

Does Increased Self-Compassion Improve Social Anxiety Symptomology? Results from a
Mindfulness-Based Intervention for Social Anxiety Disorder

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Abstract

Purpose: This study assessed whether a mindfulness-based intervention (MBI) adapted for social anxiety disorder (SAD) led to increases in self-compassion and trait mindfulness, and whether these increases mediated change in SAD symptom severity.

Methods: Participants were randomly assigned to a 12-week MBI adapted for SAD (MBI-SAD, $n = 21$) or a wait-list control (WLC, $n = 18$). The MBI-SAD included aspects of the mindfulness-based stress reduction program, as well as explicit training in self-compassion and “mindful exposure”. Participants were assessed at baseline and weeks 6 and 12.

Results: The MBI-SAD resulted in higher self-compassion and trait mindfulness and lower levels of social anxiety, compared to the WLC. Mediation analyses revealed that self-compassion and aspects of trait mindfulness mediated clinical response. **Implications:** Results suggest that self-compassion and aspects of trait mindfulness are possible mechanisms of change for the MBI-SAD. Results and their implications are discussed.

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Introduction

What is Social Anxiety Disorder?

Social anxiety disorder (SAD) is the most common of the anxiety disorders; over two million Canadians aged 15 or older (eight percent of the total population) report a lifetime history (Statistics Canada, 2004). The Diagnostic Statistical Manual-V (American Psychiatric Association (APA, 2013) defines SAD as a persistent fear of social or performance situations in which the person may be judged or scrutinized by others. For example, those with SAD report significant anxiety in diverse situations including public speaking, informal social interactions, behaving assertively, and eating, drinking, or performing in the presence of others (Holt, Heimberg, Hope, & Liebowitz, 1992; Liebowitz, 1987). Persons with SAD fear they will act in such a way or show anxiety symptoms, such as blushing, trembling or sweating, that will result in embarrassment or humiliation (APA, 2013). As a result, individuals with SAD tend to experience anticipatory anxiety and/or avoid engaging in social activities (ibid.). The experience of distress and repeated interference with daily activities are what differentiates SAD from the occasional nervousness most people experience in social situations. In sum, SAD is a complex disorder that involves cognitive (e.g., attention to social threats, negative assumptions about the self, and beliefs that one may be judged negatively), physiological (e.g., sweating, blushing), and behavioural (e.g. avoidance of situations) components.

Contemporary theories of SAD and its treatment emphasize the role of attention and cognitive processes in the development and maintenance of the disorder (e.g., Clark & Wells, 1995; Hartman, 1983; Hoffman, 2007; Leary & Kowalski, 1995; Rapee & Heimberg, 1997). It has been posited that on the basis of early learning experiences,

individuals with SAD develop a number of distorted, negative assumptions about themselves (e.g. “I’m stupid,” “I’m unattractive”) (Clark & Wells, 1995). These assumptions become reinforced over time by selective attention and information processing errors that occur both within and between social encounters (Bögels & Mansell, 2004; Clark & McManus, 2002; Heinrichs & Hofmann, 2001; Hirsch & Clark, 2004). These processes are thought to prevent individuals with SAD from disconfirming their maladaptive beliefs.

Two important theoretical approaches have been posited regarding the role of attention in maintaining social phobia: (I) hypervigilance and (II) self-focused attention (Clark & Wells, 1995; Leary & Kowalski, 1995). With respect to hypervigilance, it has been suggested that persons with SAD scan their environment for signs of impending negative evaluation and have difficulty disengaging from threat-related signs (Bogels & Mansell, 2004). Empirical research supports these suggestions. Functional neuroimaging studies have revealed that patients with SAD exhibit hyperactivity of the amygdala, a brain region implicated in processing of threat-related cues, when viewing faces with harsh emotional expressions (anger, contempt) compared to non-SAD controls (Phan et al., 2006; Stein et al., 2002). In addition, Phan et al. (2006) found that the degree of the amygdala response in social situations is related to the severity of social anxiety symptoms. Similarly, patients with SAD have also shown heightened reactivity when receiving criticism. Compared to healthy controls, Blair et al. (2008) found greater blood oxygenation in the amygdala and the medial prefrontal cortex (involved in the representation of “self”) when SAD participants were presented with negative comments about the self.

Research has also found support for the position that persons with SAD have difficulty disengaging their attention from signs of social threat. For example, research using the STROOP task has shown that persons with SAD showed longer latencies for social threat words (e.g., “humiliation”; Hope, Gransler & Heimberg, 1989; Maidenberg et al., 1996; Mattia, Heimberg, & Hope, 1993). Using different methods, Goldin, Ramel, and Gross (2009) exposed participants to social threat stimuli (harsh facial expressions) while undergoing functional magnetic resonance imaging (fMRI). Results revealed that SAD patients displayed greater negative emotional reactivity, as well as deficits in neural areas that play a part in emotional regulation. In sum, the above research supports the hypothesis that persons with SAD are hypervigilant to social threats and have difficulty disengaging from these threats when discovered.

In addition to hypervigilance to external social threats, cognitive models of SAD also propose that persons with SAD focus their attention on internal aspects of the self (i.e., arousal, behaviour, thoughts, emotions, and appearance) in anxiety-provoking social situations, and that this self-focused attention induces self-evaluation (Clark & Wells, 1995). Past research has lent support to this suggestion, finding that socially anxious individuals evaluate themselves negatively against perceived social standards. For instance, several studies have shown that persons with SAD underestimate their positive aspects and overestimate their negative aspects after a performance, relative to the ratings of objective observers (e.g., Alden & Wallace, 1995; Clark & Arkowitz, 1975; Rapee & Lim, 1992; Stopa & Clark, 1993). In addition, persons with SAD exaggerate the extent of their deficiencies, even when actual differences in performance skills are accounted for (Alden & Wallace, 1995; Clark & Arkowitz, 1976; Glasgow & Arkowitz, 1975; Rapee & Lim,

1992; Stopa & Clark, 1993). The above research indicates that regardless of how successful the interaction, persons with SAD have a bias towards negative self-appraisal. It should be noted that those with SAD do not display a similar negative bias in their judgments of others; in contrast, persons with SAD judge others more positively than non-SAD observers (Alden & Wallace, 1995).

Interestingly, those with SAD do not appear to evaluate themselves against stringent personal standards (Alden, Bieling, & Wallace, 1994; Wallace & Alden, 1991); rather, research has revealed that socially anxious people evaluate themselves against characteristics they believe others expect them to have but doubt they can achieve (e.g. Leary & Kowalski, 1995; Rapee & Lim, 1992; Strauman, 1989, Wallace & Alden, 1991; Weilage & Hope, 1999). For example, Strauman (1989) found significant discrepancies between actual and ought/other self-states among persons with SAD. In other words, persons with SAD believe that their actual attributes do not match the attributes deemed important by significant others. In addition, priming this actual/ought discrepancy is associated with a greater magnitude of negative emotional (Strauman, 1989; Strauman & Higgins, 1987) and physiological reactivity (Strauman & Higgins, 1987) among those with SAD, compared to a control group. Similarly, other research has found that persons with SAD assume that most people hold high standards, are critical, and tend to evaluate others negatively (Alden, Bieling, & Wallace, 1994; Leary & Kowalski, 1995).

Research has also explored the specific content of automatic thoughts and images during social situations among persons with SAD. Automatic thoughts among those with SAD tend to centre on concerns about not living up to standards held by others. For example, one study found that the most common thoughts among persons with SAD during

social situations were concerns about whether or not one's symptoms of anxiety are visible to others, negative beliefs about the self, fear of negative evaluation from others, and fear of the negative attributes that others will attach to him or herself (Hope et al, 2010).

Individuals with SAD also experience excessively negative self-images from an external observer's perspective (Hackmann, Surawy & Clark, 1998; Hackmann, Clark & McManus, 2000; Rapee & Heimberg, 1997; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999). The assumed impression includes highly conspicuous difficulties with performance and symptoms of anxiety (Clark & Wells, 1995). For example, studies have found that those with SAD believe that their physiological sensations of arousal, including blushing, sweating, and shakiness, are obvious to others and that these signs will be used to form a negative impression (Clark & Wells, 1995; McEwan & Devins, 1983). In sum, SAD is likely to be maintained by specific thoughts and mental images that one is failing to meet social standards set by others.

Despite exposure to social and performance situations in daily life, those with SAD do not show a marked reduction in their fears (Wells et al., 1995). Instead, excessively negative self-images and cognitions are repeatedly activated even after having experienced objectively positive social interactions (Hackmann, Clark & McManus, 2000). This appears to be partially due to the lack of a positive inferential bias (as described above), but it also may be due to the use of maladaptive coping strategies (Hofmann, 2007; Mogg, Bradley, de Bono, & Painter, 1997). Safety behaviors are coping strategies used by persons with SAD in order to reduce distress or "hide" signs of anxiety. Safety behaviours may be mental operations (e.g. memorizing what one will say) or physical behaviours, such as disaffiliation (e.g., reticence, decreased eye contact, and avoidance of situations) or other

stereotypic movements (e.g., inappropriate smiling during a social interaction) (Hartman, 1983; Salkovskis, 1991; Voncken, Alden, & Bögels, 2006). Although the use of safety behaviours is intended to avert feared catastrophes, these behaviours also prevent persons with SAD from disconfirming their fears (Wells et al., 1995). The use of safety behaviours may also have the unintended consequence of leading one to appear distracted and preoccupied, which may be interpreted by others as disinterest or dislike (Wells et al., 1995). Thus, persons with SAD engage in behaviours that decrease opportunities for developing more positive cognitions and images about the social self.

Cognitive and attention models of SAD also cite post-event rumination as one of the primary cognitive processes involved in the maintenance of SAD (Chen, Rapee, & Abbott, 2013; Clark & Wells, 1995; Mellings & Alden, 2000; Rachmann, Grüter-Andrew, & Shafran 2000). Rumination refers to the experience of repetitive thoughts about one's symptoms (i.e., causes, meanings, and consequences) and has been found to be a core feature of anxiety ((Nolen-Hoeksema, 2000). Individuals with SAD think about their experiences in social situations in detail, including perceived failures, rejection, inadequacies, and other negative images of themselves (Clark & Wells, 1995). It has been suggested that because these negative self-perceptions and related feelings of anxiety are processed in such detail, they are strongly encoded in memory (Clark & Wells, 1995). Research has lent support to this suggestion. For example, several studies have found that participants with SAD engaged in more negative post-event processing both immediately and one week after a social interaction (compared to non-anxious controls). In addition, the degree of negative post-event processing is associated with social anxiety severity and negative appraisals of performance (Abbott & Rapee, 2004; Chen, Rapee, & Abbott, 2013;

Dannahy & Stopa, 2007; Rachman, Gruter-Andrew, & Shafran, 2000). Other research has found that post event rumination is at least partly predicted by the extent to which individuals with SAD negatively perceive their own performance and their allocation of attentional resources to this negative self-image (Chen, Rapee, & Abbott, 2013). Thus, following a social event, individuals with SAD repeatedly retrieve negative information about themselves and their performance, which serves to maintain SAD symptomology.

In sum, the above research demonstrates that attentional and cognitive processes serve to maintain SAD. Those with SAD are hypervigilant to social threats and have difficulty disengaging from these threats. Persons with SAD also engage in objective self-focused attention, whereby one compares themselves with and fails to meet perceived social standards. Those with SAD also engage in rumination prior to and post engagement in social events. The content of the rumination, which often centers on prior unsuccessful interactions, tends to solidify one's concerns about poor evaluation. Finally, to reduce one's experience of anxiety, those with SAD often engage in mental and physical safety operations. The drawback of engaging in such operations is that positive social interactions tend to be missed or are failed to be properly processed, and thus, negative images and cognitions about the self are maintained. Safety behaviours may also lead to less effective engagement with others due to appearing distracted or withdrawn, that again affirms their beliefs about negative evaluation.

Treatment of Social Anxiety Disorder

In the absence of treatment, SAD can be a long-standing problem. Research has found that symptoms can persist for years, often for two decades or longer (Yonkers, Dyck, & Keller, 2001). Seeking treatment for SAD is of great importance because this disorder significantly impacts quality of life (Stein & Kean, 2000). In addition, SAD poses an

increased risk for comorbid disorders; those disorders most frequently and strongly associated with SAD are other anxiety disorders, mood (depression) and substance abuse disorders (Brook & Schmidt, 2008; Rapee & Sanderson, 1998; Safren et al., 1998; Schneier et al., 1992).

A variety of psychological treatments for SAD are available including social skills training, interpersonal therapy, exposure, attentional training, cognitive therapy and cognitive behavioural therapy (CBT). With respect to the effectiveness of the various psychological interventions, CBT has stimulated the most research. Reviews of CBT for SAD have revealed a medium to large effect size at post-treatment compared to control or waitlist treatments, with significant maintenance and even improvement of gains at follow-up (Gil, Carrillo, & Meca, 2001). CBT has also shown superior performance over psychopharmacology in the long-term (Fedoroff & Taylor, 2001).

CBT has been tailored for SAD by including procedures for reversing the cognitive and behavioural processes that normally maintain SAD symptomology (see Beck, 2011; Clark, 1997, 1999, 2001; Longmore & Worrell, 2007). With respect to the cognitive aspects of CBT for SAD, clients practice identifying negative cognitions (automatic thoughts) and explore the covariation between automatic thoughts and the consequences of these thoughts (i.e., emotions, physiological sensations, and safety behaviours; Beck, 2011). Clients are then taught to formulate more helpful alternatives to these automatic thoughts (Beck, 2011). This often involves helping clients to make judgments about their social experiences based on what actually occurred during the social occasion, rather than draw conclusions from preconceived notions of the self and others (Abbott & Rapee, 2004; Rapee & Sanderson, 1998; Roth & Heimberg, 2001). To accomplish this, CBT clinicians

help their clients to pay attention in social situations (i.e., to the task at hand or to more positive aspects of the audience), rather than solely focusing on their mental representation of how they appear to others and indicators of negative evaluation (Abbott & Rapee, 2004; Rapee & Heimberg, 1997; Roth & Heimberg, 2001). SAD clients are also asked to confront increasingly difficult feared situations while applying these cognitive restructuring techniques so that these techniques become more automatic or habitual.

The behavioural component of CBT addresses the avoidance/safety behaviour aspect of SAD by way of exposure. First, behavioral experiments are utilized within therapy to confront specific reactions to exposure experiences (Hofmann, 2007). When this process is complete, clients engage in exposure to similar real-life situations (Hofmann, 2007). Prolonged exposure to the sensations of social anxiety, in the absence of catastrophic consequences, is thought to lead to desensitization and result in a reduction of the habitual fear response (Chambless & Ollendick, 2001; Hölzel et al., 2011; Feske & Chambless, 1995; Kabat-Zinn, 1982, 1990; Kabat-Zinn et al., 1992; Nolen-Hoeksema, 1991). In addition, successful exposures help clients build a more helpful perception of oneself and others in social situations (Baer, 2003; Beck, 2011).

Mindfulness

More recently, there has been interest in mindfulness-based approaches in the context of clinical interventions for a wide range of clinical problems including anxiety and depression (Allen, et al., 2006; Batten & Hayes, 2005; Carmody, 2009; Dalrymple & Herbert, 2007; Roemer, Orsillo, & Salters-Pedneault, 2008). Although there are many definitions of mindfulness, it is often defined as non-judgmental, non-reactive, moment-to-moment awareness of mental states and experiences (Marchand, 2012). Although trait

mindfulness can exist without explicit training (Baer et al. 2006; Carmody & Baer 2008), it can also be strengthened through regular practice (Bergen-Cico & Cheon, 2013). The practice of mindfulness involves a repeated switching between introspective awareness and attention to the present moment. During the practice of mindfulness, practitioners become aware of and observe thoughts, sensations, and emotions, without forming an attachment or aversion to these events. When the meditator recognizes that they are becoming caught up in a mental event, introspective awareness is applied to 'label' this event as simply a passing thought, sensation, or feeling (Baer, 2003; Brown, Ryan, & Creswell, 2007). This way, mental events are still experienced as pleasant, unpleasant, or neutral; however, there is no attachment, aversion, and no mental proliferation that can lead to suffering (Rapgay & Bystrisky, 2009). This lack of attachment allows the meditator to direct their attention back to the present moment, whether that is the body, the breath or the task at hand.

With the repeated practice of mindfulness, one begins to notice and gain awareness of how habitual attention and attachment to mental events influence one's feelings and behaviors. This awareness creates a mental space in which one can decide not to get "caught up" in one's mental content, providing an opportunity to respond rather than react to mental content. Taking this stance towards one's experience has been linked with reduced emotional reactivity and rumination, decreased likelihood of responding maladaptively, and increased mental flexibility (Baer, 2003; Bogal et al., 2006; Kabat-Zinn et al., 1992; Leary, 2004; Rapgay & Bystrisky, 2009; Ramel et al., 2004).

Mindfulness practice comes in two varieties: formal and informal. Formal practice consists of seated meditation, body scan, mindful movement (walking and yoga), and mindful eating. The informal practice involves the practice of mindfulness in daily-life

activities, in which one pauses briefly and shifts their attention to the present moment.

Although the practice takes different forms, the aim of each is to enhance one's ability to observe the immediate content of experience, specifically, the transient nature of thoughts, emotions, memories, mental images, and physical sensations (Goldin & Gross, 2010).

Mindfulness versus CBT

Although mindfulness practice and CBT include the recognition and labelling of thoughts and feelings, the approaches differ. In CBT the therapist and the client are vigilant in identifying unhelpful thoughts (i.e., negative, irrational or distorted) and replacing these thoughts with those that are more realistic, rational or helpful in nature. On the other hand, mindfulness involves the observation and acceptance of fears and symptoms as they are, rather than trying to change them (Baer, 2003; Hayes, 1994). The act of labelling in mindfulness training is the recognition that thoughts and feelings are insubstantial and transient in nature, rather than necessarily accurate reflections of reality (Brown et al., 2007). Using this approach, SAD clients may come to understand that their symptoms of anxiety within social situations are brief, unpleasant experiences that will eventually pass (Hayes, 1994).

Mindfulness-based interventions

Mindfulness, although an inherently Buddhist tradition, has been introduced in such a way that it is palatable for Western audiences (Marchard, 2012). The Mindfulness-Based Stress Reduction (MBSR) program is the most well known and most studied modern version of mindfulness mediation. MBSR is a structured group intervention used in clinical and non-clinical settings to facilitate adaptive coping with life stressors and enhance emotional well-being (Kabat-Zinn et al., 1992). Mindfulness interventions are unique in

that they emphasize the importance of continuing the meditation exercises as a daily practice after the treatment, so that it becomes a way of life (Bogels et al., 2006). Thus, training is designed so that patients eventually practice independently of their program facilitator, although, many patients continue to use guided mediation tapes provided during the intervention in their own practice.

Research using MBIs have revealed the benefits of this form of therapy for anxiety disorders. For instance, in a meta-analysis, Hofmann et al. (2010) evaluated the effectiveness of mindfulness-based stand-alone interventions for a range of conditions. In patients with anxiety, MBIs were associated with an effect size (Hedges's g) of 0.97 for improving anxiety. A meta-analysis by Vøllestad, Nielsen, and Nielsen (2012) found similar results for stand-alone and integrated mindfulness-based interventions (mindfulness and acceptance-based interventions) in the treatment of anxiety disorders. In 19 studies on different anxiety disorders, pre-post effect sizes averaged $g = 1.08$ and were stable at 3 months follow-up. For controlled studies, overall between-group Hedges' g was 0.83 for anxiety symptoms. Other reviews have demonstrated that mindfulness meditation techniques reduce symptoms of anxiety to a smaller to more moderate degree [(e.g., Bohlmeijer et al., 2010 (Cohen's $d = 0.47$ and Goyal et al., 2013 (Cohen's $d = 0.38$ at 8 weeks and 0.22 at 3-6 months)]. The observed range in effectiveness is likely due to various factors including the inclusion of broad participant populations (e.g., clinical populations and nonclinical populations), quality of the study design (including both controlled and uncontrolled studies), presence of concurrent interventions and inadequate statistical power to calculate intervention effects. In addition, the construct of mindfulness itself, although central to all interventions, is rarely operationalized or evaluated for

change. Despite the range in effects, it appears that, overall, MBIs appear to be an effective intervention for anxiety disorders.

Mindfulness interventions and SAD

Although trait measures of mindfulness have demonstrated negative associations with measures of social anxiety severity (e.g., Rasmussen & Pidgeon 2011), the evidence base for MBIs effectively alleviating symptoms of SAD is sparse. To date, only one randomized clinical trial has been conducted. Koszycki et al. (2007) compared the effectiveness of the standard eight-week MBSR program to 12 weeks of CBT. Both MBSR and CBT produced clinically meaningful changes on measures of social anxiety severity, mood, disability and quality of life. However, CBT-treated patients reported greater reductions in self-reported fear of interacting with others, and greater reductions in clinician-rated avoidance of social situations and illness severity, compared to MBSR-treated patients. Analysis of secondary outcomes indicated that both interventions were equivalent in decreasing self-rated depression, disability and improving quality of life. Thus, while MBSR did not fare as well as CBT in decreasing SAD symptoms, it was equally efficacious in improving functioning, mood and subjective well-being. Although less clinically rigorous, other research using a pre-post design has demonstrated reduced anxiety and depression symptoms and increased self-esteem in persons with SAD over the course of an MBSR intervention (Goldin & Gross, 2010). In sum, these results suggests that MBI may be an effective treatment for SAD.

Self-compassion

Unlike CBT interventions, MBIs have not been modified in order to include SAD-specific intervention strategies. It has been suggested that MBIs that include an enhanced

focus on cultivating self-compassion may be helpful for persons with SAD (Germer, 2014). Research has revealed that persons with SAD report significantly less self-compassion, compared to non-SAD controls (Werner et al., 2012). The observed discrepancy was consistent across all six subscales of a self-compassion measure (Self-compassion scale, Neff, 2003a) and remained significant after controlling for levels of depression and general anxiety. The same study found that self-reported social anxiety symptom severity (Social Interaction Anxiety Scale; Mattick & Clark, 1998) was significantly and positively associated with the self-compassion subscales of self-judgment and isolation.

What is self-compassion?

In Buddhist psychology, it is thought that it is as essential to feel compassion for oneself as it is for others (Neff, 2003a). Self-compassion, as defined and operationalized by Neff (ibid.), includes three theoretical components represented by pairs of opposing qualities of experience: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (ibid.). Although these aspects of self-compassion are experienced differently and are conceptually distinct, they are thought to engender one another (ibid.). The self-kindness facet entails being kind and understanding toward the self in instances of pain or failure, as opposed to responding to these events with self-criticism, self-condemnation, blaming, and rumination. The common humanity facet entails seeing one's own experience in light of the common human experience. This includes the recognition that suffering, failure, and inadequacies are part of the collective human condition, and that all people—oneself included—are worthy of compassion and should be treated with kindness and concern. The mindfulness facet entails holding painful thoughts

and feelings in mindful awareness, as opposed to over-identifying with, fixating on, or avoidance of these experiences. By examining one's experience mindfully and without attachment or aversion, a mental space is created in which one may extend kindness and recognize the broader human context (Goldstein & Michaels, 1985; Scheff, 1981). In sum, a person high in self-compassion sees his or her problems, weaknesses, and shortcomings accurately, and reacts with kindness and compassion rather than with self-criticism and harshness (Leary et al., 2007)

Why self-compassion for SAD?

Anxiety disorder researchers have suggested that effective psychotherapy for anxiety should attempt to deactivate client's irrational beliefs while making other schemata available (e.g. Clark, 1986). Along this line, self-compassion may offer those with SAD an alternative way of thinking about themselves and others. For instance, the practice of self-compassion involves the understanding that one is fallible and may not always conduct themselves perfectly in all situations. This realization is thought to provide a sense of comfort in the face of social failure, uncontrollable negative self-critical thinking, emotions of worthlessness or shame, or high physiological arousal (Werner et al., 2012). The understanding that one cannot be perfect may also decrease concern and desire to meet perceived perfectionistic social standards. In fact, research has shown that self-compassion helps to shift the evaluation of self-worth from external to more forgiving internal frames of reference (Werner, 2012; Neff, Hsieh, & Dejitterat, 2005). This may be particularly important for those with SAD who tend to evaluate themselves negatively against the perceived standards held by others (Strauman, 1989; Strauman & Higgins, 1987).

Self-compassion also involves the recognition that one is part of the larger human experience, leading to decreased feelings of isolation and separateness from others. Persons with greater self-compassion are more likely to recognize that problems are a normal part of life and that one's own difficulties are generally no worse than other's (Leary et al., 2007). This recognition may be particularly important for persons with SAD; research has revealed that lower self-compassion among persons with SAD was associated with greater fear of evaluation from others (Werner et al., 2012). Thus, acknowledging the fallibility and suffering of all humans may help to decrease fear of judgment.

In addition, the practice of self-compassion may lead to decreased use of avoidance and safety behaviours in social situations. Persons with SAD may practice self-compassion in order to self-soothe when becoming self-aware of difficult feelings, emotions and sensations associated with fear of evaluation. Research has found that, during stressful life events, self-compassion was positively related to rating of the items "I tried to be kind to myself" and "I tried to make myself feel better" and negatively related to ratings on "I was really hard on myself" (Leary et al., 2007). Thus, meeting one's concerns with understanding, kindness and warmth, may help to decrease the anxiety response and decrease the desire to escape feared situations.

The practice of self-compassion after a stressful encounter may also decrease post-event rumination. Research has found that persons with SAD overestimate the longer-term consequences of perceived social mishaps and think about these mishaps in detail (Foa et al., 1996). In contrast, persons high in self-compassion self-report that they are more likely to keep perspective after negative life events (both real-life events and hypothetical situations involving failure, loss, and humiliation) and to acknowledge that they handled

difficult situations positively (Leary et al., 2007). Thus, self-compassion may help persons with SAD to be kind to oneself and react with equanimity after the experience of a stressful situation.

In sum, self-compassion may be a helpful alternative to the negative attentional and cognitive style of those with SAD. The above research supports the position that the practice of self-compassion among persons with SAD may encourage acceptance of faults, reduce feelings of isolation from others, increase ability to self-soothe, and provide greater clarity after stressful social interactions.

Self-compassion and mindfulness

Overlap between the constructs of self-compassion and mindfulness have been observed in validity investigations for self-compassion and mindfulness measures. For example, among a large sample of undergraduate students, Baer et al., (2006) found correlations of .36 to .59 between Neff's self-compassion measure (2003a) and various measures of mindfulness (i.e., Mindful Attention Awareness Scale, Freiburg Mindfulness Inventory, Kentucky Inventory of Mindfulness Skills, Cognitive and Affective Mindfulness Scale, and Mindfulness Questionnaire). This overlap is not surprising given that attitudes related to self-compassion, including acceptance and non-judging of experiences, are commonly promoted in mindfulness-based interventions (e.g., Baer et al., 2006; Hayes, Strosahl & Wilson, 1999; Kabat-Zinn, 1990). Despite this overlap, there remain conceptual differences between the two constructs. Mindfulness is a more general practice as it cultivates enhanced awareness of all experience, not just the experience of suffering (Birnie, Speca, & Carlson, 2010). Self-compassion, on the other hand, emphasizes affective

components that mindfulness does not, such as feelings of care and concern (Birnie et al., 2010).

It has been speculated that a certain degree of mindfulness is needed in order to allow enough mental distance from one's negative experiences that feelings of self-kindness and common humanity can be applied; that is, qualities fostered by mindfulness are considered necessary preconditions for self-compassion to take root (Birnie et al., 2010; Hollis-Walker & Colosimo, 2011; Kabat-Zinn, 1994; Neff, 2003b). Kristeller and Johnson (2005) proposed a two-stage model of mindfulness and self-compassion: The first stage involves learning to become mindfully aware of and disengage from one's conditioned habitual negative biases, interpretations, and reactions. The second involves generating a caring and supportive stance toward the suffering that these negative biases have on one's body, mind and life. There is emerging evidence in support of this view. Intervention research has shown that self-compassion commonly increases during MBIs (Ortner et al. 2007; Orzech et. al.2009; Shapiro et al. 2007). In addition, Bergen-Cico and Cheon (2013) examined the potential mediating effects of trait mindfulness and self-compassion on trait anxiety during the course of an MBI. Results lent support to the two-stage model, revealing that increases in mindfulness preceded changes in self-compassion and trait anxiety.

In the case of persons with SAD, after becoming mindful of one's attention to and attachment to difficult thoughts, emotional and sensations (outlined by the cognitive and attention models above), persons with SAD may use self-compassion to help sooth themselves and to meet their experiences of anxiety with kindness and care. It has been suggested that meeting oneself with compassion provides the emotional safety needed to see the self clearly without fear of condemnation (Brown, 1999). This emotional safety

may help those with SAD to more accurately perceive habitual ways of reacting and provide them with an opportunity for responding in a more helpful and healthy way.

Self-compassion as a mediator of the mindfulness-well-being association

Compared to the extensive evidence base for the effectiveness of MBSR and MBCT for various clinical populations, relatively few studies have tested the mechanisms of action that causally connect changes that occur during MBIs with psychological outcomes. Kazdin (2007) emphasised several clinically relevant reasons why establishing the mechanisms of psychotherapies is crucial. These include being able to optimise therapeutic effects through enhancing active components of interventions, distinguishing between the specific and non-specific effects of treatment, and informing theory development and interpretation of results.

Research in non-experimental, cross-sectional contexts have suggested that the positive association between trait mindfulness and indices of well-being may be explained, at least in part, by higher levels of self-compassion. For example, Hollis-Walker and Colosimo (2011) assessed trait mindfulness and self-compassion as possible predictors of psychological well-being in a nonclinical sample of non-meditating undergraduate students. Results revealed a significant association ($r = .69$) between mindfulness (as measured by the Five Facet Mindfulness Questionnaire (FFMQ); Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) and self-compassion (as measured by the SCS). In separate regression equations, both trait mindfulness and self-compassion significantly predicted psychological well-being (Ryff, 1989). When all six facets of self-compassion and five facets of mindfulness were regressed simultaneously on psychological well-being, only three facets remained significant; these included 'describing' and 'awareness' of the

mindfulness measure and 'isolation' (inversely) of the self-compassion measure. In addition, adding self-compassion to mindfulness increased the amount of variance accounted for in psychological well-being compared to trait mindfulness alone. Finally, results revealed that self-compassion partially mediated the association between trait mindfulness and its beneficial effects. Van Dam et al. (2011) also evaluated the ability of a single-factor mindfulness measure (MAAS) and the total self-compassion score of the SCS for predicting self-reported anxiety, depression, worry, and quality of life in a large community sample seeking self-help for anxious distress. The correlation between SCS and MAAS was $r = .43$. Results of also revealed that self-compassion was a more robust predictor of depressive and anxiety symptomology and quality of life than mindfulness alone. In multiple univariate analyses, the SCS uniquely predicted between 10 and 26% of the outcome variables, whereas the MAAS uniquely accounted for between 1 and 3% variance. An examination of the SCS subscales of predictors revealed that the self-judgment, isolation and over-identification subscales were significant predictors of the anxiety-related outcome measures (i.e., the Beck Anxiety Inventory and the Penn State Worry Questionnaire). Similarly, Woodruff et al. (2014) used regression analyses to determine the common and unique variance in various measures of psychological health (including the Beck Anxiety Inventory) predicted by self-compassion and a single factor and multi-factor measure of trait mindfulness in a nonclinical sample of undergraduate students. The SCS predicted more variance than the single measure of trait mindfulness for each measure of mental health except anxiety. With respect to the multi-faceted measure of mindfulness (i.e., FFMQ), the SCS predicted more variance for all measures of

psychological health. In sum, these findings suggest that self-compassion may augment and partially mediate of the association between mindfulness and its beneficial effects.

To date, only two controlled MBIs have assessed self-compassion as a potential mediator of outcomes effects. Kuyken et al. (2010) randomized patients with three or more prior depressive episodes to mindfulness-based cognitive therapy (MBCT) or to maintenance antidepressants (mADM). Trait mindfulness and self-compassion were assessed before and after MBCT treatment (or at equivalent time points in the mADM group). Results revealed that MBCT's effects were mediated and augmented by enhancement of self-reported mindfulness and self-compassion. Keng et al. (2012) examined self-compassion as potential mediators of MBSR's effects on several processes and behaviors related to emotion regulation. MBSR participants, compared to a wait-list control, demonstrated significantly greater improvements in worry, fear of emotion, difficulties in emotion regulation, suppression of anger, and aggressive anger expression. Mediation analysis found that increases in self-compassion mediated MBSR's effects on worry, controlling for change in mindfulness. In addition, Bergen-Cico and Cheon (2013) compared a MBI with a wait-list control group (using a quasi-experimental research design) for reducing trait anxiety among a nonclinical population of college students. Results revealed that while both self-compassion (using the SCS; Neff, 2003a) and mindfulness (using the Kentucky Inventory of Mindfulness Skills; Baer, 2003) were associated with reductions in trait anxiety, the cultivation of mindfulness had the most robust mediating effect on reductions in trait anxiety. Thus, the above research indicates that both self-compassion and trait mindfulness have a role in decreasing self-reported depression and anxiety symptomology.

MBI interventions that include self-compassion

The positive effects of self-compassion have led researchers to consider incorporating explicit training in self-compassion for treatments of SAD in order to possibly boost treatment effectiveness (Leary et al., 2007; Werner et al., 2012). Although, on the surface, self-compassion appears to be an inherently simple and easily-understood concept (e.g., “Be kind to oneself”), it appears to be a difficult concept to put into practice. Thus, an explicit self-compassion component should focus on both the how and the why of self-compassion practice. This may include discussions about other and self-compassion, cultivation of self-compassion techniques, self-compassion-based meditation, interactive exercises, and home practice. There is emerging evidence that enhancing MBSR with an additional focus on self-compassion may yield promising results. Shapiro et al. (2005) conducted a randomized-controlled trial examining MBSR with an enhanced focus on self-compassion for decreasing job burnout and psychological distress, compared to a WLC, among health care professionals currently involved in clinical work. The MBSR program was enhanced by adding a “loving kindness” meditation in order to help health care professionals develop greater compassion for themselves, their coworkers, and their patients. Persons in the enhanced MBSR condition observed a 22 per cent increase in self-compassion as measured by the SCS, compared to a three per cent increase in the control group. Furthermore, self-compassion mediated stress reductions observed after MBSR participation. These results suggest that some populations – those especially vulnerable to difficult interactions with others – may benefit from MBIs that include an enhanced focus on cultivating self-compassion.

In sum, the above research points to the value of examining self-compassion as a potentially important mediating mechanism in studies of MBIs for SAD. By offering a radical alternative to the self-criticism characteristic of SAD, self-compassion may contribute to the efficacy of mindfulness interventions (e.g., Germer, 2009; Gilbert, 2009; Van Dam et al., 2011).

The current study

While there are good theoretical reasons to believe that having compassion for oneself decreases social anxiety symptom severity among those with SAD, the construct has not yet been examined empirically in a randomized clinical study. Thus, the purpose of the proposed study is: 1) to identify whether a mindfulness treatment for SAD (“MBI-SAD”) that includes a self-compassion component successfully increases self-reports of self-compassion and trait mindfulness, and decreases clinician-rated and self-reported social anxiety symptom severity; 2) to identify whether self-compassion and trait mindfulness mediate the effects of MBI-SAD; and 3) to assess which specific facets of self-compassion and trait mindfulness appear to be most responsible for any mediating effects.

Methods

Design

Data for this study were gathered as part of a prospective randomized clinical trial (RCT) evaluating the feasibility and effectiveness of a 12-week mindfulness intervention adapted for patients with SAD (MBI-SAD). The MBI-SAD intervention was developed by Dr. Koszycki and includes elements of Kabat-Zinn’s MBSR and additional components that may be particularly helpful for SAD, including the addition of sessions focused on

enhancing self-compassion, as well the inclusion of opportunities (both in and out of sessions) for “mindful” exposure to feared social interaction or performance situations. The clinical trial was conducted at Montfort Hospital and was registered with the ClinicalTrials.gov registry (registration number: NCT01914874). Dr. Diana Koszycki was the lead investigator.

Participants and recruitment

Participants were adult outpatients (aged 18 years and over) with SAD recruited via announcements posted at the University of Ottawa, Montfort Hospital and in local media; as well as referrals from primary care physicians, psychiatrists, and anxiety disorder specialists in Ottawa (e.g. Anxiety Disorders Clinic, Royal Ottawa Mental Health Center). Interested participants completed a brief pre-screen telephone interview with a research assistant to determine that they were protocol eligible. Telephone interviews assessed the following exclusion criteria: 1) lifetime history of psychosis or bipolar disorder, 2) substance abuse in the past 12 months; 3) diagnosis of borderline or antisocial personality disorder; 4) serious suicide risk; 5) current psychotherapy; and 6) regular meditation practice or yoga in the past 12 months. Concurrent use of psychotropic medication was allowed as long as the medication type and dose had been stable for six weeks prior to randomization and no change was expected in medication type and dose after randomization. Medication use was monitored during blind clinical evaluations. Potentially eligible patients then underwent a structured clinical interview with a psychologist to confirm the presence of SAD and other inclusion criteria. The inclusion criteria included: 1) diagnosis of SAD based on the Structured Clinical Interview for DSM-IV (SCID) (First et al. 1995) modified for DSM-5 criteria; 2) baseline score ≥ 30 on the clinician-rated Liebowitz Social Anxiety Scale (LSAS) (Liebowitz et al. 1987), ≥ 4 on the

Clinical Global Impression-Severity of Illness subscale (CGI-S) (Guy, 1976) and ≤ 24 on the Montgomery Åsberg Depression Rating Scale (MADRS) (Montgomery & Åsberg, 1979). Certain comorbid disorders were allowed as long as the SAD was the primary presenting disorder. For detailed information about each inclusion measure, see Appendix A. After verification of eligibility, informed consent and baseline assessments, participants were then randomized to 12 weekly 2-hour group sessions of MBI-SAD or 12 weeks of a wait-list control group (WLC). Participants randomized to the WLC were offered the MBI-SAD program following the wait period. Participants in both conditions completed outcome assessments (clinician-rated instruments and self-reports) at baseline and at week 6 and 12. Clinician-rated instruments (LSAS and CGI-S) were administered by clinical evaluators who were blind to treatment assignment.

MBI-SAD Treatment

MBI-SAD sessions were led by the principal investigator (Dr. Koszycki) who completed formal training in mindfulness interventions. Graduate students in clinical psychology and counselling co-facilitated the groups. The first eight weeks of MBI-SAD was based largely on the traditional MBSR program, which is explained in detail elsewhere (Kabat-Zinn, 1990). Self-compassion was introduced in the last four weeks of the intervention. In-group and between session mindful exposure to anxiety-provoking social or performance situations was introduced in session five onwards. All sessions were tailored specifically to the SAD population rather than distress more generally.

The content of the self-compassion component was inspired, in part, by the Mindful Self-Compassion program developed by Neff and Germer (2013) and Compassion Focused Therapy developed by Gilbert (2009, 2010). In the current study, the self-compassion sessions began by introducing the concept of self-compassion and its

components. Research was then presented to help participants see the value in practicing self-compassion, especially for those with SAD. For instance, participants were informed that self-compassion is linked with less anxiety and rumination after failure (Neff, 2003a ; Neff, Kirkpatrick, Rude, 2007; Leary et al., 2007), more balanced perspectives on problems (Leary et al., 2007), increased ability to repair emotional states (Neely et al., 2009; Neff, Hseih, & Dejithirat, 2005), enhanced intrinsic motivation (Neff et al., 2005), improved interpersonal relationships (Neff & Beretvas, 2013), engagement in health behaviours (Neff, 2012) and various other positive states of being, including autonomy, competence, relatedness, life satisfaction, happiness, curiosity, and optimism (Neff, 2003a; Neff, Pisitsungkagarn, & Hseish, 2008; Neff, Rude & Kirkpatrick, 2007). The physiological benefits of self-compassion practice were also explained. For instance, participants were informed that self-compassion is theorized to deactivate the threat system (associated with sympathetic arousal) and activate the self-soothing system (associated with feelings of closeness, safety and the oxytocin-opiate system) (Gilbert & Irons, 2005). The sessions also outlined what self-compassion is not, such as self-indulgence or self-pity (Neff, 2003a; Neff, Rude et al., 2007; Neff & Germer, 2012). The distinction between the concepts of self-compassion and self-esteem was introduced and research was presented on the benefits of practicing self-compassion over self-esteem (e.g., Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Crocker & Park, 2004; Neff & Germer, 2013; Raskin, Novacek & Hogan, 1991). Participants were introduced to formal compassion-based meditations (e.g., loving-kindness meditation). Informal self-compassion practices that one may incorporate into their daily lives were also discussed (e.g., putting one's hand on their heart, finding a comforting mantra). During the final self-compassion component, barriers to self-

compassion and ways to overcome these barriers were discussed. The overall goal of the self-compassion component was to help participants find ways that they can integrate self-compassion into their lives.

For both the mindfulness and self-compassion sessions, reading material was provided each week from a variety of sources on aspects of mindfulness and self-compassion practice. Participants were also provided with CDs with recorded guided meditation practices. As establishing a daily meditation practice is an integral component of mindfulness and self-compassion training, participants were asked to practice the different techniques at home and keep a log of their practice. For more details about the treatment, see Appendix B (description of MBI-SAD) and Appendix C (outline of weekly sessions).

Outcome measures

The Liebowitz Social Anxiety Scale (LSAS) (Liebowitz et al. 1987) is a 24-item clinician-rated measure designed to assess both fear and avoidance of social (e.g., going to a party, meeting strangers) and performance situations (e.g., taking a test, giving a report to a group) occurring in the last week. If participants come across a situation that they ordinarily do not experience, they are asked to imagine if they were faced with the situation. Each item is rated from 0-4, with high scores representing more fear and/or avoidance. The questionnaire results in six subscale scores representing the following: total fear, total avoidance, fear of social situations, fear of performance situations, avoidance of social situations and avoidance of performance situations. The total score is obtained by summing the total fear and total avoidance subscales. Analyses in the current study will use the total score and the subscales of total fear and total avoidance. The clinician-

administered LSAS has demonstrated good clinical utility and criterion validity. Overall, researchers have found that the LSAS has excellent internal consistency (Cronbach α range from 0.83 - 0.96; Fresco et al., 2001; Heimberg et al., 1999) and reliability (Liebowitz et al. 1987). With regards to validity, the measure has also been found to be associated with other clinical ratings of social anxiety using structured interviews and self-reports, indicating that it has good convergent validity (Fresco et al., 2001; Heimberg et al., 1999). The scale has also been used in studies examining the efficacy of psychotropic medications for SAD because it is sensitive to change (Heimberg et al., 1999); therefore, this measure can be used throughout treatment in order to monitor changes in social anxiety symptoms, as well as treatment success. In the present sample, Cronbach's alpha for the LSAS total score was 0.90.

Social Phobia Inventory (SPIN) (Connor, et al. 2000) is a 17-item self-rating of SAD symptoms. The scale is rated over the past week and includes items assessing each of the symptom domains of SAD (i.e., fear, avoidance, and physiologic arousal). Items are summed to produce a total score. Higher scores indicate more severe symptoms. A cut-off value of 19 has been shown to have good discriminant validity, distinguishing between SAD subjects and non-SAD controls (Conner et al., 2000). The SPIN has demonstrated solid psychometric properties, including good test-retest reliability ($r = 0.89$), internal consistency (α s ranges from 0.87 to 0.94), convergent validity, and it is sensitive to treatment change (Conner et al., 2000). In the present sample, Cronbach's alpha was 0.83.

Mechanism measures

Self-Compassion Scale-Short Form (SCS-SF) (Raes et al., 2011) is a shortened (12-item), yet reliable and structurally equivalent version of the Self-Compassion Scale (SCS;

Neff, 2003a). Items are designed to capture how respondents perceive their actions toward themselves in difficult times (e.g., “When times are really difficult, I tend to be tough on myself”) and are rated using a Likert-type scale anchored from 1 (almost never) to 5 (almost always). The scale includes six separate subscales, which assesses the positive and negative aspects of each of the three main components: self-kindness (e.g., “I try to be understanding and patient toward aspects of my personality I don’t like”) versus self-judgment (reverse-coded; e.g., “I’m disapproving and judgmental about my own flaws and inadequacies”); common humanity (e.g., “I try to see my failings as part of the human condition”) versus isolation (reverse-coded; e.g., “When I think about my inadequacies it tends to make me feel more separate and cut off from the rest of the world”); and mindfulness (e.g., “When something painful happens I try to take a balanced view of the situation”) versus over-identification (reverse-coded; e.g., “When I’m feeling down I tend to obsess and fixate on everything that’s wrong.”) The SCS-SF has demonstrated adequate internal consistency (Cronbach's $\alpha \geq 0.86$) and a strong correlation with the long form SCS ($r \geq 0.97$; Raes et al., 2011). However, the internal consistencies for the SCS–SF subscales were relatively low (ranging between 0.55 and 0.81 among two Dutch samples, and 0.54 and 0.75 among an English sample; Raes et al., 2011). In the current sample, Cronbach’s alpha for the SCS-SF total score was 0.87.

Five-Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) is a 39-item inventory assessing mindfulness. Items in the FFMQ were developed based on a factor analyses of the combined pool of items from five other mindfulness questionnaires. Items are rated on a 5 point scale (1 = never or very rarely true, to, 5 = very often or always true). The five facets are observing (“When I’m walking, I deliberately notice the sensations of

my body moving”), describing (“I’m good at finding words to describe my feelings”), acting with awareness (reverse item: “When I do things, my mind wanders off and I’m easily distracted”), non-judging of inner experience (reverse item: “I tell myself I shouldn’t be feeling the way I’m feeling”), and non-reactivity to inner experience (“I watch my feelings without getting lost in them”). The FFMQ shows good discriminate validity; for example, research has found that meditators score higher on all facets, compared to non-meditators (de Bruin et al., 2012; Lilja et al., 2011). The FFMQ has also been shown to have strong psychometric characteristics, including adequate to good internal consistency for all facets (Cronbach’s alphas = .75 –.85) (Baer et al., 2006, 2008; de Bruin et al., 2012; Lilja et al., 2011) and significant correlations in predicted directions with a variety of other constructs (Baer et al., 2006, 2008; de Bruin et al., 2012; Lilja et al., 2011). Although test-retest reliability has not been evaluated, a previous version of this measure (Kentucky Inventory of Mindfulness Skills; Baer, Smith, & Allen, 2004) moderate to high reliability for the Observing and Non-judging scales. In the current sample, Cronbach’s alpha for the FFMQ total score was 0.92.

Statistical analyses

Differences between treatment and WLC groups at baseline for demographic variables, and inclusion, mediating and outcome measures, were assessed using t-tests and chi-squares. Associations between baseline measures of self-compassion, trait mindfulness and social anxiety (and their individual subscales) were assessed using bivariate correlations. To determine whether scores on measures of self-compassion and trait mindfulness were higher and scores on measures of social anxiety symptomology were

lower in the MBI-SAD condition versus the WLC group at week 12, linear regressions were used (controlling for baseline levels) and group differences are reported.

It was assessed whether total self-compassion, total trait mindfulness and their individual facets mediated the association between group assignment (MIND-SAD versus WLC) and the outcomes measures of total LSAS and SPIN. Preacher and Hayes (2008) cautioned against testing overlapping constructs in multiple mediator models, as this compromises the significance of indirect effects. Thus, separate mediations analyses were conducted, as opposed to a multivariate mediation analyses, because the mediation variables were significantly correlated. The mediation analyses were conducted using a bootstrap resampling procedure [Hayes's PROCESS tool (Preacher & Hayes, 2008), an SPSS Macro]. This procedure does not assume normality of the sampling distribution of the indirect effect (ab product); an assumption that is typically violated in small study samples (Keng, Smoski, Robins, Ekblad & Brantley, 2012). Bootstrapping was accomplished by taking 1000 random samples of the original sample size and computing the ab product for the mediator in each sample. The point estimate of the indirect effect is the mean of the ab product over 1000 samples. The procedure yields a 95% bias-corrected confidence interval. If the upper and lower limits of the confidence interval do not contain zero, the indirect effect is significant. In the current analyses, standardized residual change scores were used for mediation and outcome measures. Residual change scores were created by regressing baseline scores onto week 12 scores and then saving the residuals in their standardized form.

Results

Flow of Participants

Data used in the current study were gathered as part of a prospective randomized clinical trial (RCT) evaluating the feasibility and effectiveness of a 12-week mindfulness intervention adapted for patients with SAD (“MBI-SAD”). Participants for the RCT were recruited between March 2013 and June 2014. Interested participants completed a telephone pre-screen after a brief description of the study was provided. Fifty-three potentially eligible participants then completed a structured face-to-face interview; of these, 14 were excluded because they did not meet inclusion criteria. Thirty-nine participants were randomized to MBI-SAD ($n=21$) or WLC ($n=18$). Three participants dropped-out before the week six assessments (1 from the MBI-SAD condition and 2 from the WLC) and two others (1 from MBI-SAD and 1 from WLC) dropped-out before the week 12 assessments. Reasons cited for study discontinuation included lack of time and scheduling conflicts.

Missing data

Analyses were performed using an intent-to-treat (ITT) approach, which provides an unbiased estimate of treatment effects. The ITT sample consists of all randomized patients including those who were randomized and did not start treatment and drop-outs. To minimize missing data, dropouts were contacted and asked to complete study questionnaires at weeks six and 12. The remaining missing data from participants who dropped-out ($n = 5$) was imputed using the last-observation-carried-forward (LOCF) method. The basic assumption underlying LOCF is that participants who receive psychological treatments often get better or stay the same (rather than deteriorate), making

this method a more conservative approach for dealing with missing data (Streiner & Geddes, 2001). Baseline means were imputed at week six and week 12 for three participants (1 from the MBI-SAD condition and 2 from the WLC) and week six mean scores were carried forward for two others (1 from MBI-SAD and 1 from WLC).

Participant information

Participants ranged in age from 18 to 71 years ($M = 39.77$, $SD = 15.31$) and the majority were female (79.5%, $n = 31$). The majority of participants self-identified as Caucasian (79.5%), had completed a post-secondary diploma or degree (84.6%), and worked full-time (67.6%). Approximately half were married or living with someone (53.8%), while the remainder had never been married (35.9%) or were divorced or separated (10.3%). Composition of the MBI-SAD and the WLC groups did not differ with respect to age ($t = -.54$, $df = 37$, $p = .59$), gender ($X^2 = 1.08$, $df = 1$, $p = .30$), self-reported ethnicity ($X^2 = 0.06$, $df = 1$, $p = .81$), level of education ($X^2 = .90$, $df = 3$, $p = .82$), employment status ($X^2 = .67$, $df = 1$, $p = .41$), or marital status ($X^2 = .20$, $df = 2$, $p = .90$).

Half of participants reported an onset of SAD in childhood (0-11 years), followed by adolescents (12-18 years; 34.2%) and adulthood (19+ years; 15.8%). The mean baseline LSAS total score was 71.38 ($SD = 17.62$), reflecting moderately severe social anxiety. The mean MADRS score was 6.20 ($SD = 4.88$) indicating absent-mild depressive symptoms. Approximately half of participants (48.7%, $n = 19$) demonstrated presence of a concurrent Axis I disorder; among these participants, seven had a mood disorder (3 MBI-SAD, 4 WLC), 18 had another anxiety disorder (12 MBI-SAD, 6 WLC), one had a somatoform disorder (1 MBI-SAD) and one had an eating disorder (1 WLC). Composition of the MBI-SAD and the WLC groups did not differ with respect to age of onset ($X^2 = .64$, $df = 2$, $p =$

.73), LSAS total scores ($t = 1.52$, $df = 37$, $p = .14$), MADRS scores ($t = -.37$, $df = 37$, $p = .71$), or presence of a concurrent Axis I disorder ($X^2 = 1.29$, $df = 1$, $p = .26$).

Baseline correlations between mediation and outcome variables

Overall self-compassion (SCS-SF total score) was negatively associated with measures of social anxiety symptom severity; specifically, the LSAS total score and its fear subscale (see Table 1). The individual SCS-SF components of isolation and self-judgment were most consistently and positively associated with measures of social anxiety symptom severity. No association was observed between FFMQ total score and measures of social anxiety; however, the FFMQ facets of non-judge and describe were negatively associated with the LSAS total score and the LSAS subscales of fear and avoid (describe only) (see Table 2). The overall scores for the SCS-SF and FFMQ were not significantly correlated; however, associations were observed between their facets. The non-judge facet of the FFMQ was the most consistently associated with the SCS-SF facets, whereas, the mindfulness facet of the SCS-SF was the most consistently associated with the FFMQ facets.

Table 1: Bivariate correlations among baseline measures of self-compassion (SCS-SF) and self-reported (SPIN) and clinician-rated (LSAS) social anxiety symptoms

	LSAS Overall	LSAS Fear	LSAS Avoid	SPIN
SCS-SF total	-.41**	-.46**	-.31	-.21
SCS-SF self-kindness	-.29	-.29	-.25	-.16
SCS-SF self-judgment	.36*	.37*	.30	.15
SCS-SF common humanity	-.19	-.22	-.15	-.04
SCS-SF isolation	.59***	.64***	.47**	.38*
SCS-SF mindfulness	-.14	-.20*	-.07	.03
SCS-SF over-identification	.30	.41*	.16	.29

* $p < .05$. ** $p < .01$. *** $p < .001$. $n = 39$.

Table 2: Bivariate correlations among baseline measures of trait mindfulness (FFMQ) and self-reported (SPIN) and clinician-rated (LSAS) social anxiety symptoms

	LSAS overall	LSAS Fear	LSAS avoid	SPIN
FFMQ total	-.14	-.12	-.14	-.16
FFMQ observe	-.10	-.09	-.09	-.08
FFMQ describe	-.38*	-.33*	-.38*	-.24
FFMQ awareness	-.19	-.24	-.12	-.23
FFMQ non-judge	-.38*	-.51**	-.20	-.19
FFMQ non-react	.01	-.10	.11	-.03

* $p < .05$. ** $p < .01$. $n = 39$.

Table 3: Bivariate correlations among baseline measures of trait mindfulness (FFMQ) and self-compassion (SCS-SF)

	FFMQ-total	FFMQ observe	FFMQ describe	FFMQ awareness	FFMQ non-judge	FFMQ Non-react
SCS-SF total	.28	.19	.29	.37*	.46**	.40*
SCS-SF self-kindness	.14	.09	.11	.19	.27	.31
SCS-SF self-judgment	-.28	-.12	-.31	-.46**	-.41**	-.28
SCS-SF common humanity	.27	.19	.21	.19	.21	.45**
SCS-SF isolation	-.13	-.11	-.32*	-.28	-.49**	-.03
SCS-SF mindfulness	.35*	.25	.25	.37*	.33*	.51**
SCS-SF over-identification	-.07	-.05	-.11	-.22	-.40*	-.16

* $p < .05$. ** $p < .01$. *** $p < .001$. $n = 39$

Post intervention differences in mediating and outcome variables

It was hypothesized that MBI-SAD would lead to higher self-compassion and trait mindfulness and lower in social anxiety symptom severity at week 12, compared to participants in the WLC. To test this, separate regression analyses were conducted for the total scores and facets of SCS-SF, FFMQ, LSAS and SPIN, while controlling for baseline levels of those same variables. As shown in Table 4, significant between-group differences at week 12 were observed for SCS-SF, FFMQ (marginally, $p = .057$), LSAS and SPIN total scores. With respect to individual subscales (see Table 4), MBI-SAD participants revealed

Table 4: Means and statistics at baseline and week 12 for MBI-SAD and WLC

	MBI-SAD		WAITLIST control		F (2, 38)
	Baseline M (SD)	Week 12 M (SD)	Baseline M (SD)	Week 12 M (SD)	
FFMQ total	109.62 (16.49)	115.68 (17.95)	110.61 (21.43)	106.15 (20.89)	3.87
FFMQ observe	22.71 (5.78)	26.14 (5.46)	23.28 (6.54)	22.44 (7.15)	7.41**
FFMQ describe	23.76 (7.99)	26.52 (7.04)	20.33 (6.72)	20.17 (7.27)	7.22*
FFMQ awareness	23.48 (6.06)	26.23 (4.24)	23.89 (7.58)	21.94 (7.98)	8.28**
FFMQ non- judge	25.14 (4.79)	30.00 (5.84)	23.28 (6.19)	25.00 (5.25)	6.00*
FFMQ non- react	16.81 (4.13)	20.05 (4.85)	18.39 (5.56)	18.94 (4.61)	1.62
SCS-SF total	2.40 (.53)	3.20 (.62)	2.65 (.81)	2.77 (.69)	10.66**
SCS-SF self- kindness	2.33 (.66)	3.26 (.77)	2.80 (1.03)	2.94 (.87)	3.11
SCS-SF self- judgment	3.57 (.75)	2.64 (.85)	3.50 (.94)	3.25 (.96)	8.11**
SCS-SF common humanity	2.12 (.81)	3.14 (.87)	2.97 (1.19)	2.80 (.88)	7.06*
SCS-SF isolation	3.64 (.90)	3.02 (.97)	3.83 (.95)	3.53 (1.05)	2.24
SCS-SF mindfulness	3.24 (.85)	3.55 (.65)	3.39 (1.05)	3.41 (.94)	0.81
SCS-SF over- identification	4.07 (.75)	3.07 (.88)	3.92 (.83)	3.78 (1.00)	9.23**
LSAS total	67.48 (18.63)	42.85 (18.90)	75.94 (15.63)	75.61 (16.27)	33.39***
LSAS fear	37.86 (9.48)	24.81 (9.28)	41.72 (8.79)	39.78 (8.29)	29.11***
LSAS avoid	29.62 (9.77)	19.09 (9.51)	34.22 (8.96)	35.83 (8.87)	30.92***
SPIN	40.90 (10.81)	24.90 (8.50)	44.11 (9.09)	41.50 (9.13)	36.31***

^ap-values are based on the results of separate regression analyses and refer to the test of significance for group assignment (treatment or waitlist), controlling for the effects of baseline levels of each outcome variable examined.

higher scores on four of five of the FFMQ facets (with the exception of non-react), compared to the WLC at week 12. MBI-SAD participants also revealed lower scores on the SCS-SF facets of self-judgment and over-identification, and higher scores on the facet of common humanity. Finally, MBI-SAD participants revealed lower scores on the fear and avoidance subscales of the LSAS. In sum, the MBI-SAD intervention resulted in lower social anxiety symptom severity (both self-reported and clinician-rated), and higher mindfulness and self-compassion, compared to those in the WLC.

Self-compassion mediation analyses

Figures 1 and 2 outline the results of self-compassion as a potential mediator of MBI-SAD treatment effects using the LSAS total score and the SPIN. Linear regressions revealed that assignment to the MBI-SAD condition predicted increases in self-compassion (paths *a*). Assignment to the MBI-SAD condition also predicted decreases in self-reported and clinician-rated assessed social anxiety symptom severity, even with self-compassion in the model (paths *c*); increases in self-compassion also predicted decreases in LSAS (paths *b*). Finally, there was a significant indirect effect of MBI-SAD on LSAS total score and SPIN through self-compassion. These results suggest that the positive effects of the MBI-SAD condition on self-reported and clinician-rated social anxiety symptomology is partially due to increases in self-compassion.

Figure 1: Model of group assignment as a predictor of clinician-rated social anxiety symptoms (LSAS total), mediated by self-compassion (SCS-SF)

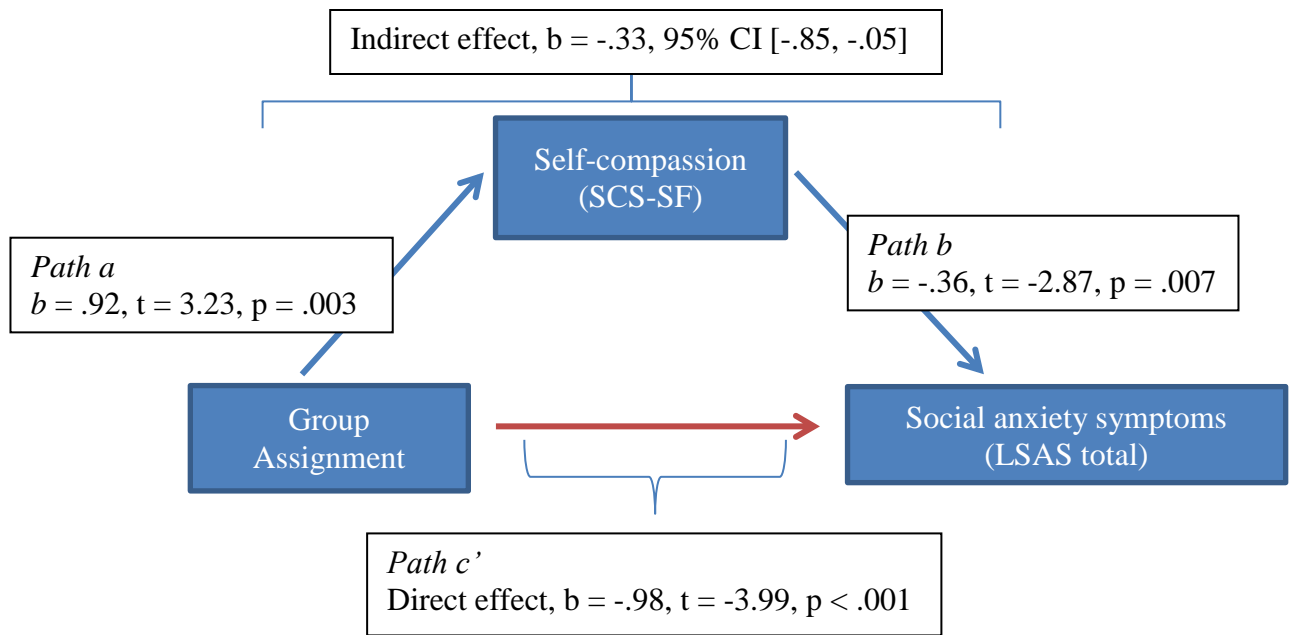


Figure 2: Model of group assignment as a predictor of self-reported social anxiety symptoms (SPIN), mediated by self-compassion (SCS-SF)

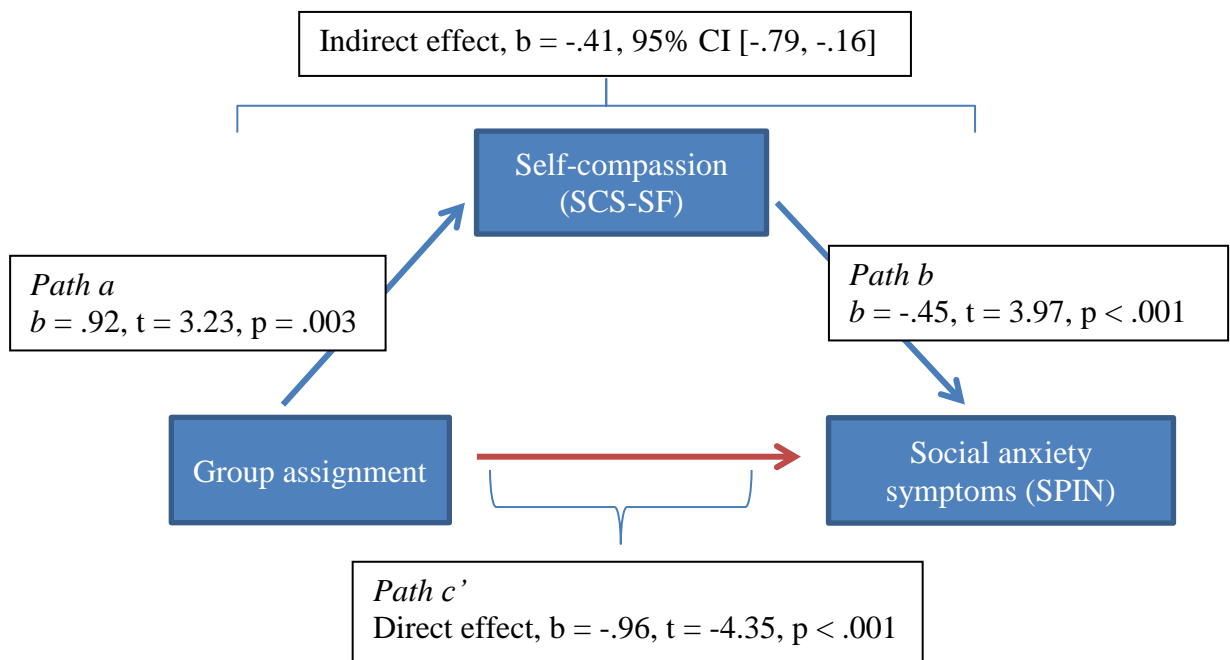


Table 5: Model of group assignment as a predictor of social anxiety symptoms (LSAS total and SPIN), mediated by facets of self-compassion (SCS-SF)

Outcome variable: LSAS total score			
Mediator tested: Self-judgment	Beta	t	P
path a	-.84	-2.88	.006
path b	.34	2.79	.008
path c'	-1.02	-4.24	<.001
	Effect	Boot SE	95% CI
Indirect effect	-.29	.19	-.78, -.03
Mediator tested: Common humanity	Beta	t	P
path a	.72	2.43	.020
path b	-.28	-2.28	.029
path c'	-1.11	-4.57	<.001
	Effect	Boot SC	95% CI
Indirect effect	-.20	.15	-.64, -.02
Mediator tested: Over-identification	Beta	t	P
path a	-.88	-3.06	.004
path b	.26	1.98	.056
path c'	-1.09	-4.24	<.001
	Effect	Boot SC	95% CI
Indirect effect	-.23	.19	-.70, .01
Outcome variable: SPIN			
Mediator tested: Self-judgment	Beta	t	P
path a	-.84	-2.88	.006
path b	.44	3.99	<.001
path c'	-1.00	-4.66	<.001
	Effect	Boot SE	95% CI
Indirect effect	-.37	.15	-.74, -.04
Mediator tested: Common humanity	Beta	t	P
path a	.72	2.43	.020
path b	-.30	-2.50	.017
path c'	-1.15	-4.98	<.001
	Effect	Boot SC	95% CI
Indirect effect	-.21	.13	-.54, -.02
Mediator tested: Over-identification	Beta	t	P
path a	-.88	-3.06	.031
path b	.36	3.02	.005
path c'	-1.05	-4.51	<.001
	Effect	Boot SC	95% CI
Indirect effect	-.32	.17	-.77, -.06

Note. path a = effect of group on potential mediator; path b = effect of potential mediator on outcome variable; and path c' = effect of group on outcome variable, with potential mediator in the model.

Facets of self-compassion as mediators

It was also of interest to assess which facets of self-compassion were particularly important for decreasing social anxiety symptom severity. As demonstrated in Table 4, the MBI-SAD condition resulted in significantly higher scores of common humanity, and significantly lower scores of self-judgment and over-identification, compared to the WLC. Thus, these facets were tested as potential mediators. Analyses revealed that the common humanity, self-judgment and over-identification facets met mediation criteria and revealed statistically significant indirect effects when predicting SPIN (see Table 4) and LSAS total scores (with the exception of over-identification; see Table 5). These results reveal that the positive effects of the MBI-SAD condition on social anxiety symptom severity are partially due to increases in the self-compassion facets of common humanity, self-judgment and over-identification facets.

Mindfulness mediation analyses

As above, a series of linear regressions were used to test whether the associations between intervention group (MBI-SAD, WLC) and clinician-rated and self-reported severity of social anxiety symptoms were mediated by trait mindfulness (see Figures 3 and 4). Linear regressions revealed that assignment to the MBI-SAD condition predicted increases in trait mindfulness (paths *a*). Assignment to the MBI-SAD condition also predicted decreases in self-reported and clinician-assessed social anxiety symptom severity, even with trait mindfulness in the model (paths *c'*). Increases in trait mindfulness also significant predicted decreases in SPIN scores and marginally predicted decreases in LSAS total scores (paths *b*).

Figure 3: Model of group assignment as a predictor of clinician-rated social anxiety symptoms (LSAS total), mediated by trait mindfulness (FFMQ)

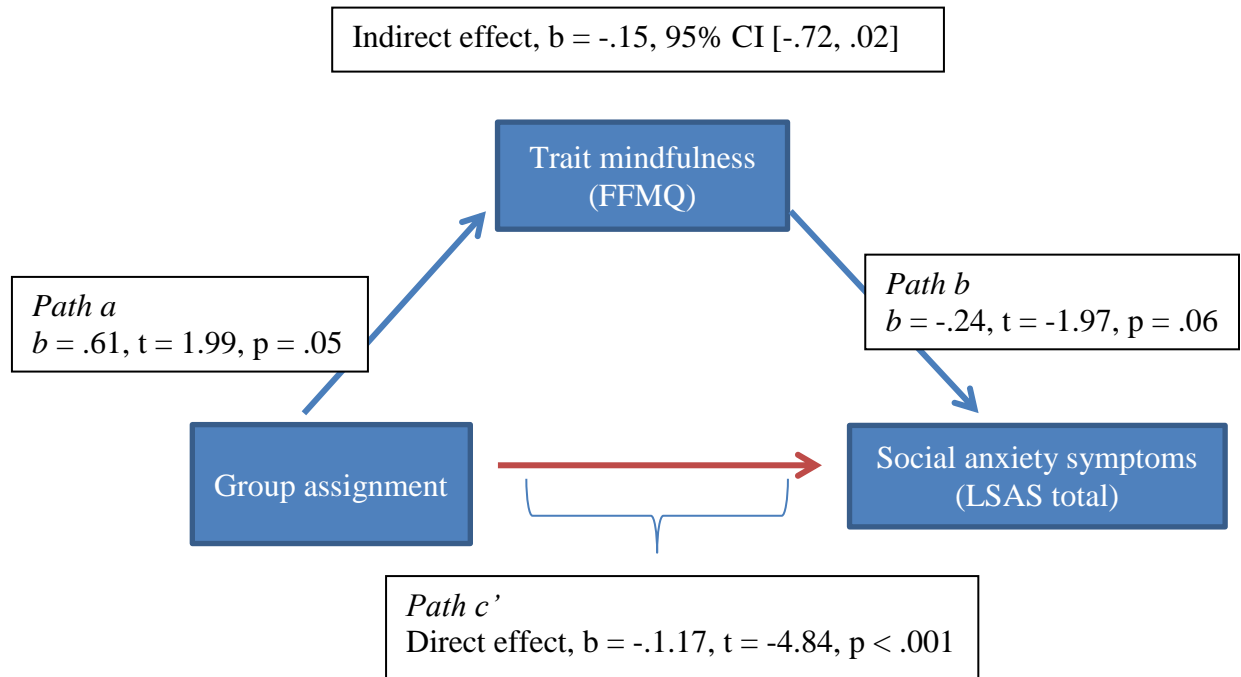
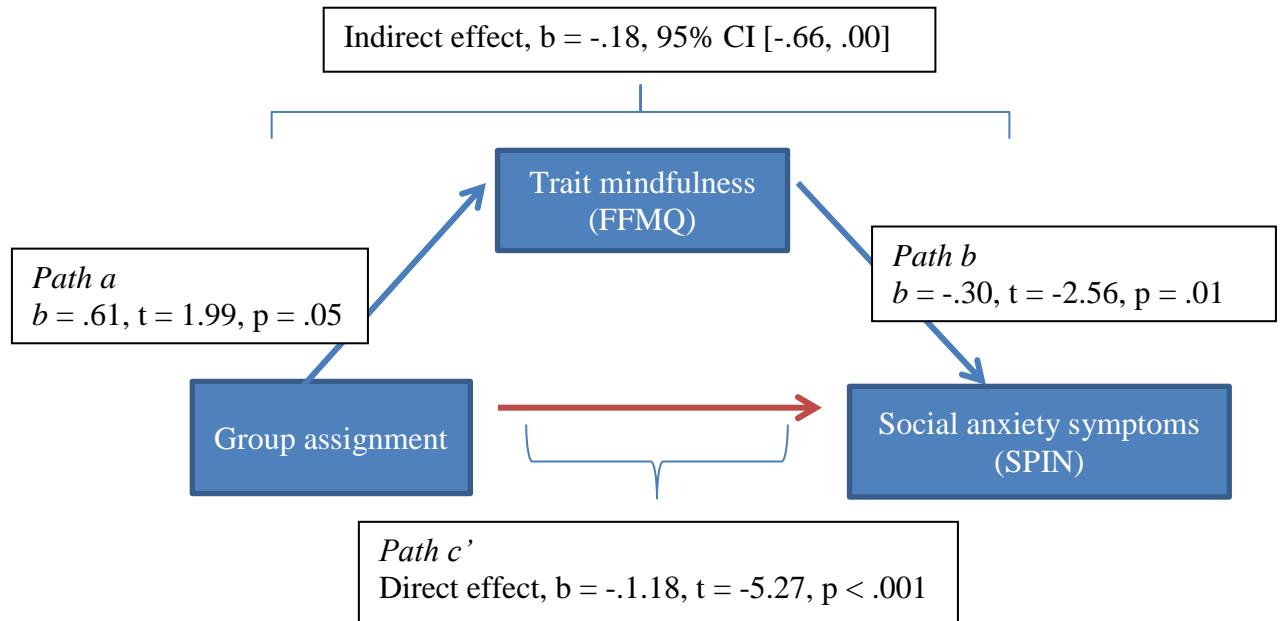


Figure 4: Model of group assignment as a predictor of self-reported social anxiety symptoms (SPIN), mediated by trait mindfulness (FFMQ)



Although trait mindfulness met the criteria for consideration as a potential mediator of treatment effects, a test of indirect effects did not meet significance; however, this could be due insufficient power to detect an effect. Thus, the association between MBI-SAD participation and decreases in social anxiety was not mediated by increases in trait mindfulness.

Facets of mindfulness as mediators

As noted above, the MBI-SAD condition resulted in significantly higher scores of the FFMQ facets of non-judge, aware, observe, and describe at post-treatment, compared to WLC (when controlling for baseline scores). Thus, these four facets of trait mindfulness were tested as potential mediators. A series of linear regressions revealed that assignment to the MBI-SAD condition predicted significant increases in scores on the facets of non-judge, aware, observe, and describe (paths *a*). Assignment to the MBI-SAD condition also predicted decreases in self-reported and clinician-assessed social anxiety symptom severity (LSAS total and SPIN) (paths *c'*). Increases on the FFMQ facet of describe significantly predicted decreases in clinician-rated social anxiety symptoms (LSAS total), whereas increases in scores on non-judge, aware, observe (marginally), and describe significantly predicted decreases in self-reported social anxiety symptoms (SPIN) (paths *b*). Results revealed that increases in the FFMQ facet of describe mediated the association between MBI-SAD participation and decreases in both clinician-rated and self-reported social anxiety symptom severity. Increases in the facets of non-judge and aware also mediated the association between MBI-SAD participation and self-reported social anxiety symptoms (SPIN). The indirect effects for the facet of observe were non-significant. These results reveal that the positive effects of the MBI-SAD condition on clinician-rated social anxiety

symptoms (LSAS total) are partially due to increases in the facet of describe, and the positive effects of the MBI-SAD on self-reported social anxiety symptoms (SPIN) are partially due to increases in the FFMQ facets of describe, non-judge and aware.

Table 6: Model of group assignment as a predictor of social anxiety symptoms (LSAS total), mediated by facets of trait mindfulness (FFMQ)

Mediator tested: non-judge	Beta	t	P
path a	.68	2.25	.031
path b	-.14	-1.11	.272
path c'	-1.22	-4.82	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.10	.14	-.49, .09
Mediator tested: observe	Beta	t	P
path a	.81	2.75	.010
path b	-.20	-1.54	.132
path c'	-1.15	-4.50	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.16	.17	-.63, .08
Mediator tested: aware	Beta	t	P
path a	.84	2.91	.006
path b	-.26	-2.00	.053
path c'	-1.09	-4.32	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.22	.21	-.74, .06
Mediator tested: describe	Beta	t	p
path a	.78	2.64	.012
path b	-.38	-3.18	.003
path c'	-1.02	-4.40	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.29	.19	-.82, -.05

Note. path a = effect of group on potential mediator; path b = effect of potential mediator on LSAS overall; and path c' = effect of group on LSAS overall, with potential mediator in the model.

Table 7: Model of group assignment as a predictor of self-reported social anxiety symptoms (SPIN), mediated by facets of trait mindfulness (FFMQ)

Mediator tested: non-judge	Beta	t	p
path a	.68	2.25	.031
path b	-.28	-2.34	.025
path c'	-1.18	-5.10	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.19	.12	-.51, -.01
Mediator tested: observe	Beta	t	p
path a	.81	2.75	.009
path b	-.25	-2.01	.051
path c'	-1.16	-4.81	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.20	.15	-.60, .00
Mediator tested: aware	Beta	t	p
path a	.84	2.92	.006
path b	-.33	-2.71	.010
path c'	-1.09	-4.64	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.27	.16	-.65, -.03
Mediator tested: describe	Beta	t	p
path a	.78	2.64	.012
path b	-.39	-3.50	.001
path c'	-1.06	-4.84	< .001
	Effect	Boot SC	95% CI
Indirect effect	-.30	.18	-.79, -.07

Note. path a = effect of group on potential mediator; path b = effect of potential mediator on SPIN scores; and path c' = effect of group on SPIN scores, with potential mediator in the model.

Discussion

Although previous research has found that the standard MBSR program resulted in clinically meaningful changes on measures of social anxiety, mood, disability and quality of life among persons with SAD, it did not fare as well as the gold standard treatment of CBT in improving symptoms of social anxiety (Koszycki et al., 2007). This discrepancy in observed benefits may be because, unlike CBT, the MBSR program was not tailored to address the specific clinical characteristics of SAD. Recently, researchers have posited that the practice of self-compassion may help to buffer against the negative cognitive biases

that are characteristic of SAD (Werner et al., 2012). Although attitudes related to self-compassion (e.g., non-judging of experiences) are commonly promoted in MBIs such as MBSR (e.g., Baer et al., 2006), the practice of self-compassion is not explicitly taught. To this end, the overarching aim of the current study was to evaluate the feasibility, acceptability and initial efficacy of a MBI for SAD that integrates explicit training in self-compassion. The work presented in this thesis specifically explored whether treatment-induced changes in self-compassion and trait mindfulness mediated improvement in symptoms of social anxiety.

Associations between baseline levels of self-compassion, mindfulness and social anxiety symptoms

Results from the current study demonstrated a significant negative association between baseline measures of self-compassion and clinician-rated social anxiety symptoms. More specifically, self-compassion was associated with lower LSAS total scores and lower scores on the LSAS subscale of fear of social and performance situations. No significant baseline association was observed between self-compassion and self-reported social anxiety symptoms (SPIN); however, the correlation was in the expected direction. Failure to find a significant association with the SPIN may be due to the small sample size. It may also be due to differences in the aspects of social anxiety captured by the LSAS and the SPIN. For instance, the LSAS captures degree/severity of fear and avoidance of social and performance situations, whereas the SPIN captures frequency of experiencing fear and avoidance of social and performance situations, as well as distress related to physiological symptoms (e.g., blushing, sweating, heart palpitations, and trembling/shaking).

Only one other study to date has assessed the association between measures of self-compassion and social anxiety symptom severity among persons with SAD. In a larger sample of persons with SAD ($n = 72$), Werner et al. (2007) also found a negative, but non-significant, association between self-report measures of social anxiety (measured using the LSAS-Self Report and the Social Interaction Anxiety Scale; Fresco et al., 2001; Mattick & Clark, 1998, respectively) and the longer 26-item SCS (Neff, 2003a). However, Werner and colleagues did find a significant negative association between self-compassion and self-reported fear of negative and positive evaluation by others. These findings suggest that heightened self-compassion may be particularly helpful for decreasing the amount of fear – and possibly the amount of importance given – to how others might view the self. This finding is consistent with the significant and negative association between self-compassion (SCS-SF) and severity of fear of social situations (LSAS fear subscale) observed in the current study. Yet, due to the preliminary nature of research on the association between self-compassion and social anxiety measures, more research is required to assess the reproducibility of findings.

The observed negative association between baseline FFMQ total scores and clinician-rated and self-report measures of social anxiety severity did not reach significance; however, the individual FFMQ facets of describe, non-judge, and awareness were significantly and negatively linked to clinician-rated symptom severity (LSAS total). This result suggests that persons with SAD may benefit from the specific mindfulness practices of labelling one's thoughts, emotions and sensations as experiences that are transient (i.e., “describe”), accepting experiences as they are without judgment (i.e., “non-judge”), and acting with awareness, rather than reacting automatically (i.e., “aware”). To

date, no studies have assessed the association between trait mindfulness and clinician-assessed social anxiety severity; however, various studies have found significant and negative associations between trait mindfulness and self-reported social anxiety and related constructs (e.g., public self-consciousness) (e.g., Brown & Ryan, 2003; Kocovski, Fleming, & Rector, 2009). Reasons why trait mindfulness and self-compassion may relate to lower levels of social anxiety severity are explored in detail below.

MBI-SAD effectiveness and mechanisms of change

The results from the current RCT found that the MBI-SAD program resulted in higher levels of self-compassion at post-treatment compared to the WLC. In addition, the MBI-SAD program resulted in higher trait mindfulness (marginally, $p = .057$), which was not surprising as mindfulness was the largest focus of the MBI-SAD and is thought to be a foundational element of self-compassion. The MBI-SAD program also resulted in lower clinician-rated and self-reported social anxiety symptomology, compared to the WLC at post-treatment.

Mediation analyses in the current RCT demonstrated that increases in facets of trait mindfulness (i.e., the facets of describe, awareness and non-judge) and self-compassion mediated the association between the MBI-SAD and social anxiety symptom severity. The current findings are consistent with that of past research. For example, Gu et al. (2015) systematically reviewed mediation studies in order to identify potential psychological mechanisms underlying MBI's effects on psychological functioning and wellbeing, and evaluated the strength and consistency of evidence for each mechanism. The most common mental health outcome across the studies that assessed trait mindfulness as a mediator was depression ($n = 7$), followed by stress ($n = 2$), anxiety ($n = 2$) and negative affect ($n = 1$).

Results of the meta-analyses of these mediation studies identified moderate and consistent evidence for trait mindfulness. In addition, findings showed support for mindfulness as a mediator, regardless of heterogeneity in measures of mindfulness, sample characteristics and outcomes.

The systematic review by Gu et al. (2015) also found very preliminary evidence that self-compassion may mediate MBI outcomes in studies with an RCT design. In the one clinical study to date, self-compassion was found to be a mediator of MBCT's effects on depression in a sample of adults with recurrent depression (Kuyken et al., 2010). In RCTs with non-clinical samples, self-compassion has also been shown to mediate MBSR's effects on stress reductions among health care professionals (Shapiro et al., 2005) and mediate MBSR's effects on worry in a healthy community sample (Keng et al., 2012), compared to wait-list controls. Overall, the results of the current study and those of other research, suggest that self-compassion and aspects of trait mindfulness are important mechanisms of action for MBIs for a variety of psychological outcomes, including social anxiety symptom severity.

To better understand why self-compassion and aspects of trait mindfulness mediated the current treatment effects, the contribution of the individual facets was explored. Beginning with self-compassion, results revealed that although higher levels of all SCS-SF facets were observed at week 12 in the MBI-SAD condition (after controlling for baseline levels), only three of these facets mediated treatment effects. Thus, the mediating facets of decreased self-judgment and over-identification and increased common humanity appear to be doing part of the "work" for decreasing social anxiety symptom severity in the MBI-SAD condition.

Exploration of self-judgment as a mediator of treatment effects

The finding that decreased self-judgment was an important mediator of clinical response to the MBI-SAD is notable for several reasons. The self-judgment facet taps the tendency to be critical and negative toward oneself (Neff, 2003a). Decreases in self-judgment are likely to be very beneficial for those with SAD. For instance, research has found that persons with SAD lack a positive inferential bias, and instead judge themselves harshly in social and performance situations - irrespective of actual performance (Hackmann et al., 1998; Hirsch & Matthews, 2000; Huppert et al., 2003; Rapee & Heimberg, 1997; Wells & Papageorgiou, 1999). High self-criticism, which has been conceptualized as “self-harassment” (Gilbert & Proctor, 2006), is also associated with social anxiety symptom severity (Cox, Walker, Enns & Karpinski, 2002). Self-criticism is thought to trigger submissive or anxious responses and can lead to shame if the individual believes that the critical beliefs are valid (Gilbert & Miles, 2000).

In contrast to self-judgment, the practice of self-compassion involves the acknowledgement and acceptance of problems and shortcomings without judgment (Neff, 2012). Previous research has demonstrated the positive effects that compassion-based treatments have on harsh self-criticism and related feelings like shame. Neff et al., (2007a) tracked changes in self-compassion experienced by therapy clients over a one-month interval. During therapy, clients were taught techniques to help decrease self-criticism and to develop greater compassion for themselves. Results revealed that increases in self-reported self-compassion over the month long period were linked to fewer experiences of self-criticism, depression, rumination, thought suppression and anxiety. Similarly, Gilbert and Irons’ (2005) Compassionate Mind Training (CMT) attempts to increase compassion

using a variety of exercises, including visualization, cultivating self-kindness through language, and by engaging in self-compassionate behaviors and habits. A pilot study of CMT for hospital day treatment patients struggling with shame and self-criticism demonstrated significant decreases in depression, self-attacking, shame, and feelings of inferiority (Gilbert & Procter, 2006). In addition, Johnson and O'Brien, (2013) asked shame-prone students to recalled an experience of shame and then were randomly assigned to (1) write about it self-compassionately, (2) express their feelings about it in writing, or (3) do neither. Participants completed their assigned task three times in one week. Immediately after writing, participants in the self-compassion condition reported less state shame and negative affect than those in the expressive writing condition. At two-week follow-up, participants in the self-compassion condition showed reductions in shame-proneness and depressive symptoms. These results suggest that the MBI-SAD intervention was effective at reducing social anxiety symptom severity because it provided those with SAD a kinder alternative to relating to the self, in contrast with the harsh self-judgment and criticism characteristic of persons with SAD.

Negative self-judgment among those with SAD is thought to be a result of seeing oneself through the eyes of critical others. Research suggests that persons with SAD place great importance on the external evaluation of others rather than their trusting their own balanced self-examination (Rodebaugh, Holaway & Heimberg, 2004; Weeks et al., 2005). In contrast, the practice of self-compassion may help shift the evaluation of self-worth from external to internal frames of reference. Models of motivation distinguish between mastery-based and performance-based goals: An individual with a mastery-orientation seeks to fulfill personal interests and curiosity, whereas individuals with a performance-orientation

seek extrinsic rewards for their ability (Dweck & Elliot, 2005). Research has found that self-compassion is positively related to mastery-based academic goals and negatively related to performance-based goals (Neff et al., 2005). This research suggests that the MBI-SAD may reduce social anxiety symptoms by decreasing the fear of failing to meet perceived external standards, and instead focusing on one's own experience within social situations. The increased use of an internal frame of reference may also lead to more satisfying social exchanges. Research has found that participants scoring higher on self-compassion were significantly more likely to report compromising rather than subordinating their needs in conflicts with mothers, fathers, best friends, and romantic partners (Yarnell & Neff, 2013). Similarly, Neff (2003a) found that persons with high levels of self-compassion say they tend to be equally kind to themselves as others, but people with low levels of self-compassion say they tend to be kinder to others than themselves. These studies suggest that reducing one's tendency to evaluate oneself against harsh external standards, may lead to greater self-worth, greater autonomy, increased intrinsic motivation, and higher quality interactions with others.

Finally, because self-compassionate people judge themselves less harshly when they fail, they are less afraid to fail and more likely to learn from their experiences (Neff et al., 2005). Research has found that persons with higher self-compassion view personal weaknesses as more changeable. For instance, participant who were instructed to take a self-compassionate approach toward a transgression that they felt bad about (most of which were social difficulties) were more motivated to make amends and avoid repeating the transgression in the future than participants instructed to take a self-esteem-focused approach or to engage in a positive distraction task (Breines & Chen, 2012). Thus,

approaching failure without judgment may help those with SAD acknowledge room for improvement, rather than viewing the failure as inherent to the self. This may lead those with SAD to feel less discouraged after making social faux pas and less likely to avoid social situations as way of coping.

Exploration of common humanity as a mediator of treatment effects

Increases in the self-compassion component of common humanity were also shown to partially mediate MBI-SAD effects on self-reported social anxiety symptom severity. Those with SAD appear to view their own failures and inadequacies as unique to them rather than as part of the larger human experience. For instance, those with SAD perceive extreme negative judgment by others, believe that others hold them to impossibly high standards, and perceive their personal shortcomings as being highly conspicuous (e.g., Alden & Wallace, 1995; Clark & Wells, 1995; McEwan & Devins, 1983; Rapee & Heimberg, 1997; Strauman, 1989). Feelings of isolation from others are especially problematic for persons with SAD who are thought to be driven by a strong need for belonging (Gilbert, 2001). A low sense of connectedness is likely compounded by engagement in frequent avoidance of social situations in order to decrease anxiety (Hofmann, 2007; Mogg, Bradley, de Bono, & Painter, 1997; Wells et al., 1995). In addition, research has found that those who perceive their experiences as unique and not shared by others (i.e., egocentrism) are also less likely to feel compassion for themselves (Neff & Pittman, 2010). In contrast, the common humanity component of self-compassion involves viewing oneself within a broad human context and as having similar experiences as other people (Neff, 2003a). Methods for fostering self-compassion attempt to connect individual imperfections to the shared human condition, so that features of the self are

considered from a broad, inclusive perspective (Werner et al., 2012). Research lends support the effectiveness of this approach for broadening perspective taking. For instance, Neff and Prommier (2013) found that higher levels of self-compassion among college students, meditators or community samples were significantly linked to more perspective taking and greater forgiveness after the experience of failure.

Self-compassion is also linked with other constructs that foster a sense of common humanity, such as greater closeness and improved relationships with others. Neff and Germer (2013) found that increased self-compassion is significantly associated with perceived gains in social connectedness. In addition, Neff et al. (2007) found that those with higher self-compassion used more first-person plural pronouns (we) and more words referring to family, friends and communication with others, in a writing task. These results suggest that those with self-compassion have a more interconnected view of themselves. In a study of heterosexual couples, self-compassionate individuals were described by their partners as more emotionally connected, accepting and autonomy-supporting, while being less detached, controlling, and aggressive than those lacking self-compassion (Neff & Beretvas, 2013). In addition, Crocker and Canevello (2008) found that individuals who scored higher on self-compassion tended to have more compassionate goals in close relationships (as assessed by self-reports and by reports given by relationship partners). Finally, physiological evidence also supports the assertion that meditative practices of compassion engender feelings of connectedness with others. For instance, loving-kindness meditation and compassion meditations (exercises oriented toward enhancing unconditional kindness and compassion) enhance the activation of brain areas that are

involved in empathy (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008; Lutz, Greischar, Perlman, & Davidson, 2009).

In sum, the current findings suggest that the practice of common humanity is likely to benefit those with SAD by targeting and helping to decrease feelings of isolation during failure and improve a sense of connectedness with others.

Exploration of over-identification as a mediator of treatment effects

Results revealed that decreases in the self-compassion facet of over-identification partially mediated decreases in social anxiety symptom severity among those in the MBI-SAD condition. The practice of self-compassion attempts to decrease the tendency to “over-identify” with thoughts and feelings, which involves narrowly focusing and ruminating on these experiences (Neff, 2003a; Nolen-Hoeksema, 1991). Persons with SAD appear to be particularly vulnerable to over-identifying with perceived inadequacies. Research has found that persons with SAD think about their perceived failures, rejection, inadequacies, and other negative images of themselves in great detail after social interactions (Abbott & Rapee, 2004; Brozovich & Heimberg, 2008; Chen et al., 2013; Dannahy & Stopa, 2007; Rachman et al., 2000), even after having experienced objectively positive social interactions (Hackmann et al., 2000). Ruminating on negative thoughts and images of the self after social or performance situations is thought to narrow one’s perspective of the event and exaggerate implications for self-worth (Brozovich & Heimberg, 2008; Neff, 2003a; Nolen-Hoeksema, 1991; Werner et al., 2012). On the other hand, research suggests that attempts to decrease over-identification may be beneficial for those with SAD. For instance, greater self-compassion is linked with less rumination (Neff, 2003a; Neff et al., 2005). Similarly, Raes (2010) found that brooding and worry mediated

the association between self-compassion and self-reported anxiety, suggesting that self-compassion may have buffering effects through its positive effect on unproductive repetitive thinking. Thus, by teaching those with SAD to not over-identify with experiences, they are less likely to engage in activities that maintain social anxiety, such as ruminating, worrying, and focusing on the perceived negative aspects of their social interactions.

In addition, when not over-identifying with one's thoughts and feelings, a mental space is provided that allows for greater clarity, perspective, and emotional equanimity of one's experiences (Baer, 2003; Shapiro, Carlson, Astin, & Freedman, 2006). Persons higher in self-compassion are better able to keep negative situations in perspective and are more likely to take responsibility for past mistakes (Leary et al., 2007; Neff, 2003a; Neff et al., 2005; Neff et al., 2007). For instance, Leary et al., (2007) found that providing participants with self-compassion prompts resulted in less negative emotions and greater personal responsibility when recalling a previous failure that made them feel badly about themselves. Thus, the practices that decrease over-identification are likely to help those with SAD gain a more neutral and balanced perspective of their own and others behaviours in social interactions. Increasing the tendency to persons with SAD to see their interactions more clearly, may provide an opportunity for them to recognize that these interactions are actually satisfactory or positive.

It should be noted that the capacity to not identify with internal experiences could be related to the practice of mindfulness, and not solely due to the practice of self-compassion. Non-identification is fundamental to the practice of mindfulness. In the current MBI program, participants were taught to respond mindfully and to not identify

with inner experiences before the self-compassion meditations were introduced in the program. Non-identification was also reinforced during the mindful exposure exercises introduced in session five. Measures of self-compassion and mindfulness attempt to capture this phenomenon; however, unlike the SCS-SF, the FFMQ does not include a specific measurable facet of non-identification to be considered in a mediation analysis. Thus, it cannot be determined whether the practice of self-compassion, practice of mindfulness or a synergy of both practices was responsible for the beneficial effects of decreased over-identification on social anxiety symptom severity.

Facets of the SCS-SF as mediators: Alignment with previous findings

The current study highlighted the benefits of increasing common humanity and decreasing scores on over-identification and self-judgment; however, previous research assessing the contributions of SCS facets do not completely align with these findings. For instance, in a sample of adults who self-identified as having a problem with anxiety, the SCS facets of over-identification and self-judgment significantly predicted higher scores on measures of generalized anxiety and worry; however, associations were not significant for common humanity (Van Dam et al., 2011). Another study of non-meditating undergraduates and community volunteers found that the self-compassion facets of common humanity, isolation (inversely), and mindfulness were significant predictors of happiness, whereas self-kindness, self-judgment, and over-identification showed no relation (Hollis-Walker & Colosimo, 2011). Although the diverging findings across these studies seems potentially problematic, it was not expected that they would align; rather, it is more likely that the aspects of self-compassion cultivated by each clinical population are likely to respect the unique needs of those populations. That is, the observed mediating

variables in the current study may be particularly poignant and helpful for those with SAD, while other facets may encourage well-being among other clinical populations. The treatment implications for these unique associations are considered below.

SAD and negatively-valenced SCS-SF facets

Results revealed that the observed decreases in social anxiety symptom severity were partially explained by decreases in the more negatively-valenced aspects of self-compassion (i.e., self-judgment, over-identification), as opposed to increases in the more positive-valenced aspects of self-kindness and mindfulness. This is consistent with Neff's (2003a) conceptualization of self-compassion, noting that although the facets for each self-compassion component tend to be related, they are not necessarily mutually exclusive. To illustrate her point, Neff (2003a) provided the example that although one might refrain from judging oneself harshly; this does not mean that he/she is taking proactive steps to be kind or warm to him or herself. These results suggest that persons with SAD might be able to judge themselves less harshly after the MBI-SAD, but that they may still have difficulty being especially kind to themselves. In fact, Gilbert and Irons (2004) have theorized that self-criticism can become rooted in memories and internalized; those who are high in self-criticism are likely to have an underdeveloped and under-elaborated ability to self-care and self-soothe. In support of this, Gilbert, Baldwin, Irons, Baccus and Palmer (2006) found that those with SAD find it easier to imagine a hostile, controlling, self-critical part of the self, but found bringing to mind a soothing, accepting and compassionate image of the self to be more difficult. In addition, a qualitative study by Pauley and McPherson (2010) found that participants with an anxiety disorder reported that being self-compassionate could yield benefits, but also reported that practicing self-compassion may be difficult because it

is challenging to enact and because their experience of anxiety had negatively impacted their ability to be self-compassionate. Future research may assess whether an increase in the number of self-compassion sessions and/or continued practice after program completion may result in cultivation of the more positively-valenced - and perhaps more difficult - aspects of self-compassion.

Self-compassion or self-esteem for SAD?

When considering tailoring interventions for SAD, research suggests that although self-compassion and self-esteem share similar benefits, self-compassion may be a more worthwhile target for change among this clinical population. Self-esteem reflects a person's overall evaluation of one's self worth. Self-esteem has been thought to undermine emotional well-being, as it fluctuates depending on observed strengths and weaknesses (Kernis, Cornell, Sun, Berry & Harlow, 1993; Neff, 2012). Self-compassion, on the other hand, involves the practice of accepting and supporting oneself, irrespective of experiences of inadequacies and failures. For instance, research has found that self-compassion is associated with more stability in state feelings of self-worth over an eight month period (assessed 12 different time) than trait self-esteem and was less contingent on particular outcomes (Neff & Vonk, 2009). In addition, self-compassion also demonstrates a stronger negative association than self-esteem with constructs related to SAD, such as social comparison, public self-consciousness, self-rumination, and need for cognitive closure (Neff & Vonk, 2009). Other research has lent support to the stability of self-compassion. For instance, participants in a mindful self-compassion program reported increases in self-compassion from pretest to week three and then from week three to week six of the program (Neff & Germer, 2013). However, no significant increase in total self-compassion

scores was observed from week six to post-test. Moreover, there were no changes in total self-compassion scores when examined six months and one year later. In sum, compared to self-esteem, interventions focused on self-compassion may be particularly beneficial for the SAD population because (once established) self-compassion is more stable, it is not dependent on self-evaluations, it is less contingent on successes or failures, and it is less impacted by social comparisons.

Neurobiological underpinnings of the self-compassion-SAD association

The benefits of self-compassion for SAD, especially the recognition of common humanity, may be explained by considering the neurobiological and attachment underpinnings of the practice of self-compassion. Gilbert and Irons (2005) suggest that self-compassion enhances well-being because it helps people feel a greater sense of interpersonal connection. Gilbert and Irons (2005) proposed that a sense of connection deactivates the threat system (associated with feelings of fear, anxiety and the autonomic arousal) and activates the self-soothing affect regulation system (associated with feelings of contentment, safety and the oxytocin-opiate system). Research to date has provided support for the hypothesis that persons with SAD have an overactive threat system in relation to social stimuli. For instance, persons with SAD are hypervigilant to and have a hard time disengaging from social threats, leading to heightened emotional and physiological responses (e.g., Hope et al., 1989; Bogels & Mansell, 2004). SAD is also associated with increased activation of the amygdala when confronted with emotional faces (e.g., Stein et al., 2002; Phan et al., 2006), during speech anticipation (Lorberbaum et al., 2004), and when receiving praise and criticism (Blair et al., 2008). Finally, research has

also shown that negative self-evaluative states such as shame are associated with stronger biological stress responses (e.g., Rohleder, Chen, Wolf, & Miller, 2008).

Research lends supports to the value of practicing compassion to reduce biological stress. For instance, Rockcliff, Gilbert, McEwan, Lightman, & Glover (2008) found that giving individuals an exercise designed to increase feelings of self-compassion (i.e., compassion-focused imagery) was associated with reduced levels of the stress hormone cortisol. In addition, Arch, Brown, Dean, Landy, Brown and Laudenslager (2014) examined the relationship between self-compassion and a marker of sympathetic nervous system activation (i.e., salivary alpha-amylase (sAA)). Results revealed that sAA reactivity to stress was lowest among participants who were randomly assigned to a pre-stress self-compassion intervention, compared to those assigned to two control conditions. Similarly, Breines et al. (2015) examined the relationship between dispositional self-compassion and sAA responses to an initial and repeated stressor. The laboratory stressor used in this study consisted of a three-minute preparation period, a five-minute public speech, and a five-minute mental arithmetic task in front of an audience of two judges wearing lab coats and maintaining a neutral evaluative facial expression. The public speech involved describing how one's personality makes one qualified for a dream job and the mental arithmetic task involved counting backwards. Results revealed that self-compassion was negatively related to the magnitude of the sAA response to the psychosocial stressors. The authors concluded that self-compassionate individuals may be less likely to appraise a potential stressor as self-threatening, which may in turn reduce signals from the central nervous system responsible for initiating the biological stress response. A previous study by Breines et al. (2014) found that compared to individuals low in self-compassion, self-compassionate

individuals showed lower elevations in the pro-inflammatory cytokine interleukin-6 in response to acute psychosocial stress (Breines, Thoma, Gianferante, Hanlin, Chen & Rohleder, 2014). Finally, other research has found that participants in a self-compassion intervention condition showed lower subjective anxiety and greater heart rate variability, a marker of cardiovascular parasympathetic activity (Rockcliff et al., 2008).

Recent also research suggests that the practice of self-compassion activates the self-soothing affect regulation system, marked by oxytocin response. Studies have shown that increased levels of oxytocin are associated with feelings of trust, calm, safety, generosity, and connectedness (Carter, 1998; Feldman, Waller, Zagoory-Sharon & Levine, 2007). Research has found that oxytocin is released when people give or receive compassion (see Keltner, Marsh & Smith, 2010). Consistent with this, using fMRI technology, Longe et al. (2010) found that instructing individuals to be more self-compassionate was associated with neuronal activity similar to what occurs when feelings of empathy for others are evoked. Self-compassion is also linked to increased heart-rate variability, which is associated with a greater ability to self-soothe when stressed (Rockcliff et al., 2008). In sum, the above research suggests that persons with SAD appear to have an overactive threat system triggered by perceived social threats, and that they may benefit from self-compassion due to its mitigating impact on the threat system and its activation of the self-soothing, affect regulation response.

Exploration of FFMQ facets as mediators

Although the FFMQ total score did not mediate treatment effects it is still important to examine which mindfulness facets are particularly beneficial for those with SAD is important to consider. In their research, Baer and colleagues (2006) found that the FFMQ

facets were differentially correlated with other constructs and showed incremental validity when predicting psychological symptoms. This work concluded that research incorporating the FFMQ consider the contributions of the individual facets when interpreting results. The current study revealed that the FFMQ facet of describe mediated the association between MBI-SAD participation and clinician-rated and self-reported social anxiety symptoms. The FFMQ facets of non-judge and aware also mediated the association between MBI-SAD participation and self-reported social anxiety symptoms. These results suggest that the MBI-SAD cultivates the mindfulness skills of describe, non-judge, and awareness, and these skills, encourage more positive psychological functioning among those with SAD (Baer et al., 2008).

Exploration of the describe facet as a mediator of treatment effects

Results from the current study revealed that increases in the FFMQ facet of describe mediated the association between MBI-SAD participation and decreased clinician-rated and self-reported social anxiety symptom severity. Describing is the practice of using words to label what is observed during moment-to-moment experiences, which provides a more detached and objective perspective. By labelling thoughts as simply thoughts, feelings as simply feelings and sensations as simply sensations, one is able to see that these experiences are transient rather than true representations of reality. Persons with SAD may benefit from labelling because it helps to provide a mental distance between self-critical thoughts, feelings of concern and physiological reactions that are aroused within social situations. Labeling these experiences as simply thoughts, feelings and sensations may decrease the tendency for those with SAD to over-identify with these experiences, and as a result, decrease the stress response. A number of neuroimaging studies have found that

labelling is related to a decreased stress response (e.g., Hariri, Bookheimer, & Mazziotta, 2000; Lieberman et al., 2007). In one paradigm, Creswell et al. (2007) had participants complete an affect labeling task while undergoing fMRI. The labeling task consisted of matching facial expressions to appropriate affect words (affect labeling) or to gender-appropriate names (gender labeling control task). Results revealed that dispositional mindfulness was associated with greater widespread prefrontal cortical activation, and reduced bilateral amygdala activity during affect labeling, compared with the gender labeling control task. Similarly, Lieberman et al. (2007) found that matching emotional expressions on faces with affect label words resulted in lower limbic system activation, including reduced activation in the amygdala, as compared to matching expressions to other expressions, matching the gender to gender labels, or to simply viewing the face. This neuroimaging research suggests one potential mechanism of how describing might benefit persons with SAD; that is, labelling one's experiences may lead to a decreased stress response when exposed to fear-provoking social stimuli.

Exploration of the non-judge facet as a mediator of treatment effects

Increases in the FFMQ facet of non-judge was also found to mediate the association between MBI-SAD participation and decreased self-reported social anxiety symptom severity. Previous research has found that persons with SAD are more likely to judge stimuli within social situations as threatening and negative. For instance, SAD patients show preferential negative bias for and faster processing of negative content in attention, memory and interpretation of stimuli (Amin, Foa, & Coles, 1998; Hertel, Brozovich, Joormann & Gotlib, 2008). In contrast, mindfulness practice is thought to reduce the habitual tendency to automatically engage in evaluative mental states (Baer, 2003). Rather

than evaluating experiences, non-judging involves seeing things as they are, without clouding the experience with one's own thoughts and feelings about them. Taking a nonjudgmental stance provides an opportunity to observe what may be normally perceived as threatening experiences with an unbiased curiosity (Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008). For instance, Baer et al., (2006) noted that within a context of judgment and unwillingness, anxious thoughts, feelings and sensations may be experienced as especially aversive, which may also lead to secondary responses such as feelings of shame, self-critical thoughts and attempts to avoid experiences. However, if the same stimuli are experienced in the context of non-judgment, one is less likely to automatically perceive their thoughts, feelings and sensations as unpleasant or unwanted (Baer et al., 2006). Thus, approaching situations without an evaluative stance increases the likelihood that the information will be viewed clearly.

Research has illustrated benefits associated with practicing non-judgment. Cash and Whittingham (2010) found that a higher scores on the non-judge facet of mindfulness was found to predict lower levels of depression, anxiety, and stress-related symptomatology in a community sample comprising non-meditators and experienced meditators. In addition, reductions in the tendency to evaluate or judge oneself against perceived standards is linked with reduce negative affect and automatic reactions aimed at reducing the discrepancy (Silvia & Duval, 2001). The facet of non-judging has also been found to be negatively correlated with self-consciousness, which has been defined as a scrutinizing and evaluative quality in which the self is compared to standards (Evans, Baer, & Segerstrom, 2009). Finally, it has been proposed that judgmental and reactive thoughts triggered by difficult situations lead to less task persistence because they promote self-criticism,

frustration, and impulsive decisions to stop, whereas mindfulness promotes the acknowledgement of self-critical thoughts or frustration and allows these experiences to dissipate (Evans et al., 2009). In support of this, Evans et al. (2009) found that the FFMQ facets of non-judging and non-reacting predicted increased persistence on difficult tasks.

In sum, cultivation of a nonjudgmental stance may be beneficial for those with SAD because it allows persons to approach situations with greater equanimity, rather than a heightened vigilance to possible threat. It also is related to less social comparisons and the resulting negative effect when discrepancies are observed. Finally, non-judgment is linked with a greater willingness to persist within challenging situations. This suggests that those with SAD who cultivate non-judgment may be less likely to respond automatically to perceived social threats by way of avoidance or safety behaviours, which opens up the possibility of having a positive social experience.

Exploration of the aware facet as a mediator of treatment effects

The current study also found that increases in the FFMQ facet of awareness mediated the association between MBI-SAD participation and self-reported social anxiety symptoms. Mindfulness is thought to encompass a particular way of attending to and being aware of one's moment-to-moment experiences. Mindful awareness has been characterised as a continuous monitoring of the totality of one's present experience, rather than functioning on automatic pilot (i.e., behaving mechanically while attention is focused elsewhere) (Baer et al. 2003). Focusing on aspects of the present moment has revealed benefits for those with SAD. For instance, Goldin and Gross (2010) examined how MBSR's emphasis on attending to present moment experiences can influence SAD symptomatology. At both pre- and post-MBSR intervention, participants underwent fMRI

while reacting to statements about negative self-beliefs (e.g., “I am ashamed of my shyness”, or “People always judge me”) using two types of attention deployment— breath-focused attention (‘attend to the breath’) and distraction-focused attention (‘count backwards from 168’). Results revealed reduced reports of negative emotion and a quicker decrease in brain activation when implementing breath-focused attention after exposure to negative self-beliefs. Similarly, Goldin et al. (2009) had participants undergo fMRI while encoding social trait adjectives in a self-referential task before and after a mindfulness intervention. Neuroimaging showed increased activity in a brain network related to attention regulation and reduced activity in brain systems implicated in conceptual-linguistic self-view (the circuit in the brain we use to ‘talk’ about ourselves internally). Finally, Bogels et al. (2006) assessed the effectiveness of MCBT combined with Task Concentration Training to helping participations redirect their attention away from the self and toward the task at hand. The results of the research found that SAD symptoms decreased from pre to post-treatment and gains were maintained for two months. This result suggests that MBSR may help those with SAD to refocus attention to the present moment and reduce the tendency to get caught up in negative thoughts about the self.

The observation facet of FFMQ: Helpful or hindrance?

Observing is the act of noticing or attending to internal and external experiences, such as sensations, cognitions, emotions, sights, sounds, and smells (Baer, 2003). Interestingly, the facet of observe did not mediate the MBI-SAD and social anxiety symptom severity association nor was there a significant baseline association between observe and social anxiety measures. These results are somewhat surprising, because heightened observation is thought to be a prerequisite to the ability to not judge nor react.

That is, an experience must first be noticed in order to not judge or respond to it (Reynolds, Consedine & McCambridge, 2013). However, it is possible that the items in the FFMQ do not adequately capture the mindfulness skill of noticing one's internal and external experiences. For instance, several of the items included in the observe facet address external stimuli and bodily sensations (sounds, smells, etc.). In fact, Baer et al. (2006) found that the observe facet was the only facet that was not a clear indicator of an overarching mindfulness construct. Thus, it may be that a different set of observe items that capture the tendency to notice the content of one's internal experiences (i.e., cognitions, emotions), would reveal the expected mediation. Additional work is required to investigate this possibility.

Another possible explanation for why observe did not mediate treatment effects is because the tendency to notice internal and external experiences may not always be beneficial. Interestingly, the observe facet has been found to be modestly but positively correlated with several maladaptive constructs, including dissociation, absent-mindedness, psychological symptoms, and thought suppression (Baer et al., 2006). Similarly, research has also found that self-focused attention is positively associated with negative emotions in clinical and nonclinical samples (Mor & Winquist, 2002). Heightened observation or awareness skills appear to be most adaptive when paired with other aspects of mindfulness, such as an accepting, non-judging, and nonreactive stance (Baer et al., 2006). It may be that with extended mindfulness practice, and greater cultivation of these latter mindfulness skills, that the observe facet would reveal benefits. In fact, research has found the observe facet demonstrated a negative association with symptoms among a meditating sample, whereas the association between observe and symptoms was positive among a non-

meditating student sample (Baer et al., 2008). This research suggests that the tendency to notice internal and external stimuli may only be beneficial once practitioners have learned skills for responding mindfully to these stimuli.

Limitations and future research

Because the research on the association between mindfulness and self-compassion and SAD is very new, there were necessarily gaps in the current study that should be addressed by future research. The current research demonstrated the potential benefits of including a self-compassion component to the MBI for SAD. However, research has revealed that self-compassion can arise from mindfulness practice alone (e.g., Birnie et al., 2010; Kuyken et al., 2010; Lee & Bang, 2010; Rimes & Wingrove, 2011; Shapiro et al., 2005; Shapiro, Brown, & Biegel, 2007). In these MBIs, self-compassion was not an explicit focus, but rather a part of the foundational attitudes of mindfulness-based practices. Thus it is unknown if there is additional benefit for those with SAD to have an enhanced self-compassion component. To test this, future research should compare the effectiveness of the traditional MBSR versus an enhanced MBSR that includes an additional focus on self-compassion for SAD.

The current research suggests that changes in specific aspects of self-compassion and mindfulness yielded benefits for persons with SAD. Consistent with this, Lilja et al. (2012) speculated that different clinical populations may yield different profiles for what aspects of self-compassion or mindfulness are particularly beneficial. Understanding which aspects are beneficial for specific psychological disorders may allow clinicians to tailor interventions to clinical populations and to better understand why certain populations may not be responding to an intervention. Future research is required to replicate finding from

the current study in a larger sample of persons with SAD. If verified, it may also be of interest to explore whether there are specific and measurable skills that correspond to each of these mediating facets, so that interventions can be specifically tailored to cultivate these skills.

It may be that the observed benefits associated within increases in aspects of trait mindfulness were enhanced by the inclusions of mindful exposure exercises both between and within sessions. During mindful exposure, participants are encouraged to come into full contact with the experience without trying to control, alter or avoid it. Mindful exposure is thought to lead to eventual extinction of the stress response when exposure to cues of social threat (Brown et al., 2007; Cardaciotto, Wright, & Winch, 2014). Future research contrasting MBI-SAD interventions with and without the mindful exposure component may shed light on the possibility of a bolstering effect.

Although results point to the value of MBI-SAD, these effects could be due, in part, to other non-specific aspects of the intervention. For instance, the current intervention was a group rather than an individual intervention, which likely provided a powerful form of therapeutic exposure. In addition, engaging in prolonged and eventually positive interactions with others who have had similar experiences could have led to the observed increases in common humanity, rather than the content of the self-compassion sessions themselves. To tease-apart these effects, future research may compare the effectiveness of the MBI-SAD intervention for persons with SAD using a one-on-one versus group-based treatment.

As typical of all RCTs, the participants in the study self-selected into the study and may not be representative of the general population of persons with SAD. Recruitment

flyers for the study noted that the treatment included mindfulness meditation. It is likely that those interested in developing a mindfulness practice chose to participate in this study.

The results from the current study may have also been impacted by the gender make-up of the current sample, which was largely female. Although it is inconclusive whether there are gender differences in baseline levels of self-compassion (e.g., Neff, 2003a ; Neff & McGehee, 2010 ; Neff & Vonk, 2009; Neff, Kirkpatrick et al., 2007; Neff, Rude et al., 2007; Neff & Prommier, 2013), it has been posited that females may be more likely to respond positively to the explicit practice of self-compassion. For instance, Germer (2012) suggested that self-compassion may be more easily accepted by women because of their high estrogen levels; estrogen enhances the effects of oxytocin, the bonding hormone that generally makes people feel good when connecting. In contrast, testosterone may suppress the effect of oxytocin (Germer, 2012). Following this logic, the current study may have yielded particularly positive findings due to its largely female sample. Yet there is also conflicting evidence suggesting that males may actually respond more positively to self-compassion. Although research has found that women experience a greater sensitivity to the suffering of others (see Eisenberg & Lennon, 1983), the association between self-compassion and other-compassion is smaller for women than for men (Neff & Prommier, 2013), suggesting that women may have more difficulty than males in summoning compassion for the self. In sum, it is still unknown whether there are consistent gender differences in responsiveness and benefits of cultivating a self-compassion practice. Future research is required to clarify the impact of gender on treatment outcome.

Although social anxiety severity was assessed using both self-report and clinician-rated scales, self-compassion and trait mindfulness were measured using only self-reports.

Self-report scales are limited in their ability to accurately assess individual levels of these more abstract cognitive phenomenon. Although the evidence base for the validity of these measures is increasing (Baer et al., 2003; Neff & Beretvas, 2013; Neff, Kirkpatrick et al., 2007; Neff & Prohmier, 2013), further studies that simultaneously examine multiple ways of assessing mindfulness and self-compassion are warranted. These methods may include the use of other scales of self-compassion and mindfulness, informant reports, experience sampling of self-compassionate behaviours (e.g., self-soothing activities in the face of stress) and mindful experiences (e.g., frequency of being in automatic pilot), or use of physiological measures (e.g., fMRIs and oxytocin assays).

Along the same lines, there is no question that the measures used in the current study fail to capture the breadth of these abstract concepts. For example, others have posited that the attitudes of acceptance, patience and equanimity of thinking are mechanism of mindfulness (Hölzel et al., 2011; Shapiro et al., 2006), and yet, they are not explicitly captured by the FFMQ. These unrepresented aspects of trait mindfulness or self-compassion may have explained some of the improvements observed among those in the MBI-SAD condition. Thus, there is a need for ongoing research to clarifying the processes inherent to mindfulness and self-compassion and to continue to establish psychometrically sound methods for tapping these processes (Baer et al., 2004; Bishop et al., 2004; Brown & Ryan, 2004; Dimidjian & Linehan, 2003).

It should be noted that the current study did not consider the temporal order when conducting mediation analyses. In other words, the current analysis does not provide evidence that the mediators of self-compassion and aspects of trait mindfulness changed before the outcome of social anxiety symptom severity. For instance, it is possible, but

unlikely, that decreases in social anxiety symptom severity preceded increases in self-compassion and trait mindfulness for the majority of cases. Thus, the possibility that the designated outcome variable may in fact be a mediator variable cannot be excluded. Future research should assess the temporal ordering of change in self-compassion, trait mindfulness and social anxiety to assess whether the change in the mediator precedes change in the outcome.

Finally, the sample size of the current study was small. The consequences of this include increased risk of type I and type II error, overestimates of effect size, and low reproducibility of results (Button et al., 2013; Hackshaw, 2008). However, because the aim of this research was to pilot test an enhanced MBI for SAD intervention, only a small number of subjects were used. It is intended that the results from the pilot study will be used to inform the development of a larger confirmatory study.

Conclusions

The empirical investigation of the mechanisms of change underlying the effects of MBIs for SAD is necessary in order to improve the effectiveness of interventions, develop a greater understanding of theoretical underpinnings, and inform the direction of future research. The current study sought to identify the mechanisms underlying the effects of an enhanced MBI tailored for persons with SAD, which included an explicit component on cultivating self-compassion and mindful exposure. Results revealed that the enhanced MBI resulted in increased self-compassion, trait mindfulness and decreased self-reported and clinician-rated social anxiety symptom severity, compared to a WLC. As predicted, the associations between MBI-SAD participation and decreased social anxiety symptoms were mediated by self-compassion and facets of trait mindfulness. An examination of individual

self-compassion facets revealed that the common humanity, self-judgment and over-identification facets significantly mediated intervention effects. The mindfulness facets of describe, non-judge and awareness also mediated the association between MBI-SAD participation and reduced social anxiety symptoms. The results provide valuable insights into the potential causal pathways connecting MBIs with improved psychological outcomes for persons with SAD. The knowledge that cultivation of specific facets of mindfulness and self-compassion is beneficial for persons with SAD may be used to improve intervention development and the clinical use of mindfulness and self-compassion. The current research also highlights various avenues for which the current study could be extended and improved upon. This includes comparison of the current MBI-SAD to various control groups: one-on-one treatment, MBI-SAD without the enhanced self-compassion component, MBI-SAD without the explicit mindful exposure component, and to the gold standard for SAD, which is CBT. Other future research may include exploration of gender differences in treatment effectiveness, use of objective measures of self-compassion and mindfulness for replicating findings, and use of temporal ordering to affirm causal pathways.

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Appendix A: Eligibility measures

Structured Clinical Interview based on the DSM-V (SCID) The SCID-I (First et al., 1995) is a semi-structured interview that includes modules designed to assess either the lifetime or current (past-month) experience of categorically-defined DSM-IV Axis I psychiatric disorders (including the mood and anxiety disorders). Depending on the specific research question, a number of unneeded SCID modules may be eliminated in order to decrease administration time.

The Social Anxiety module asks whether the respondent is afraid to do certain things in front of other people (like speaking, eating or writing) and whether they have been especially nervous or anxiety in social situations that involve people he/she doesn't know very well. If an individual responds negatively to both of these questions, then the SAD module is discontinued. Reliability assessments for the SAD module using joint interviews or audiotapes have yielded fair to good agreement, with Kappas ranging from .63 to .86 (e.g., Lobbestael, Leurgans, & Arntz, 2011; Segal et al., 1995; Skre et al., 1991; Zanarini & Frankenburg, 2001; Zanarini et al., 2000), whereas test-retest reliability show fair to poor agreement, with Kappas ranging from .47 to .59 (Zanarini et al., 2000; Williams et al., 1992; Zanarini et al., 2001). Overall, interrater reliability for SCID diagnoses tends to be strong (see Rogers, 2001). Notably, these likely represent somewhat inflated estimates, given that typical methods of diagnostic reliability assessment include having multiple raters observe a single SCID interview (rather than having multiple raters interview the same patient).

With respect to validity, a number of studies have used the SCID as the "gold standard" in determining the accuracy of clinical diagnoses (e.g., Shear et al., 2000; Steiner

et al. 1995). In addition, several studies (Basco et al., 2000, Fenning et al., 1994; Fenning et al., 1996; Kranzler, et al., 1995; Kranzler et al., 1996) used approximations of the LEAD procedure [involves conducting a longitudinal assessment (L) (i.e., relying in data collected over time), done by expert diagnosticians (E), using all data (AD) that are available about the subjects, such as family informants, review of medical records, and observations of clinical staff]. These procedures demonstrated superior validity of the SCID over standard clinical interviews at intake episode.

The Liebowitz Social Anxiety Scale (LSAS) (Liebowitz et al. 1987) is commonly used for the evaluation of SAD. This 24-item measure assesses the way that social phobia plays a role in one's life across a variety of situations (e.g., participating in small groups, going to a party, eating in public places). The first question asks how anxious or fearful participants feel in each of 24 situations (0 = none, 1 = mild, 2 = moderate, 3 = severe). The second question asks how often the participant avoids the situations (0 = never, 1 = occasionally, 2 = often, 3 = severe). If participants come across a situation that they ordinarily do not experience, they are asked to imagine if they were faced with the situation. The LSAS-SR has been shown to have strong psychometric properties as indicated by high test–retest reliability, internal consistency (alpha coefficients for subscales, 0.83 - 0.96.) and convergent (correlated highly with other self-report and clinician-rated measures of social anxiety and avoidance (ranging from 0.49 to 0.73) and discriminant validity (Baker et al., 2002; Fresco et al., 2001). Furthermore, the scale is sensitive to treatment change, including pharmacological treatments, among participants diagnosed with social phobia (Baker et al., 2002; Heimberg et al., 1999). Combining the total scores for the Fear and Avoidance sections provides an overall score with a maximum

of 144 points. Research supports a cut-off point of 30 for the specific subtype of social anxiety disorder (Mennin et al., 2002; Rytwinski et al., 2009).

The Clinical Global Impression-Severity of Illness subscale (CGI-S) (Guy, 1976) is commonly used as a primary outcome measure in studies evaluating the efficacy of treatments for anxiety disorders (Heimberg et al., 1998; Liebowitz et al. 1999). The Clinical Global Impression-Severity of Illness subscale (CGI-S) (Guy, 1976) is commonly used as a primary outcome measure in studies evaluating the efficacy of treatments for anxiety disorders (Heimberg et al., 1998; Liebowitz et al. 1999). The Severity of Illness subscale is a 7-point scale is an overall assessment of the current severity of the patient's symptoms. Considering total clinical experience, a patient is assessed on severity of mental illness at the time of (1 = normal, not at all ill, 2 = borderline mentally ill, 3 = mildly ill, 4 = moderately ill, 5 = markedly ill, 6 = severely ill, or 7 = extremely ill). Despite its popularity, studies investigating the CGI's validity have rarely been conducted, and evidence that is available is generally mixed (see Forkman et al., 2011; Hedges, Brown & Shwalb, 2009; Khan et al., 2002). With respect to use with a SAD population, Zaider et al. (2003) found that CGI ratings were positively correlated with both self-report and clinician-administered measures of social anxiety, depression, impairment and quality of life. Furthermore, measures of social anxiety symptoms accounted for a large portion of the variance in Severity of Illness ratings, with significant additional variance accounted for by measures of impairment and depression.

Montgomery Åsberg Depression Rating Scale (MADRS) (Montgomery & Åsberg, 1979) is a 10-item clinician-rated questionnaire to measure the severity of depressive episodes in patients with mood disorders. The questionnaire includes questions on the

following symptoms: apparent sadness, reported sadness, inner tension, reduced sleep, reduced appetite, concentration difficulties, lassitude, inability to feel, pessimistic thoughts, and suicidal thoughts. In order to obtain a precise rating of severity, the clinical interview moves from broadly phrased questions about symptoms to more detailed ones. If definite answers cannot be elicited from the patients, all relevant clues as well as information from other sources should be used as a basis for the rating in line with customary clinical practice. Higher MADRS score indicates more severe depression, and each item yields a score of 0 to 6. The overall score ranges from 0 to 60. Cut-off points are: 0 to 6 – normal/symptom absent, 7 to 19 – mild depression, 20 to 34 – moderate depression, and >34 – severe depression. The scale has shown high internal consistency ($r = .95$; Galinowski & Lehert, 1995); however, evidence for inner-rater reliability is mixed (see Montgomery & Åsberg, 1979; Schmidtke et al., 1988). Research has also shown high convergent validity with the Hamilton Rating Scale for Depression (0.80 to 0.90; Hamilton, 2000; Muller et al., 2003), the RDC (0.70; Montgomery & Åsberg, 1979), and with the IDS-C (0.81; Montgomery & Åsberg, 1979). Furthermore, the MADRS differentiated between responders and non-responders to antidepressant treatment (more so than the HAM-D), suggesting it is sensitive to treatment effects (Bech et al., 2002).

Appendix B: Description of MBI-SAD

MBI-SAD was a group-based intervention program, which consisted of 12 weekly, 2 hour sessions. Mindfulness meditation was the core component of the program consisting of different mental and physical mindfulness exercises: 1) body-scan exercises, 2) mental exercises focusing one's attention on the breath, 3) physical exercises with focus on being aware of bodily sensations and one's own limits during the exercises, and 4) practicing being fully aware during everyday activities by using the breath as an anchor for the attention. Essential to all parts of the program was the development of an accepting and non-reactive attitude to what one experiences in each moment. The aim of mindfulness practice is to cultivate greater awareness of the unity of mind and body, as well as of the ways the unconscious thoughts, feelings, and behaviors can undermine emotional, physical, and spiritual health. The intervention derived its roots from ancient Buddhist practices of Vipassana (insight) meditation and yoga exercises but was adapted, and was described in western terminology free from any particular religious affiliation (Kabat-Zinn 1990).

The latter part of the program (last four sessions) introduced training in cultivating self-compassion. Self-compassion training refers to specific activities designed to develop compassionate attributes and skills, particularly those that influence affect regulation. One of its key concerns is to help participants develop and work with experiences of inner warmth, safeness and soothing (Gilbert, 2009). Self-compassion training includes a loving-kindness meditation (or Metta) which uses words, images, and feelings to evoke a lovingkindness and friendliness toward oneself and others. The meditation begins by directing compassion towards oneself or a loved one and expands to eventually include all

living beings. Thus, self-compassion represents a balanced integration between concern with oneself and concern with others.

In addition to the exercises there was information (and discussion) on the causes, impact and symptoms of SAD, influences on anxiety response (emotional, cognitive and behavioural), and ways to incorporate mindfulness and self-compassion into interpersonal experiences and everyday living. In each session, time was included for the group members to reflect together on what they experience when they practice mindfulness and self-compassion.

The group format of MBI-SAD also provided opportunities for exposure to feared social and performance situations. During the initial sessions, participants were asked to create a hierarchy of feared social and performance situations. Participants experienced in-session exposure activities ranging from taking up and discussing homework to acting out a feared situation (as noted in their hierarchy). Participants were also asked to mindfully approach increasingly anxiety-provoking situations in their daily life and to record these experiences.

Participants were asked to reserve time for a daily formal meditation practice (20 to 45 minutes depending on the practice assigned) and to include informal mindfulness or self-compassion practices during the day. Although a daily practice was the ideal, participants were encouraged to do the best they could and to keep track of their practice on homework sheet provided. Along with the weekly homework sheet, participants also received readings that would correspond to the next week's topics. In addition, two compact discs were provided that included guided instruction for the body scan, sitting

meditation, walking meditation, Metta meditation and both standing and lying yoga postures.

Appendix C: Session overview

Session 1

In-session:

- Overview of the 12 week program
- Overview of social anxiety disorder
- Introduction to mindfulness
- Raisin exercise
 - In the raisin exercise, each person eats a raisin slowly and mindfully to demonstrate that mindfulness meditation is about being grounded and present in the here and now.
- Seven pillars of mindfulness
 - They are non-judging, patience, a beginner's mind, trust, non-striving, acceptance, and letting go. These attitudes are to be cultivated consciously when practicing mindfulness.
- Description and practice of the body scan
 - The body scan involves systematically sweeping through the body with the mind, attending to the various sensations in different regions. This practice helps one to become aware of what is already unfolding in the body.

Homework:

- Articles to read:
 - Kabot-Zinn, J. (1990). The foundations of mindfulness practice: Attitudes and commitment. *Full Catastrophic Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* (pg. 31-45). New York, N.Y.: Delta.
 - Kabot-Zinn, J. (2005). The body scan. *Coming to Our Senses*.

- Segal, Z.V., Williams, J.M.G., & Teasdale, J.D. (2002). Summary of Session 1: Automatic pilot. *Mindfulness-Based Cognitive Therapy for Depression* (pg. 122). The New York, N.Y.: Guilford Press.
- Ardell, D.B. (1977). A contemporary fable: Upstream/downstream. *High level wellness: An alternative to doctors, drugs and diseases*. Emmaus, PA.: Rodale Press.
- Formal meditation: Body scan (CD provided with a guided body scan)
- Informal meditation: 1) bringing awareness to a daily activity, 2) eating one meal mindfully.

Session 2

In-session:

- Guided body scan and reflection
- Review of homework
- Discussion of upstream/downstream story
 - Discussion of how perceptions affect how one responds to situations.
- Introduction to sitting meditation, discuss abdominal breathing

Homework:

- Articles to read:
 - Kabat-Zinn, J. (1994). Sitting meditation. *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life* (pg. 103-121). New York, N.Y.: Hyperion.
 - Kabat-Zinn, J. (1990). On healing. *Full Catastrophic Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* (pg. 168-181). New York, N.Y.: Delta Press.
- Formal meditation:
 - Body scan (CD provided with a guided body scan)
 - Sitting meditation focusing on the breath – 10 minutes per day
- Pleasant events calendar (record experience of 3 pleasant events)
 - What was the experience? Were you aware of the pleasant feelings while the event was happening? How did your body feel, in detail, during this experience? Describe your moods, feelings, and thoughts during the event? What thoughts are in your mind now as you write this down?
- Informal meditation: mindfulness of routine activities (e.g., brushing teeth, washing dishes, taking a shower, taking out garbage, shopping, eating, etc.)

Session 3

In-session:

- Mindful yoga
- Review of homework (body scan, sitting meditation, informal practice, pleasant events calendar)
- Riding the waves of sensations – anxiety is a temporary state
- Dealing with distractions when meditating
- Guided sitting meditation

Homework:

- Articles to read:
 - Kabat-Zinn, J. (1990). Working with fear, panic and anxiety. *Full Catastrophic Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* (pg. 333-336, 341-343). New York, N.Y.: Delta Press.
 - Dealing with distractions/techniques to help with concentration
- Formal meditation:
 - Sitting meditation – 10 minutes per day
 - Alternating body scan and mindful yoga (CD provided for both)
- Unpleasant events calendar (record experience of 3 unpleasant events)
 - What was the experience? Were you aware of the unpleasant feelings while the event was happening? How did your body feel, in detail, during this experience? Describe your moods, feelings, and thoughts during the event? What thoughts are in your mind now as you write this down?
- Informal meditation: efforts to be mindful during the day, noticing automatic pilot

Session 4*In-session:*

- Sitting meditation
- Review of homework (mindful yoga, sitting meditation, unpleasant events calendar)
- Dealing with anxiety and other difficult emotions
- The interconnection between thoughts and feelings
- Labelling emotions
- Mindful walking

Homework:

- Articles to read:
 - Salzberg, S. (2011). Mindfulness and emotions: Dealing with thoughts and feelings. *Real Happiness! The Power of Meditation* (pg. 106-115). New York, N.Y.: Workman Publishing Company.

- Germer, C.K. (2009). Bringing in difficult emotions. *The Mindful Path to Self-Compassion: Freeing Yourself from Destructive Thoughts and Emotions* (pg. 69-77). New York, N.Y.: The Guilford Press.
- Kabat-Zinn, J. (1990). Walking meditation. *Full Catastrophic Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* (pg. 114-119). New York, N.Y.: Delta Press.
- Formal meditation:
 - Sitting meditation – 10 minutes per day
 - Mindful yoga (CD provided)
- Informal meditation:
 - Mindfulness of anxiety or other difficult emotions
 - Labelling emotions as this occurs
- Other: creating a hierarchy of feared social situations (describe the situations, intensity of the anxiety (0-100))

Session 5

In-session:

- Sitting meditation – awareness of breath, body, sounds, and thoughts
- Review of homework (mindful yoga, sitting meditation, awareness of anxiety or other difficult emotions as they arise, labelling)
- Responding versus reacting to anxiety and stress
- 3-minute breathing space
- The interconnection between thoughts and feelings (cont.)

Homework:

- Articles to read:
 - Benger, M. (2004). Reflective practices.
 - Stress reaction, symptoms of stress
 - Responding versus reacting
 - Strategies for developing adaptive coping mechanisms
 - Williams, J. M. G., Teasdale, J.D., Segal, Z.V. & Kabat-Zinn, J. (2007). Befriending our feelings. *The Mindful Way through Depression* (pg. 140-160). New York, N.Y.: The Guildford Press.
 - Segal, Z.V., Williams, J.M.G., & Teasdale, J.D. (2002). Summary of session 5: Allowing/Letting be. *Mindfulness-Based Cognitive Therapy for Depression* (pg. 240). The New York, N.Y.: Guilford Press.

- Segal, Z.V., Williams, J.M.G., & Teasdale, J.D. (2002). Using the breathing space – Extended instructions. *Mindfulness-Based Cognitive Therapy for Depression* (pg. 241). The New York, N.Y.: Guilford Press.
- Formal meditation:
 - Sitting meditation – 20 minutes per day (CD provided)
 - Alternating between mindful yoga and body scan (CD provided)
 - 3 minute breathing space (3X per day)
- Informal meditation:
 - Mindfulness of daily activities (e.g., eating, walking)

Session 6

In-session:

- Sitting meditation
- Review of homework (sitting meditation, mindful yoga/body scan, 3-minute breathing space)
- Thoughts are not facts – seeing thoughts as creations of the mind
- Letting your wise mind give its perspective
- Exposure to feared social situation (low on the hierarchy)
- Mindful exposure – in session

Homework:

- Articles to read:
 - Williams, J. M. G., Teasdale, J.D., Segal, Z.V. & Kabat-Zinn, J. (2007). Seeing thoughts as creations of the mind. *The Mindful Way through Depression* (pg. 161-180). New York, N.Y.: The Guildford Press.
 - Brach, T. (2003). Opening our heart in the face of fear. *Radical Acceptance: Embracing Your Life with the Heart of a Buddha* (pg. 182-197). New York, N.Y.: Bantam Dell.
- Formal meditation:
 - Sitting meditation – 20-40 minutes per day (20-minute CD provided, remaining time completed without guidance)
 - 3 minute breathing space (3X per day)
 - Confront a situation from the hierarchy that provokes *mild* anxiety every day
 - Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath

- Informal meditation:
 - Mindfulness of daily activities (e.g., eating, walking)

Session 7

In-session:

- Sitting meditation – paying attention to the flow of thoughts and sensations
- Review of homework (sitting meditation, 3-minute breathing space, mindful exposure)
- Caught in the trance of fear
- Letting your wise mind give its perspective
- Mindful exposure – meeting your fear with an open and engaged presence
- Mindful exposure in session (cont.)
- Setting meditation – opening your heart in the face of fear

Homework:

- Articles to read:
 - Chödrön, P. (2000). It's never too late. *When Things Fall Apart* (pg. 25-31). Boston, MA.: Shambhala Publications.
- Formal meditation:
 - Sitting meditation – 30-40 minutes per day (20-minute CD provided, remaining time completed without guidance)
 - 3 minute breathing space (3X per day)
 - Confront a situation from the hierarchy that provokes *moderate* anxiety every day
 - Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath
- Informal meditation:
 - Mindfulness of daily activities (e.g., eating, walking)

Session 8

In-session:

- Sitting meditation
- Review of homework (sitting meditation, 3-minute breathing space, mindful exposure)
- Fear and self-protection – being stuck in fear
- Mindful exposure – befriending your experience and developing a mindful perspective
- Self-compassion and why it is important

- A brief compassion meditation

Homework:

- Articles to read:
 - Seppala, E. (September/October, 2011). Self-compassion: The secret to empowered action is learning not to beat yourself up. *Spirituality & Health magazine* (pg. 59-65).
 - Santorelli, S. (2010). Keep looking at that bandaged place. *Heal Thy Self: Lessons on Mindfulness in Medicine* (pg. 133-137). New York, N.Y.: Bell Tower.
 - Santorelli, S. (2010). Boxes of embarrassment. *Heal Thy Self: Lessons on Mindfulness in Medicine* (pg. 158-159). New York, N.Y.: Bell Tower.
- Formal meditation:
 - Sitting meditation – 30-40 minutes per day (20-minute CD provided, remaining time completed without guidance)
 - 3 minute breathing space (3X per day)
 - Confront a situation from the hierarchy that provokes *moderate* anxiety every day
 - Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath
- Informal meditation:
 - Mindfulness of daily activities (e.g., eating, walking)
- Video to watch:
 - Neff, K. (TEDx). (2013, February 6). The Space Between Self-Esteem and Self-Compassion. Retrieved from: <http://tedxtalks.ted.com/video/The-Space-Between-Self-Esteem-a>

Session 9

In-session:

- Sitting meditation
- Review of homework (sitting meditation, mindful exposure, reading and lecture by Kristin Neff)
- Mindful exposure – befriending your experience and developing a mindful perspective
- Self-compassion and compassion towards others

- Loving kindness and meditation

Homework:

- Articles to read:
 - Kornfield, J. (February 25, 2011). Meditation on lovingkindness. Retrieved from <http://www.jackkornfield.com/2011/02/meditation-on-lovingkindness/>.
 - Germer, C. (Spring, 2006). *Getting along: Loving the other without losing yourself*. Tricycle magazine (pg. 25-27).
- Formal meditation:
 - Loving kindness meditation daily (15-minute CD provided)
 - Mountain meditation daily (15-minute CD provided)
 - Confront a situation from the hierarchy that provokes *moderate* anxiety every day
 - Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath
- Informal meditation:
 - 3-minute breathing space whenever you notice unpleasant feelings
 - Mindfulness of daily activities (e.g., eating, walking)
 - Loving kindness meditation while completing everyday activities

Session 10

In-session:

- Loving kindness meditation
- Review of homework (meditation practices, mindful exposure)
- Mindful exposure in session
- Living mindfully and skillfully
- Sitting meditation

Homework:

- Articles to read:
 - Salzberg, S. (2011). Loving kindness meditation for times of emotional and physical pain. *Real Happiness! The Power of Meditation* (pg. 106-115). New York, N.Y.: Workman Publishing Company.
 - Salzberg, S. Loving kindness meditation.
 - Hanh, T.N. (1993). Exercise 2: The joy of meditation as nourishment. *The Blooming of a Lotus* (pg. 17). Beacon Press.

- Hanh, T.N. (1993). Exercise 3: The joy of meditation as nourishment. *The Blooming of a Lotus* (pg. 21). Beacon Press.
- Formal meditation:
 - Meditation of choice (e.g., body scan, mindful yoga, walking meditation, sitting meditation, mediating on emotions) (at least 20 minutes/day)
 - Loving kindness meditation daily (15-minute CD provided or chose a phrase that resonates with you)
 - Confront a situation from the hierarchy that provokes *moderate* anxiety every day
 - Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath
- Informal meditation:
 - 3-minute breathing space whenever you notice unpleasant feelings
 - Mindfulness of daily activities (e.g., eating, walking)
 - Loving kindness meditation while completing everyday activities

Session 11

In-session:

- Meditation practice
- Review of homework (meditation practices, mindful exposure)
- Relating compassionately to ourselves – why it is necessary and obstacles to self-compassion
- How to move from self-criticism to self-compassion (compassionate thinking and behaviours)
- Meditation practice

Homework:

- Articles to read:
 - Gilbert, P. (2010). Building the compassionate self: Skills and exercises. *The Compassionate Mind: A New Approach to Life's Challenges* (pg. 420-427). Oakland, CA.: New Harbinger Publications.
- Formal meditation:
 - Meditation of choice (e.g., body scan, mindful yoga, walking meditation, sitting meditation, mediating on emotions) (at least 20 minutes/day)
 - Loving kindness meditation daily (15-minute CD provided or chose a phrase that resonates with you)
 - Confront a situation from the hierarchy that provokes *moderate* anxiety every day

- Being mindful of thoughts and emotions that come and go
 - Examining the factual basis of the thoughts
 - Using the wise mind to approach the situation in a more balanced way
 - Acknowledging anxiety and physical sensations, but trying not to get caught up in the “story”
 - Refocusing on the breath
- Informal meditation:
 - Mindfulness of daily activities (e.g., eating, walking)
 - Loving kindness meditation to sooth and comfort yourself during times of distress or whenever you notice unpleasant feelings.

Session 12

In-session:

- Meditation practice
- Review of homework (meditation practices, mindful exposure)
- Wrap up
- Maintaining your practice
- Meditation practice