

EFFECT OF TREATMENT PREFERENCE ON COMPLIANCE AND SATISFACTION

The Effect of Treatment Preference on Compliance and Satisfaction  
in Social Anxiety Disorder

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### Abstract

**Purpose:** There is accumulating evidence that treatment preference may significantly impact treatment compliance and satisfaction in individuals with psychological disorders. Very few studies have examined treatment preferences in clients with social anxiety disorder (SAD). Moreover, little is known if treatment preference for a conventional therapy such as cognitive behavioural therapy versus mindfulness-based interventions, influence outcomes. The primary objective of the current study was to determine whether treatment expectancy and preferences for a mindfulness intervention adapted for SAD (MBI-SAD), cognitive behavior group therapy (CBGT), or no preference, would influence treatment compliance and treatment satisfaction.

**Method:** The sample included 97 participants who met the DSM-5 criteria for SAD. After selecting a treatment preference, participants were randomly assigned to a treatment group. Analyses of variance, chi-square, and logistic regressions were conducted to determine if being matched to one's preferred treatment influenced outcomes, and if those with no preference differed from those who indicated a preference. Hierarchical multiple regression was used to determine if participants' perceptions of credibility and expectations and match to treatment influenced compliance and satisfaction.

**Results:** There was some support that treatment preference and match to treatment influenced compliance and satisfaction, however the majority of the analyses revealed no impact of treatment preferences. CBGT met expectations more often than did MBI-SAD when participants were matched to their preferred treatment. When participants were matched to their preferred treatment or had no preference, they were more compliant with homework than those who were not matched. Those with no preference had lower attendance than both the matched and not matched groups. Perceived credibility and expectancy were higher for those who were matched to their preferred group, however this did not have an impact on compliance and satisfaction. The remainder of the analyses did not find a relationship between treatment preference or match to treatment on compliance or satisfaction.

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## **Introduction**

### **Social Anxiety Disorder**

Social Anxiety Disorder (SAD) is a common and debilitating condition that is characterized by persistent fear and avoidance of situations in which the person may be judged or scrutinized by others (Stein et al., 2000). Feared situations can include performance situations or interactional situations. Examples of feared performance situations are public speaking, writing or working while being watched, eating or drinking while being watched, using washroom away from home, and walking into a room when others are already seated. Examples of feared interactional situations are sounding foolish when talking to others, dealing with authority figures, making eye contact, going to parties or social outings, returning items to a store, and being introduced to a stranger (Stein et al., 2000). When exposed to these feared situations, individuals with SAD may experience a variety of arousal symptoms such as increased heart rate, sweating, shaking, dry mouth, nausea, blushing, and fear of losing control over bodily functions (Zakri, 2015; Stein & Stein, 2008). This fear is often followed by avoidance due to anticipatory anxiety, which results in lower self-esteem and confidence (Zakri, 2015) and thus reinforces the experience of SAD symptoms.

Epidemiological data indicate that SAD ranks among the most prevalent psychiatric disorders (Wittchen & Fehm, 2003). In Canada, the lifetime prevalence of SAD is between 8% and 13%, and it has a one-year prevalence of 6.7% (Statistics Canada, 2015). Women are more likely to be affected than men, with odds ratios ranging from 1.5-2.2 (Statistics Canada, 2015). SAD is often comorbid with other psychological disorders, notably other anxiety disorders, depressive disorders, and substance use disorders (Stein, & Kean, 2000). The onset of SAD is typically in childhood or adolescence, with a median age of onset of 13 years (Wittchen, & Fehm, 2003; Hudson, & Rapee, 2000). If left untreated, the disorder commonly persists into adulthood (Wittchen & Fehm, 2003; Afifi, Cox, & Sareen, 2010; Hudson, & Rapee, 2000; Ohayon, & Schatzberg, 2010). Impairment due to SAD can be severe; it is associated with elevated rates of school dropout, decreased well-being, unemployment, low SES, and poor quality of life (Stein, & Kean, 2000; Gregory, & Peters, 2017). It has been found that up to half of individuals with SAD may not seek treatment, however this depends on the severity of symptoms (Zarger, & Rich, 2016; Acarturk, Graaf, Van Straten, Have, & Cuijpers, 2008). A study by Acarturk et al., 2008 found that as the number of feared social situations increases, quality of life declines, and service

utilization increases. This low rate of help seeking is concerning because of the impairment and high comorbidity rates associated with SAD (Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996). It is therefore important that individuals with SAD have access to a variety of effective treatment options.

The etiology of SAD is not clear, but it is presumed that there are genetic, environmental, and psychological factors that may influence the onset (Wittchen & Fehm, 2003). Evidence shows SAD runs in families, more specifically a propensity for anxiety and shyness (Wittchen & Fehm, 2003; Hudson, & Rapee, 2000). It has been linked to high levels of introversion and internalizing-neuroticism factors, and certain abnormalities in cognitive and affective processes may be especially relevant in the development (Stein, & Kean, 2000; Stein, & Stein, 2008). Child rearing styles of overprotection or rejection, parental modeling of social concerns, and restricted exposure to social situations have been identified as environmental risk factors for developing SAD (Wittchen & Fehm, 2003; Hudson, & Rapee, 2000). Other environmental factors that have been linked to SAD are stressful, traumatic or humiliating social experiences, social isolation/peer neglect, being the first born child, and childhood illness (Hudson, & Rapee, 2000).

### **Treatment of Social Anxiety Disorder**

SAD is treated using both pharmacological and psychological approaches, as well as a combination of the two (Heimberg, 2015). Antidepressants such as monoamine oxidase inhibitors (MAOIs), selective serotonin reuptake inhibitors (SSRIs), serotonin norepinephrine reuptake inhibitor (SNRIs), and benzodiazepines are some of the most commonly examined classes of medications that have demonstrated efficacy for this disorder (Rodebaugh, Holaway, & Heimberg, 2004; Curtiss, Andrews, Davis, Smits, & Hofmann, 2017). Curtiss et al., (2017) conducted a meta-analysis of 52 randomized, pill placebo-controlled trials of pharmacotherapy for adults with SAD and concluded that the largest number of studies supporting the efficacy of a pharmacological treatment was found for SSRIs (Hedges'  $g= 0.44$ ) and MAOIs (Hedges'  $g= 0.36$ ). SSRIs are considered to be the safest, most tolerable, and most effective and therefore are often used as the first line pharmacological treatment for SAD (Rodebaugh et al., 2004; Blanco, Bragdon, Schneier, & Liebowitz, 2013; Blanco et al., 2003; Curtis et al., 2017).

The most widely researched and systematically evaluated psychological treatment for SAD is cognitive behavioural therapy (CBT). Other interventions, including psychodynamic therapy (Leichsenring et al., 2013; Bögels al., 2014), acceptance and commitment therapy (ACT) (Craske et al., 2014; Kocovski, Fleming, Hawley, Huta, & Antony, 2013), emotion focused

therapy (EFT) (Shahar, Bar-Kalifa, & Alon, 2017; Elliot, 2013), interpersonal psychotherapy (Stangier et al., 2011), exposure therapy, social skills training, attention focused therapy, supportive therapy, and applied relaxation have also been evaluated (Cottraux et al., 2000; Sareen & Stein, 2000; Mayo-Wilson et al., 2014) and found to improve symptom of SAD. The use of mindfulness-based interventions (MBIs) has attracted considerable interest in recent years, although it's efficacy remains to be determined. Comparative trials indicate that CBT is more efficacious than psychodynamic therapy (Leichsenring et al., 2013) and interpersonal psychotherapy for SAD (Satangier et al., 2011). In addition, a systematic review and network meta-analysis by Mayo-Wilson et al. (2014) found that CBT had a greater effect than psychodynamic psychotherapy, interpersonal therapy, mindfulness, and supportive therapy. It is unknown if CBT fares better than ACT, EFT, exposure therapy, social skills training or applied relaxation as comparative trials have not been conducted.

Several studies have compared the efficacy of pharmacological treatment versus psychological treatment for SAD. For the purpose of my thesis I will focus on CBT, as this is considered the first-line of psychological treatment for SAD in various treatment guidelines (Rodebaugh et al., 2004; NICE, 2013; CPA, 2006). It has been consistently found that CBT yields comparable treatment outcomes to pharmacological treatments (Butler, Chapman, Forman, & Beck, 2006), with the effects of CBT maintained for longer periods than those of pharmacotherapy (Gould, et al., 1997; Stein & Stein, 2008; Clark et al., 2003; DeRubeis, Hollon, & Amsterdam, 2005). Additional reasons for endorsing CBT rather than psychopharmacology for SAD include increased rates of relapse following discontinuation of medication versus CBT, adverse side effects associated with medication, and reduced self-efficacy by encouraging reliance on an external substance for management of social anxiety symptoms (Veale, & Stout, 2010).

### **Cognitive Behavioural Therapy**

CBT for SAD is based on cognitive models of emotion, the most widely cited being those of Clark, and Wells (1995), Rapee and Heimberg (1997), and Hofmann (2007). In an updated version of the cognitive model of SAD by Heimberg, Brozovich, and Rapee (2010), it is posited that socially anxious individuals experience fear in performance or social interaction situations because of the perception of having a critical audience, real or not (Morrison & Heimberg, 2013). Individuals with SAD construct an exaggerated negative mental representation of the self as seen by the audience that may or may not be based on prior experiences. This internal representation is

usually aligned with negative beliefs about the self and others (Gregory, & Peters, 2017; Heimberg et al., 2010). Individuals with SAD preferentially allocate attentional resources to possible social threats in the environment (Heimberg & Becker, 2002). Not only will socially anxious individuals monitor their mental representation of how they are perceived by the audience, but they also project the performance standard expected by the audience. They tend to assume that others are naturally critical, judgemental, and have high standards for performance (Gregory, & Peters, 2017; Heimberg et al., 2010; Heimberg & Becker, 2002). Furthermore, individuals with SAD place importance on being liked and well regarded, which heightens the threat of being negatively evaluated by the perceived audience. Anxiety is the inevitable response to the fear of these evaluative threats (Morrison & Heimberg, 2013) and can include behavioural, physiological, and cognitive components (Heimberg & Becker, 2002). These components often occur simultaneously, causing the symptoms further exacerbate other symptoms and contribute to the maintenance of the disorder (Heimberg et al., 2010). Similarly, other cognitive models that explain the development and maintenance of SAD (Clark, & Wells, 1995; Hofmann, 2007) consider the distorted perception of self, others, emotions, and social situations as having a central role (Gregory, & Peters, 2017; DeCastella et al., 2015).

CBT addresses the maladaptive self-related constructs and exaggerated perceptions of performance that are thought to contribute to the development and maintenance of SAD (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). The key components of CBT protocols include cognitive restructuring to help people examine and alter negative belief patterns about self and others that fuel their anxiety, within- and between-session exposure to feared social stimuli, which provide opportunities for people to test the validity of their threat beliefs (Dixon, Kemp, Farrell, Blakey, & Deacon, 2015), psychoeducation about the disorder, and education on relapse prevention (NICE, 2014; Gregory, & Peters, 2017; DeCastella et al., 2015). CBT treatment for SAD can also include relaxation techniques, social skills training, and video feedback to help clients evaluate their feelings and behaviour (Stein & Stein, 2008; Huppert, Roth & Foa, 2003).

CBT is the most widely researched psychotherapy for SAD and can be delivered individually or in group format (Cognitive Behavioural Group Therapy; CBGT). While both modalities are comparable in efficacy (Barkowski et al., 2016; Hope, Heimberg, Juster, & Turk, 2000; Ledley et al., 2009; McEvoy, 2007), the group format offers several advantages such as time and cost effectiveness, the facility for simulating real life social situations, normalization of

symptoms, vicarious/peer learning through observation of others' successes, and social pressure to comply with treatment and homework (McEvoy, 2007; Heimberg & Becker, 2002; Wersebe, Sijbrandij, & Cuijpers, 2013; Aderka et al., 2013; Barkoswki et al., 2016). Nevertheless, there is some evidence to suggest that CBGT may be less effective than individual therapy in severely impaired individuals, demonstrated by higher attrition rates (Morrison, 2001; Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003).

Numerous meta-analyses and review articles have validated the efficacy of CBT for SAD in children, adolescents, and adults. Butler et al. (2006) conducted a review of 16 meta-analyses that included 332 studies examining the efficacy of CBT for various psychological disorders, including SAD. The review revealed that CBT was superior to wait-list and placebo conditions with an average effect size of .93. There was also a large average effect size for interventions of exposure and cognitive restructuring (.80). A meta-analysis by Hofmann and Smits (2008) examined the efficacy of CBT versus placebo for adults with various anxiety disorders from 27 randomized placebo-controlled trials. The results concluded that CBT is an effective intervention for anxiety disorders in adults compared to psychological and pharmacological placebo conditions. For SAD, medium to large effect sizes of treatment efficacy were found (Hedges'  $g$  between .43 to .94). Acarturk, Cuijpers, Van Straten, and De Graff (2009) conducted a meta-analysis of 29 randomized controlled trials (RCT) examining psychological treatments for adults with SAD. They found that CBT had a larger effect size (Cohen's  $d = .71$ ) than did the non-CBT treatments that included various behavioural techniques such as exposure, social skills training, flooding, and relaxation (Cohen's  $d = .55$ ). Another meta-analysis by Cuijpers et al. (2016) compared the effects of CBT to a control condition in 42 studies of SAD, generalized anxiety disorder (GAD), and panic disorder (PD). The mean effect size for SAD was relatively high (Hedges'  $g = .77$ ) and the overall effect size (Hedges'  $g = .90$ ) suggests that CBT is more effective than control conditions for the three anxiety disorders that were investigated. A systematic review conducted by Gregory and Peters (2017) that included 41 articles examined changes in the perception of the self following CBT for SAD. Results indicated that negative self-related thoughts and beliefs were significantly reduced (Cohen's  $d$  ranging from 0.65 to 2.18), and positive self-related thoughts and beliefs were significantly increased (Cohen's  $d$  ranging from 0.81 to 2.11). CBT was found to enhance implicit (Cohen's  $d = 0.74$ ) and explicit (Cohen's  $d$  ranging from 0.66 to 0.99) self-esteem, reduce the endorsement of negative social trait adjectives ( $d = 1.39$ ) and increase the endorsement of positive social trait adjectives (Cohen's  $d = 2.61$ ).

Overall, the study found improvements from pre to post treatment in self-perception, which is consistent with cognitive models of SAD.

The most commonly used manual for CBGT was created by Heimberg and Becker (2002). The intervention is a 12-week program that includes psychoeducation, cognitive restructuring, in-session and between-session exposures and relapse prevention. Each treatment component is delivered in a temporal sequence and is fully described in a therapist manual. This group-based CBT intervention is a clinically significant method to reduce social anxiety. In fact, studies have shown that after completing the 12-week group therapy, 75-80% of individuals are rated by clinical interviewers as having experienced meaningful reductions in social anxiety (Heimberg & Becker, 2002).

While the evidence base for individual or group-based CBT for SAD is robust, this therapy is not without its limitations. A substantial number of clients (40%-50%) show little to no treatment response (Norton, Abbott, Norberg, & Hunt, 2015), with poor response rate related to higher levels of impairment, comorbidity, and lower social functioning (Haug et al., 2015; Dow et al., 2007; Hedman et al., 2011). Additionally, it can be difficult to engage clients in treatment, and there is limited or variable access to well-trained and affordable CBT therapists (Combs & Markman, 2014). As no single treatment can benefit all individuals with SAD, there is a need to develop and evaluate other interventions that can be used as an alternative or second-line to CBT and that are more accessible and cost-effective (Koszycki et al., 2007; 2016).

### **Mindfulness-Based Interventions**

Mindfulness has its roots in Eastern Buddhist tradition, and includes various forms of meditation practices such as sitting meditation, yoga practice, and body scan (Norton et al., 2015). Mindfulness has been defined by Jon Kabat-Zinn (2015) as moment to moment, non-judgmental awareness, cultivated by paying attention to the present moment, as non-reactively, non-judgmentally, and as open-heartedly as possible. Cultivating mindfulness has been shown to be beneficial in many ways; it can improve physical and mental health, and enhance one's subjective sense of wellness, psychological experience, and functioning (Deci & Ryan, 2008). Although the mechanisms by which mindfulness meditation improves psychological health are unknown, theoretical models of mindfulness suggest that the practice of focused attention and awareness, paired with an attitude of non-judgment, openness and acceptance, promotes emotional and cognitive flexibility (Malinowski, 2013) that is thought to underlie the beneficial effects of mindfulness on adaptive behaviours (Shapiro, Carlton, Astin, & Freedman, 2006).

Being in the present moment is important because excessive focus on the past or future may elicit stress and/or negative emotions (Hofmann, Sawyer, Witt, & Oh, 2010). Attending to the present moment allows individuals to relate to their immediate personal experience and accept it without bias or judgement. This can reduce rumination and promote appreciation for ordinary and fleeting experiences (Purser, 2015). Additionally, responding to stressful situations in a reactive manner may contribute to the development of maladaptive coping strategies, as opposed to responding in a reflective manner (Hofmann et al., 2010).

The practice of cultivating mindfulness, known as mindfulness meditation, is among the most powerful and universal meditative practices, and was introduced into Western clinical settings approximately 40 years ago (Kabat-Zinn, 2003; Kabat-Zinn, 2015). Two mindfulness-based interventions (MBIs) that have become the most prominently used in the treatment of psychological disorders are Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT).

MBSR was developed by Jon Kabat-Zinn in the 1970's as an 8-week group-based psychoeducational and experiential program to help people cope with the stress of chronic illness and pain. More recently, it has been applied to help people cope with a range of psychological problems. The program focuses on the progressive acquisition of mindful awareness, cultivation of an accepting and non-judgmental attitude towards difficult internal experiences (physical, emotional, and cognitive) and greater understanding of mind-body connections. Participants attend a 2.5-hour class for 8 weeks plus one day of silence (Kabat-Zinn, 1996). Daily home meditation practice is an important component of the program and participants are expected to meditate 45 minutes per day for six days each week. Participants learn various formal meditation practices (e.g., body scan, mindful movement, sitting meditations) and are encouraged to incorporate mindfulness into daily activities, making mindfulness a way of life, rather than an isolated formal practice. Kabat-Zinn et al. (1992) found that MBSR can reduce symptoms of anxiety and panic, as well as maintain these reductions.

MBCT is an approach that was developed by Segal, Williams, and Teasdale (2012) as a preventive intervention for depression relapse and recurrence. It is closely based on Kabat-Zinn's MBSR program and includes elements of cognitive therapy. The goal of MBCT is to become aware of cognitive tendencies that characterize depression, and detach from them (Segal et al., 2012; Fjorback et al., 2011). Specifically, the aim is to recognize and disengage from self-perpetuated patterns of ruminative and negative thoughts. Mindfulness is taught as a core skill

that can be used to help people notice when their mind has wandered (Segal et al., 2012). Although it was originally developed as an intervention for depression relapse, there is preliminary evidence that MBCT can reduce symptoms of anxiety and worry (Evans, et al., 2008; Chiesa, & Serretti, 2011).

Many studies have examined the efficacy of MBIs for anxiety and other psychological disorders. Grossman, Niemann, Schmidt, and Walach (2004) conducted a meta-analysis that included 20 controlled and uncontrolled studies of the benefits of MBSR in a variety of clinical populations as well as in stressed non-clinical groups. They found that MBSR was consistently effective in increasing mental health, with a moderate average effect size (Cohen's  $d = .50$ ) and concluded that MBSR may be an effective intervention for a broad range of disorders and problems such as anxiety, depression, stress, and other dimensions of disability. Bohlmeijer, Prenger, Taal, and Cuijpers (2010) conducted a systematic review and meta-analysis of the efficacy of MBSR compared to control conditions for depression, anxiety, and psychological distress in patients with chronic somatic diseases. Eight RCTs were included, and results revealed a small average effect size for depressive symptoms (Cohen's  $d = .26$ ), a moderate average effect size for anxiety (Cohen's  $d = .47$ ), and a small average effect size for psychological distress (Cohen's  $d = .32$ ).

A meta-analytic review of 39 clinical trials measured the effects of both MBSR and MBCT compared to psychological placebo on reducing symptoms of anxiety. Strong average effect sizes for the efficacy of treatment for anxiety and depressive symptoms in clinical populations with anxiety (Hedges'  $g = .97$ ) and depression (Hedges'  $g = .95$ ) were found (Hofmann et al., 2010). Another meta-analysis by Khoury et al. (2013) examined 209 studies measuring the efficacy of mindfulness-based therapy (MBT) compared to other psychological treatments. This review included a wide variety of studies and participants, which allowed the authors to clarify some inconsistencies concerning the therapeutic value of MBT. When compared to the effect sizes of other active treatments, it was found that MBT is more effective than psychoeducation (Hedges'  $g = .61$ ), supportive therapy (Hedges'  $g = .37$ ), relaxation procedures (Hedges'  $g = .19$ ), and imagery/suppression therapy (Hedges'  $g = .26$ ). However, it was not found to differ in efficacy from traditional CBT (Hedges'  $g = .07$ ) or pharmacological treatments (Hedges'  $g = .13$ ) (Khoury, 2013). Finally, another meta-analytic review by Demarzo et al. (2015) examined the efficacy of MBIs in primary care from six RCTs. The overall effect size of MBI compared to a control condition for improving general health was moderate

(Hedges'  $g = .48$ ). The effect size for improving mental health was higher (Hedges'  $g = .56$ ) and the effect size for improving quality of life was lower (Hedges'  $g = .29$ ). The results suggested that using MBIs in primary care settings may be beneficial for improving mental health and quality of life by supporting life skills such as self-awareness, emotional self-regulation, less worry and rumination, and meta-cognition. Furthermore, using MBIs in primary care settings could enhance compliance and adherence to the practice of these interventions (Demarzo, 2015).

There have also been a few studies that demonstrate the efficacy of MBIs for SAD in particular. Koszycki, Benger, Shlik, and Bradwejn (2007) conducted the first randomized trial of MBSR versus CBGT, the most well researched intervention for SAD. Results revealed that MBSR fared better than CBGT in reducing SAD symptoms, although both interventions were similarly efficacious in improving functioning, mood, and subjective wellbeing. Piet, Hougaard, Hecksher, and Rosenberg (2010) found that CBGT was slightly better than MBCT in improving SAD symptoms. While these studies suggest an advantage of cognitive interventions for SAD, other studies have found that MBIs and CBGT yield comparable outcomes. For example, Kocovski et al. (2013) found that mindfulness and acceptance-based group therapy and CBGT were comparable in efficacy, but better than a waitlist control group in reducing severity of social anxiety symptoms. In a recent study by Goldin et al. (2016) it was found that MBSR and CBGT produced similar changes in social anxiety symptoms, although greater decreases in avoidance behavior were noted for CBGT versus MBSR.

In a recent study by Koszycki et al. (2016), a MBI adapted for SAD (MBI-SAD) that integrates elements of MBSR, self-compassion training, and mindful exposure was investigated. The intervention was more effective than the wait-list condition in reducing symptoms of social anxiety, improving quality of life, and enhancing self-compassion and aspects of mindfulness (Koszycki et al., 2016). While CBGT is based on the cognitive model of social anxiety, the MBI-SAD is based on theoretical models of how mindfulness contributes to psychological health. Cognitive-behavioural interventions encourage evaluation of dysfunctional thoughts and beliefs in order to alter them. Mindfulness based interventions focus on disengaging and deploying attention away from distressing internal sensations to focus on the task at hand, developing a different relationship with internal sensations rather than challenging them or pushing them away, and developing a compassionate response to oneself in the face of challenging situations. A more detailed description of this adapted intervention is described in the method section of this thesis.

### **Treatment Preference and Expectancy**

With various efficacious forms of therapy available, clients with SAD have a decision to make when seeking therapy. Many factors contribute to client treatment-decision making, such as beliefs, attitudes, behaviour, concerns/worries, influence of family and friends, faith, culture, time, socioeconomic status, gender, and age (Hajjaj, Salek, Basra, & Finlay, 2010; Dunlop, 2012). Treatment preference is one factor that plays a prominent role in treatment decision-making, and the factors mentioned above may contribute to the development of a treatment preference (Dunlop, 2012). Treatment preference has been demonstrated to influence premature dropout, non-adherence, willingness to start treatment, treatment completion, and outcome (Kwan, Dimidjian, & Rizvi, 2010).

Interest in understanding the influence of treatment preferences first began with exploration of client beliefs and expectations. Expectancy is arguably the core process in the placebo effect (Hicks, Hanes, & Wahbeh, 2016). Research on the placebo effect and expectancy in psychotherapy began in the 1950's and has since become a widely studied topic (Rosenthal & Frank, 1956; Tinsley & Harris, 1976; Goldstein, 1962; Tambling, 2012). Expectancy has been demonstrated to modify the effects of treatment across a variety of disorders and treatment modalities (Hicks et al., 2016; Price & Anderson, 2012).

Empirical findings have supported that expectancy is positively related to outcome for SAD. An important article by Safren, Heimberg, and Juster (1997) examined the expectancies of participants with SAD that they would benefit from CBGT using the reaction to treatment questionnaire (RTQ). The results of this study showed that even when a treatment has been determined to be effective, client expectancies are related to outcome. Lower expectancies for positive outcome in CBGT were correlated with higher post-treatment clinician-rated severity of social anxiety symptoms and self-report interaction fear (Safren et al., 1997). Westra, Dozois, and Marcus (2007) examined pretreatment expectancy for anxiety change and homework compliance with CBGT. For participants with social phobia, results did not support a relationship between expectancy and homework compliance, initial symptom change, or outcome. For GAD, panic disorder, and participants with a secondary diagnosis of social phobia, homework compliance was found to mediate the relationship between expectancy and initial change. Schulte (2008) examined CBT for individuals with depression and anxiety disorders including SAD. He found that treatment expectancies and impressions of suitability were correlated with treatment outcome using three different measures administered at three different times during therapy. In most

participants, hope of improvement and suitability increased as the therapy progressed. However, in participants with anxiety disorders, hope of improvement and suitability tended to be strong from the beginning. Fear of side effects from CBT was found to decrease among all client populations throughout the progression of therapy (Schulte, 2008). Price and Anderson (2012) evaluated the effect of outcome expectancy as a predictor of treatment response for public speaking fears across CBGT and virtual reality exposure therapy for individuals with SAD. The findings supported expectancy as a predictor of the rate of change in public speaking anxiety for both groups but was not a predictor of drop out. Kim, Roth, and Wollburg (2015) conducted a randomized clinical trial that examined the effects of expectancy of improvement and credibility of treatment on the outcome of two breathing therapies for anxiety and panic disorders. Correlations were found between outcome at 6-month follow up and confidence that treatment would reduce symptoms ( $r = .57$ ), confidence in recommending the treatment ( $r = .53$ ), credibility ( $r = .50$ ), and expectancy of improvement ( $r = .54$ ). In fact, it was found that participants' confidence that the therapy would produce improvement accounted for almost half of the variance in improvement at 6-month follow up (Kim et al., 2015).

A review of expectancy in psychotherapy conducted by Constantino (2012) discussed the two prominent types of expectancy in psychotherapy: outcome expectancy and treatment expectancy. Outcome expectancy refers to the belief that treatment will help with the client's problems, and treatment expectancy refers to beliefs about what will transpire during therapy and the duration of treatment. This review, as well as a meta-analysis by Constantino, Arnkoff, Glass, Amentrano, and Smith (2011), confirmed that treatment expectancy influences the outcome of psychotherapy in a variety of clinical disorders, including SAD.

Investigation of treatment expectancy and treatment preference are closely related, and research on preferences has recently been given more attention. If an individual's expectations for a certain therapy are higher than that of another, they may prefer to receive that therapy if given the choice. As more therapy options become available, individuals will naturally develop preferences based on outcome and treatment expectancies (Gask & Coventry, 2012). Finally, communication and shared decision making with clients in primary care and mental health settings is increasingly common, and more practitioners are involving their client's in treatment choice decisions (Adams & Drake, 2006; Gask & Coventry, 2012). Despite the increased recognition of shared-decision making, and emphasis on client-centered models, it is interesting to note that the mental health field does not always allow for such collaboration. Mental health

practitioners are often not trained to adopt shared decision-making, and clients' desire to be involved in treatment decision making is often not evaluated (Adams & Drake, 2006). For these reasons, client treatment preference within mental health is an important area of research.

Within existing research, there are mixed findings for the effect of treatment preference on therapy outcome (Swift, & Callahan, 2009) and most studies have examined client preferences for pharmacotherapy versus psychological therapy. One of the earliest studies comparing pharmacotherapy and psychotherapy was conducted by Hornstra and Lubin (1974). Participants were asked what they thought was the best possible treatment they could receive, given the choice between talk therapy, medication, and hospitalization. Outcome for all three categories of matched and not-matched to treatment preference was measured using symptom change scores. Findings did not support relationships between treatment preference and outcome measures, or between the three matched versus not matched groups and outcome variables. Bakker et al. (2000) conducted a randomized trial comparing medication treatment (paroxetine or clomipramine) versus CBT for clients with panic disorder. Participants who were unwilling to be randomized to medication and who preferred CBT were assigned to CBT. There were no participants who refused randomization due to a strong preference for medication. The remainder of participants were randomized to receive medication or CBT. The results of this study did not provide strong evidence that preference for CBT was a powerful moderator of treatment efficacy. Participants who were assigned to either medication or CBT based on preference did not differ significantly from those who were randomly assigned to either medication or CBT on symptom severity. A limitation of this study as noted by the authors is its inability to distinguish preference for one modality from preference against the other modality.

Dunlop et al. (2012) examined treatment preferences for CBT versus an SSRI (escitalopram) for clients with major depressive disorder. Preference was not found to be associated with treatment response, but there was a linear association between the strength of preference and the probability of early termination, though it was not statistically significant. Chilvers et al. (2001) conducted an RCT comparing the efficacy of antidepressant medication and generic counselling for depression. One objective of the study was to determine whether outcomes were similar for clients who were randomly allocated to treatment and those who expressed a treatment preference. Results showed that participants who chose counselling did better than those randomized to it (mean difference 4.6, 95% confidence interval 0.0 to 9.2), but

there was no difference for those who were treated with antidepressants by preference and by randomization (mean difference 3.1, 95% confidence interval -1.8 to 7.8).

A meta-analysis by Swift and Callahan (2009) examined 26 clinical studies comparing treatment outcome differences between clients matched to their preferred treatment and clients not matched to their preferred treatment. The meta-analysis included studies that examined preferences between psychological treatments versus psychopharmacological treatments, as well as studies that examined preferences between two psychological treatments. The findings indicated a small, but significant, overall weighted effect size ( $r=.15$ ) in favour of clients who received their preferred treatment (Swift & Callahan, 2009). Similarly, a meta-analysis by Lindhiem et al. (2014) included 34 empirical articles that measured the effects of client preferences on treatment satisfaction, completion, and clinical outcome. The findings support the benefit of assessing client preferences when two or more effective options are available (Lindhiem et al., 2014).

It has been found that clients prefer psychological treatment to pharmacological treatment for depression and anxiety disorders (McHugh, Whitton, Peckman, Welge & Otto, 2013). However, fewer studies have investigated the effect of treatment preference between different psychological therapies on outcome, and even fewer within the population of individuals with anxiety disorders. Fortunately, some studies have begun to bridge this gap. Van Dyck and Spinhoven (1997) examined whether preference for either exposure therapy or exposure therapy with hypnosis influenced treatment response in individuals with panic disorder with agoraphobia. No effect for preference was found on outcome, however preferences did significantly shift throughout the progression of therapy in favour of the exposure with hypnosis condition (from 50% at pretest to 77% at posttest). Kadish (1998) examined the effect of treatment preference for CBT versus psychodynamic therapy for individuals with social phobia. He found that treatment-related improvement in social anxiety symptoms was not predicted by treatment preference. Berg et al. (2008) conducted a randomized trial of the relationship between treatment preference for affect-focused body psychotherapy versus standard psychiatric outpatient treatment (which included cognitive therapy, psychodynamic therapy, and supportive therapy), and symptom improvement in clients with GAD. They found that participants who were randomized to their preferred treatment had a more positive outcome than those randomized to the non-preferred treatment (Berg et al., 2008). Handelzalts and Keinan (2010) measured the effect of client preference for either advanced muscle relaxation or changing of internal dialogue treatment on

outcome for individuals with test anxiety. The results revealed a linear pattern wherein the greatest change was found when participants were given their preferred treatment.

The results of this literature review demonstrate that in general, treatment preference is associated with positive treatment outcomes. However, most research on treatment preference has focused on pharmacotherapy versus psychotherapy, especially cognitive therapies. There is limited research on the impact of preference for different psychological therapies on treatment outcome, and very few studies have focused on individuals with SAD. It is also notable that despite growing popularity of MBIs, there is a paucity of research examining whether preference for MBIs versus other therapies is associated with better outcomes. Huijbers, Spinhoven, Schaik, Nolen, and Speckens (2016) used data from two RCTs of MBCT and antidepressant medication for depression relapse and found that treatment preference did not influence the number of sessions attended, home practice reported, adherence to medication, relapse/recurrence rates, time to relapse/recurrence, severity of symptoms at follow up, or quality of life. To my knowledge, no studies have examined whether treatment preference for MBIs versus another psychological therapy influences treatment outcomes in general and in individuals with SAD in particular.

### **Treatment Preference, Compliance and Satisfaction**

Several studies have examined the impact of treatment preference on various process variables. In the meta-analysis mentioned above by Lindhiem et al. (2014) it was concluded that treatment preference can significantly impact treatment completion, satisfaction and outcome in individuals with psychiatric disorders. Treatment satisfaction is a positive evaluation of the treatment from the client. Treatment satisfaction has been used as a measurable benefit of adhering to client preference, as people who value autonomy or control over their treatment appreciate participating in their treatment decisions (Lindhiem et al., 2014; Harvey et al., 1999). Adamson, Sellman, and Dore (2005) examined the effect of treatment preference for two types of brief psychological therapies on perceived effectiveness, satisfaction, rapport, engagement, and number of sessions attended for individuals with alcohol dependency. They did not find a significant association between treatment preference and any of the treatment process or outcome measures, however this article is a good example of the various process variables that can be used to measure the effects of treatment preference. In Huijbers et al.'s (2016) study of preference for MBCT versus medication, treatment compliance was measured by the number of sessions attended and the average percentage of days per month participants practiced meditation at home.

Drop out is commonly used as a measure of treatment adherence and compliance. A review by Santana and Fontenell (2011) evaluated predictors of treatment adherence in individuals with anxiety disorders, including SAD. Results revealed that age, gender, education level, socioeconomic status, comorbidity, and treatment preference were important predictors of drop out and attrition (Santana & Fontenell, 2011). Although psychotherapy is beneficial for various psychological disorders, premature termination of therapy is a major problem in mental health services (Sterling, Gottheil, Glassman, Weinstein, & Serota, 1997; Hamilton, Moore, Crane, & Payne, 2011). Research has found that up to 85% of individuals with SAD do not return after the initial interview, compared to only 25%-50% with other psychiatric disorders (Santana & Fontenell, 2011; Hamilton et al., 2011). Furthermore, individuals who drop out prematurely are less likely to benefit from therapy, feel satisfied with therapy, or seek therapy elsewhere (Hamilton et al., 2011). It is therefore important to ensure that clients receive an adequate dose of therapy in order to experience the intended effects.

Homework is an integral component of some psychotherapies (e.g. CBT) and compliance with homework is considered a good indicator of treatment outcome. Research with CBT suggests that the amount of effort put into homework is a good predictor of treatment outcome because it demonstrates that clients are engaged in the therapy process (Schmidt, & Woolaway-Bickle, 2000). Furthermore, poor homework compliance and quality has been shown to be related to premature therapy termination (Cammin-Nowak et al., 2013; Schmidt, & Woolaway-Bickle, 2000). Leung and Heimberg (1996) examined the relationships between pretreatment anxiety and homework compliance, and homework compliance and posttreatment social anxiety reduction. They found that pretreatment anxiety was not associated with homework compliance during therapy, but overall homework compliance was a significant predictor, accounting for 6.3% of variance in posttreatment social anxiety severity. Westra et al. (2007) examined homework compliance as a mediator for change in CBGT for anxiety. They found that for SAD, homework compliance did not mediate the relationship between expectancy and symptom change. However, this relationship was significant for individuals with panic disorder and GAD. A meta-analysis by Mausbach, Moore, Roesch, Cardenas, and Patterson (2010) examined 23 studies investigating the effects of homework compliance on CBT outcome. The results indicated that greater homework compliance is associated with improved treatment outcome for individuals with symptoms of anxiety, depression, and substance use. Finally, a meta-analysis by Kazantzis et al. (2016) measured how the quantity and quality of homework compliance relates to outcome with CBT.

Large effect sizes were obtained for the relation between homework quantity and outcome (Hedges'  $g = .79$ ) and homework quality and outcome (Hedges'  $g = .78$ ). At follow up, a larger effect was found for homework quality in relation to outcome (Hedges'  $g = 1.07$ ) than quantity (Hedges'  $g = .51$ ), which demonstrates the importance of measuring quality as well as quantity of homework compliance.

Overall, the above findings provide a solid rationale for the use of measuring homework compliance, treatment completion, and client satisfaction as a way to predict successful outcomes of psychotherapy.

### **Current Study**

A review of the literature revealed no published research on the influence of client preference for CBGT versus MBI on treatment outcomes in individuals with SAD. Considering the importance of treatment preference on various indices of therapy outcomes, an important research question is whether preference for either of these types of therapy will influence the outcome of treatment for individuals with SAD. The primary objective of the current study was to determine whether client expectations about therapy, and treatment preferences for MBI-SAD, CBT, or no preference, would influence treatment compliance and treatment satisfaction in individuals with SAD. My hypotheses were:

- 1) Participants who are randomized to their preferred treatment will have a higher level of treatment compliance and treatment satisfaction compared to those not matched to their preferred treatment.
- 2) Participants with no treatment preference will not differ significantly from those who were randomized to their preferred treatment on treatment compliance and treatment satisfaction but will have a higher level of treatment compliance and treatment satisfaction compared to those not matched to their preferred treatment.
- 3) Participants who are matched to their preferred treatment will have higher expectations for success of therapy and higher perception of treatment credibility than those not matched to their preferred treatment. Participants who did not indicate a preference will not differ from those who are matched to their preferred group.
- 4) Participants who report higher expectations and perception of credibility will be more treatment compliant and more satisfied with the treatment they received than those who had lower expectations.

- 5) To explore whether or not being matched, not matched, or having no preference will influence whether or not participants continued practicing the techniques they learned at 6-month follow up.

## **Method**

### **Study Design**

The data for this thesis came from a randomized controlled trial comparing the efficacy of a MBI adapted for SAD (MBI-SAD) versus CBGT. The trial was funded by the Ontario Mental Health Foundation and is registered with the ClinicalTrials.gov registry (NCT 02490189). The study was conducted at l'Hôpital Montfort, an accredited University of Ottawa teaching hospital, and Dr. Diana Koszycki was the primary investigator.

### **Participants and Recruitment**

Participants were 97 randomized men and women between 20 and 65 years of age with a primary diagnosis of SAD based on the Structured Clinical Interview for DSM. Participants were recruited primarily through advertisements in local newspapers and on the Internet, as well as flyers posted in family physician offices at the University of Ottawa, and l'Hôpital Montfort. To be eligible, participants must have had a baseline Clinical Global Impression Severity Illness score of  $\geq 4$ , and a Montgomery-Asberg Depression Rating Scale score of  $\leq 25$ . Comorbid disorders other than those described in the exclusion criteria were allowed as long as the SAD was the primary and predominate clinical presentation. Psychotropic medication was allowed if the type and dose of the medication remained stable 6-months prior to the study, and during the study. These inclusion criteria were intended to maximize generalizability of the findings (Koszycki et al., 2016). Individuals were not eligible if they had a lifetime history of bipolar disorder or psychotic symptoms, a substance related disorder in the past 12-months, a history of suicidal ideation or suicidal behaviour during the past 5 years, a history self-harm in the past 12-months, or a medical condition that could alter the clinical presentation of SAD such as Parkinson's disease or other neurological disorders. Individuals who were receiving any form of psychological treatment or engaged in regular meditation or yoga practices were also excluded from the study.

### **Procedure**

Interested participants completed a brief telephone pre-screen with a research assistant who explained the study and its requirements, ascertained the presence of SAD symptoms, and

excluded those who were clearly ineligible to participate. Potentially eligible participants were then scheduled for a face-to-face meeting with the study investigators to confirm the diagnosis of SAD and other eligibility requirements. At this visit, the study requirements were reviewed, details about the two treatment conditions were described, and written informed consent was obtained. Participants were then administered the SCID-1 (First, Williams, Karg & Spitzer, 2015), Clinical Global Impressions- Severity Scale (Guy, 1976), Montgomery-Asberg Depression Rating Scales (Montgomery & Asberg, 1979) and the Liebowitz Social Anxiety Scale (Liebowitz, 1987). If a participant was protocol eligible they completed a battery of self-report questionnaires.

After confirmation of eligibility, participants were randomly allocated to either the MBI-SAD or CBGT. Treatment group allocation was generated using a random number generator by an independent research coordinator. The study used sequentially numbered, opaque, sealed envelopes as a means to assure allocation concealment. The envelopes were kept in the office of a research administrator who was not involved in the study and given to the investigator after participants were evaluated and deemed eligible to be randomized. Prior to assignment participants were asked whether they would prefer the MBI-SAD, CBGT or have no preference, and if they had a preference, to provide an explanation for their preference. After assignment the investigator reviewed information about the treatment condition they were assigned to and participants completed a questionnaire that assessed their perception of treatment credibility and expectancy.

### **Treatment**

The mindfulness intervention was adapted for individuals with SAD (MBI-SAD; Koszycki et al., 2016). The MBI-SAD consists of a 12-week group intervention led by trained MBSR/MBCT clinicians with the aid of a master's level graduate student in counselling psychology who co-facilitated aspects of the program. The intervention is manualized, and includes elements of the standard MBSR program, in addition to in-session and between-session mindful exposure to feared social situations, and training in self-compassion. Mindful exposure teaches participants to respond more mindfully to difficult internal experiences (e.g. thoughts, emotions, physical sensations) that arise in feared social situations. Training in self-compassion helps reduce excessive self-criticism and lack of self-compassion that are characteristic of individuals with SAD. This component of the intervention involves the explicit practice of loving kindness and compassion meditations that aim to develop an unconditional kindness towards the

self and others (Koszycki et al., 2016). The sessions followed a structured format; each session began with a meditation practice, followed by a discussion of participants' experience with the home practice and specific session themes, and then ended with a meditation practice and assignment of the week's home practice.

The CBGT sessions were led by doctoral level clinicians and senior doctoral level clinical psychology students with supervised training in delivering cognitive therapy for anxiety disorders. A master's level graduate student in counselling psychology co-facilitated some aspects of the sessions. This 12-week group intervention followed the treatment manual by Heimberg and Becker (2002). Sessions consisted of a brief overview of the treatment, psychoeducation, training in self-monitoring, cognitive restructuring, in- and between-session exposures to feared social situations, consolidation of treatment gains, and relapse prevention.

All of the group sessions were audio recorded to use as feedback for ongoing supervision of the instructors and to assure adherence to the treatment protocols. Efforts were made to ensure participants remained in the study for the full 12 sessions; barriers that may affect attendance were discussed and removed if possible.

## **Measures**

### **Demographic and Clinical Variables**

Participants were given a demographic questionnaire at baseline to obtain information about their age, gender, marital status, ethnicity, comorbidity, and whether or not they were taking psychotropic medication.

### **Credibility Expectancy Questionnaire (CEQ)**

The first four items from the CEQ were administered to participants after they were informed of the treatment they were allocated to. These questions measure thoughts about participants' perception of credibility of treatment and expectancy that the treatment will be beneficial to them. Items are rated on a 1-9 point scale, with higher scores indicating greater perceived credibility and expectancy. The CEQ has been found to have high internal consistency within each factor (credibility and expectancy), and a standardized  $\alpha$  between 0.84 and 0.85 for the whole scale. Test-retest reliability was found to be 0.82 for expectancy and 0.75 for credibility (Deville & Borkovec, 2000). In the current sample, the internal consistency of the CEQ was good (Cronbach's alpha 0.86).

### **Treatment Preference**

Prior to being randomized, participants were asked to indicate whether they had a preference for the MBI-SAD or CBGT or no preference.

### **Treatment Compliance**

Indices of treatment compliance were collected throughout treatment, and included:

- 1) Number of participants who started treatment after being randomized.
- 2) Total number of sessions attended. As per other MBI studies (Kuyken et al., 2015), participants who completed at least 50% of sessions were considered to have received at least a minimum effective treatment dose. Participants who completed less than 6 sessions were considered dropout.
- 3) Completion and submission of weekly homework forms.
- 4) Therapist-rated global impression of homework adherence. The therapist's overall rating of participants' homework adherence was assessed at the end of the 12 weeks of therapy with a single item rating, which uses a 6-point scale ranging from 1 (the participant did not complete the assigned homework) to 6 (the participant did more of the assigned homework than requested (Primakoff et al. 1986).

### **Treatment Satisfaction**

Treatment satisfaction was measured by asking participants to indicate on 10-point scale how satisfied they were with the treatment they received and whether the treatment met their expectations.

### **Continued Practicing at Six-Months Follow Up**

At the six-month follow-up assessment participants were asked if they continued to practice the techniques they learned during the 12 weeks of therapy. Those assigned to the CBGT intervention were asked to rate how often they practiced CBT techniques on a 5-point scale (from "not at all" to "very much"), and those who were assigned to the MBI-SAD were asked if they continued to meditate (yes or no), and how many times per week they meditated.

### **Statistical Analysis**

All analyses were conducted using SPSS version 25. Frequency counts were conducted to examine the demographic and clinical variables of the participants involved, as well as to examine treatment preferences. Comparisons of preference groups (MBI-SAD, CBGT, or no

preference) by baseline demographic and clinical variables were assessed using a one-way analysis of variance (ANOVA) for continuous variables, and chi-square for categorical variables.

A two-way ANOVA was used to test the first hypothesis, that participants who were matched to their preferred treatment would demonstrate better outcome on continuous measures than those not matched to their perceived treatment. Treatment preference (CBGT or MBI-SAD) and match to treatment (matched or not matched) were factors in the ANOVA. Participants with no clear preference were excluded from these analyses. If the omnibus *F* test for the interaction between treatment preference and match to treatment was significant, post hoc tests were used to explore which pair of cell means were significantly different. For categorical data, binary logistic regressions were performed to examine if there was an interaction between treatment preference and assigned treatment groups.

A one-way ANOVA was conducted to test the second hypothesis, that participants with no treatment preference would not differ significantly from those who were randomized to their preferred treatment on treatment compliance and treatment satisfaction, but will have a higher level of treatment compliance and treatment satisfaction compared to those who were not matched to their preferred treatment. Chi-square was used to assess the categorical variables. If the omnibus *F* tests were significant, post hoc pairwise comparisons were performed to determine if the no preference group differed from the matched group (irrespective of treatment) or the no preference differed from the not matched group (irrespective of treatment) on study outcomes.

A one-way ANOVA was conducted to test the third hypothesis, that participants with no treatment preference and those who were matched or not matched to their preferred treatment would differ on perception of treatment credibility and expectancy (CEQ). For significant results, post hoc pairwise comparisons were conducted to determine which groups differed.

The fourth hypothesis, that participants who had higher CEQ scores would be more compliant and more satisfied with treatment, was tested using a hierarchical multiple regression to determine if CEQ, match to treatment, or the interaction of CEQ and match to treatment predicted compliance and satisfaction.

Finally, one-way ANOVA and chi-square tests were used to explore if being matched, not matched, or having no preference influenced how often participants continued to use CBT techniques or continued to meditate at follow-up.

For post hoc comparisons conducted for significant ANOVA results, Cohen's  $d$  were calculated to determine the magnitude of difference between groups (determined by calculating the mean difference between the two groups divided by the pooled standard deviation). Cohen's  $d$  is considered small if  $d=.20$ , medium if  $d=.50$ , and large if  $d=.80$ .

The continuous data were tested for normality using the Shapiro-Wilk's test, and by examining skewness and kurtosis. Several of the continuous variables measuring compliance and satisfaction were found to be negatively skewed. Log transformations were performed for the number of sessions attended, treatment satisfaction, and if treatment met expectations to ensure normality. The Levene's test confirmed homogeneity of variance for all ANOVAs. An absence of collinearity was confirmed for the multiple regression interaction analyses. Results were considered significant if  $p<.05$ , two-tailed tests.

## Results

### Sample Characteristics

The sample consisted of 97 individuals with SAD. A summary of the demographic and clinical characteristics is presented in Table 1. Participants ranged in age from 20 to 65 years, with an average of approximately 41 years old. The majority of the sample were female (62.9%), and Caucasian (76.3%). Half of the participants were married/common law. Examination of clinical variables revealed that 40.2% of the participants were also living with one or more concurrent psychiatric disorder, and that very few participants (13%) were using psychotropic medication. The majority of the sample had an early age of onset of SAD, as is typical with this disorder.

Table 1  
*Baseline Demographic and Clinical Characteristics of Sample*

<u>Demographic Characteristics</u>	Total N= 97
<u>Age (Years)</u>	40.86 ± 13.71
<u>Gender (% Female)</u>	62.9(61)
<u>Marital Status (%)</u>	
Single	41.2(40)
Married/Common Law	51.5(50)
Separated/Divorced	6.2(6)
Widowed	1(1)

Ethnicity (%)

Caucasian	76.3(74)
Black	3.1(3)
Asian	6.2(6)
Latino	4.1(4)
Arabic	7.2(7)
Mixed	3.1(3)

**Clinical Characteristics**

Age of SAD onset (Years)	12.63 ± 7.28
History of Psychotherapy (%)	71
Comorbid Psychiatric Disorder (%)	39
Comorbid Medical Condition (%)	28
Current Psychotropic Medication (%)	21

Note. Values are given as %(*n*), mean ± standard deviation, or *n*.

**Treatment Preferences**

As shown in Table 2, the majority of participants indicated a preference for the MBI-SAD. Of those who preferred the MBI-SAD, 28 were matched to their preferred treatment. Of those who indicated a preference for CBGT, 11 were matched to their preferred treatment. Among participants with no treatment preference, 11 were assigned to the MBI-SAD and 14 were assigned to CBGT.

Table 2

Treatment Preferences

<b>Groups</b>	Total N=97
Preferred MBI-SAD	49.5(48)
Preferred CBGT	24.7(24)
No Preference	25.8(25)
Matched to Preferred Group	40.2(39)
Not Matched to Preferred Group	34.1(33)

Note. Values are given as %(*n*).

Baseline demographic and clinical variables did not differ between the three treatment preference groups. Specifically, no significant differences between the preference groups were found for age ( $F(2, 96)=.63, p=.54$ ), gender ( $\chi^2(2)= 1.12, p=.57$ ), marital status ( $\chi^2(6)= 4.43$ ,

$p=.62$ ), ethnicity ( $\chi^2(10)=9.49$ ,  $p=.49$ ), history of psychotherapy ( $\chi^2(2)=1.76$ ,  $p=.42$ ), comorbid psychiatric disorders ( $\chi^2(2)=1.41$ ,  $p=.50$ ), comorbid medical conditions ( $\chi^2(2)=.52$ ,  $p=.77$ ), or current use of psychotropic medications ( $\chi^2(10)=15.65$ ,  $p=.11$ ). Table 3 shows the means, standard deviations, and percentages of the demographic and clinical variables across treatment preference groups.

Table 3  
*Demographics and Baseline Clinical Characteristics Across Treatment Preference Groups*

<b>Variables</b>	<b>Prefer MBI-SAD (n=48)</b>	<b>Prefer CBGT (n=25)</b>	<b>No Preference (n=24)</b>	<b>p</b>
<u>Age (Years)</u>	42.44 ± 13.85	39.33 ± 13.61	39.28 ± 13.74	.54
<u>Gender (% Female)</u>	64.6(31)	54.2 (13)	68(17)	.57
<u>Marital Status (%)</u>				.62
Single	37.5(18)	50(12)	40(10)	
Married/Common Law	54.2 (26)	45.8 (11)	52(13)	
Separated/Divorced	8.3(4)	4.2(1)	4(1)	
Widowed	0(0)	0(0)	4(1)	
<u>Ethnicity (%)</u>				.49
Caucasian	70.8 (34)	83.3(20)	80(20)	
Black	4.2 (2)	0(0)	4(1)	
Asian	8.3(4)	8.3(2)	0(0)	
Latino	6.3(3)	0(0)	4(1)	
Arabic	4.2(2)	8.3(2)	12(3)	
Mixed	6.3 (3)	0(0)	0(0)	
History of Psychotherapy (%)	68.8 (33)	80 (20)	75 (18)	.42
Comorbid Psychiatric Disorders (%)	45.8 (22)	37.5 (9)	32(8)	.50
Comorbid Medical Conditions (%)	29.17 (14)	32 (8)	25 (6)	.77
Psychotropic Medication (%)	27.1 (13)	12.6 (3)	20(5)	.11

*Note.* Total N=97, \* indicates statistical significance at  $p \leq 0.05$ . Values are presented as mean ± standard deviation, or %(n).

### Treatment Preferences and Match to Treatment

Table 4a presents the means and standard deviations for treatment preference and treatment match for continuous variables. There was a significant interaction between treatment preference and match to treatment for post-treatment ratings of treatment expectations ( $F(1,49)=5.08, p=.029$ ); post hoc tests revealed that participants who were matched to CBGT were more likely to feel that treatment met their expectations than those who were matched to the MBI-SAD (mean difference= .27[95% CI, -.51 to -.03],  $p=.030$ ). Post-hoc tests also revealed a trend for those who had a preference for MBI-SAD, that expectations were met more often when they were not matched versus when they were matched to MBI-SAD (mean difference= -.20 [95% CI, -.40 to .01],  $p=.061$ ).

No significant main effects for treatment preference, match to treatment, or interaction between treatment preference and match to treatment emerged for therapists' overall rating of compliance ( $F(1,58)=0.66, p=.42, F(1,58)=0.27, p=.60$ , and  $F(1,58)=0.86, p=.36$ , respectively), weeks of homework completed ( $F(1,61)=1.29, p=.26, F(1,61)=2.02, p=.16$ , and  $F(1,61)=.51, p=.48$ , respectively), how satisfied participants were with treatment ( $F(1,48)=2.03, p=.16, F(1,48)=0.14, p=.71$ , and  $F(1,48)=1.06, p=.31$ , respectively) or number of sessions participants attended ( $F(1,89)=0.01, p=.91, F(1,89)=0.00, p=.96$ , and  $F(1,89)=0.40, p=.53$ , respectively).

Table 4a  
*Two-Way ANOVA Interactions of Treatment Preference and Match to Treatment for Compliance and Satisfaction*

Variables	Preferred MBI-SAD, Matched	Preferred MBI-SAD, Not Matched	Preferred CBGT, Matched	Preferred CBGT, Not Matched	<i>p</i>
Therapist rating of compliance	5.65 ± 1.60	6.23 ± 1.54	5.70 ± 0.82	5.54 ± 1.51	.36
Number of sessions	8.0(.59) ± 3.5(.33)	7.2(.65) ± 4.0(.35)	8.1(.63) ± 3.0(.22)	7.9(.59) ± 3.6(.36)	.53
Homework completion	8.20 ± 3.56	6.24 ± 3.46	6.50 ± 3.17	5.84 ± 3.17	.48
Treatment satisfaction	8.2(.28) ± 1.9(.29)	8.1(.39) ± 1.5(.28)	7.4(.48) ± 2.3(.26)	7.7(.43) ± 2.5(.31)	.31

Met expectations 8.9(.25) ± 1.5(.25) 7.4(.44) ± 2.6(.33) 7.1(.51) ± 2.6(.28) 8.0(.32) ± 2.3(.37) .029\*

*Note.* \* indicates significance at  $p \leq .05$ . Results are presented as mean ± standard deviation. Mean values are untransformed, with transformed values in parentheses.

Table 4b and 4c display the results of the binary logistic regression between preference group and match to treatment for the categorical dependent variables. Results revealed that treatment preference ( $\chi^2(1) = 0.29, p = .59$ ), treatment match ( $\chi^2(1) = 0.49, p = .48$ ) and the interaction between preference and match to treatment ( $\chi^2(1) = 0.029, p = .87$ ) were not significant predictors in the logistic regression model for treatment drop out. Similarly, treatment preference ( $\chi^2(1) = 0.00, p = .99$ ), treatment match ( $\chi^2(1) = 0.00, p = 1.00$ ) and the interaction between treatment preference and treatment match ( $\chi^2(1) = 0.00, p = 1.00$ ) did not predict whether participants started treatment after being randomized.

Table 4b

*Binary Logistic Regression for Treatment Preference and Match to Treatment as Predictors of Drop Out*

<b>Variables in Equation</b>	<b>B</b>	<b>SE</b>	<b>Wald's <math>\chi^2</math></b>	<b>OR</b>	<b>p</b>
Treatment Preference	.41	.76	.29	1.50	.59
Match to Treatment	-.69	.99	.49	.50	.48
Treatment Preference x Match to Treatment	-.20	1.18	.029	.82	.87

*Note.* \* indicates significance at  $p \leq .05$ , OR=Odds Ratio

Table 4c

*Binary Logistic Regression for Treatment Preference and Match to Treatment as Predictors of Started Treatment*

<b>Variables in Equation</b>	<b>B</b>	<b>SE</b>	<b>Wald's <math>\chi^2</math></b>	<b>OR</b>	<b>p</b>
Treatment Preference	-18.26	11147.52	.00	.00	.99
Match to Treatment	.00	16465.98	.00	1.00	1.00
Treatment Preference x Match to Treatment	.35	16465.98	.00	1.42	1.00

*Note.* \* indicates significance at  $p \leq .05$ , OR=Odds Ratio

**Matched, Not Matched and No Preference**

Table 5 presents a summary of the means and standard deviations for continuous variables and percentages for categorical variables, for compliance and satisfaction across the matched, not matched, and no preference groups. Results showed that the number of weeks homework was completed was significantly different between the groups ( $F(2,84)= 3.17$ ,  $p=.047$ ); post hoc tests indicated that homework compliance was significantly higher for participants who had no treatment preference compared to those not matched to their preferred treatment group ( $t(84)= -2.29$ ,  $p=.025$ ,  $d= 0.69$ ), but did not differ from those matched to their preferred group ( $t(84)= -.522$ ,  $p=.603$ ,  $d=0.15$ ).

The number of sessions attended was significantly different for the matched, non-matched and no treatment preference groups ( $F(2,91)= 3.87$ ,  $p=.024$ ); post hoc tests revealed that participants who had no treatment preference attended fewer sessions than those who were matched ( $t(91)= 2.41$ ,  $p=.018$ ,  $d= 0.66$ ), and those who had no preference attended fewer sessions than those who were not matched ( $t(91)= 2.54$ ,  $p=.013$ ,  $d= 0.65$ ) to their preferred treatment group.

Being matched, not matched, or having no treatment preference did not significantly impact the therapists' overall rating of participants' compliance ( $F(2,80)= 0.30$ ,  $p=.75$ ), if the participants' expectations were met ( $F(2,69)= 0.35$ ,  $p=.71$ ), if participant's were satisfied with treatment ( $F(2,68)= 0.41$ ,  $p=.66$ ), the likelihood that participant's started treatment ( $\chi^2(2)= 0.11$ ,  $p=.95$ ), or the likelihood that participant's dropped out of treatment ( $\chi^2(2)= 3.79$ ,  $p=.15$ ).

Table 5  
*One-Way ANOVA/Chi-Square of Matched, Not Matched, and No Preference for Compliance and Satisfaction*

<b>Variables</b>	<b>Matched</b>	<b>Not Matched</b>	<b>No Preference</b>	<b><i>p</i></b>
Therapist rating of compliance	5.67 ± 1.41	5.88 ± 1.53	5.95 ± 1.56	.75
Homework completion	7.71 ± 3.49	6.07 ± 3.51	8.18 ± 2.56	.047*
Number of sessions	8.0(.60) ± 3.3(.30)	7.4(.62) ± 3.8(.36)	9.6(.40) ± 3.3(.33)	.024*
Treatment satisfaction	8.3(.34) ± 2.0(.29)	7.9(.41) ± 1.9(.29)	8.4(.37) ± 1.8(.23)	.66
Met expectations	8.4(.33) ± 2.0(.28)	7.7(.39) ± 2.8(.34)	8.4(.36) ± 1.5(.24)	.71

Started Treatment (%)	97.4 (38)	97 (32)	96 (24)	.95
Drop out (%)	20.5 (8)	36.4 (12)	16 (4)	.15

*Note.* \* indicates significance at  $p \leq .05$ . Results are presented as mean  $\pm$  standard deviation, or  $\%(n)$ . Mean values are untransformed, with transformed values in parentheses.

### Treatment Completers

Several of the above analyses were repeated in the subgroup of participants who attended at least 50% of the group sessions (i.e., treatment completers). Table 6a presents the means and standard deviations for interactions between treatment preference and matched or not matched to CBGT and MBI-SAD for continuous variables for treatment completers only. There was a significant interaction between treatment preference and match to treatment for ratings of treatment expectations post-treatment ( $F(1,40)=9.035, p=.005$ ); post hoc tests revealed that participants who were matched to their preferred treatment were more likely to feel that treatment met their expectations when they were matched to CBGT compared to those matched to MBI-SAD (mean difference =  $-.295$  [95% CI,  $-.53$  to  $-.06$ ],  $p=.014$ , and that participants who had a preference for CBGT were more likely to feel that treatment met their expectations when they were matched to CBGT versus when they were matched to MBI-SAD (mean difference =  $.361$  [95% CI,  $.06$  to  $.661$ ],  $p=.019$ ). Trends were found to indicate that participants who were not matched to their preferred group were more likely to feel that treatment met their expectations when they were matched to CBGT versus when they were matched to MBI-SAD (mean difference =  $.256$  [95% CI,  $-.03$  to  $.54$ ],  $p=.081$ , and that participants who had a preference for MBI-SAD were more likely to feel that treatment met their expectations when they were matched to CBGT versus when they were matched to MBI-SAD (mean difference =  $-.189$  [95% CI,  $-.41$  to  $.03$ ],  $p=.086$ ).

No significant main effects for treatment preference, match to treatment, or interaction between treatment preference and match to treatment emerged for therapists' overall rating of compliance ( $F(1,48)=0.034, p=.86$ ,  $F(1,48)=0.323, p=.57$ , and  $F(1,48)=0.06, p=.80$ , respectively), weeks of homework completed ( $F(1,48)=3.04, p=.088$ ,  $F(1,48)=0.28, p=.60$ , and  $F(1,48)=0.85, p=.36$ , respectively), how satisfied with treatment ( $F(1,40)=1.10, p=.30$ ,  $F(1,40)=0.009, p=.93$ , and  $F(1,40)=2.48, p=.12$ , respectively), or the number of sessions attended ( $F(1,48)=0.08, p=.78$ ,  $F(1,48)=1.68, p=.20$ , and  $F(1,48)=0.29, p=.59$ , respectively).

Table 6a

*Two-Way ANOVA Interactions of Treatment Preference and Match to Treatment for Compliance and Satisfaction for Treatment Completers*

<b>Variables</b>	<b>Preferred MBI-SAD, Matched</b>	<b>Preferred MBI-SAD, Not Matched</b>	<b>Preferred CBGT, Matched</b>	<b>Preferred CBGT, Not Matched</b>	<b><i>p</i></b>
Therapist rating of compliance	5.95 ± 1.46	6.08 ± 1.51	5.78 ± 0.83	6.11 ± 1.36	.80
Number of sessions	9.4(.49) ± 1.9(.27)	9.9(.43) ± 1.6(.25)	9.3(.55) ± 1.0(.13)	9.8(.41) ± 2.2(.31)	.59
Homework completion	9.14 ± 2.61	7.92 ± 2.54	6.89 ± 3.10	7.22 ± 3.53	.36
Treatment satisfaction	8.8(.24) ± 1.7(.27)	8.1(.38) ± 1.6(.31)	7.4(.48) ± 2.3(.26)	8.5(.33) ± 1.4(.28)	.12
Met expectations	9.0(.22) ± 1.5(.26)	7.1(.51) ± 2.6(.28)	7.7(.41) ± 2.3(.33)	9.3(.15) ± 1.2(.25)	.005*

*Note.* \* indicates significance at  $p \leq .05$ . Results are presented as mean ± standard deviation. Mean values are untransformed, with transformed values in parentheses.

Table 6b displays the means and standard deviations of matched, not matched, and no preference groups for treatment completers only. Being matched to their preferred group was still found to significantly influence the number of sessions attended ( $F(2,72)= 4.46, p=.015$ ); post hoc tests indicated that treatment completers who had no preference attended fewer sessions than those matched to their preferred group ( $t(70)= 2.99, p=.004, d= .90$ ). Therapist rating of compliance ( $F(2,72)= 0.12, p=.89$ ), weeks of homework completed ( $F(2,72)= 0.80, p=.45$ ), treatment satisfaction ( $F(2,61)= 0.17, p=.85$ ), and if treatment met expectations ( $F(2,61)= 0.09, p=.92$ ), were not influenced by match to treatment or having no preference.

Table 6b

*One-Way ANOVA of Matched, Not Matched, and No Preference for Compliance and Satisfaction for Treatment Completers.*

<b>Variables</b>	<b>Matched</b>	<b>Not Matched</b>	<b>No preference</b>	<b><i>p</i></b>
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Therapist rating of compliance	5.90 ± 1.30	6.10 ± 1.41	5.95 ± 1.56	.89
Homework completion	8.48 ± 2.89	7.62 ± 2.94	8.52 ± 2.04	.45
Number of sessions	9.4(.51) ± 1.7(.23)	9.9(.42) ± 1.9(.27)	10.8(.30) ± 1.0(.22)	.015*
Treatment Satisfaction	8.4(.32) ± 2.0(.29)	8.2(.36) ± 1.5(.29)	8.4(.37) ± 1.2(.23)	.85
Met expectations	8.4(.32) ± 2.1(.30)	8.3(.32) ± 2.1(.32)	8.4(.35) ± 1.9(.29)	.92

*Note.* \* indicates significance at  $p \leq .05$ . Treatment completers= participants who attended  $\leq 6$  sessions. Results are presented as mean  $\pm$  standard deviation. Mean values are untransformed, with transformed values in parentheses.

### Treatment Credibility and Expectancy

There was a significant effect of treatment match on CEQ scores ( $F(2, 94) = 5.15$ ,  $p = .005$ ). CEQ means (standard deviations) for matched, not matched, and no preference groups are 29.08(4.75), 25.55(4.25), 26.36(5.21) respectively. Post hoc tests revealed that CEQ scores were higher for participants who were matched to their preferred treatment compared to those who were not matched ( $t(94) = 3.17$ ,  $p = .002$ ,  $d = .78$ ), and those who had no preference ( $t(94) = 2.25$ ,  $p = .027$ ,  $d = .55$ ). CEQ scores did not differ between participants who were not matched to their preferred group and those with no treatment preference ( $t(94) = -.648$ ,  $p = .518$ ).

Tables 7a to 7e show the coefficients, standard errors,  $t$  values, and significance values of the hierarchical regression models for CEQ, match to treatment, and interaction between CEQ and match to treatment as predictors of the compliance and satisfaction variables. Results of the first model showed that participants' expectancy and perceived credibility of treatment did not predict the therapists' ratings level of participants' compliance ( $F(1,81) = 0.53$ ,  $p = .47$ ),  $R^2 = .006$ , number of sessions participant's attended ( $F(1,95) = 0.55$ ,  $p = .46$ ),  $R^2 = .006$ , weeks of homework completed ( $F(1,85) = 0.83$ ,  $p = .36$ ),  $R^2 = .01$ , treatment satisfaction ( $F(1,69) = 1.45$ ,  $p = .23$ ),  $R^2 = .021$ , or if the treatment met their expectations ( $F(1,70) = 0.99$ ,  $p = .32$ ),  $R^2 = .014$ . For exploratory purposes, each of the four questions were examined independently to determine if they were able to predict levels of compliance and satisfaction. None of the four questions individually predicted any of the measures of compliance and satisfaction with therapy.

Results of the second model found that adding match to treatment did not significantly increase the ability to predict therapists' ratings level of participants' compliance ( $F(2,80)= 0.74$ ,  $p=.48$ ),  $R^2=.018$ , number of sessions participant's attended ( $F(2,94)= 2.00$ ,  $p=.14$ ),  $R^2= .041$ , weeks of homework completed ( $F(2, 84)= 0.51$ ,  $p=.60$ ),  $R^2= .012$ , treatment satisfaction ( $F(2, 68)= .74$ ,  $p=.48$ ),  $R^2= .021$ , or if the treatment met their expectations ( $F(2,69)= 0.51$ ,  $p=.60$ ),  $R^2= .014$

Finally, the third model showed that adding the interaction between perceived credibility and expectancy and match to treatment did not significantly increase the ability to predict therapist overall rating of compliance ( $F(3, 79)= 0.74$ ,  $p=.53$ ),  $R^2=.027$ , number of sessions participant's attended ( $F(3,93)= 1.57$ ,  $p=.20$ ),  $R^2= .048$ , weeks of homework completed ( $F(3,83)= 0.76$ ,  $p=.52$ ),  $R^2= .027$ , treatment satisfaction ( $F(3,67)= 0.53$ ,  $p=.66$ ),  $R^2= .023$ , or if the treatment met their expectations ( $F(3,68)= 0.33$ ,  $p=.80$ ),  $R^2= .015$ .

Table 7a

*Hierarchical Regression of CEQ and Interaction of CEQ and Match to Treatment as Predictors of Therapist Overall Rating of Compliance*

<b>Hierarchical Regression Models</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>p</i></b>
Model 1					
CEQ	.023	.032	.080	.73	.47
Model 2					
CEQ	.032	.033	.11	.97	.34
Match to Treatment	.21	.21	.11	.98	.33
Model 3					
CEQ	.096	.082	.33	1.18	.24
Match to Treatment	1.14	1.10	.63	1.03	.31
CEQ x Match to Treatment	-.034	.039	-.51	-.86	.39

Note. \* indicates significance at  $p \leq .05$

Table 7b

*Hierarchical Regression of CEQ and Interaction of CEQ and Match to Treatment as Predictors of Number of Sessions Attended*

<b>Hierarchical Regression Models</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>p</i></b>
Model 1					
CEQ	.005	.007	.076	.74	.46
Model 2					
CEQ	.002	.007	.028	.27	.79
Match to Treatment	-.083	.045	-.19	-1.86	.067
Model 3					
CEQ	-.012	.018	-.17	-.68	.50
Match to Treatment	-.29	.25	-.68	-1.18	.24

CEQ x Match to Treatment	.008	.009	.48	.86	.39
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*Note.* \* indicates significance at  $p \leq .05$

Table 7c

*Hierarchical Regression of CEQ and Interaction of CEQ and Match to Treatment as Predictors of Weeks of Homework Completed*

<b>Hierarchical Regression Models</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>p</i></b>
Model 1					
CEQ	.066	.072	.099	.91	.36
Model 2					
CEQ	.074	.075	.11	.99	.32
Match to Treatment	.21	.48	.049	.44	.66
Model 3					
CEQ	.27	.19	.40	1.43	.16
Match to Treatment	2.99	2.51	.71	1.19	.24
CEQ x Match to Treatment	-.10	.090	-.66	-1.13	.26

*Note.* \* indicates significance at  $p \leq .05$

Table 7d

*Hierarchical Regression of CEQ and Interaction of CEQ and Match to Treatment as Predictors of Treatment Satisfaction*

<b>Hierarchical Regression Models</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>p</i></b>
Model 1					
CEQ	-.008	.007	-.14	-1.20	.23
Model 2					
CEQ	-.008	.007	-.14	-1.10	.28
Match to Treatment	.009	.041	.028	.23	.82
Model 3					
CEQ	-.002	.019	-.031	-.10	.92
Match to Treatment	.10	.26	.31	.39	.70
CEQ x Match to Treatment	-.003	.009	-.28	-.36	.72

*Note.* \* indicates significance at  $p \leq .05$

Table 7e

*Hierarchical Regression of CEQ and Interaction of CEQ and Match to Treatment as Predictors of Met Expectations*

<b>Hierarchical Regression Models</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>p</i></b>
Model 1					
CEQ	-.007	.007	-.12	-.99	.32
Model 2					
CEQ	-.007	.008	-.11	-.90	.37
Match to Treatment	.009	.044	.025	.20	.84
Model 3					
CEQ	-.007	.020	-.12	-.36	.72
Match to Treatment	.005	.28	.015	.019	.99

CEQ x Match to Treatment	.000	.010	.010	.013	.99
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*Note.* \* indicates significance at  $p \leq .05$

### Continued Practicing at Follow Up

Table 8 displays the means, standard deviations, and percentages of the variables that measured if participants continued to practice at follow up for the matched, not matched, and no preference groups. For those who were assigned to CBGT, being matched, not matched or having no preference, did not influence how often they continued to use CBT techniques at 6-months follow up ( $F(2,30)= 0.48, p=.62$ ). Similarly, for those who were assigned to MBI-SAD, being matched, not matched, or having no preference, did not influence the likelihood of continuing to practice meditation ( $\chi^2(2)= 3.13, p=.21$ ) or how many times per week they practiced meditation ( $F(2,21)= 0.73, p= .49$ ) at 6-months follow up.

Table 8

*One-Way ANOVA/Chi-Square of Matched, Not Matched, and No Preference for Continued to Practice at Follow Up.*

Variables	Matched	Not Matched	No Preference	<i>p</i>
Continued using CBT	3.00 ± 1.12	2.92 ± 1.24	3.33 ± .89	.62
Continued to meditate (%)	71.4 (15)	40 (4)	71.4 (5)	.21
How often continued to meditate (days per week)	4.20 ± 2.54	5.50 ± 3.00	3.40 ± 1.12	.49

*Note.* \* indicates significance at  $p \leq .05$ . Results are presented as mean ± standard deviation, or  $\%(n)$ .

### Discussion

Treatment preference is an important variable that has been reported to influence overall outcome of therapy, including compliance and satisfaction with therapy (Swift & Callahan, 2008; Lindhiem et al., 2014; Berg et al., 2008; Handelzalts & Keinan, 2010). However, there is a gap in the existing literature addressing treatment preferences and few studies have compared preferences for different treatment options for SAD (i.e. CBGT versus another psychological therapy). To my knowledge there have been no studies to date that have compared treatment preferences for CBT versus a mind-body therapy. The current study addressed these gaps by examining preference for CBGT, MBI-SAD, or no preference in individuals diagnosed with SAD.

The hypotheses for the current study reflected an expectation that treatment preference would have an impact on treatment compliance and satisfaction. Specifically, that being matched to the preferred treatment would increase levels of compliance and satisfaction; that not being matched would result in lower levels of compliance and satisfaction; and that participants with no preference would have similar levels of compliance and satisfaction to those who were matched to their preferred treatment. Finally, it was predicted that those who were matched to their preferred group would have higher perceived credibility and expectancy for treatment, and that this would predict higher levels of treatment compliance and satisfaction. The results will now be discussed in terms of these hypotheses.

### **Baseline Demographic and Clinical Variables and Treatment Preference**

Almost half of participants in the current study specified a preference for the MBI-SAD, with an equal number reporting a preference for CBGT or no treatment preference. Examination of baseline demographic characteristics (age, gender, marital status, ethnicity) and clinical variables (comorbidity, age of onset, use of psychotropic medication) did not reveal any differences between the three treatment preference groups. As reported in a previous study that used data from this study (Dowell, 2018), the main reason for preferring the MBI-SAD included a desire to try an alternative approach if previously treated with CBT, hearing or reading about mindfulness, and wanting to learn how to meditate.

There are several other reasons why people might prefer MBI to more conventional therapies. Pepping, Walters, Davis, and O'Donovan (2016) examined reasons for practicing mindfulness meditation and found that many respondents believed mindfulness meditation would increase happiness, wellbeing, and concentration. In addition, many respondents chose to begin meditating because it was recommended by others, and some chose to meditate for spiritual or religious reason (Pepping et al., 2016). Bertisch, Wee, Phillips, and McCarthy (2009) studied the use of MBIs and found that people with various pain conditions, anxiety and depression, and insomnia were more likely to choose MBIs compared to people without these conditions. They also noted that 30% used MBIs because a medical professional recommended it, and 20% believed that conventional interventions would not help (Bertisch et al., 2009). The increased interest in MBI in clinical populations has also been attributed to the popularity of mindfulness meditation within the general population (Van Dam et al., 2018), recognition of the benefits of mindfulness in mainstream media, celebrity endorsements, and proliferation of self-help books on meditation techniques for health and wellness (Lauricella, 2016).

### **Treatment Preferences and Match to Treatment**

It was found that participants who preferred CBGT and who were matched to this treatment were more likely to report that treatment met their expectations than those who preferred the MBI-SAD and who were matched to this treatment. For those who initially preferred the MBI-SAD, post-treatment rating of treatment expectations were higher if they were assigned to CBGT than MBI-SAD. These results indicate that treatment preference and match to treatment influenced if treatment met expectations for CBGT, but not for the MBI-SAD. These findings could suggest that overall participants felt that CBGT met their expectations more so than did MBI-SAD, and this may indicate a better treatment outcome for CBGT. A study by Westra, Aviram, Barnes, and Angus (2010) examined outcome expectancy for CBT and found that participants with good outcome indicated more often that treatment met or exceeded their expectations, whereas people with poor outcome noted more disappointment with treatment (i.e. treatment did not meet expectations).

However, there are many other reasons why participant's may have indicated that therapy did or did not meet expectations besides efficacy. Button, Norouzian, Westra, Constantino, and Antony (2018) examined disconfirmation of expectations for CBT with and without motivational interviewing in GAD. They found that post-treatment expectations often differ from pre-treatment expectations due to violation of initial expectations of therapy and unexpected surprises (e.g. more or less flexible than anticipated, therapist role was different than expected, surprised with the content of therapy, etc.) (Button et al., 2018). Therefore, disconfirmation of expectations does not necessarily imply a negative experience with therapy. Furthermore, they found that participants in the motivational interviewing CBT condition reported that therapy was not what they expected more often than those in the regular CBT condition, but both conditions resulted in good outcomes. The findings may have reflected that clients had pre-existing expectations of CBT that matched more closely the regular CBT condition than the CBT with motivational interviewing (Button et al., 2018). In the current study, it is possible that clients had more knowledge about the CBT condition than the MBI, and this is why therapy did not meet expectations for some.

Analyses of the other variables did not confirm the hypothesis that being matched to one's preferred treatment would result in better overall compliance, attendance, homework completion, or treatment satisfaction. For exploratory purposes, the above analyses were conducted again using only the participants who completed the minimum effective treatment (Kuyken et al.,

2015). As with the initial analysis, it was found that treatment completers who preferred CBGT and who were matched to this treatment were more likely to report that treatment met their expectations than those who preferred and were matched to MBI-SAD. Trends suggested that for those who initially preferred the MBI-SAD, post-treatment rating of treatment expectations were higher if they were assigned to CBGT than MBI-SAD. Finally, for those who were not matched to their preferred treatment, treatment expectations were met more often when they were in the CBGT group compared to the MBI-SAD. No differences were found between treatment preference, treatment match, or interaction between treatment preference and treatment match on overall rating of compliance, homework completion, number of sessions attended, or treatment satisfaction level.

Overall, these findings indicate that despite having a preference, being matched or not matched to the MBI-SAD or CBGT resulted in similar levels of treatment satisfaction and adherence to therapy. This is important to consider because it supports the idea that various forms of psychotherapy can be equally engaging, satisfying, and efficacious for clients despite initial preference for an alternate treatment (Huijbers et al., 2016; Leykin et al., 2007; Adamson et al., 2005). Furthermore, these findings are reassuring for RCTs that treatment compliance and satisfaction will not be affected by lack of choice. Lack of choice has previously been identified as a limitation for RCTs (Seligman, 1995; Corrigan & Salzer, 2003). Seligman (1995) stated that without choice, clients are denied power and control, which can be an important factor in treatment. Additionally, clients may believe that a certain treatment will be more beneficial, which can affect commitment and adherence to the treatment process leading to better outcome (Seligman, 1995). Many studies have attempted to address these concerns, but findings have been mixed (Bower, King, Nazareth, Lampe & Sibbald, 2005; Janevic et al., 2003). Like the current study, some previous research has found that lack of choice or attention to preference did not influence compliance, satisfaction with treatment, or other outcome measures in RCTs (Leykin et al., 2007; King et al., 2005; Adamson et al., 2005).

The results of the current study are similar (with the exception of posttreatment expectancy) to many other studies that have also found that preference and match to treatment are not related to measures of compliance and satisfaction. Adamson et al. (2005) measured the effect of preference for motivational enhancement therapy and non-directive reflective listening therapy for alcohol dependence and did not find a significant effect of treatment preference and match to treatment for satisfaction or attendance. Hamann et al. (2007) did not find an effect of

shared decision making on compliance with medication for individuals with schizophrenia. Gum et al. (2006) examined treatment preference between medication or psychotherapy for older depressed adults and did not find a significant effect of treatment match on treatment satisfaction. Loh et al. (2006) measured the influence of client participation in treatment decision making on adherence to treatment for individuals with depression and did not find a significant effect. Mergl et al. (2010) examined preferences for medication or CBT for depression and found no difference in attrition or number of sessions attended for the matched and not matched groups. Dunlop et al. (2012) compared treatment preference for cognitive therapy or pharmacological treatment for adults with depression and found no significant effect of being matched or not matched to preferred treatment on treatment completion. Finally, Huijbers et al. (2016) examined preference for MBCT or antidepressant medication for clients with depression and did not find a significant effect of match to treatment on adherence. Although these studies found similar results, most of them measured preference for psychological versus pharmacological treatment, and thus cannot be directly compared to the results of the current study. There are very few studies that have measured the influence of treatment preference for two psychological therapies on compliance and satisfaction thus highlighting the importance of the current study and future research in this area.

The results of the current study differ from some other research that has found treatment preference and match to treatment are related to treatment adherence and satisfaction for different treatment options. Bedi et al. (2000) measured the effect of preferences for medication or counselling on treatment attendance and satisfaction for depression. They found some support that participants randomized to the medication condition were less satisfied than those who had expressed a preference for medication, and that participants who chose counselling attended more sessions than those who were randomized to counselling. Loh et al. (2006) found that satisfaction with treatment was significantly higher when participants were included in the treatment decision making process. Kwan et al. (2010) measured the effect of being matched or not matched to preference for cognitive therapy, behavioural activation therapy, or medication for depression. They found that participants who were matched to their preferred treatment attended more sessions than those not matched for all three treatments. Perreault et al. (2014) measured preferences for group or individual CBT and found that participants with stronger preferences for CBGT were more likely to complete treatment than those who did not have a strong preference for CBGT. Finally, Howard et al. (2010) found that women in crisis were more likely to be

satisfied with treatment (either women's crisis house or hospital admission) if they were given the intervention that they preferred.

There are several possible reasons why the current study only found a few significant effects. Although more than half of participants indicated a preference for MBI-SAD, the strength of these preferences was not recorded. It is possible that despite indicating a preference for the MBI-SAD, participants were not strongly opposed to the CBGT option and vice versa. The majority of previous research has measured preferences between pharmacotherapy and psychotherapy (Swift and Callahan, 2009; McHugh et al., 2013; Lindhiem et al., 2014), which are two very different treatment options. It is possible that people may strongly prefer psychotherapy over medication because of stigma and fear associated with taking psychotropic medication (Mergl et al., 2010). Perhaps preferences are stronger when the treatment options are much different. Thus, preferences between two psychological therapies may not be as strong as preferences between a pharmacological and a psychological therapy option. Since psychological therapies generally follow the same principles, perhaps people who seek out psychotherapy are open to various forms of treatment modalities. Several studies have noted the importance of measuring the strength of preferences (Huijbers et al., 2016; Dunlop et al., 2010; Raue et al., 2009). Huijbers et al. (2016) noted that despite specifying a preference for one treatment, many participants also indicated an interest in the alternative treatment. A study by Calsyn et al. (2003) measured the impact of client choice between five treatment programs on outcome for homeless individuals with mental illness and found that many clients have high expectations for one treatment, but still choose an alternative. In the current study, it is possible that despite indicating a preference for either CBGT or the MBI-SAD, participants were interested in and open to the other treatment option and therefore were compliant and satisfied with treatment even when not matched to their preferred choice.

It should also be considered that results were not significant because there were other variables that influenced the levels of compliance and satisfaction. Previous research has found that many other variables can have an impact on the compliance and satisfaction with therapy including client related factors, therapy related factors, socio-economic factors, and treatment accessibility (Satana & Fontenelle, 2011; Jin, Sklar, Oh, & Li, 2008; De Las Cuevas, De Leon, Penate, & Betancort, 2017; Mathes, Jaschinski & Pieper, 2014). For example, severity of symptoms, motivation to change, compatibility, environmental barriers and other life circumstances have all been demonstrated to have an influence on treatment adherence with CBT

for individuals with SAD (Santana & Fontenelle, 2011) and could possibly have influenced levels of compliance and satisfaction in the current study. Finally, many therapist factors have been found to influence outcome in psychotherapy. Therapist factors such as empathy (Watson, Steckley, & McMullen, 2013; Hara, Aviram, Constantino, Westra, & Antony, 2017), attention to the therapeutic alliance (Leibert, 2011), training, experience, and competence (Blatt, Sanislow, Zuroff, & Pilkonis, 1996) might moderate the effect of treatment preference on compliance and satisfaction.

### **Matched, Not Matched, and No Preference**

The no preference group consisted of individuals who were open to receiving either treatment, thus it was expected that they would not differ from those who were matched to their preferred treatment but differ from those who were not matched. The results revealed some support for this hypothesis. Specifically, those who indicated no treatment preference completed more homework than those not matched to their preferred group, whereas the amount of homework completed by the matched and no preference groups did not differ. This suggests that those with no preference remained more engaged with homework activities than those who were not matched to their preferred group. Interestingly, it was found that participants who were both matched and not matched to their preferred treatment attended more sessions than those who did not indicate a preference. This finding is not in line with the study hypothesis and suggests that having a preference, irrespective of whether or not participants were matched or not matched to this preference, is important for attendance. It is possible that indicating a preference reflects increased engagement with therapy, because those with no preference tended to miss more sessions overall. No significant differences emerged between the no preference groups versus the matched and non-matched groups on therapist rating of overall compliance, satisfaction with treatment, if treatment met expectations, whether or not participants started treatment after randomization, or if they dropped out from treatment. Almost all participants in the current study attended at least one session, which explains the non-significant findings for treatment preference on treatment initiation.

When the above analyses were conducted again for treatment completers only, there were some differences in the findings. Those who had no preference were still found to attend significantly fewer sessions than those matched to their preferred group, however they no longer attended fewer sessions than the not matched group, as was found in the first analysis. This finding does not support the hypothesis that the no preference group would be equal to those who

were matched. Furthermore, the no preference group was no longer found to complete more homework than the not matched group. No differences were found between the groups on overall rating of compliance, treatment satisfaction, or if the treatment met expectations.

Previous research has yielded mixed findings for the no preference groups on measures of compliance and satisfaction. Some studies have found differences between the no preference groups and the matched or not matched groups. For instance, Kwan et al. (2010) measured the impact of treatment preference for psychotherapy or psychopharmacology on engagement for individuals with depression. They found that fewer participants completed treatment when they were not matched to their preferred treatment or were in the no preference group. Dunlop et al. (2010) measured preferences between psychotherapy and psychopharmacology for depression and found that those who preferred and were matched to the medication condition were more likely to drop out than those who had no preference, suggesting that their initial expectations for medication treatment were not met. These studies examined psychological and pharmacological treatment options for depression, and thus may not be generalizable to the results of the current study.

Some other studies have found no differences between the no preference groups and the matched or not matched groups. For example, Steidtmann et al. (2012) studied treatment preferences for chronic depression and found that those with no preference did not differ from those who had a preference for medication or combined medication with psychological treatment on treatment attrition rates. Walter et al. (2017) examined treatment preferences for women with abnormal cervical screening results and found no differences in satisfaction of participants who were undecided compared to those who had been matched or not matched to their preferred treatment. It is interesting to note that similar to the current study, many other studies that included a no preference option have found a relatively large number of participants had no preference (Mergl et al., 2010; Steidtmann et al., 2012; Walter et al., 2017; Francois et al., 2018). This may indicate that many clients seeking psychotherapy may be indifferent or open minded to which treatment they receive.

It is possible that despite having a preference or not, both the MBI-SAD and CBGT were equally well received, thus explaining the approximately equal levels of overall compliance, satisfaction, posttreatment rating of expectations, and dropout rates. It should also be considered that certain measures of compliance and satisfaction were more sensitive than others in capturing the differences between preference groups. For instance, weeks of homework completed, and

number of sessions attended may be better able to capture differences in levels of compliance and satisfaction than the therapist rating of overall compliance, and participant satisfaction rating.

### **Treatment Credibility and Expectancy**

As expected, it was found that those who were matched to their preferred group had higher CEQ scores than those who were not matched to their preferred group, and those who did not have a preference. However, CEQ scores were not found to predict therapist rating of compliance, number of sessions attended, weeks of homework completed, whether or not participants were satisfied with treatment, or if the treatment met their expectations. When match to treatment, and the interaction of CEQ and match to treatment were added to the model, the ability to predict compliance and satisfaction did not increase. These results indicate that despite having higher expectations and perceived credibility for therapy, those who were matched to their preferred group had similar levels of compliance and satisfaction to those who were not matched to their preferred group and those with no preference. The findings of the current study are important because they suggest that two efficacious treatment options can both produce satisfaction and compliance despite clients' expectations and beliefs about credibility.

These findings contradict many other studies that have found expectancy is related to compliance and satisfaction variables. Westra et al. (2007) found that higher expectancy was mediated by homework compliance in predicting initial treatment response in participants with GAD and panic disorder, however they did not find the same association for participants with SAD. Ahmed and Westra (2009) measured expectancy and engagement for CBT for SAD and found that higher expectations for anxiety change were associated with better homework compliance. Lewin, Peris, Bergman, McCracken, and Piacentini (2011) examined treatment expectancy in youth receiving exposure-based CBT for obsessive compulsive disorder. They found that higher treatment expectations were related to lower attrition and better homework compliance. Schindler, Hiller and Witthoft (2013) examined predictors of drop out in CBT for adults with depression and found that positive outcome expectancies were important for treatment completion. Finally, Snippe et al. (2015) examined whether expectations of treatment outcome predicted treatment completion and homework compliance for CBT and MBCT for participants with diabetes and comorbid depressive symptoms. They found that higher expectancy predicted treatment completion for both CBT and MBCT, and better homework compliance in MBCT.

The findings of the current study are similar to some other studies that have not found a relationship between expectations and treatment compliance or satisfaction. Safren et al. (1997) examined expectancy for CBGT for individuals with SAD and did not find a relationship between expectancy and dropout rates. Price and Anderson (2012) examined expectancy for group exposure therapy and virtual reality exposure therapy for SAD and found that expectancy was not associated with drop out. It is interesting to note that some studies have found a significant effect of expectancy on outcome, but not on measures of compliance and satisfaction (Safren, 1997; Price & Anderson, 2012; Shulte, 2008) suggesting that compliance and satisfaction levels do not necessarily correspond with treatment efficacy or outcome.

### **Continued Practicing at Follow Up**

Finally, exploratory analyses revealed no difference between the no preference, matched, and not matched groups on how often participants continued to use CBT techniques, if they continued to meditate, or how often they continued to meditate at 6-month follow up. This suggests that treatment preference did not influence if participants continued to practice what they learned during treatment. To my knowledge, there are no previous studies that have measured the influence of treatment preference on the likelihood that participants will continue practicing skills learned in either CBT or MBI at follow up. However, there are previous studies that have found that post-intervention mindfulness practice is related to symptom severity and therefore is an important outcome variable to include. A study by Mathew et al. (2010) found that participants who continued the skills and practices taught in an MBCT course were better able to manage their symptoms of depression at follow up, however this study did not include a treatment preference variable. A study by Morgan, Graham, Hayes-Skelton, Orsillo, and Roemer (2014) examined the relationships between post intervention mindfulness practice and outcome variables in an acceptance-based behaviour therapy for GAD and found that increased informal meditation practice at follow up was related to fewer symptoms of GAD. Grow, Collins, Harrop, and Marlatt (2015) noted the importance of continuing to practice the skills learned in treatment for treatment integrity. They measured home mindfulness practice at follow up and the impact this had on substance use and cravings for adults with substance use disorders. They found that increasing home practice over time precipitated decreases in cravings. Given the lack of research available on the relationship between treatment preference and post intervention practice, future research should continue to investigate this.

**Limitations**

The current study has a few limitations to be taken into consideration. First, the sample size was relatively small and a larger sample size may have increased the power to find significant effects. Second, the sample comprised mainly of Caucasian participants, which limits the generalizability of findings to ethnically diverse populations. Third, the participants in this RCT were volunteers who were recruited via advertisements. These individuals may not reflect the general population of those with SAD seeking treatment in a community setting. Fourth, the strength of treatment preferences were not explored. Exploring this information may have been useful when interpreting the relationships between treatment preference, match to treatment, and compliance and satisfaction. Finally, potential confounding factors that may have influenced levels of compliance and satisfaction were not addressed. These factors were not accounted for in the current study, and thus present a limitation to understanding the effect of treatment preference.

**Suggestions for Future Research**

Research has been limited in the area of treatment preferences for SAD, especially for preferences between two psychological treatment options. To my knowledge, this is the only study to date that examines preferences between a first line psychological treatment (CBGT) and an alternative mind-body treatment option for individuals with SAD. Additional research is needed to validate the findings of the current study.

As previously mentioned, the data from this study are taken from a larger clinical trial comparing treatment outcomes for CBGT and MBI-SAD, and therefore this study was not primarily designed to examine treatment preferences. An important suggestion for future research is to develop a similar study designed more specifically to examine preferences. This would include gathering more information about the treatment preferences (i.e. strength), and perhaps be conducted in a community setting rather than as part of a randomized controlled trial. Preference strength has consistently been identified as a useful measure for treatment preference because it provides more information about the importance of client preferences (Huijbers et al., 2016; Dunlop et al., 2012; Raue et al., 2009; Johansson et al., 2013). Conducting the study in a community setting would be important because it would more accurately replicate a natural setting where individuals with SAD would seek treatment and thus findings would be more generalizable to all clients seeking treatment for SAD. Additionally, preferences might not be static; they may change as the participant learns and grows (Mergl et al., 2010; Van Dyck &

Spinhoven, 1997). Beliefs, attitudes, preferences, and expectations may shift throughout the progression of treatment, and this could influence compliance and satisfaction levels. For instance, in the current study there was no relationship between CEQ and compliance and satisfaction, however if CEQ had been measured during or post treatment, the scores may have reflected a relationship. Future research should therefore include measures of treatment preference and credibility scores prior to treatment beginning, during treatment, and posttreatment. Finally, to address the possible confounding factors influencing compliance and satisfaction, it would be important to include measures of other factors that may have influenced compliance and satisfaction such as client or therapist factors.

Given that a few significant results indicated that being matched to preferred treatment or having no preference resulted in higher compliance and satisfaction, it would be interesting to design a study where participants are asked what their preference is and then are given the treatment they prefer and compare them to a placebo group who are not asked to indicate their preference and are randomly assigned to a group. This would help to confirm whether or not identifying and adhering to initial treatment preferences does increase compliance, satisfaction, and overall outcome, compared to the current practice standard of not asking or adhering to client preferences.

### **Conclusion**

The current study contributes to existing literature on treatment preference for two psychological treatment options. Specifically, treatment preference between an empirically supported treatment option for SAD, CBGT, and an efficacious mind-body alternative, MBI-SAD. Although results from this study did not provide consistent support that treatment preference can increase compliance and satisfaction, it provides direction and insight for future research. As mindfulness practice becomes more common, and more research is becoming available for the efficacy of MBI, it remains important to continue researching how preferences may influence the outcome for MBI compared to other forms of psychotherapy. Furthermore, given that most participants initially preferred MBI-SAD, and participants had generally equal levels of compliance and satisfaction to those in the CBGT group, this study supports that MBI-SAD may be a good alternative treatment option for SAD.

That treatment preference and match to treatment were not found to significantly influence most of the compliance and satisfaction variables has important implications for

treatment preferences in psychotherapy and for RCTs. For community settings, these findings suggest that despite clients having a preference for a specific psychotherapy modality, adherence and satisfaction can still be favourable when these preferences are not considered by the therapist or if the therapist is not trained to deliver the therapy the client prefers. For RCTs, findings of the current study support that participants can still benefit from treatment despite lack of choice, and that results will not be influenced by mismatched preferences.

Understanding treatment preferences and how they affect compliance, satisfaction, and other outcome measures such as quality of life, symptomology, or remission continues to be an important area for research. To my knowledge, this is the first study to examine treatment preferences for CBGT or MBI for individuals with SAD. The current study provides an important starting point for future research that will continue to examine this topic.

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