintaining Factors During Part Two Speech

Predictor	ASBQ-speech				SFAQ-speech				SPSBS-speech				PEPI-S-speech			
Step 1	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2
SA composite	.04	.05	.06	.00	**.18***	.08	.16	.04	.02	.06	.02	.00	**.18****	.07	.18	.04
SUDS speech	**.13*****	.02	.41	.23	**.31*****	.03	.58	.61	**.14*****	.03	.44	.21	**.27*****	.03	.55	.52
DASS-D	**.31*****	.06	.36	.18	**.24****	.09	.17	.05	**.17***	.07	.20	.04	**.23****	.08	.18	.05
Change in R^2		.45				.58				.31				.56		
F change		41.35***				70.04***				22.33***				64.41***		
Step 2																
SA composite	-.03	.06	-.05	.00	.04	.08	.03	.00	-.06	.07	-.08	.00	.02	.08	.02	.00
SUDS speech	**.12*****	.02	.39	.21	**.30*****	.03	.55	.63	**.13*****	.03	.41	.19	**.25*****	.03	.51	.48
DASS-D	**.29*****	.06	.35	.16	**.23****	.08	.16	.05	.15*	.07	.18	.03	.18*	.08	.14	.03
MPS SPP	-.01	.04	-.01	.00	.03	.05	.04	.00	-.004	.04	-.01	.00	.04	.05	.05	.01
ASI physical	-.06	.11	-.04	.00	.19	.15	.08	.01	-.22	.13	-.15	.02	.07	.15	.03	.00
ASI cognitive	-.12	.10	-.09	.01	**-.50*****	.14	-.23	.08	-.06	.12	-.04	.00	-.09	.14	-.04	.00
ASI social	**.37****	.12	.30	.06	**.69*****	.17	.33	.11	**.38****	.14	.30	.05	**.53*****	.16	.28	.07
Change in R^2		.04				.07				.04				.05		
F change		2.49^{*a}				7.66***				1.99				4.35**		
Step 3																
SA composite	-.04	.06	-.06	.00	.01	.08	.01	.00	-.06	.07	-.09	.01	-.01	.08	-.01	.00
SUDS speech	**.11*****	.02	.35	.21	**.29*****	.03	.54	.66	**.12*****	.03	.38	.17	**.24*****	.03	.50	.47
DASS-D	**.22*****	.06	.27	.12	.16^{*a}	.08	.11	.03	.10	.07	.12	.02	.12	.08	.10	.02
MPS SPP	**-.09***	.04	-.16	.04	-.04	.05	-.05	.00	-.06	.04	-.12	.01	-.03	.05	-.03	.00
ASI physical	-.16	.10	-.12	.02	.08	.15	.04	.00	**-.29***	.12	-.21	.04	.02	.14	.01	.00
ASI cognitive	-.07	.09	-.06	.00	**-.44*****	.14	-.20	.07	-.04	.11	-.03	.00	-.03	.14	-.02	.00
ASI social	**.40*****	.12	.32	.08	**.73*****	.17	.35	.13	**.43****	.15	.34	.06	**.46****	.17	.24	.05
PSPS self-promo.	-.01	.06	-.02	.00	-.07	.09	-.06	.00	-.01	.07	-.02	.00	-.02	.09	-.02	.00
PSPS nondispl.	-.04	.07	-.07	.00	-.001	.10	-.001	.00	-.10	.08	-.14	.01	.13	.10	.13	.01
PSPS nondiscl.	-.10	.08	-.11	.01	-.11	.11	-.07	.01	.01	.09	.005	.00	-.11	.11	-.08	.00
PCI	**.19*****	.03	.50	.30	**.20*****	.04	.30	.14	**.15*****	.04	.38	.12	**.11***	.04	.18	.04
Change in R^2		.13				.05				.07				.03		
F change		11.49***				5.34***				4.39**				2.49*		
FDR critical (5%)		.0271				.0229				.0229				.0208		

Note. $n = 156$ for the ASBQ. $n = 155$ for the SFAQ, SPSBS, and PEPI-S. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Most results remained consistent when the non-imputed data were analyzed; any discrepancies are noted by superscript. Most significant results remained significant following a False Discovery Rate (FDR) correction. FDR corrections were applied only to the model coefficients of each regression. **Bolded values represent multiple imputed findings that remained significant following an FDR correction.** ASBQ = Anticipatory Social Behaviours Questionnaire-State, SFAQ = Self-Focused Attention Questionnaire-State, SPSBS = Social Phobia Safety Behaviour Scale-State, PEPI-S = Post-Event Processing Inventory-State, SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, SUDS = Subject Units of Distress Scale during the speech, DASS-D= Depression Anxiety Stress Scale-21-Depression, MPS SPP = Hewitt and Flett Multidimensional Perfectionism Scale-Socially Prescribed Perfectionism, ASI = Anxiety Sensitivity Index-3, PSPS = Perfectionistic Self-Presentation Scale, and PCI = Perfectionistic Cognitions Inventory. [a] $p > .05$ for non-imputed data.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 12

Summary of Ordinal Logistic Regression Predicting Self-Imagery Perspective During Part Two Speech

Predictor	*B*	SE B	Wald	*df*	*p*	Odds Ratio
SA composite	.002	.02	.01	1	.92	1.00
SUDS speech	-.001	.01	.01	1	.92	1.00
DASS-D	-.04	.04	.99	1	.32	.98
MPS SPP	-.01	.01	1.05	1	.31	.99
ASI physical	-.06	.04	2.75	1	.10	.94
ASI cognitive	-.02	.03	.34	1	.57	.98
ASI social	.10*[a]	.04	5.30	1	.02	1.11
PCI	.02	.01	3.68	1	.06	1.02
PSPS self-promotion	-.02	.02	.57	1	.46	.98
PSPS nondisplay	-.001	.02	.01	1	.94	1.00
PSPS nondisclosure	<.001	.03	.01	1	.95	1.00
Nagelkerke			.08			
McFadden			.02			
-2Log-Likelihood			525.50			
Likelihood ratio test			10.94 ($df = 11$, $p = .45$)			

Note. $n = 140$. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Results were mainly consistent when the non-imputed data were analyzed; any discrepancies are noted in superscript. False Discovery Rate (FDR) corrections were applied only to the model coefficients. No results remained significant following an FDR correction (multiple imputed critical value < .0029). SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, DASS-D = Depression Anxiety Stress Scale-21-Depression, ASI = Anxiety Sensitivity Index-3, PCI = Perfectionistic Cognitions Inventory, and PSPS = Perfectionistic Self-Presentation Scale. [a] $p > .05$ for non-imputed data.
* $p \leq .05$ for imputed data (two-tailed).

Table 13

Summary of Hierarchical Linear Regressions Predicting SA-Maintaining Factors During Part Two Interaction

Predictor	ASBQ-interaction				SFAQ-interaction				SPSBS-interaction				PEPI-interaction			
Step 1	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2	*B*	*SE B*	*β*	f^2
SA composite	**.24*****	.05	.33	.16	**.50*****	.09	.35	.19	**.14****	.05	.22	.06	**.24*****	.06	.25	.12
SUDS interaction	**.11*****	.02	.34	.21	**.29*****	.04	.44	.37	**.11*****	.02	.37	.20	**.25*****	.02	.56	.74
DASS-D	**.23*****	.06	.26	.10	**.33****	.11	.18	.05	**.20*****	.06	.25	.07	**.26*****	.07	.21	.09
Change in R^2		.52				.56.				.42				.64		
F change		55.17***				66.20***				36.53***				91.88***		
Step 2																
SA composite	.12*	.06	.16	.02	.20 [a]	.10	.14	.03	-.01	.06	-.01	.00	.12	.07	.12	.02
SUDS interaction	**.10*****	.02	.30	.17	**.25*****	.04	.38	.32	**.09*****	.02	.31	.16	**.24*****	.02	.52	.68
DASS-D	**.20*****	.06	.22	.07	.24*	.11	.13	.03	**.16****	.06	.19	.05	**.22****	.07	.17	.06
MPS SPP	.03	.03	.05	.01	.07	.06	.06	.01	.03	.03	.06	.01	.03	.04	.03	.00
ASI physical	-.16	.11	-.11	.02	-.06	.20	-.02	.00	-.11	.10	-.08	.01	-.01	.13	-.01	.00
ASI cognitive	-.04	.10	-.03	.00	-.16	.19	-.06	.00	-.04	.10	-.03	.00	.01	.12	.01	.00
ASI social	**.47*****	.12	.35	.10	**1.04*****	.22	.39	.15	**.54*****	.12	.45	.14	**.41****	.15	.22	.05
Change in R^2		.05				.07				.08				.03		
F change		4.14**				7.14***				6.22***				3.01*		
Step 3																
SA composite	.09	.05	.12	.02	.22*	.10	.15	.03	-.02	.06	-.03	.00	.13	.07	.13	.02
SUDS interaction	**.08*****	.02	.25	.14	**.23*****	.04	.35	.30	**.08*****	.02	.27	.13	**.23*****	.02	.51	.63
DASS-D	**.13***	.06	.15	.04	.16	.11	.09	.02	.11	.06	.14	.03	.20**	.07	.16	.05
MPS SPP	-.05	.04	-.09	.01	-.05	.07	-.04	.00	-.02	.04	-.04	.00	-.01	.05	-.01	.00
ASI physical	**-.23***	.10	-.15	.04	-.15	.19	-.05	.00	-.14	.10	-.11	.01	-.02	.13	-.01	.00
ASI cognitive	-.01	.09	-.003	.00	-.12	.18	-.04	.00	-.04	.10	-.03	.00	-.01	.12	-.005	.00
ASI social	**.46*****	.12	.34	.10	**1.02*****	.23	.38	.14	**.54*****	.12	.44	.13	**.41****	.16	.22	.05
PSPS self-promo.	-.02	.06	-.03	.00	.16	.11	.12	.01	-.01	.06	-.02	.00	.09	.08	.09	.01
PSPS nondisp.	.01	.07	.01	.00	-.08	.13	-.06	.00	-.03	.07	-.05	.00	-.10	.09	-.10	.01
PSPS nondisc.	.003	.08	.003	.00	-.21	.15	-.10	.01	.09	.08	.10	.01	.04	.10	.03	.00
PCI	**.16*****	.03	.38	.19	**.22*****	.06	.26	.10	**.09****	.03	.23	.05	.04	.04	.07	.01
Change in R^2		.08				.05				.03				.01		
F change		7.70***				5.55***				2.72*				1.07		
FDR critical (5%)		.0292				.0188				.0250				.0250		

Note. n = 157. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Most results remained consistent when the non-imputed data were analyzed; any discrepancies are noted by superscript. False Discovery Rate (FDR) corrections were applied only to the model coefficients of each regression. **Bolded values represent multiple imputed findings that remained significant following an FDR correction.** SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, DASS-D = Depression Anxiety Stress Scale-21- Depression, MPS SPP = Hewitt and Flett Multidimensional Perfectionism Scale-Socially Prescribed Perfectionism, ASI = Anxiety Sensitivity Index-3, PSPS = Perfectionistic Self-Presentation Scale, and PCI = Perfectionistic Cognitions Inventory. [a] $p \leq .05$ for non-imputed data. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 14

Summary of Ordinal Logistic Regression Predicting Self-Imagery Perspective During Part Two Interaction

Predictor	*B*	SE B	Wald	*df*	*p*	Odds Ratio
SA composite	-.003	.02	.03	1	.88	1.00
SUDS interaction	-.01	.01	3.45	1	.06	.99
DASS-D	.02	.02	1.19	1	.28	1.02
MPS SPP	-.01	.01	1.00	1	.32	.99
ASI physical	-.01	.04	.09	1	.77	.99
ASI cognitive	-.004	.04	.03	1	.92	1.00
ASI social	.02	.04	.29	1	.60	1.02
PCI	.002	.01	.04	1	.85	1.00
PSPS self-promotion	.02	.02	.80	1	.38	1.02
PSPS nondisplay	.01	.03	.08	1	.79	1.01
PSPS nondisclosure	-.03	.03	1.32	1	.25	.97
Nagelkerke			.06			
McFadden			.02			
-2Log-Likelihood			495.18			
Likelihood ratio test			7.65 (*df* = 11, *p* = .74)			

Note. *n* = 134. All values are based on multiple imputed data and pooled estimates. Any pooled estimates not provided by SPSS were calculated manually by averaging across imputations. Results were consistent when the non-imputed data were analyzed. Given that no coefficients reached an alpha of .05, a False Discovery Rate correction was not applied. SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, DASS-D = Depression Anxiety Stress Scale-21-Depression, ASI = Anxiety Sensitivity Index-3, PCI = Perfectionistic Cognitions Inventory, and PSPS = Perfectionistic Self-Presentation Scale.

Table 15

Part Three Descriptive Statistics

Measure	*n*	*M*	*SE*	α	Skewness z [a]	Kurtosis z [a]
SA composite	139	17.96	0.97	.92	1.31 (1.29, 1.32)	-1.92 (-1.92, -1.91)
SIAS	139	8.83	0.46	.84	1.28 (1.24, 1.30)	-1.93 (-1.97, -1.92)
SPS	139	9.13	0.57	.90	1.70 (1.70, 1.70)	-2.15 (-2.15, -2.15)
ASI total	139	25.54	1.28	.92	3.11 (3.01, 3.17)	-0.06 (-0.15, -0.01)
Physical	139	6.73	0.49	.86	4.46 (4.37, 4.56)	0.74 (0.63, 0.81)
Cognitive	139	6.88	0.51	.90	4.70 (4.62, 4.77)	0.34 (0.27, 0.38)
Social	139	11.92	0.53	.87	0.52 (0.44, 0.61)	-2.30 (-2.33, -2.27)
MPS SOP	139	72.15	1.35	.92	0.44 (0.42, 0.46)	-1.34 (-1.35, -1.33)
MPS SPP	139	61.22	1.22	.89	-0.45 (-0.49, -0.37)	-1.28 (-1.33, -1.26)
MPS OOP	139	56.65	1.01	.82	-1.23 (-1.26, -1.19)	-0.71 (-0.73, -0.69)
PSPS self-promotion	139	54.96	1.01	.91	-0.90 (-0.92, -0.89)	-1.03 (-1.05, -1.02)
PSPS nondisplay	139	46.01	0.93	.89	-0.57 (-0.61, -0.52)	-1.69 (-1.72, -1.67)
PSPS nondisclosure	139	49.93	0.69	.84	-1.56 (-1.64, -1.48)	-1.52 (-1.56, -1.47)
PCI	139	50.24	1.69	.95	-0.86 (-0.88, -0.83)	-1.38 (-1.39, -1.37)
BL speech SUDS	79	33.67	25.18	—	1.61	-1.40
Pre-speech SUDS	138	56.01	1.92	—	-2.85 (-2.85, -2.85)	-0.46 (-0.46, -0.46)
During speech SUDS	138	68.06	2.03	—	-4.00 (-4.03, -3.94)	0.44 (0.39, 0.47)
PEPI-S-speech	138	35.35	1.02	.95	0.23 (0.22, 0.25)	-1.29 (-1.30, -1.27)
BL interaction SUDS	70	41.40	24.10	—	0.24	-1.46
Pre-interaction SUDS	138	36.83	1.98	—	1.55 (1.55, 1.55)	-1.90 (-1.90, -1.90)
During interaction SUDS	138	33.60	2.11	—	2.32 (2.29, 2.34)	-1.94 (-1.96, -1.93)
PEPI-S-interaction	138	29.39	1.01	.96	2.44 (2.43, 2.45)	-1.38 (-1.41, -1.36)
DASS-D	139	10.66	9.28	.91	6.35 (6.35, 6.35)	3.98 (3.98, 3.98)

Note. Table includes participants who completed parts one through three. Values for all variables except BL SUDS represent pooled estimates from multiple imputed data. Those for BL SUDS reflect non-imputed data. *M* = mean, *SD* = standard deviation, α = Cronbach's alpha, *SE* = standard error, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, BL = Baseline, SUDS = Subjective Units of Distress Scale, PEPI-S = Post-Event Processing Inventory-State, and DASS-D = Depression Anxiety Stress Scale-21-Depression. [a] Pooled estimates were not provided by SPSS and therefore reflect researcher-generated means with minimum/maximum values in brackets.

Table 16

Pearson Correlations Between Post-Event Processing and Predictor Variables for Part Three

Predictor variable	PEPI-speech (n = 138)	PEPI-interaction (n = 138)
SA composite	.54***	.53***
SIAS	.48***	.50***
SPS	54***	.50***
During speech SUDS	63***	—
During interaction SUDS	—	.54***
ASI physical	.28***	.30***
ASI cognitive	.29***	.37***
ASI social	.53***	.57***
MPS SOP	.18*	.18*
MPS SPP	.32***	.26**
MPS OOP	.13	.07
PCI	.45***	.40***
PSPS self-promotion	.42***	.42***
PSPS nondisplay	.51***	.47***
PSPS nondisclosure	.40***	.41***
DASS-D	.42***	.41***

Note. N = 139. Values are based on multiple imputed data and pooled estimates. All results remained consistent when the non-imputed data were analyzed. All significant results also remained significant following a False Discovery Rate correction (multiple imputed critical value = .0447). PEPI = Post-Event Processing Inventory-State, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, SUDS = Subjective Units of Distress Scale, ASI = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, and DASS-D = Depression Anxiety Stress Scale-21-Depression.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 17

Pearson Correlations Between Social Anxiety, Anxiety Sensitivity, Perfectionism, and Depression for Part Three

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SA composite	—														
2. SIAS	.93***	—													
3. SPS	.96***	.78***	—												
4. SUDS speech	.51***	.46***	.51***	—											
5. SUDS interaction	.34***	.31***	.32***	.44***	—										
6. ASI physical	.36***	.30***	.37***	.17 [a]	.21*	—									
7. ASI cognitive	.46***	.36***	.49***	.27***	.16	.53***	—								
8. ASI social	.66***	.57***	.68***	.43***	.36***	.59***	.54***	—							
9. MPS SOP	.30***	.27***	.29***	.29***	.18*	.22**	.20*	.33***	—						
10. MPS SPP	.40***	.35***	.40***	.37***	.24**	.21*	.29***	.31***	.54***	—					
11. MPS OOP	.03	-.04	.09	.15	.02	.09	-.01	.06	.34***	.22**	—				
12. PCI	.45***	.38***	.46***	.38***	.31***	.34***	.31***	.41***	.63***	.54***	.30***	—			
13. PSPS self-promo.	.43***	.34***	.45***	.44***	.26**	.25**	.35***	.50***	.66***	.52***	.23**	.61***	—		
14. PSPS nondispl.	.64***	.59***	.61***	.47***	.34***	.32***	.36***	.63***	.51***	.52***	.09	.60***	.73***	—	
15. PSPS nondiscl.	.51***	.47***	.49***	.37***	.30***	.23**	.33***	.45***	.50***	.45***	.08	.53***	.72***	.66***	—
16. DASS-D	.52***	.50***	.49***	.32***	.28***	.22**	.38***	.42***	.06	.22**	-.16 [a]	.43***	.34***	.44***	.36***

Note. $N = 139$. All values are based on multiple imputed data and pooled estimates. Most results were consistent when the non-imputed data were analyzed; any discrepancies are noted in superscript. All significant results remained significant following a False Discovery Rate correction (multiple imputed critical value = .0447). SA Comp = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, SUDS = Subjective Units of Distress Scale during the speech/interaction, ASI-3 = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PCI = Perfectionistic Cognitions Inventory, PSPS = Perfectionistic Self-Presentation Scale, Self-Promo. = Perfectionistic Self-Promotion, Nondispl. = Nondisplay of Imperfection, Nondiscl. = Nondisclosure of Imperfection, and DASS-21-D = Depression Anxiety Stress Scale-21-Depression. [a] $p \leq .05$ for non-imputed data.

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Table 18

Summary of Hierarchical Linear Regressions Predicting Post-Event Processing During Part Three

Predictor	PEPI-speech (n = 138)				Predictor	PEPI-interaction (n = 138)			
Step 1	*B*	*SE*	*β*	f^2	*Step 1*	*B*	*SE B*	*β*	f^2
SA composite	.23**	.08	.22	.06	SA composite	.33***	.08	.32	.13
SUDS speech	.23***	.04	.46	.30	SUDS interaction	.19***	.03	.40	.25
DASS-D	.20*[a]	.19	.16	.03	DASS-D	.17	.10	.13	.02
Change in R^2		.48			Change in R^2		.44		
F change		40.42***			*F* change		35.19***		
Step 2					Step 2				
SA composite	.11	.10	.10	.01	SA composite	.15	.10	.15	.02
SUDS interaction	.22***	.04	.43	.26	SUDS interaction	.17***	.03	.36	.21
DASS-D	.19*[a]	.10	.15	.03	DASS-D	.12	.10	.09	.01
MPS SPP	.03	.06	.04	.00	MPS SPP	-.01	.06	-.01	.00
ASI physical	.09	.17	.04	.00	ASI physical	-.14	.17	-.07	.01
ASI cognitive	-.17	.16	-.09	.01	ASI cognitive	.16	.16	.08	.01
ASI social	.43*	.19	.22	.04	ASI social	.58**	.19	.30	.07
Change in R^2		.03			Change in R^2		.05		
F change		2.00			*F* change		3.25*		
Step 3					Step 3				
SA composite	.08	.11	.07	.00	SA composite	.16	.10	.15	.02
SUDS interaction	.21***	.04	.42	.24	SUDS interaction	.17***	.03	.36	.21
DASS-D	.15	.10	.11	.02	DASS-D	.09	.10	.07	.01
MPS SPP	-.01	.07	-.02	.00	MPS SPP	-.06	.07	-.07	.01
ASI physical	.04	.18	.02	.00	ASI physical	-.15	.18	-.07	.01
ASI cognitive	-.15	.16	-.07	.01	ASI cognitive	.14	.16	.07	.01
ASI social	.39[b]	.20	.21	.03	ASI social	.53*	.21	.28	.05
PSPS self-promo.	-.05	.11	-.05	.00	PSPS self-promo.	.11	.11	.11	.01
PSPS nondispl.	.06	.12	.06	.00	PSPS nondispl.	-.06	.13	-.05	.00
PSPS nondiscl.	.04	.14	.03	.00	PSPS nondiscl.	.02	.14	.02	.00
PCI	.07[b]	.05	.12	.01	PCI	.04	.06	.07	.01
Change in R^2		.01			Change in R^2		.01		
F change		.70			*F* change		.73		
FDR critical (5%)		.0125			FDR critical (5%)		.0188		

Note. N = 139. All values are based on multiple imputed data and pooled estimates. Any pooled estimates that were not provided by SPSS were calculated manually by averaging across imputations. Most results were consistent when the non-imputed data were analyzed; any discrepancies are noted in superscript. False Discovery Rate (FDR) corrections were applied only to the model coefficients of each regression. **Bolded values represent MI results that remained significant following an FDR correction.** SA composite = Social Interaction Anxiety Scale + Social Phobia Scale, DASS-D = Depression Anxiety Stress Scale-21-Depression, MPS SPP = Hewitt and Flett Multidimensional Perfectionism Scale-Socially Prescribed Perfectionism, ASI = Anxiety Sensitivity Index-3, PSPS = Perfectionistic Self-Presentation Scale, and PCI = Perfectionistic Cognitions Inventory. [a] $p > .05$ for non-imputed data. [b] $p \leq .05$ for non-imputed data. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

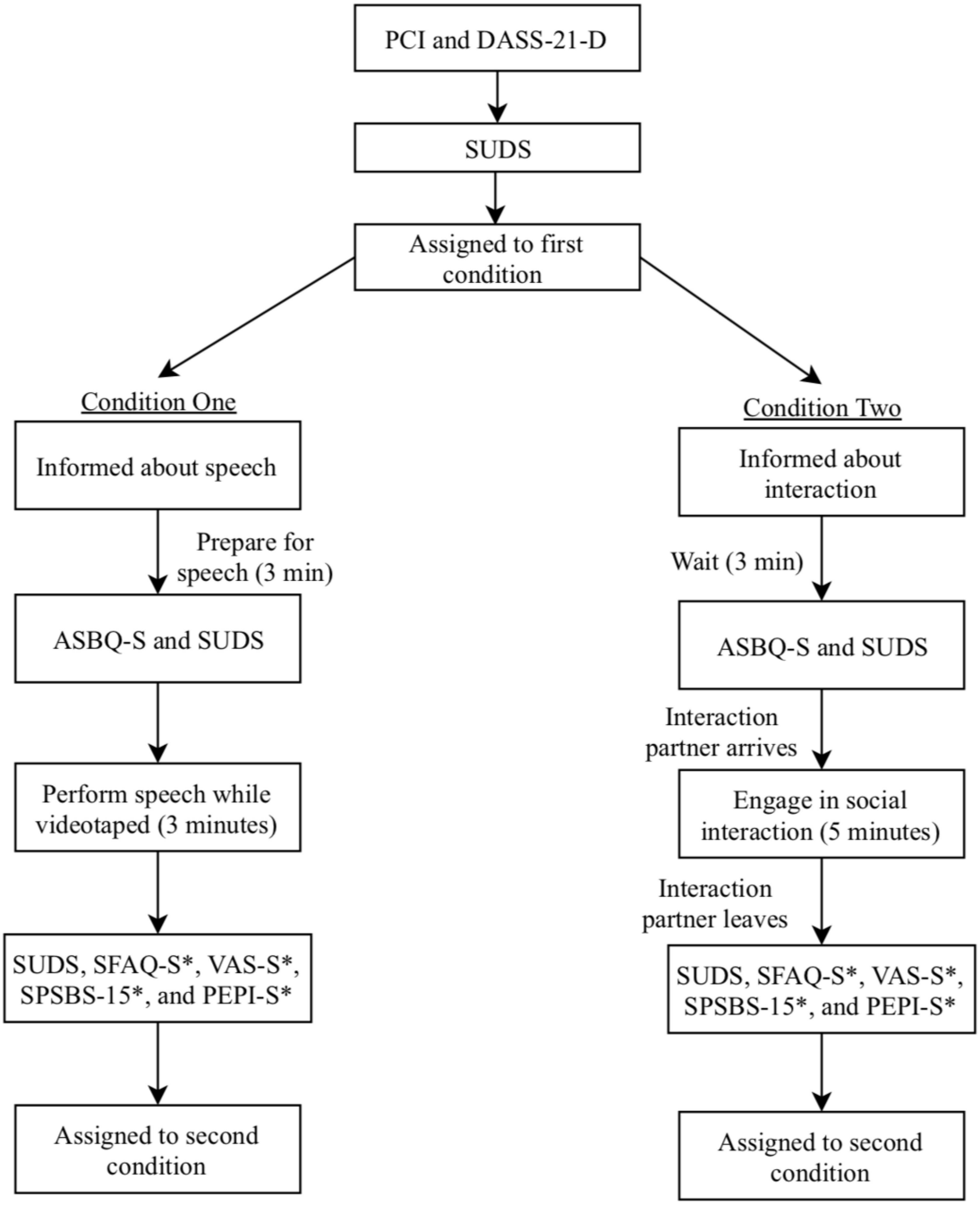

Figure 1. Flow chart displaying a summary of the procedure for Part Two. Participants were assigned to conditions in a counterbalanced order. PCI = Perfectionistic Cognitions Inventory, DASS-21-D = Depression subscale of the Depression Anxiety Stress Scale, SUDS = Subjective Units of Distress Scale, ASBQ-S = State Anticipatory Social Behaviours Questionnaire, SFAQ-S = State Self-Focused Attention Questionnaire, VAS-S = State Observer Versus Field Visual Analogue Scale, SPSBS-15 = 15-Item Social Phobia Safety Behaviours Scale, PEPI-S = State Post-Event Processing Inventory-State. * represents measures that were administered in a randomized order.

Appendix A
Study Recruitment Poster

	Part 1	Part 2	Part 3
	60 min online	45 min in-lab	15 min online
	$50 draw + 1.0 bonus credits**	**$100** draw + 1.25 bonus credits**	**$25** draw + 0.25 bonus credits**

https://goo.gl/nemovV
vpitura1@lakeheadu.ca

Research Study Details

Fill out online questionnaires on personality/individual differences, thoughts, and feelings in response to social situations.

In the lab setting you will engage in two brief social tasks and fill out measures about your experience.

Follow up online measures about your lab experience.

*** Bonus credits apply to undergraduate psychology courses only. If you are ineligible or do not wish to obtain bonus credits, you will receive a bonus entry into each cash draw.*

Email **vpitura1@lakeheadu.ca** Visit **https://goo.gl/nemovV** or

Appendix B
Hewitt and Flett's Multidimensional Perfectionism Scale (HMPS)

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. If you strongly agree, choose 7; if you strongly disagree, choose 1; if you feel somewhere in between, choose any one of the numbers between 1 and 7. If you feel neutral and undecided the midpoint is 4.

1 Disagree Strongly **2** **3** **4 Neutral** **5** **6** **7 Agree Strongly**

1. When I am working on something, I cannot relax until it is perfect	1	2	3	4	5	6	7
2. I am not likely to criticize someone for giving up too easily	1	2	3	4	5	6	7
3. It is not important that people I am close to are successful	1	2	3	4	5	6	7
4. I seldom criticize my friends for accepting second best	1	2	3	4	5	6	7
5. I find it difficult to meet others' expectations of me	1	2	3	4	5	6	7
6. One of my goals is to be perfect in everything I do	1	2	3	4	5	6	7
7. Everything that others do must be of top-notch quality	1	2	3	4	5	6	7
8. I never aim for perfection on my work	1	2	3	4	5	6	7
9. Those around me readily accept that I can make mistakes too	1	2	3	4	5	6	7
10. It doesn't matter when someone close to me does not do their absolute best	1	2	3	4	5	6	7
11. The better I do, the better I am expected to do	1	2	3	4	5	6	7
12. I seldom feel the need to be perfect	1	2	3	4	5	6	7
13. Anything that I do that is less than excellent will be seen as poor work by those around me	1	2	3	4	5	6	7
14. I strive to be as perfect as I can be	1	2	3	4	5	6	7
15. It is very important that I am perfect in everything I attempt	1	2	3	4	5	6	7
16. I have high expectations for the people who are important to me	1	2	3	4	5	6	7
17. I strive to be the best at everything I do	1	2	3	4	5	6	7
18. The people around me expect me to succeed at everything I do	1	2	3	4	5	6	7
19. I do not have very high standards for those around me	1	2	3	4	5	6	7
20. I demand nothing less than perfection of myself	1	2	3	4	5	6	7
21. Others will like me even if I don't excel at everything	1	2	3	4	5	6	7
22. I can't be bothered with people who won't strive to better themselves	1	2	3	4	5	6	7
23. It makes me uneasy to see an error in my work	1	2	3	4	5	6	7
24. I do not expect a lot from my friends	1	2	3	4	5	6	7
25. Success means that I must work even harder to please others	1	2	3	4	5	6	7
26. If I ask someone to do something, I expect it to be done flawlessly	1	2	3	4	5	6	7

27. I cannot stand to see people close to me make mistakes	1	2	3	4	5	6	7
28. I am perfectionistic in setting my goals	1	2	3	4	5	6	7
29. The people who matter to me should never let me down	1	2	3	4	5	6	7
30. Others think I am okay, even when I do not succeed	1	2	3	4	5	6	7
31. I feel that people are too demanding of me	1	2	3	4	5	6	7
32. I must work to my full potential at all times	1	2	3	4	5	6	7
33. Although they may not say it, other people get very upset with me when I slip up	1	2	3	4	5	6	7
34. I do not have to be the best at whatever I am doing	1	2	3	4	5	6	7
35. My family expects me to be perfect	1	2	3	4	5	6	7
36. I do not have very high goals for myself	1	2	3	4	5	6	7
37. My parent rarely expected me to excel in all aspects of my life	1	2	3	4	5	6	7
38. I respect people who are average	1	2	3	4	5	6	7
39. People expect nothing less than perfection from me	1	2	3	4	5	6	7
40. I set very high standards for myself	1	2	3	4	5	6	7
41. People expect more from me than I am capable of giving	1	2	3	4	5	6	7
42. I must always be successful at school or work	1	2	3	4	5	6	7
43. It does not matter to me when a close friend does not try their hardest	1	2	3	4	5	6	7
44. People around me think I am still competent even if I make a mistake	1	2	3	4	5	6	7
45. I seldom expect others to excel at whatever they do.	1	2	3	4	5	6	7

Appendix C
Perfectionistic Self-Presentation Scale (PSPS)

Listed below are a group of statements. Please rate your agreement with each of the statements using the following scale. If you strongly agree, choose 7; if you disagree, choose 1; if you feel somewhere in between, choose any one of the numbers between 1 and 7. If you feel neutral or undecided the midpoint is 4.

1 2 3 4 5 6 7
Disagree Strongly Neutral Agree Strongly

1. It is okay to show others that I am not perfect	1	2	3	4	5	6	7
2. I judge myself based on the mistakes I make in front of other people	1	2	3	4	5	6	7
3. I will do almost anything to cover up a mistake	1	2	3	4	5	6	7
4. Errors are much worse if they are made in public rather than in private	1	2	3	4	5	6	7
5. I try always to present a picture of perfection	1	2	3	4	5	6	7
6. It would be awful if I made a fool of myself in front of others	1	2	3	4	5	6	7
7. If I seem perfect, others will see me more positively	1	2	3	4	5	6	7
8. I brood over mistakes that I have made in front of others	1	2	3	4	5	6	7
9. I never let others know how hard I work on things	1	2	3	4	5	6	7
10. I would like to appear more competent than I really am	1	2	3	4	5	6	7
11. It doesn't matter if there is a flaw in my looks	1	2	3	4	5	6	7
12. I do not want people to see me do something unless I am very good at it	1	2	3	4	5	6	7
13. I should always keep my problems to myself	1	2	3	4	5	6	7
14. I should solve my own problems rather than admit them to others	1	2	3	4	5	6	7
15. I must appear to be in control of my actions at all times	1	2	3	4	5	6	7
16. It is okay to admit mistakes to others	1	2	3	4	5	6	7
17. It is important to act perfectly in social situations	1	2	3	4	5	6	7
18. I don't really care about being perfectly groomed	1	2	3	4	5	6	7
19. Admitting failure to others is the worst possible thing	1	2	3	4	5	6	7
20. I hate to make errors in public	1	2	3	4	5	6	7
21. I try to keep my faults to myself	1	2	3	4	5	6	7
22. I do not care about making mistakes in public	1	2	3	4	5	6	7
23. I need to be seen as perfectly capable in everything I do	1	2	3	4	5	6	7
24. Failing at something is awful if other people know about it	1	2	3	4	5	6	7
25. It is very important that I always appear to be "on top of things"	1	2	3	4	5	6	7
26. I must always appear to be perfect	1	2	3	4	5	6	7
27. I strive to look perfect to others	1	2	3	4	5	6	7

Appendix D
Perfectionistic Cognitions Inventory (PCI)

Listed below are a variety of thoughts about perfectionism that sometimes pop into people's heads. Please read each thought and indicate how frequently, if at all, the thoughts occurred to you **during the past week**. Please read each item carefully and choose the appropriate number, using the scale below.

0	=	Not At All
1	=	Sometimes
2	=	Moderately Often
3	=	Often
4	=	All Of The Time

1. Why can't I be perfect?	0	1	2	3	4
2. I need to do better	0	1	2	3	4
3. I should be perfect	0	1	2	3	4
4. I should never make the same mistake twice	0	1	2	3	4
5. I've got to keep working on my goals	0	1	2	3	4
6. I have to be the best	0	1	2	3	4
7. I should be doing more	0	1	2	3	4
8. I can't stand to make mistakes	0	1	2	3	4
9. I have to work hard all the time	0	1	2	3	4
10. No matter how much I do, it's never enough	0	1	2	3	4
11. People expect me to be perfect	0	1	2	3	4
12. I must be efficient at all times	0	1	2	3	4
13. My goals are very high	0	1	2	3	4
14. I can always do better, even if things are almost perfect	0	1	2	3	4
15. I expect to be perfect	0	1	2	3	4
16. Why can't things be perfect?	0	1	2	3	4
17. My work has to be superior	0	1	2	3	4
18. It would be great if everything in my life was perfect	0	1	2	3	4
19. My work should be flawless	0	1	2	3	4
20. Things are seldom ideal	0	1	2	3	4
21. How well am I doing?	0	1	2	3	4
22. I can't do this perfectly	0	1	2	3	4
23. I certainly have high standards	0	1	2	3	4
24. Maybe I should lower my goals	0	1	2	3	4
25. I am too much of a perfectionist	0	1	2	3	4

Appendix E
Anxiety Sensitivity Index – 3 (ASI-3)

Please choose the number that best corresponds to how much you agree with each item. If any items concern something that you have never experienced (e.g., fainting in public), then answer on the basis of how you think you might feel *if you had* such an experience. Otherwise, answer all items on the basis of your own experience. Be careful to choose only one number for each item and please answer all items.

	Very little	**A little**	**Some**	**Much**	**Very much**
1. It is important for me not to appear nervous.	0	1	2	3	4
2. When I cannot keep my mind on a task, I worry that I might be going crazy.	0	1	2	3	4
3. It scares me when my heart beats rapidly.	0	1	2	3	4
4. When my stomach is upset, I worry that I might be seriously ill.	0	1	2	3	4
5. It scares me when I am unable to keep my mind on a task.	0	1	2	3	4
6. When I tremble in the presence of others, I fear what people might think of me.	0	1	2	3	4
7. When my chest feels tight, I get scared that I won't be able to breathe properly.	0	1	2	3	4
8. When I feel pain in my chest, I worry that I'm going to have a heart attack.	0	1	2	3	4
9. I worry that other people will notice my anxiety.	0	1	2	3	4
10. When I feel "spacey" or spaced out I worry that I may be mentally ill.	0	1	2	3	4
11. It scares me when I blush in front of people.	0	1	2	3	4
12. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.	0	1	2	3	4
13. When I begin to sweat in a social situation, I fear people will think negatively of me.	0	1	2	3	4
14. When my thoughts seem to speed up, I worry that I might be going crazy.	0	1	2	3	4
15. When my throat feels tight, I worry that I could choke to death.	0	1	2	3	4
16. When I have trouble thinking clearly, I worry that there is something wrong with me.	0	1	2	3	4
17. I think it would be horrible for me to faint in public.	0	1	2	3	4
18. When my mind goes blank, I worry there is something terribly wrong with me.	0	1	2	3	4

Appendix F
Social Interaction Anxiety Scale – 6 (SIAS-6) and Social Phobia Scale – 6 (SPS-6)

For each question, please circle a number to indicate the degree to which you feel the statement is characteristic or true of you. The rating scale is as follows:

0	1	2	3	4
Not at all characteristic of true of me	Slightly characteristic of true of me	Moderately characteristic of true of me	Very characteristic of true of me	Extremely characteristic of true of me

1. I have difficulty making eye contact with others.	0 1 2 3 4
2. I find it difficult mixing comfortably with the people I work with.	0 1 2 3 4
3. I tense up if I meet an acquaintance on the street.	0 1 2 3 4
4. I feel tense if I am alone with just one person.	0 1 2 3 4
5. I have difficulty talking with other people.	0 1 2 3 4
6. I find it difficult to disagree with another's point of view.	0 1 2 3 4
7. I get nervous that people are staring at me as I walk down the street.	0 1 2 3 4
8. I worry about shaking or trembling when I'm watched by other people.	0 1 2 3 4
9. I would get tense if I had to sit facing other people on a bus or train.	0 1 2 3 4
10. I worry I might do something to attract the attention of other people.	0 1 2 3 4
11. When in an elevator, I am tense if people look at me.	0 1 2 3 4
12. I can feel conspicuous standing in a line.	0 1 2 3 4

Note. Items 1–6 are from the SIAS and items 7–12 are from the SPS.

Appendix G
Anticipatory Social Behaviours Questionnaire (ASBQ)

For the following statements, please rate the degree to which you typically engage in each behaviour, or experience each thought, prior to a social situation.

Items	Never	Almost Never	Almost Always	Always
1. I think about similar situations in which I have failed in the past.	1	2	3	4
2. I try to think of everything that could happen.	1	2	3	4
3. I imagine the worst that could happen.	1	2	3	4
4. I go over in detail what might happen.	1	2	3	4
5. I try to picture how I will appear to others.	1	2	3	4
6. I try to plan what I am going to say.	1	2	3	4
7. I rehearse conversations in my mind.	1	2	3	4
8. I remind myself of things I should not do.	1	2	3	4
9. I think about ways in which I could put things right if I make a fool of myself.	1	2	3	4
10. I think about ways in which I could avoid having to face the situation.	1	2	3	4
11. I think about ways in which I could escape from the situation if it gets too embarrassing.	1	2	3	4
12. I make a conscious effort not to think about the situation.	1	2	3	4

Appendix H
Trait Self-Focused Attention Questionnaire (TSFAQ)

Please use the following rating scale to respond to the items below:

1	2	3	4	5
Not at all	**Somewhat**	**To a moderate degree**	**Mostly**	**Totally**

While in social situations, I typically focus on…

1. What I should say or do next.	0	1	2	3	4
2. The impression I am making on the other person.	0	1	2	3	4
3. My level of anxiety.	0	1	2	3	4
4. My internal bodily reaction (for example, heart rate).	0	1	2	3	4
5. On past social failures.	0	1	2	3	4
6. Whether my heart is beating fast.	0	1	2	3	4
7. Whether I am behaving tensely.	0	1	2	3	4
8. Whether I am in control of my breathing.	0	1	2	3	4
9. Whether I look tense.	0	1	2	3	4
10. Whether I am blushing, trembling, or sweating.	0	1	2	3	4
11. How tense I feel.	0	1	2	3	4
12. Whether I have sufficient social skills.	0	1	2	3	4
13. Whether I am speaking fluently.	0	1	2	3	4
14. How well I am taking part in the social interaction.	0	1	2	3	4
15. Whether I am behaving appropriately.	0	1	2	3	4
16. Whether I understand what the other person is saying.	0	1	2	3	4

Appendix I
Observer versus Field Visual Analogue Scale (VAS)

While in social situations, do you ever experience a mental image of yourself, or form an impression of how you are coming across to others, or how others might be reacting to you? If no, please skip this question. If "**Yes**", please evoke the image/impression in your mind.

Below, please rate whether the image/impression you see tends to be one from the field or observer perspective.

- **Field perspective** = as if you are viewing the situation through your own eyes, observing the detail of what is going on around you
- **Observer perspective** = as if you are looking at yourself from an external or observer point of view

Please use the following scale:

-3	-2	-1	0	+1	+2	+3
Completely Field Perspective			Neither			Completely Observer Perspective

Appendix J
Social Phobia Safety Behaviours Scale (SPSBS)

Please evaluate how frequently you use each of the following behaviours while in a social situation.

Statement	Never	Occasionally	Often	Usually
1. Looking away from or avoiding eye contact with the person with whom you are interacting.	1	2	3	4
2. Speeding up your speech, talking quickly and without pauses.	1	2	3	4
3. Shortening your speech, drastically reducing what you have to say.	1	2	3	4
4. Avoiding attracting attention to yourself.	1	2	3	4
5. Getting a seat as hidden as you can.	1	2	3	4
6. Pretending you are not interested or you are distant from what is happening.	1	2	3	4
7. Limiting yourself to being a passive spectator of a situation.	1	2	3	4
8. Pretending you did not see someone.	1	2	3	4
9. Walking with your head down.	1	2	3	4
10. Putting your hands in your pockets	1	2	3	4
11. Stopping doing what you were doing (e.g., writing, drinking, etc.) while being observed.	1	2	3	4
12. Trying to look at ease.	1	2	3	4
13. Laughing to hide the fact that you are nervous.	1	2	3	4
14. Constantly checking if you are presentable.	1	2	3	4
15. Increasing the distance between yourself and the person you are talking to.	1	2	3	4
16. Trying to disguise your trembling.	1	2	3	4
17. Thinking very carefully about what you are going to say before you speak.	1	2	3	4

Appendix K
Post-Event Processing Inventory – Trait (PEPI-T)

Please rate the extent to which you agree or disagree with the following statements by choosing the numbers that correspond with your answer choices. **Please rate each statement with regard to how you *generally* think following social situations.**

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. After social events, I think about the mistakes I made during the situation.	1	2	3	4	5
2. After social situations, I replay the event over in my mind.	1	2	3	4	5
3. I focus on the negative aspects of social events after they occur.	1	2	3	4	5
4. After social encounters, I think about how poorly the situation went.	1	2	3	4	5
5. After social events, I think about other similar past situations.	1	2	3	4	5
6. I find it difficult to forget about social events after they are over.	1	2	3	4	5
7. I experience recurring thoughts about social events long after they are over.	1	2	3	4	5
8. After social situations, my thoughts about the event interfere with my ability to concentrate.	1	2	3	4	5
9. After social situations, I experience distressing thoughts about the event.	1	2	3	4	5
10. After social situations, I become overwhelmed by my thoughts.	1	2	3	4	5
11. I experience intrusive thoughts about the social situation after the event has occurred.	1	2	3	4	5
12. After social situations, I become preoccupied by my thoughts.	1	2	3	4	5

Appendix L
Demographic Questionnaire

Please answer the following questions listed below by writing your response or choosing the most appropriate answer.

1. What is your age (in years)? ____

2. What is your biological sex?
   - Male □
   - Female □
   - Other □

3. Which ethnicity do you **most closely** identify with?
   - White/Caucasian □
   - Asian □
   - Black/African Canadian □
   - Indigenous (First Nations/Métis/Inuit) □
   - Other □ Please specify _____

4. What is your current level of education? (Please choose one)
   - University Year 1 □
   - University Year 2 □
   - University Year 3 □
   - University Year 4 □
   - University Year 5 (or more) □
   - Not Applicable (I am not a student) □

5. Are you completing your Psychology:
   Major □ Minor □ Neither □

6. What is your occupational status? (check all that apply)
   Full time Student □ Part time Student □ Full time Employee □
   Part time Employee □ Unemployed □ Other: _____

7. What is your marital status?
   Married or common law □ In a relationship but not married or common law □
   Single □ Widowed □

8. Have you ever been diagnosed with a mood and/or anxiety disorder?
   Yes □ (Please specify: _____) No □

9. Are you currently taking any medically prescribed medication for a mood and/or anxiety disorder? Yes □ No □

Appendix M
Depression Subscale of the Depression Anxiety Stress Scale – 21 (DASS-21-Depression)

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

Item 3	I couldn't seem to experience any positive feeling at all	0	1	2	3
Item 5	I found it difficult to work up the initiative to do things	0	1	2	3
Item 10	I felt that I had nothing to look forward to	0	1	2	3
Item 13	I felt down-hearted and blue	0	1	2	3
Item 16	I was unable to become enthusiastic about anything	0	1	2	3
Item 17	I felt I wasn't worth much as a person	0	1	2	3
Item 21	I felt that life was meaningless	0	1	2	3

More information on the DASS can be found at www.psy.unsw.edu.au/dass/

Appendix N
Information Letter and Informed Consent

Perfectionism, Anxiety Sensitivity, and Responses to Social Situations
Information Letter and Informed Consent

Dear Potential Participant:

You are invited to participate in the research study "Perfectionism, Anxiety Sensitivity, and Responses to Social Situations". The general purpose of this study is to better understand the role that perfectionism and anxiety sensitivity play in the way individuals' think and behave in response to social situations. This research is being investigated by a Lakehead University Ph.D. student, Victoria Pitura, under the supervision of Associate Professor, Dr. Amanda Maranzan.

INFORMATION: This research study consists of three parts and there are no eligibility restrictions. During **part one** you will first be asked to provide your name and email. This information will be used to connect your responses from each part of the study. You will then complete several questionnaires regarding your demographics (i.e., age, gender, etc.), anxiety sensitivity (i.e., fear of anxiety symptoms), perfectionism, and thoughts and feelings regarding social situations. The first online session should take approximately 60 minutes to complete. You will sign up for part two at the end of this session.

During **part two**, you will come to the lab, where you will complete a few additional self-report questionnaires, participate in two brief social tasks (one of which will be recorded), and then complete additional self-report questionnaires. The in-lab portion should take no longer than 45 minutes. You will then be asked to provide your name and email for the researcher to contact you for part three.

In **part three,** which will be completed online two days after part two, you will be asked to complete a few final questionnaires regarding any thoughts you had about the in-lab session afterwards. You will then be fully debriefed. Part three should take no longer than 15 minutes.

Participants are being recruited though Lakehead University's undergraduate psychology participant pool, and posters displayed across campus. You DO NOT have to be a psychology student to participate. Approximately 140 participants are required for parts two and three, and participants will therefore be recruited for the first part until that number is obtained.

RISKS: As a result of participating in this research, you may experience feelings of discomfort or embarrassment. However, these feelings are normal and should only be temporary. If these feelings persist or worsen, or you have any concerns, you may contact Lakehead University's Counseling Services. Lakehead University's Counseling Services can be reached by phone at (807) 343-8361 and in person in the Prettie Residence building. Also, you can contact the GOOD2TALK helpline at 1-(866)-925-5454 or visit http://www.ementalhealth.ca/Canada/Social-Anxiety-Disorder-in-Adults/index.php?m=article&ID=8898 for more information. A list of local and community resources is provided at the end of this information letter. Please note that

although various data are being collected during this study, the information you provide will be stored and analyzed separately from any identifying information.

BENEFITS: This research will benefit the research community, as well as those individuals who experience anxiety and/or discomfort during social situations. Specifically, it will help clarify how personality and individual differences influence responses to social situations. Research examining these factors is limited. By expanding this field, researchers may gain a better understanding of, and thereby determine more effective interventions for those who experience anxiety in response to social situations.

COMPENSATION: Should you choose to participate, you will be compensated with course credit towards your final grade in a psychology course (up to 2.5 credits) and/or entries in up to three cash prize draws (see below).

Specifically:

- Part one: 1.0 course credit, plus one entry into a $50 cash draw OR two entries into a $50 cash draw
- Part two: 1.25 course credit, plus one entry into a $100 cash draw OR two entries into a $100 cash draw
- Part three: 0.25 course credit, plus one entry into a $25 cash draw OR two entries into a $25 cash draw

Winners for each draw will be notified at the end of the data collection part of the study.

CONFIDENTIALITY: All data collected and participation in this study will remain confidential. The student researcher, Victoria Pitura, and the principal investigator, Dr. Amanda Maranzan, will be the only individuals with access to the data. All data will be collected using SurveyMonkey.com. Please note that SurveyMonkey is hosted by a server located in the USA. The US Patriot Act permits U.S. law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In view of this we cannot absolutely guarantee the full confidentiality and anonymity of your data. With your consent to participant in this study, you acknowledge this. You can read more about SurveyMonkey's privacy policy here: https://www.surveymonkey.com/mp/policy/privacy-policy/.

Additionally, all data will be retained in password protected electronic files. Although you will be asked to provide your name, student ID, and email address, this information will only be used to connect your data from parts one, two, and three of the study, as well as in the allocation of research participation credits and/or contact purposes. Once data collection is finished, your name in the data file will be replaced with a unique number identifier, and the list of your name and email will be kept separately from the data. You can withdraw your data from this study by contacting either of the researchers (contact information listed at the end of this form). Furthermore, all primary data obtained in this study will be destroyed by the principal investigator or student researcher by no later than August 31, 2021 (i.e., after five years). While the results of this study may be published or presented to colleagues, all data will be presented in

aggregate form (i.e., without names or identifying information).

CONTACT: Should you have questions regarding the study or its procedures, you may contact the student researcher, Victoria Pitura by email (vpitura1@lakeheadu.ca). Should you experience adverse effects as a result of participating in this study, you may contact the principal investigator, Dr. Amanda Maranzan, by email (kamaranz@lakeheadu.ca), phone (807-343-8322), or in person (SN1018). This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

PARTICIPATION: Your participation in this study is voluntary and you may decline to participate at any time without penalty. Should you choose to participate, you may withdraw from the study at any time, and may have your data withdrawn up until the point that all data collection for the study is completed. Please note that withdrawing from the study or withdrawing your data will not result in penalty or loss of benefits to which you are otherwise entitled (i.e., you will still **receive bonus credits and/or draw entries)**. You also have the right not to answer any questionnaire items that you choose.

FEEDBACK AND PUBLICATION: You will receive a debriefing form regarding this research via email. A more complete summary can be sent to you upon request (please email the student researcher no later than August 31, 2019). This research will be reported in the student researcher's Ph.D. dissertation, as well as presented in Lakehead University's "Attending Ph.D. Research Seminar (PSYC 9660)". It is also possible that this research may be presented at conferences and submitted and accepted in a scientific journal. However, all data will only be presented in aggregate form.

CONSENT

- I have read and understand the above information.
- I agree to participate in this study.
- Should I choose to participate in Part Two, I agree to have my participation in one in-lab social task recorded on video-camera.
- I understand the potential risks (i.e., temporary feelings of discomfort or embarrassment) and/or benefits of the study (benefiting the research community and those who experience anxiety during social situations).
- I am a volunteer and can withdraw from the study at any time and/or choose not to answer any question. I can withdraw my data from this study by contacting either of the researchers.
- I acknowledge that SurveyMonkey is hosted by a server located in the USA. The US Patriot Act permits U.S. law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In view of this we cannot absolutely guarantee the full confidentiality and anonymity of your data.
- The data I provide will be securely stored at Lakehead University for a minimum of five years following completion of the research. Final research findings will be made available to me via email, at my request, by no later than August 31, 2019.

- I will remain anonymous in any publications/public presentation of the research findings and my identity will not be revealed.

I **agree** with the above statements and consent to participate.

□ Yes (I agree)
□ No (I **do not** agree)

MENTAL HEALTH RESOURCES
please print this page for your reference

Lakehead University Resource:

Counseling Services
Lakehead University
955 Oliver Road
Thunder Bay, Ontario, P7B 5E1
(807) 343-8361

Community Resources:

Good2Talk Postsecondary Student Helpline
1-866-925-5454 or connect through 2-1-1
A free, confidential helpline providing professional counselling and information and referrals for mental health, addictions, and well-being to post-secondary students in Ontario, 24/7/365

Thunder Bay Crisis Response Service
(807) 346-8282
Mental health workers provide support 24 hours a day and can help you to access further services, as needed

Thunder Bay Counselling Centre
(807) 684-1880
Mental health workers provide counselling to individuals, couples, and families

Beendigen Crisis Line
(807) 346-HELP
(807) 346-4357

Mental Health Assessment Team
At the Emergency Department (Thunder Bay Regional Health Sciences Centre)
Mental health workers will assess your emergency mental health needs

Thunder Bay Sexual Assault/Abuse Crisis Service
(807) 344-4502
Crisis workers are available 24 hours to give immediate help, as well as follow-up counseling, court advocacy and other services. Phone support for women who have experienced current or

past assault or abuse.

Walk-in Counselling Services –Wednesdays from 12 noon to 8 pm
-1st & 3rd Wednesday each month at –Thunder Bay Counselling Centre – 544 Winnipeg Avenue
-2nd & 4th Wednesday each month at Children's Centre Thunder Bay – 283 Lisgar Street

Appendix O
Debriefing Form

The information obtained in this form is important to read and it is recommended that you save a copy. There were no eligibility criteria for this study and you were deemed eligible due to your willingness to participate. During this study you were asked to complete a number of measures regarding the type of person you are (i.e., your personality and reaction to anxiety), how you typically respond to social situations (i.e., with high or low levels of anxiety), and how you think and behave prior, during, and following social situations.

In particular, you were asked questions pertaining to perfectionism and anxiety sensitivity, in order to determine whether these factors influenced the way you respond to anxiety-provoking social situations. Perfectionism has been previously defined as a multidimensional personality trait characterized by a stable desire to be and/or appear perfect (Hewitt & Flett, 1991; Hewitt et al., 2003). One aspect of perfectionism that is particularly relevant to social situations, is the Evaluative Concerns aspect, which is reflected in a tendency to "make overly critical evaluations of one's own behavior, an inability to derive satisfaction from successful performance, and chronic concerns about others' criticism and expectations" (Dunkley, Blankstein, Masheb, & Grilo, 2006, p. 65). More recently, researchers have also extended the concept of perfectionism to include interpersonal and private expressions of the trait, known as perfectionistic self-presentation and perfectionistic cognitions, respectively (for a review see Flett & Hewitt, 2014). Alternatively, anxiety sensitivity has been described as a dispositional towards excessive fear in response to anxiety-related symptoms such as a racing heart, racing thoughts, or blushing (Reiss & McNally, 1985).

Previous research has demonstrated that higher levels of anxiety sensitivity and certain aspects of perfectionism (i.e., evaluative concerns and perfectionistic self-presentation and cognitions) are related to higher levels of social anxiety (for reviews see Flett & Hewitt, 2014; Naragon-Gainey & Watson, 2011). Research has also showed that individuals who experience social anxiety think and behave in problematic ways prior to, during, and following social situations, which actually serves to maintain their level of social anxiety over time. More specifically, those with even subclinical levels of social anxiety (i.e., social anxiety not meeting criteria for an official diagnosis) have been shown to report higher levels of anticipatory processing (repeatedly reflecting on past social failures and anticipating and preparing for future social events), self-focused attention (increased focus on internal feelings and sensations), observer-perspective self-imagery (seeing a mental image of oneself from another person's perspective), safety behaviours (strategies used to reduce or avoid feelings of anxiety such as avoiding eye contact or speaking quickly), and post-event processing (repeatedly and negatively reflecting on feelings of distress following social situations) (Clark & Wells, 1995; Clark, 2001; Heimberg, Brozovich, & Rapee, 2010; Rapee & Heimberg, 1997).

However, very limited research has examined whether individual differences in anxiety sensitivity and perfectionism serve to influence the aforementioned ways of thinking and behaving. Additionally, much of the prior research on social anxiety and anxiety sensitivity/perfectionism has relied exclusively on cross-sectional designs, which prevents

researchers' ability to determine cause-and-effect among variables. Prior research has also failed to unanimously study the roles of perfectionism and anxiety sensitivity in social anxiety, and to consider whether these variables play different roles in different forms of social anxiety (e.g., anxiety for social interactions versus public speaking or while being observed).

The current study therefore aimed to determine whether higher levels of anxiety sensitivity and perfectionism predicted greater engagement in/use of the aforementioned social anxiety-maintaining factors (i.e., anticipatory processing, self-focused attention, observer-perspective self-imagery, safety behaviours, and post-event processing). It also explored whether differences emerge depending on the type of social situation considered (social interaction versus being evaluated or scrutinized by others), and did so using an experimental design.

The purpose of part one was to establish baseline relationships among the study variables and the purpose of parts two and three were to examine these relationships experimentally using a social manipulation.

Procedure:

During Part One, participants were asked to complete a number of self-report questionnaires, which included: a Demographic Questionnaire, Social Interaction Anxiety Scale - 6, Social Phobia Scale – 6, Frost Multidimensional Perfectionism Scale, Multidimensional Perfectionism Scale, Perfectionistic Self-Presentation Scale, Perfectionistic Cognitions Inventory, Anticipatory Social Behaviours Questionnaire, Trait Self-Focused Attention Questionnaire, Observer versus Field Visual Analogue Scale, Social Phobia Safety Behaviour Scale, Post-Event Processing Inventory – Trait Version, Depression subscale of the Depression, Anxiety, and Stress Scale – 21, and the 50-Item International Personality Item Pool representation of the NEO-Personality Inventory-Revised.

During Part Two, participants were asked to complete self-report measures of depressive symptoms (Depression subscale of the DASS-21), perfectionistic cognitions (Perfectionistic Cognitions Inventory), and their current level of anxiety (Subjective Units of Distress Scale). They were then assigned to two social manipulations, in counterbalanced order. In condition one, participants were instructed to engage in a five-minute conversation with a research assistant, who was trained to be reserved, thereby forcing the research participant (you) to be the one that elicited conversation. In condition two, participants gave a three-minute speech in front of the researcher while being videotaped. **Although participants were told that their videos would be reviewed by a group of research assistants, the purpose of this deception was to mimic the presence of a larger audience, and the videos were actually deleted by the researcher (without viewing them) as soon as the participant left the research lab.** Prior to each manipulation, participants were asked to report on their level of anticipatory processing (State Anticipatory Social Behaviours Questionnaire) regarding the upcoming social task. Following completion of each task, participants were asked to report on their level of anxiety (Subjective Units of Distress Scale), self-focused attention (State Self-Focused Attention Questionnaire), observer-perspective self-imagery (State Observer versus Field Visual Analogue Scale), and use of safety behaviours (15-item Social Phobia Safety Behaviour Scale) during the social task. They were also instructed to rate their level of post-event processing (Post-Event Processing

Questionnaire – State Version) immediately following the social task.

During Part Three, participants were asked to complete two additional measures of post-event processing (Post-Event Processing Questionnaire – State Version) regarding the in-lab social interaction and speech task. The purpose was to evaluate post-event processing over a longer interval (i.e., two days). Participants also completed a brief mood booster exercise.

Overall, the purpose of this study was to gain a better understanding of how perfectionism and anxiety sensitivity influence various factors known to maintain social anxiety. As such, participants' scores on measures of perfectionism (including trait evaluative concerns and perfectionistic self-presentation and cognitions) and anxiety sensitivity will be tested as predictors of each social anxiety-maintaining factor (i.e., anticipatory processing, self-focused attention, observer-perspective self-imagery, safety behaviours, and post-event processing). Overall, it is expected that in Part One, measures of perfectionism (i.e., evaluative concerns and perfectionistic self-presentation and cognitions) and/or anxiety sensitivity will serve to predict various social anxiety maintaining factors. However, analyses will determine whether perfectionism or anxiety sensitivity contributes greater variance to these models. In Parts Two and Three, it is expected that measures of perfectionism (but not anxiety sensitivity) will uniquely predict various social anxiety-maintaining factors in response to the social interaction. Alternatively, anxiety sensitivity (but not perfectionism) is expected to uniquely predict social anxiety-maintaining factors in response to the impromptu speech.

It is worth noting that although participants were asked to complete questionnaires regarding symptoms of depression, neuroticism, demographics, and a recent pleasant experience and things that make you happy, these were not included as a main measure in this study. Depression sometimes co-occurs with symptoms of anxiety and levels of depression were therefore assessed in order to statistically control for the effect of depressive symptoms on our final results. Similarly, neuroticism is considered a risk for the development of anxiety, and levels of neuroticism may therefore be statistically controlled in our final analyses. Participants were also asked to complete demographic information and a mood boosting exercise, which will not be included in our main analyses. The purpose of these items, respectively, was to examine and account for any pre-existing demographic differences and improve participants' mood after answering questions pertaining to the social situations.

Thank you for participating in this study! If participation led to some feelings of discomfort or embarrassment, know that these feelings are normal and should only be temporary. However, if they persist or worsen, or you have any concerns, you may contact the researchers or Lakehead University's Counseling Services (contact information provided below).

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This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca

If you would like to discuss or learn more about social anxiety, perfectionism, or anxiety sensitivity, please refer to the following list of resources:

Counseling Services
Lakehead University
955 Oliver Road
Thunder Bay, Ontario, P7B 5E1
(807) 343-8361
https://www.lakeheadu.ca/current-students/student-services/tb/health-and-counselling

GOOD2TALK
Post-Secondary Student Helpline
Ontario
1-(866)-925-5454

eMentalHealth.ca
Social Anxiety Disorder in Adults
http://www.ementalhealth.ca/Canada/Social-Anxiety-Disorder-in-Adults/index.php?m=article&ID=8898

American Psychological Association
The Many Faces of Perfectionism
http://www.apa.org/monitor/nov03/manyfaces.aspx

Watt and Stewart (2009)
What You Should Know About Anxiety Sensitivity
https://www.anxietybc.com/sites/default/files/Watt_Stewart%20STRIDES%20August%2031%202009%20FINAL.pdf

Appendix P
Supplementary Table 1

Supplementary Table 1

Part One Descriptive Statistics Using Non-Imputed Data

Measure	*N*	*M*	*SD*	α	*Skewness z*	*Kurtosis z*
SA composite	358	16.41	11.74	.93	-3.81	-1.90
SIAS	366	8.19	5.71	.87	3.85	-3.13
SPS	361	8.26	6.76	.92	3.46	-2.54
ASBQ	364	31.87	7.64	.92	-3.52	0.38
TSFAQ	352	30.39	15.55	.95	1.10	-2.91
VAS trait	133	-2.00 [b]	—	—	—	—
SPSBS	353	39.91	10.96	.92	1.68	-1.16
PEPI-T	360	36.61	11.83	.85	-0.06	-2.58
ASI-3 total	356	25.06	16.20	.94	4.68	-0.65
Physical concerns	368	6.57	6.00	.89	7.24	0.58
Cognitive concerns	363	7.11	6.24	.91	6.13	-0.86
Social concerns	363	11.22	6.21	.86	1.94	-3.03
MPS SOP	353	69.11	15.74	.90	0.74	-1.67
MPS SPP	345	58.78	13.44	.86	0.09	-1.68
MPS OOP	355	56.69	10.52	.74	-1.78	0.97
PSPS self-promotion	361	44.04	11.51	.90	-0.58	-1.86
PSPS nondisplay	363	47.40	12.23	.92	-2.68	-1.78
PSPS nondisclosure	364	27.12	8.10	.83	1.00	-0.53
PCI	340	92.73	20.38	.95	-0.57	-1.53
DASS-21-D	363	12.88	10.72	.92	6.65	0.23

Note. Data from the VAS Trait reflect only on those participants who acknowledged a tendency to experience a mental image/impression in response to social situations. *M* = mean, *SD* = standard deviation, α = Cronbach's alpha, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷ SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASBQ = Anticipatory Social Behaviours Questionnaire, TSFAQ = Trait Self-Focused Attention Questionnaire, VAS-Trait = Visual Analogue Scale-Trait, PEPI-T = Post-Event Processing Inventory-Trait, ASI-3 = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, and DASS-21-D = Depression Anxiety Stress Scale-21-Depression. [a] represents the mode given that the VAS was treated as an ordinal variable.

Appendix Q
Subject Units of Distress Scale (SUDS) (Pre-Manipulation)

Please rate your current level of anxiety (from 0 to 100). Use the following rating scale:

0	25	50	75	100
No anxiety	Mild anxiety	Moderate anxiety	Significant anxiety	Highest possible anxiety

Please enter a % below:

Appendix R
Subject Units of Distress Scale (SUDS) - Speech

Please indicate the highest level of anxiety (from 0 to 100) that you experienced **while giving your speech.** Use the following rating scale:

0	25	50	75	100
No anxiety	Mild anxiety	Moderate anxiety	Significant anxiety	Highest possible anxiety

Please enter a % below:

Appendix S
Subject Units of Distress Scale (SUDS) - Interaction

Please indicate the highest level of anxiety (from 0 to 100) that you experienced **while engaging in the social interaction with the researcher.** Use the following rating scale:

0	25	50	75	100
No anxiety	Mild anxiety	Moderate anxiety	Significant anxiety	Highest possible anxiety

Please enter a % below:

Appendix T
State Anticipatory Social Behaviours Questionnaire (ASBQ-S) - Speech

For the following statements, please rate the degree to which you engaged in each behaviour, or experienced each thought, **prior to giving your speech.**

Items	Never	Almost Never	Almost Constantly	Constantly
1. I thought about similar situations in which I have failed in the past.	1	2	3	4
2. I tried thinking of everything that could happen.	1	2	3	4
3. I imagined the worst that could happen.	1	2	3	4
4. I went over in detail what might happen.	1	2	3	4
5. I tried to picture how I would appear to others.	1	2	3	4
6. I tried planning what I was going to say.	1	2	3	4
7. I rehearsed conversations in my mind.	1	2	3	4
8. I reminded myself of things I should not do.	1	2	3	4
9. I thought about ways in which I could put things right if I made a fool of myself.	1	2	3	4
10. I thought about ways in which I could avoid having to face the situation.	1	2	3	4
11. I thought about ways in which I could escape from the situation if it gets too embarrassing.	1	2	3	4
12. I made a conscious effort not to think about the situation.	1	2	3	4

Appendix U
State Anticipatory Social Behaviours Questionnaire (ASBQ-S) - Interaction

For the following statements, please rate the degree to which you engaged in each behaviour, or experienced each thought, **prior to the engaging in the social interaction with the researcher.**

Items	Never	Almost Never	Almost Constantly	Constantly
1. I thought about similar situations in which I have failed in the past.	1	2	3	4
2. I tried thinking of everything that could happen.	1	2	3	4
3. I imagined the worst that could happen.	1	2	3	4
4. I went over in detail what might happen.	1	2	3	4
5. I tried to picture how I would appear to others.	1	2	3	4
6. I tried planning what I was going to say.	1	2	3	4
7. I rehearsed conversations in my mind.	1	2	3	4
8. I reminded myself of things I should not do.	1	2	3	4
9. I thought about ways in which I could put things right if I made a fool of myself.	1	2	3	4
10. I thought about ways in which I could avoid having to face the situation.	1	2	3	4
11. I thought about ways in which I could escape from the situation if it gets too embarrassing.	1	2	3	4
12. I made a conscious effort not to think about the situation.	1	2	3	4

Appendix V
State Self-Focused Attention Questionnaire (SFAQ-S) - Speech

Please use the following rating scale to indicate how characteristic each statement was of you **during your speech performance.**

0 Not at all characteristic of me	1 Somewhat characteristic of me	2 Moderately characteristic of me	3 Mostly characteristic of me	4 Totally characteristic of me

While giving my **speech**, I focused on…

1. What I should have said or done next.	0	1	2	3	4
2. The impression I was making on the other person.	0	1	2	3	4
3. My level of anxiety.	0	1	2	3	4
4. My internal bodily reaction (for example, heart rate).	0	1	2	3	4
5. On past social failures.	0	1	2	3	4
6. Whether my heart was beating fast.	0	1	2	3	4
7. Whether I was behaving tensely.	0	1	2	3	4
8. Whether I was in control of my breathing.	0	1	2	3	4
9. Whether I looked tense.	0	1	2	3	4
10. Whether I was blushing, trembling, or sweating.	0	1	2	3	4
11. How tense I felt.	0	1	2	3	4
12. Whether I have sufficient social skills.	0	1	2	3	4
13. Whether I was speaking fluently.	0	1	2	3	4
14. How well I was taking part in the social situation.	0	1	2	3	4
15. Whether I was behaving appropriately.	0	1	2	3	4

Appendix W
State Self-Focused Attention Questionnaire (SFAQ-S) - Interaction

Please use the following rating scale to indicate how characteristic each statement was of you **during your social interaction** with the researcher.

0	1	2	3	4
Not at all characteristic of me	Somewhat characteristic of me	Moderately characteristic of me	Mostly characteristic of me	Totally characteristic of me

While engaging in **the social interaction**, I focused on…

1. What I should have said or done next.	0	1	2	3	4
2. The impression I was making on the other person.	0	1	2	3	4
3. My level of anxiety.	0	1	2	3	4
4. My internal bodily reaction (for example, heart rate).	0	1	2	3	4
5. On past social failures.	0	1	2	3	4
6. Whether my heart was beating fast.	0	1	2	3	4
7. Whether I was behaving tensely.	0	1	2	3	4
8. Whether I was in control of my breathing.	0	1	2	3	4
9. Whether I looked tense.	0	1	2	3	4
10. Whether I was blushing, trembling, or sweating.	0	1	2	3	4
11. How tense I felt.	0	1	2	3	4
12. Whether I have sufficient social skills.	0	1	2	3	4
13. Whether I was speaking fluently.	0	1	2	3	4
14. How well I was taking part in the social interaction.	0	1	2	3	4
15. Whether I was behaving appropriately.	0	1	2	3	4
16. Whether I understood what the other person was saying.	0	1	2	3	4

Appendix X
15-Item Social Phobia Safety Behaviours Scale (SPSBS-15) - Speech

Please evaluate how frequently you used each of the following behaviours **while giving your speech**.

Statement	Never	Occasionally	Often	Usually
1. Looking away from or avoiding eye contact with the person with whom you are interacting.	1	2	3	4
2. Speeding up your speech, talking quickly and without pauses.	1	2	3	4
3. Shortening your speech, drastically reducing what you have to say.	1	2	3	4
4. Avoiding attracting attention to yourself.	1	2	3	4
5. Pretending you are not interested or you are distant from what is happening.	1	2	3	4
6. Limiting yourself to being a passive spectator of a situation.	1	2	3	4
7. Talking with your head down.	1	2	3	4
8. Putting your hands in your pockets	1	2	3	4
9. Stopping doing what you were doing (e.g. writing, drinking, etc.) while being observed.	1	2	3	4
10. Trying to look at ease.	1	2	3	4
11. Laughing to hide the fact that you are nervous.	1	2	3	4
12. Constantly checking if you are presentable.	1	2	3	4
13. Increasing the distance between yourself and the person you are talking to.	1	2	3	4
14. Trying to disguise your trembling.	1	2	3	4
15. Thinking very carefully about what you are going to say before you speak.	1	2	3	4

Appendix Y
15-Item Social Phobia Safety Behaviours Scale (SPSBS-15) - Interaction

Please evaluate how frequently you used each of the following behaviours **while engaging in the social interaction with the researcher**.

Statement	Never	Occasionally	Often	Usually
1. Looking away from or avoiding eye contact with the person with whom you are interacting.	1	2	3	4
2. Speeding up your speech, talking quickly and without pauses.	1	2	3	4
3. Shortening your speech, drastically reducing what you have to say.	1	2	3	4
4. Avoiding attracting attention to yourself.	1	2	3	4
5. Pretending you are not interested or you are distant from what is happening.	1	2	3	4
6. Limiting yourself to being a passive spectator of a situation.	1	2	3	4
7. Talking with your head down.	1	2	3	4
8. Putting your hands in your pockets	1	2	3	4
9. Stopping doing what you were doing (e.g. writing, drinking, etc.) while being observed.	1	2	3	4
10. Trying to look at ease.	1	2	3	4
11. Laughing to hide the fact that you are nervous.	1	2	3	4
12. Constantly checking if you are presentable.	1	2	3	4
13. Increasing the distance between yourself and the person you are talking to.	1	2	3	4
14. Trying to disguise your trembling.	1	2	3	4
15. Thinking very carefully about what you are going to say before you speak.	1	2	3	4

Appendix Z
State Observer versus Field Visual Analogue Scale (VAS-S) - Speech

While giving your speech, did you experience a mental image of yourself, or form an impression of how you were coming across to the research assistant, or how he/she might be reacting to you? If "**Yes**", please evoke the image/impression in your mind.

Below please rate (from -3 to 3) whether the image/impression you saw was one in which you were viewing the situation through your own eyes, observing the detail of what was going on around you **(field perspective)**, or one in which you were observing yourself, as if looking at yourself from an external or observer point of view **(observer perspective)**.

Please use the following scale:

-3	-2	-1	0	+1	+2	+3
Completely Field Perspective			Neither			Completely Observer Perspective

Appendix AA
State Observer versus Field Visual Analogue Scale (VAS-S) - Interaction

During your social interaction with the researcher, did you experience a mental image of yourself, or form an impression of how you were coming across to the research assistant, or how he/she might be reacting to you? If "**Yes**", please evoke the image/impression in your mind.

Below please rate (from -3 to 3) whether the image/impression you saw was one in which you were viewing the situation through your own eyes, observing the detail of what was going on around you **(field perspective)**, or one in which you were observing yourself, as if looking at yourself from an external or observer point of view **(observer perspective)**.

Please use the following scale:

-3	-2	-1	0	+1	+2	+3
Completely Field Perspective			Neither			Completely Observer Perspective

Appendix BB
Post-Event Processing Inventory – State (PEPI-S) - Speech

Please rate the extent to which you agree or disagree with the following statements by choosing the numbers that correspond with your answer choices. Please rate each statement with regard to **the speech you gave during the in-lab portion of the study**. Focus on how each statement applies since the speech.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I thought about the mistakes I made during the event.	1	2	3	4	5
2. After the event, I kept replaying the situation over in my mind.	1	2	3	4	5
3. I generally focused on the negative aspects of the event after it occurred.	1	2	3	4	5
4. I thought about how poorly the situation went.	1	2	3	4	5
5. After the event, I thought about other similar past situations.	1	2	3	4	5
6. I found it difficult to forget about the event after it was over.	1	2	3	4	5
7. I experienced recurring thoughts about the event long after it was over.	1	2	3	4	5
8. My thoughts about the event interfered with my ability to concentrate.	1	2	3	4	5
9. After the event was over, I experienced distressing thoughts about the situation.	1	2	3	4	5
10. After the situation was over, I became overwhelmed by my thoughts.	1	2	3	4	5
11. I experienced intrusive thoughts about the event.	1	2	3	4	5
12. When thinking about the event, I became preoccupied by my thoughts	1	2	3	4	5

Appendix CC
Post-Event Processing Inventory – State (PEPI-S) - Interaction

Please rate the extent to which you agree or disagree with the following statements by choosing the numbers that correspond with your answer choices. Please rate each statement with regard to **your social interaction with the researcher during the in-lab portion of the study**. Focus on how each statement applies since the social interaction.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I thought about the mistakes I made during the event.	1	2	3	4	5
2. After the event, I kept replaying the situation over in my mind.	1	2	3	4	5
3. I generally focused on the negative aspects of the event after it occurred.	1	2	3	4	5
4. I thought about how poorly the situation went.	1	2	3	4	5
5. After the event, I thought about other similar past situations.	1	2	3	4	5
6. I found it difficult to forget about the event after it was over.	1	2	3	4	5
7. I experienced recurring thoughts about the event long after it was over.	1	2	3	4	5
8. My thoughts about the event interfered with my ability to concentrate.	1	2	3	4	5
9. After the event was over, I experienced distressing thoughts about the situation.	1	2	3	4	5
10. After the situation was over, I became overwhelmed by my thoughts.	1	2	3	4	5
11. I experienced intrusive thoughts about the event.	1	2	3	4	5
12. When thinking about the event, I became preoccupied by my thoughts	1	2	3	4	5

Appendix DD
Supplementary Table 2

Supplementary Table 2

Part Two Descriptive Statistics Using Non-Imputed Data

Measure	*N*	*M*	*SD*	*α*	Skewness z	Kurtosis z
SA composite	157	18.02	11.81	.93	1.51	-2.01
SIAS	157	8.85	5.62	.84	1.72	-1.78
SPS	158	9.12	6.86	.91	1.76	-2.45
ASI-3 total	150	25.27	15.44	.93	3.27	-0.38
Physical concerns	154	6.52	5.74	.87	4.92	0.84
Cognitive concerns	153	6.81	6.15	.91	5.08	0.51
Social concerns	151	11.87	6.26	.87	0.93	-2.32
MPS SOP	153	71.15	16.45	.92	0.12	-1.21
MPS SPP	149	60.68	14.45	.88	-0.39	-1.43
MPS OOP	153	56.94	11.67	.81	-1.33	-0.65
PSPS self-promotion	154	45.27	12.12	.91	-0.65	-1.74
PSPS nondisplay	153	49.60	11.60	.91	-2.40	-0.59
PSPS nondisclosure	154	28.21	8.34	.85	0.44	-0.91
PCI	147	49.85	20.37	.95	-0.96	-1.64
BL speech SUDS	83	34.40	25.34	—	1.44	-1.63
Pre-speech SUDS	156	55.62	23.16	—	-2.74	-0.88
During speech SUDS	153	66.78	24.85	—	-3.99	-0.02
ASBQ speech	152	30.39	7.84	.89	-0.05	-1.31
SFAQ speech	153	25.65	13.25	.95	-1.02	-2.76
VAS speech	140	1.00 [a]	—	—	—	—
SPSBS speech	151	31.07	7.94	.84	4.41	2.67
PEPI-S – speech	149	36.15	12.00	.94	-0.59	-1.38
BL interaction SUDS	74	42.20	24.74	—	0.58	-1.27
Pre-interaction SUDS	157	36.48	23.84	—	1.49	-2.24
During interaction SUDS	155	33.32	25.47	—	2.79	-1.71
ASBQ interaction	157	25.93	8.37	.92	1.73	-1.69

Supplementary Table 2 Continued

Measure	*N*	*M*	*SD*	α	Skewness z	Kurtosis z
SFAQ interaction	153	27.51	17.03	.96	0.78	-2.81
VAS interaction	134	0.00 [a]	—	—	—	—
SPSBS interaction	154	27.05	7.66	.88	4.34	2.09
PEPI-S – interaction	156	28.17	11.54	.95	1.66	-2.06
DASS – 21 – D	158	10.44	9.30	.91	6.76	3.82

Note. Table includes those participants who completed parts one and two. Data from the VAS Trait reflect only on those participants who acknowledged a tendency to experience a mental image/impression in response to social situations. *M* = mean, *SD* = standard deviation, α = Cronbach's alpha, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷ SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI-3 = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, BL = Baseline, SUDS = Subjective Units of Distress Scale, ASBQ = Anticipatory Social Behaviours Questionnaire, SFAQ = State Self-Focused Attention Questionnaire, VAS = Visual Analogue Scale-State, SPSBS = Social Phobia Safety Behaviours Scale, PEPI-S = Post-Event Processing Inventory-State, and DASS-21-D = Depression Anxiety Stress Scale-21-Depression. [a] represents the mode given that the VAS measures were treated as ordinal variables.

Appendix EE
Supplementary Table 3

Supplementary Table 3

Summary of *t*-tests Comparing Mean Scores for Those Who Discontinued Following Part One Versus Those Who Continued to Part Two

	Group						95% CI for Mean Differences			
	Drop-outs			Completers						
Variable	*M*	*SD* [a]	*n*	*M*	*SD* [a]	*n*	LL	UL	*t*	*df*
SA Composite	15.57	11.66	218	17.98	11.78	158	-4.80	-.01	-1.97*	374
SIAS-6	7.77	5.72	218	8.86	5.61	158	-2.25	.08	-1.83	374
SPS-6	7.80	6.63	218	9.12	6.86	158	-2.70	.06	-1.88	374
ASBQ-T	30.99	7.96	218	32.83	7.09	158	-3.40	-.28	-2.31*	374
TSFAQ	28.97	15.66	218	31.95	15.05	158	-6.13	.18	-1.85	374
SPSBS-T	38.52	10.61	218	41.51	10.86	158	-5.18	-.79	-2.67**	374
PEPI-T	35.97	12.06	218	37.65	11.38	158	-4.09	.73	-1.36	374
ASI-3	24.71	16.53	218	25.23	15.32	158	-3.81	2.77	-.31	374
Physical	6.69	6.18	218	6.61	5.71	158	-1.15	1.31	.13	374
Cognitive	7.33	6.25	218	6.87	6.12	158	-.82	1.72	.70	374
Social	10.70	6.10	218	11.75	6.30	158	-2.32	.21	-1.63	374
SOP	66.54	14.57	218	71.86	16.37	158	-8.47	-2.17	-3.31***	374
SPP	57.39	12.02	218	60.86	14.73	158	-6.27	-.67	-2.43*	295.36
OOP	56.63	9.42	218	56.90	11.68	158	-2.49	1.95	-.24	291.48
Self-promotion	42.79	11.01	218	45.18	12.04	158	-4.74	-.04	-1.99*	374
Nondisplay	45.43	12.39	218	49.30	11.62	158	-6.34	-1.39	-3.06**	374
Nondisclosure	26.36	7.90	218	28.26	8.29	158	-3.56	-.25	-2.25*	374
PCI	50.72	20.52	218	54.61	19.34	158	-7.99	.22	-1.86	374
DASS-21-D	12.97	10.56	218	13.17	10.84	158	-2.38	1.99	-.18	374

Note. SA Composite = SIAS-6 + SPS-6, SIAS-6 = Social Interaction Anxiety Scale-6, SPS-6 = Social Phobia Scale-6, ASBQ-T = Anticipatory Social Behaviours Questionnaire – Trait, TSFAQ = Trait Self-Focused Attention Questionnaire, SPSBS-T = Social Phobia Safety Behaviours Scale – Trait, PEPI-T = Post-Event Processing Inventory – Trait, ASI-3 = Anxiety Sensitivity Index – 3, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, Self-Promotion = Perfectionistic Self-Promotion, Nondisplay = Nondisplay of Imperfection, Nondisclosure = Nondisclosure of Imperfection, PCI = Perfectionism Cognitions Inventory, and DASS-21-D = Depression Anxiety Stress Scale – Depression. [a] Pooled estimates were not provided in SPSS so values reflect researcher-generated means with minimum and maximum values in brackets.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$ for imputed data (two-tailed).

Appendix FF
Mood Booster Exercise

1. Think about a time in your life when you felt a positive emotion (e.g., happiness, joy). Please briefly describe the event below:

2. Think about one of your happiest/best memories. Please briefly describe the memory below:

3. Think about all the things that make you happy/mean a lot to you. Please list three of them below:

Appendix GG
Supplementary Table 4

Supplementary Table 4

Part Three Descriptive Statistics Using Non-Imputed Data

Measure	*n*	*M*	*SD*	α	Skewness z	Kurtosis z
SA composite	138	17.99	11.52	.92	1.26	-1.94
SIAS	138	8.81	5.49	.84	1.32	-1.94
SPS	139	9.13	6.68	.90	1.70	-2.15
ASI-3 total	133	25.63	15.22	.93	3.02	-0.13
Physical concerns	136	6.73	5.77	.87	4.39	0.60
Cognitive concerns	136	6.89	6.09	.90	4.62	0.20
Social concerns	134	11.97	6.20	.86	0.48	-2.22
MPS SOP	136	72.26	15.99	.92	0.41	-1.35
MPS SPP	132	60.80	14.19	.88	-0.58	-1.19
MPS OOP	135	56.67	11.88	.82	-1.32	-0.62
PSPS self-promotion	137	45.98	11.94	.91	-0.53	-1.73
PSPS nondisplay	135	50.15	10.89	.89	-1.64	-1.43
PSPS nondisclosure	136	28.49	8.23	.84	0.01	-0.60
PCI	128	50.01	20.22	.95	-0.86	-1.39
BL speech SUDS	79	33.67	25.18	—	1.61	-1.40
Pre-speech SUDS	138	56.01	22.58	—	-2.85	-0.46
During speech SUDS	136	68.07	24.04	—	-3.94	0.34
PEPI-S-speech	135	35.24	12.02	.95	0.34	-1.33
BL interaction SUDS	70	41.40	24.10	—	0.24	-1.46
Pre-interaction SUDS	138	36.83	23.20	—	1.55	-1.90
During interaction SUDS	136	33.58	24.93	—	2.29	-2.00
PEPI-S-interaction	135	29.45	11.90	.96	2.37	-1.36
DASS-21-D	139	10.66	9.28	.91	6.35	3.98

Note. Table includes participants who completed parts one, two and three. *M* = mean, *SD* = standard deviation, α = Cronbach's alpha, *SD* = standard deviation, Skewness z = skewness ÷ SE skewness, Kurtosis z = kurtosis ÷SE kurtosis, SA Composite = SIAS + SPS, SIAS = Social Interaction Anxiety Scale-6, SPS = Social Phobia Scale-6, ASI-3 = Anxiety Sensitivity Index-3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionistic Cognitions Inventory, BL = Baseline, SUDS = Subjective Units of Distress Scale, PEPI-S = Post-Event Processing Inventory-State, DASS-21-D = Depression Anxiety Stress Scale-21-Depression.

Appendix HH
Supplementary Table 5

Supplementary Table 5

Summary of *t*-tests Comparing Mean Scores for Those Who Discontinued Following Part Two Versus Those Who Continued to Part Three

	Group						95% CI for Mean Differences			
	Drop-outs			Completers						
Variable	*M*	*SD* [a]	*N*	*M*	*SD* [a]	*N*	LL	UL	*t*	*df*
SA composite	18.21	14.07	19	17.95	11.49	139	-2.63	3.15	.09	156
SIAS-6	9.16	6.68	19	8.82	5.47	139	-1.04	1.71	.24	156
SPS-6	9.05	8.24	19	9.13	6.68	139	-3.38	3.22	-.05	156
BL speech SUDS	48.75	27.80	4	33.67	25.18	79	-10.32	40.47	1.16	81
Pre-speech SUDS	52.56	27.74	18	56.01	22.58	138	-14.86	7.94	-.60	154
Post-speech SUDS	56.47	29.41	17	68.05	23.86	138	-17.88	-5.28	-1.84	153
BL interaction SUDS	56.25	35.44	4	41.40	24.10	70	-10.01	39.72	1.17	72
Pre-interaction SUDS	33.95	28.65	19	36.83	23.20	138	-14.35	8.58	-.49	155
Post-interaction SUDS	31.47	29.73	19	33.58	24.75	138	-13.82	9.60	-.34	155
ASI-3	21.94	16.66	19	25.53	15.05	139	-10.92	3.74	-.96	156
Physical concerns	5.10	5.34	19	6.73	5.71	139	-4.36	1.11	-1.16	156
Cognitive concerns	6.10	6.43	19	6.89	6.03	139	-3.72	2.15	-.53	156
Social concerns	10.74	6.66	19	11.92	6.22	139	-4.20	1.84	-.76	156
MPS SOP	70.32	19.51	19	72.15	15.91	139	-9.69	6.03	-.46	156
MPS SPP	58.63	16.68	19	61.22	14.37	139	-9.63	4.44	-.72	156
MPS OOP	58.81	9.80	19	56.64	11.89	139	-3.44	7.77	.76	156
Self-promotion	40.29	11.97	19	46.01	11.87	139	-11.44	-.01	-1.96*	156
Nondisplay	45.67	15.33	19	49.95	10.91	139	-11.41	2.85	-1.18	20.58
Nondisclosure	26.29	8.92	19	28.51	8.17	139	-6.19	1.84	-1.10	156
PCI	48.79	21.89	19	50.26	19.94	139	-10.57	7.63	-.30	156
ASBQ-S speech	29.39	9.65	18	30.42	7.54	138	-4.80	2.74	-.53	154
SFAQ-S speech	22.41	14.76	17	26.17	12.99	138	-7.15	-.37	-1.11	153
SPSBS-15 speech	29.49	8.73	17	31.17	7.81	138	-5.67	2.30	-.83	153
PEPI-S speech	29.65	15.07	17	36.84	11.26	138	-13.13	-1.27	-2.39*	153
ASBQ-S int	26.68	10.63	19	25.83	8.05	138	-3.16	4.88	.42	155
SFAQ-S int	24.67	19.55	19	27.94	16.54	138	-11.38	4.85	-.79	155
SPSBS-15 int	27.26	9.37	19	26.96	7.38	138	-3.23	3.84	.16	155
PEPI-S int	25.05	14.07	19	28.51	11.15	138	-6.28	-.64	-1.23	155
DASS-21-D	8.84	9.55	19	10.66	9.28	139	-6.28	2.64	-.80	156

Note. SA Composite = SIAS-6 + SPS-6, SIAS-6 = Social Interaction Anxiety Scale-6, SPS-6 = Social Phobia Scale-6, BL = Baseline, SUDS = Subjective Units of Distress Scale, ASI-3 = Anxiety Sensitivity Index – 3, MPS = Hewitt and Flett Multidimensional Perfectionism Scale, SOP = Self-Oriented Perfectionism, SPP = Socially Prescribed Perfectionism, OOP = Other-Oriented Perfectionism, PSPS = Perfectionistic Self-Presentation Scale, PCI = Perfectionism Cognitions Inventory, ASBQ-S = Anticipatory Social Behaviours Questionnaire – State, SFAQ-S = Self-Focused Attention Questionnaire – State, SPSBS-15 = Social Phobia Safety Behaviours Scale – 15, PEPI-S = Post-Event Processing Inventory – State, and DASS-21-D = Depression Anxiety Stress Scale – 21 – Depression. [a] Pooled estimates were not provided in SPSS, so values reflect researcher-generated means.

* $p \leq .05$ for imputed data (two-tailed).

Appendix II
Supplementary Table 6

Supplementary Table 6

Summary of Mann-Whitney U tests Comparing Median Scores on Self-Imagery Perspective for Those Who Discontinued Following Part Two Versus Those Who Continued to Part Three

	Group					
	Drop-outs		Completers			
Variable	*Mdn*	*n*	*Mdn*	*n*	U	*p*
VAS speech	1.00	16	0.00	124	780.50	.16
VAS interaction	0.00	17	-1.00	117	807.00	.20

Note. VAS = Visual Analogue Scale. Responses on the VAS ranged from -3 (Completely Field Perspective) to +3 (Completely Observer Perspective).