The Development and Preliminary Evaluation of an Internet-Based Self-help Intervention for Social Anxiety Disorder with Videoconferencing Therapist Support

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Abstract

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Social anxiety disorder (SAD) is one of the most prevalent psychiatric disorders in the United States. Although evidenced-based behavioral treatments are available, less than 20% of those with SAD receive treatment (Grant et al., 2005). The disparity between the number of individuals affected and those obtaining treatment is due to a number of factors, including limited accessibility to therapists practicing evidence-based interventions such as cognitive behavior therapy, geographic factors, and financial cost. Internet-based interventions may be utilized to overcome some of these barriers. Guided Internet-based therapeutic interventions have been demonstrated to be effective for social anxiety (e.g., Andersson et al., 2006). The optimal role (if any) of the therapist in such programs, including the amount of therapist time necessary for effective treatment, remains unclear. The purpose of this pilot study was to develop a novel Internet self-help CBT intervention and to assess the preliminary efficacy and acceptability of the program with minimal therapist support delivered through a common videoconferencing platform, for the treatment of SAD in adults. The intervention program is derived from an acceptance-based CBT program that utilizes traditional behavioral interventions (e.g., exposure) within the context of a model emphasizing mindfulness and psychological acceptance. Thirteen participants received the Internet-based self-help intervention consisting of eight weekly modules, and a brief weekly videoconferencing therapist check-in. Participants were assessed at pre-treatment, mid-treatment, and post-treatment

on both outcome and process measures. Participants rated the treatment program as highly acceptable. The results indicate that participants experienced a significant reduction in SAD symptoms and improvements in functioning and quality of life. Implications and future directions are discussed.

1. INTRODUCTION

1.1. Social Anxiety Disorder

Social Anxiety Disorder (SAD; also known as social phobia) is characterized by excessive and persistent fear of being embarrassed and evaluated negatively by others in one or more social situations (DSM-IV-TR; American Psychiatric Association, 2000). The most commonly feared and avoided social situations include performance situations, formal and informal social events, conversations with strangers and/or friends, and addressing authority figures (Grant et al., 2005).

In the *DSM-IV-TR*, two types of social anxiety were outlined: specific (non-generalized) and generalized. The specific subtype involved a fear of one performance situation (e.g. public speaking) or a fear of "several, but not most, social situations" (APA, 2000, p. 452). In contrast, the generalized subtype was assigned to those with a variety of social fears, not restricted to a particular situation or domain, including both social interactions and performance situations. SAD is often associated with significant personal distress, interpersonal and occupational impairment, and a reduced quality of life (Lipsitz & Schneier, 2000; Safren, Heimberg, Brown, & Holle, 1997). Generalized SAD is associated with a greater degree of functional impairment than the specific SAD subtype (Kessler, Stein, & Berglund, 1998). In the current diagnostic system (*DSM-5*; American Psychiatric Association, 2013), the criteria for the disorder remain essentially the same with a few revisions: the addition of duration criterion (lasting 6 months or more) and change in subtype classification. In the *DSM-5*, the specifier “generalized” has been deleted due to the difficulty in its operationalization, and the “performance only” specifier has been added to replace the previous “specific” subtype.

SAD is one of the most common psychiatric disorders in the United States, with lifetime and 12-month prevalence rates estimated to be as high as 12.1% and 7.1%, respectively (Kessler et al., 2005; Ruscio et al., 2008). SAD was first recognized as a distinct psychiatric diagnosis in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III, APA, 1980) but was believed to result in only minimal impairment. Over the past three decades of research SAD has been shown to be associated with significant functional disruption. For example, individuals with SAD are more likely to work in job settings that are below their level of education and are less likely to be married (Bruch, Fallon, & Heimberg, 2003; Sanderson, DiNardo, Rapee, & Barlow, 1990). Most individuals with SAD report having a chronic, life-long history of social fears and avoidance (Dalrymple, Herbert, & Gaudiano, 2007). The mean age of onset for SAD is 15.1 years, however the time of first treatment is typically not until 12.1 years later (Grant, et al., 2005). The nature of the disorder may help to explain this delay in seeking treatment, as social interaction is often required to present for treatment. Unfortunately, for those who do not receive treatment the prognosis for SAD tends to be poor. Persistence of SAD has been associated with symptom severity (i.e. reported fear and higher number of avoided social situations) and comorbidity (Blanco et al., 2011). Recovery, defined as two or more years of being symptom-free, is reported in only 20-40% of individuals with SAD within 20 years of onset, and in 40-60% of individuals within 40 years of onset (Ruscio et al., 2008).

Many individuals with SAD also have other psychological disorders such as major depressive disorder, alcohol abuse, agoraphobia, and specific phobia (Schneier et al., 1992). In the 2001-2003 National Comorbidity Survey Replication (NCS-R; Ruscio et

al., 2008), a national face-to-face survey with over 9,000 respondents, found that 75.2% to 90.2% of those with generalized SAD met criteria for at least one other lifetime *DSM-IV* disorder. Furthermore, 12.3% met criteria for three or more comorbid disorders. Severity of SAD and comorbidity is correlated with the number of reported social fears (Ruscio et al., 2008). In prospective analyses, SAD was found to be a predictor of later-onset depression and substance use (Bittner et al., 2004).

Interestingly, individuals who are most functionally impaired and affected by SAD tend to be less likely to seek and to receive treatment. In the NCS-R study, only 35.2 % of respondents with lifetime social phobia have ever received treatment specifically addressing social phobia (Ruscio et al., 2008). After excluding those with comorbid conditions, the percentage of individuals receiving help is even lower, ranging from 8.4% to 25.9%, and is inversely related to number of reported social fears.

1.2. Treatment of Social Anxiety Disorder

1.2.1. Pharmacological Treatment

Commonly used pharmacological treatments for SAD include selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), and benzodiazepines. As of present, there have been six meta-analyses investigating the efficacy of psychopharmacological treatment for SAD (Gould et al., 1997; Van der Linden et al., 2000; Fedoroff & Taylor, 2001; Blanco et al., 2003, and Hedges et al., 2007). These classes of medications have been shown to be effective in reducing symptoms of social anxiety, with effects superior to placebo. However, as with most pharmacological interventions, there are side effects including but not limited to sexual dysfunction, weight gain, sleep disturbances, nausea, and headaches (Ferguson, 2001).

Additionally, benzodiazepines are typically not recommended for individuals with a substance abuse history, as there might be potential for abuse. The use of MAOIs requires special dietary considerations, as they may increase risk for a heart attack and stroke. For some individuals, the perceived benefits of medication treatment may not outweigh its adverse effects. For example, in a randomized trial comparing comprehensive cognitive behavior therapy (CBT) to fluoxetine, 35% of individuals who inquired about the study and declined to participate stated that they were not interested in taking medication for their symptoms (Huppert, Franklin, Foa, & Davidson, 2003).

In a multi-site study, Davidson and colleagues (2004) examined the relative efficacy of available treatments for SAD by comparing the following: pharmacological intervention (an SSRI, fluoxetine), psychological treatment (comprehensive cognitive behavioral group therapy, CCBT), placebo, and combinations of the two (i.e. CCBT + SSRI and CCBT + placebo). The results revealed that all active treatments were effective with no significant differences among the groups (Davidson et al., 2004). Interestingly, combined treatment was not any more effective than the singular treatment. The side effects of medication may also result in a higher dropout rate. In this study, the dropout rate for the fluoxetine group was 25%, compared to 16% in the CCBT group.

On the other hand, Blanco and colleagues (2010) found different results in a double-blind placebo-controlled study. The authors examined a similar question, that is, whether combined treatment (phenelzine + CBGT) may be superior to drug only or therapy only conditions. In this study, the combined treatment produced greater reductions in social anxiety symptoms and in rates of remission (Blanco et al., 2010). The authors concluded that combined treatment provides an additive effect; therapy and drug

therapies may be operating under different but complementary mechanisms. This is the first study to report superiority of combined treatment. Of note, individuals who dropped out of the study after being randomized were not included in the analyses. Future replication of these findings is necessary, specifically with other psychopharmacological agents.

In a novel way of utilizing medication, D-cycloserine has been studied as an agent to augment exposure therapy through the biological pathways of fear extinction (Hoffman et al. 2006). The results have been promising and may provide another alternative for patients.

In summary, in the short-term, the effects of pharmacological and psychological interventions seem to be comparable (Davidson et al., 2004; Otto et al. 2000). In the long-term, however, pharmacological treatment is associated with a substantially higher rate of relapse following discontinuation (Haug et al., 2003; Liebowitz et al., 1999).

1.2.2. Cognitive Behavioral Treatments

Cognitive behavior therapy (CBT) has been demonstrated to be an effective form of psychological treatment, and is currently considered to be the gold standard and most studied psychosocial intervention program for SAD (Rodebaugh, Holaway, & Heimberg, 2004). CBT is an umbrella term for a broad family of related intervention programs that focus on creating a change in content and/or context of behaviors and thoughts (Herbert & Forman, 2011). Among others, CBT, broadly writ, includes the following specific models of therapy: cognitive therapy (CT; Beck, 1976), acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999, 2011), dialectical behavioral therapy

(DBT; Linehan, 1993) and mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002).

There are both commonalities and differences among the various types of CBT for SAD treatment protocols. One of the key components of all CBT treatments for anxiety disorders is exposure (Rodebaugh et al., 2004). Exposure involves the patient and therapist working together to develop a list of feared social situations ranked based on level of anxiety they elicit. The patient is typically exposed to the situations on his or her fear hierarchy in and out of the session, gradually working up to the most anxiety-provoking items. In addition to exposure, cognitive therapy (CT) employs cognitive restructuring strategies to identify dysfunctional, automatic thoughts that may result in feelings of anxiety in social situations. The goal of treatment is to correct presumed negative biases among anxiogenic cognitions. In contrast, the goal of acceptance-based approaches such as ACT is not to modify the content of cognitions per se, but instead to foster the development of psychological distance from, and mindful acceptance of, one's thoughts and other subjective experiences, while engaging in behaviors that are consistent with one's larger life values. Research has shown both CT and ACT to be effective for the treatment of SAD (Dalrymple & Herbert, 2007;Weiss, Hope, & Cohn, 2010). The importance of cognitive restructuring, however, remains unclear. In multiple sets of meta-analyses, exposure without cognitive restructuring was found to be as equally effective as exposure with cognitive restructuring (Powers, Sigmarsson, & Emmelkamp, 2008; Fedoroff & Taylor, 2001; Feske & Chambless, 1995). Similarly, in another meta-analysis of RCT studies, the authors found that the studies with cognitive restructuring and

applied relaxation did not have higher effect sizes than the studies without these components (Acarturk, Cuijpers, van Straten & de Graaf, 2009).

Cognitive behavioral group therapy (CBGT; Heimberg & Becker, 2002) is a well-established program for SAD that utilizes the group environment to encourage participants to practice exposure exercises. It also provides an added exposure just from the nature of being in a group setting. Cognitive restructuring skills and homework assignments are also included in the treatment. In a typical CBGT program, there are approximately six patients in a group, which meets on a weekly basis for 2.5 hours for 12 weeks. CBGT has demonstrated to be effective in numerous trials (Heimberg, Salzman, Holt, & Blendell, 1993; Heimberg et al. 1998). There are, however, disadvantages to group therapy, including an often prolonged waiting period to accrue the required number of participants to form a group, an inflexible schedule, and for some, unwillingness to attend a group treatment due to severe anxiety of being evaluated by other members. In comparing individual versus group delivery of treatment, Stangier and colleagues (2003) found that individual CT was more effective than CBGT on primary outcome measures at post-treatment and follow-up (Stangier et al., 2003). CT has been shown to be effective for treatment of various disorders, however, many individuals do not respond, or do not respond fully, to this intervention. Efforts to maximize treatment efficacy and customization have increased research in other forms of CBT.

Individual acceptance-based CBT approaches have been employed for treatment of SAD with similar, impressive effect sizes (d=1.00; Dalrymple & Herbert, 2007). Much like other CBT treatments, acceptance-based approach mainly focuses on in-session and homework exposure exercises. Within the ACT framework (Hayes, Strosahl & Wilson,

1999, 2011), however, the goal of these exposure exercises is not necessarily habituation to anxiety, but to offer the opportunity to practice newly acquired skills such as mindfulness and cognitive defusion in the context of anxiety. The patient learns to decrease the influence of internal experiences (e.g. thoughts, anxiety) on behavior, and to focus on actions that are consistent with one's larger life values. The existing literature comparing ACT and CT suggests that ACT may produce comparable effects as CT, while operating with different mechanisms of action (Forman, Herbert, Moitra, Yeomans & Geller, 2007; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). In a recent randomized comparison of ACT and CT for mixed anxiety disorders, Arch and colleagues (2013) found that the treatment packages offer similar gains. At post-treatment, there were no significant differences in outcome measures. At follow-up assessment, however, participants in the ACT condition reported lower experiential avoidance whereas those in the CT condition reported higher quality of life. In a moderation study, Wolitzky-Taylor and colleagues (2012) found that ACT was more beneficial for participants with comorbid conditions (specifically, mood disorders) than CT, whereas CT resulted in more treatment gains among those without comorbidity.

In a meta-analysis, Ruiz (2012) identified sixteen studies empirically comparing ACT and CT for various disorders. The authors found that ACT resulted in better outcomes in eleven of the sixteen included studies. These findings await further replication before definitive conclusions can be drawn. Based on preliminary studies and meta-analyses, it is likely that individual characteristics and symptomology may dictate differential response to these treatment packages.

In summary, traditional cognitive behavioral therapies are generally effective for the treatment of social anxiety disorder. These treatments, however, are not effective for all patients; some do not respond or do not respond fully, highlighting the need for further treatment innovation. Novel acceptance-based approaches to CBT are particularly promising. In a currently ongoing program, our research group is investigating this approach, based on the most popular and the best scientifically supported of these novel models (i.e. ACT), for social anxiety disorder with impressive results (Dalrymple & Herbert, 2007). In an effort to explore the differences in treatment outcome and moderators of treatment response, a randomized clinical trial comparing ACT with CT is currently underway.

In addition to identifying new interventions for social anxiety disorder in order to increase treatment response, it is equally important to identify new methods of treatment delivery in order to reach patients who might otherwise not have access to treatment.

1.3. Self-help Interventions

As discussed above, there are many empirically supported treatments for SAD, however only 20% of those with social anxiety seek and ultimately receive professional help of any kind (Grant et al., 2005). Individuals with SAD often do not seek help due to anxiety-related reasons, as the act of contacting mental healthcare providers itself requires social interaction, thereby triggering the fear of embarrassment, stigmatization, and negative evaluation (Olfson et al., 2000). Among those who do seek treatment, many find that there are additional barriers to receiving state-of-the-art CBT, including such factors as geographic location, availability of CBT-trained therapists, financial cost, and long waiting lists. According to a survey of a national CBT therapist directory by Yuen

and colleagues (2013), only 8% of CBT therapists report a specialty in treatment for SAD. Additionally, most of these therapists are concentrated in metropolitan areas, significantly limiting access to treatment for those living in non-metropolitan areas. Based on prevalence rates and population distribution, it is estimated that at least 3.4 million adults with SAD living in rural areas will not have access to an empirically supported treatment (Yuen, 2010). For this reason, it is imperative to address the need for and availability of treatment for SAD.

Self-help approaches may offer one solution to address the issue of availability of treatment. There is great variability in the scientific status of various self-help programs. Redding and colleagues (2008) investigated the extent to which popular self-help books, specifically tailored for anxiety and depression, were scientifically grounded and consistent with contemporary psychological research. In this study, four expert psychologists independently rated 50 popular self-help books on overall usefulness and the degree to which offered advice was scientifically supported. The results indicated that books with the highest ratings tended to be based on CBT principles. Explanations for this finding likely include (1) CBT may be more effective, (2) it is the most studied, and (3) it is more easily adapted for self-help format. One acknowledged limitation of the study was that the efficacy of the rated books was not directly tested, but hypothesized to be correlated with experts' ratings (Redding, Herbert, Forman, & Gaudiano, 2008). This highlights an important void in current research; few studies directly evaluate self-help texts and compare them to a traditional face-to-face format. There are several studies that have begun to examine the effectiveness of self-help workbooks, specifically those rooted in acceptance-based approaches, and have found promising results (Farmer, Forsyth, &

Sheppard, 2010; Lazzarone et al., 2007; Russo et al., 2010). In sum, CBT-based self-help programs may offer an advantage over other types/orientations of self-help programs, given their standardized structure, ease of dissemination (adaptability to self-help format), and scientific background. However, the efficacy of such self-help programs needs to be further directly evaluated and cannot be simply assumed.

CBT-based self-help interventions are characterized by a structured psychological treatment protocol, presented in a unit-based format, which the individual works through independently. They may also include supplemental materials (e.g., videos, access to on-line chat forums, minimal therapist contact), used to promote adherence and understanding. Common components of CBT self-help interventions include psychoeducation, exposure, cognitive restructuring, and applied relaxation (Cuijpers & Schuurmans, 2007). The main advantages of self-help interventions are evident in the following ways. Evidence-based CBT treatment can be delivered at a time and place most convenient to the participant with the ability to reach many more help-seeking individuals at a fraction of the cost of traditional in-person therapy. However, there are also drawbacks of self-help programs. They are often assumed to be less effective than standard psychotherapy, not appropriate for more severe conditions, and believed to be associated with high dropout rates (den Boer et al., 2004; Rosen, 1987). Nevertheless, in a meta-analysis of self-help interventions for anxiety, Hiroi and Clum (2006) found that such interventions are effective, demonstrating moderate effect sizes (d =.62). Additionally, drop out rates were on average 12.3%, which was not statistically different from attrition associated with traditional treatment. There were no significant differences in effect sizes among clinical, community or student samples, suggesting the wide range

of applicability of such interventions. Another meta-analysis by den Boer and colleagues (2004) limited its inclusion to RCTs of bibliotherapy for treatment of depression and anxiety disorders. The results indicated that self-help is significantly more effective than the control group (i.e., placebo/waiting lists), with a mean effect size of .84 (den Boer et al., 2004).

It should be noted that bibliotherapy in a research setting is different from the "pure" bibliotherapy available to individuals seeking help in the community, and the ecological validity of these studies may therefore be limited. Outside of a research setting, individuals might have access to the same or similar self-help materials, but do not receive contact from members of a research team, which might in itself serve a motivational role.

1.3.1. Internet-based Self-Help Treatments

In 2010, 77.8% of Americans had Internet access (ITU World Telecommunications, 2010), with a growing majority using high-speed, broadband Internet connections (Horrigan, 2009). As the cost associated with owning a computer and Internet services continues to decrease, the number of households using the technology continues to grow (Horrigan, 2009). In addition, access to an Internet-connected computer has improved; many public libraries now offer such access free of charge. The Internet may therefore offer a cost-efficient opportunity to disseminate empirically supported treatments, thereby serving to overcome some of the barriers associated with seeking and receiving psychological treatment. Furthermore, Internet-based self-help interventions have many advantages over traditional forms of treatment, including ready accessibility, standardized delivery of psychoeducation and therapeutic

concepts, time flexibility, and convenience. Additionally, Internet-based interventions may have advantages over traditional bibliotherapy in the ability to include interactive components. The Internet may also reach individuals who would not otherwise seek treatment by providing them with a sense of anonymity.

The Internet is an effective medium that allows individuals to gain access to various forms of treatment, facilitating the dissemination and implementation of self-help interventions. Internet-based self-help interventions are typically developed from self-help books and treatment manuals, adapted to the interface with the additional capabilities and interactivity (e.g., quizzes, videos, forums). Research has shown Internet-based self-help interventions to be effective for a range of disorders, including depression (Christensen, Griffiths, & Jorm, 2004; Clarke et al., 2005), panic disorder (Carlbring et al., 2005), and SAD (Carlbring et al., 2007; Titov, Andrews, Schwencke, Drobny, & Einstein, 2008), as well as problem drinking (e.g. Cunningham et al., 2005) and smoking cessation (Cobb et al., 2005). Furthermore, there is evidence that transdiagnostic Internet programs for depression and anxiety, addressing comorbidity, are also effective (Titov et al., 2012). Some recently developed programs for treatment of panic, anxiety and depression, such as *Fearfighter* (Marks et al. 2004) and *Beating the Blues* (Proudfoot et al., 2004) have already been recommended for use by national health services. In 2010, the Swedish National Board of Health and Welfare named Internet-based CBT as one of its suggested treatments for SAD (Carlbring, Andersson, & Kaldo, 2011). In 2012, the Australian government created a nationwide e-mental health service, which includes a support service and a "virtual clinic" called the *MindSport Clinic* (Titov et al., 2013). For anxiety disorders, the effect sizes of Internet-based CBT programs tend to be comparable

to those seen in face-to-face treatments (see reviews, Andersson & Cuijpers, 2009; Spek et al., 2007). Although highly encouraging, we must nevertheless interpret such conclusions with caution, given that there are few direct head-to-head comparisons of Internet-based and traditional interventions.

Hedman and colleagues (2011a) conducted one of the few available direct comparisons of an Internet-based intervention to an in-person treatment for social anxiety. Participants were randomized to receive either CBGT or an Internet-based CBT intervention. The treatment in the CBGT condition consisted of an initial individual session and 14 groups sessions (2.5 hours long) over 15 weeks. The Internet-based CBT intervention was of the same duration, consisting of 15 text modules. Throughout the treatment period, participants in the Internet condition also had access to a therapist via an online messaging system. The therapist provided mainly homework feedback and granted access to progress through the modules. Therapists were given the instruction to limit their time to less than 10 minutes per week per patient. Participants in both groups rated their treatment as equally credible. In the CGBT group, participants attended an average of 9.40 sessions, similarly participants in the Internet-based group completed an average of 9.33 modules. Furthermore, treatment adherence was the same between the two groups (80-81%). After treatment, 55% of participants in the Internet-based treatment and 45% in the CBGT group were considered responders. The results indicated that the CGBT and Internet-based CBT interventions were equally effective, with no significant difference between the two in outcome measures. Interestingly, the average amount of therapist time spent per patient was markedly different between groups (Internet: 5.5 minutes per week, *SD*=3.6; CBGT: 50 minutes). As discussed further

below, these findings highlight the importance of investigating whether therapist support is even necessary at all in the context of optimizing cost-effectiveness.

Andrews, Davies, and Titov (2011) also compared face-to-face group treatment to Internet-based CBT for SAD with similar results. Participants in both groups improved significantly with no difference in outcome between groups (Andrews, Davies, & Titov, 2011). However, the difference in the total amount of therapist time spent per participant was again large. For the duration of a 7-week treatment, a total of 18 minutes per participant was spent in the Internet condition, compared to 240 minutes in the in-person condition. Of note, participants referred to the clinic were given the option to volunteer to participate in the trial. Of those who met eligibility criteria (n=75), 37 did not want to participate in an online treatment, highlighting one of the challenges that might be associated with Internet-based self-help. Potential participants might not be interested in an online intervention, might perceive it as less effective, and be less likely to complete it. Some common self-reported reasons for drop-out across Internet intervention studies include: time constraints and burden of the program, lack of motivation, technical problems, lack of face-to-face contact, and perceived lack of treatment effectiveness (Christensen, Griffiths, & Farrer, 2009). There is also evidence to suggest that the Internet may reach clients of a higher degree of severity than traditional face-to-face treatment. In an Internet survey study, Erwin and colleagues (2004) found that out of 434 participants who responded to a survey linked to the anxiety clinic website, 92% met criteria for SAD and only 35.6% reported ever receiving psychotherapy treatment. The sample also had a two to three times greater unemployment rate than the national

unemployment at the time, and was twice as likely to have graduated from college than previous epidemiological studies of individuals with SAD (Erwin et al., 2004).

In a meta-analysis specifically focusing on SAD, Tulbure (2011) identified eight RCT studies examining Internet-based treatment. These studies were from four research groups in Australia, Spain, Sweden, and Switzerland; none had yet been conducted with the U.S. population. In all of the studies, the programs were based on cognitive behavior therapy principles (with traditional cognitive restructuring and exposure techniques). On average, the duration of interventions was 8.8 weeks, with the dropout ranging from 2.5 to 39% (M =10%). The effect sizes suggest that such programs are both effective in reducing symptoms of social anxiety (d = 0.86) and in improving quality of life (d = 0.53).

In addition to post-treatment benefits of Internet-interventions, the treatment improvements appear to be maintained at follow-up of 30-months (Carlbring, Nordgren, Furmark, & Andersson, 2009) and even five years after administration of the Internet program (Hedman et al., 2011b). Hedman and colleagues (2011b) conducted one of the first extensive follow-up studies of an Internet-based intervention, demonstrating that participants not only maintain but also continue to improve at a 1-year follow-up. Furthermore, there were no significant differences between 1-year and 5-year follow up assessment points, suggesting that the effects of Internet interventions are long-lasting. At the five-year assessment, only 10% of participants reported having received other forms of psychological or pharmacological treatment after completing the program. On average, 61.0% of participants attributed their improvement to the Internet-based intervention.

These results are promising and support the idea that Internet-based interventions are effective over the long-term.

Although there is mounting evidence to support the efficacy of Internet-based interventions, it is still not clear what exactly makes them effective (i.e., which specific components, method, delivery of material, model). For example, exposure is an integral part of cognitive-behavioral treatments for anxiety disorders (Fedoroff & Taylor, 2001). The importance, however, of incorporating live exposure sessions into Internet-based interventions is so far undetermined. Andersson and colleagues (2006) investigated the efficacy of an Internet-based self-help program for SAD that included in-person group exposure sessions. The authors found that the treatment package produced a mean effect size of .87. However, the treatment group was compared to a waiting list control and it is unclear if the exposure sessions added anything beyond the Internet program (Anderson et al., 2006). In a follow-up study, Tillfors and colleagues (2008) compared the same Internet self-help program to an Internet-self help program with five exposure sessions. The authors increased the number of exposure sessions to five, proposing that the two exposure sessions might have been insufficient to produce significant change in previous study (Andersson et al. 2006). Interestingly, 39% of the participants randomized to the Internet + exposure condition did not attend the in-person exposure sessions. The authors cite the lack of adherence as a potential limitation in comparison of the two groups, as 39% of the Internet + exposure group did not receive the exposure component and were therefore almost identical to the Internet-only group condition. There were no significant differences in treatment outcome between the Internet program alone group and the same Internet program with added in-person exposure component group. The study suggests

that the in-person group exposure sessions may not necessarily improve the effectiveness of the Internet-program. Future research is necessary to examine this question; as of now, it seems that instructions for out-of-session exposures may be sufficient.

Additionally, existing Internet-based interventions for SAD to date have solely been derived from cognitive therapy, and include distinctive components such as cognitive restructuring. There is, however, little evidence to support that those particular elements are necessary, and whether other forms of CBT might offer similar or superior results. More specifically, acceptance-based approaches have not yet been adapted for Internet use in this population. Internet interventions based on acceptance and commitment therapy have been developed and found to be effective for other disorders (e.g. depression, Carlbring et al., 2013; tinnitus, Hesser et al., 2012; chronic pain, Burhman et al., 2013). For this reason, one of the aims of the current study was to adapt an acceptance-based intervention for SAD for a web-based self-help format.

Although Internet-based interventions have been shown to be effective in a wide range of disorders, there are a number of challenges inherent in comparing the results of such interventions across studies. First, the interchangeable terminology used to describe Internet-based interventions has limited the communication between researchers. Some of the terms used to describe treatment delivered over the Internet include: e-therapy, online therapy, Internet therapy, e-health, telehealth, telepsychology, cybertherapy, minimal contact therapy, self-administered therapy, Internet cognitive behavior therapy (iCBT), and computerized cognitive behavior therapy (CCBT). These terms do not necessarily specify whether the Internet is used as a communication method between therapist and client, or as a method for self-guided treatment without therapist involvement. In order to

facilitate scientific replication and innovation, it is necessary to standardize the terminology and definitions used to describe Internet-based interventions (Proudfoot et al., 2011). Second, there are a wide variety of formats that have been utilized in research studies. Individual research groups often design their own intervention programs. The programs vary in duration and number of sessions offered, in the content that is presented, and in the level of interactivity. Third, the level of therapist support also ranges from no support (unguided) to minimal support (guided). Fourth, minimal support is also offered in various modes, such as weekly emails, telephone, text-messages, or in-person visits. The level of therapist support necessary to encourage participation in Internet-based programs, to minimize attrition, and to provide effective treatment therefore remains unknown.

1.4. Role of Therapist Support

Even with Internet-based interventions, therapist support is related to cost and thereby limits availability of treatment. The ideal cost-benefit balance between amount of therapist involvement and effectiveness of treatment remains to be determined.

In a meta-analysis of twelve Internet-based CBT studies that employed a randomized control design for depression and anxiety disorders, Spek and colleagues (2007) found that interventions for anxiety disorders (n=6) were highly effective; post-treatment measures for the experimental group were compared to control conditions (waiting lists, psychoeducation, self-monitoring), revealing a large mean effect size (d=.96). In another set of analyses, interventions were categorized based on the amount of therapist support provided. The interventions with therapist support had large effect sizes, ranging from d=.75 to 1.24, whereas those without any therapist support were associated

with small-to-medium effect sizes (*d*=.08 to .44). Other review studies have also shown that greater therapist involvement was associated with better treatment outcomes in mood and anxiety disorders (Newman, Erickson, Przeworski, & Dzus, 2003). In meta-analysis study of self-help interventions by Hirai and Clum (2006), limited to anxiety-related conditions, therapist contact was significantly associated with effect size. For studies that did not include guidance or support, the mean effect size comparing the intervention to the control group was small (*d*=.26) compared to studies with support that had a large mean effect size (*d*= 1.00). In the set of included studies, the average amount of therapist contact was one hour, with a considerable range (6 minutes to 3.6 hours). The amount of contact, however, was not significantly correlated with outcome (Hirai & Clum, 2006). Of note, the interventions being compared also varied in its presentation of content (i.e., bibliotherapy vs. more interactive Internet programs), which may contribute to the relative importance of therapist contact. Therapist support accompanying guided self-help interventions may provide beneficial components such as accountability and motivation to complete the modules and to ultimately stay in the program. In support of this conjecture, research has shown that greater therapist contact is associated with better adherence rates as compared with minimal or no therapist contact. In a study conducted by Carlbring and colleagues (2007) for treatment of social anxiety disorder, adherence to an Internet-based self-help therapy supplemented with weekly phone calls and emails was 93% (Carlbring et al., 2007). In contrast, a similar intervention for SAD with just weekly emails and without telephone support (Andersson et al., 2006) had a lower adherence rate of 62%.

In contrast to these findings, a recent study by Berger and colleagues (2011) sought to address the same question (i.e., whether therapist guidance is in fact necessary in self-help interventions) in a three-arm design for SAD. The authors compared unguided, "pure" self-help with two forms of guided self-help. In the guided self-help groups, participants were randomized to receive either weekly therapist email support or an on-demand therapist support (by phone or email based on preference). The purpose of including an on-demand support group is based on the idea that not every participant who receives support actually requires or prefers it; this model is flexible and theoretically most efficient in allocation of resources. The results indicated that 50% of participants demonstrated clinical improvement across all three conditions, as compared with an estimated 65% of clinical improvement in face-to-face treatments (Rodebaugh, Holaway, & Heimberg, 2004). Additionally, there were no significant differences among the three conditions in effect size (mean within-group d =1.47), drop out rate (~7%), number of lessons completed, or adherence to the intervention. Interestingly, in the on-demand guided condition, 52% of participants did not ask for additional support. Furthermore, there were no significant differences in pre-treatment characteristics or treatment outcome between those who asked for additional contact and those who did not. The authors concluded that unguided self-help is just as effective as guided self-help for treatment of SAD (Berger et al., 2011). These findings, however, need to be interpreted with a level of caution. The pure self-help condition received the same access to an online forum as other conditions, which may have provided sufficient "support" for the unguided condition to benefit; thus, the substantive difference between groups might have been unintentionally reduced. The authors also acknowledge that their sample size

(n = 81) was modest and may have been insufficiently powered to detect statistical difference.

Therapist support in Internet interventions varies considerably in the amount of time spent per contact, quality, frequency, and in modality. In one of the few parametric studies to date, Klein and colleagues (2009) investigated frequency of therapist contact (via email) in an Internet-based treatment for panic disorder and its effect on treatment outcome. There were two conditions that received the same Internet CBT program with either frequent (three emails per week) or infrequent (one email per week) therapist support. It is unclear what the "support" consisted of, and whether it required or encouraged the participant to respond. At post-treatment, there were no differences in outcome between groups. Furthermore, variables such as therapist alliance, treatment credibility, compliance, and satisfaction did not differ between the two groups. The authors concluded that frequency of therapist contact does not necessarily play a role in outcome, thus Internet interventions can be more cost-effective in limiting therapist support to infrequent contact (defined as once a week). These conclusions may be premature, however, as the quality of contact may have contributed to the lack of observed difference. It could be the case that receiving three emails a week stating the same information is not helpful and may not even be read with the same degree of interest. It is unclear whether participants actually read the additional emails provided in the frequent condition. Although not addressed by the authors, there is evidence to support this claim; in the frequent condition, participants responded to roughly 50% of emails (9.7 received from participant/ 20.2 sent by therapist); in the infrequent condition, participants responded 75% of the time (6.6/8.7). Additionally, the authors acknowledge

that the length of the emails between the groups was not controlled for and therapists in the infrequent condition may have compensated by writing longer emails.

In *MindSpot Clinic*, the Australian national e-mental health initiative to reduce barriers to treatment, participants receive a stepped care service based on need (Titov et al., 2013). The provided services are free of charge to Australian adults and include therapist-guided telephone or Internet treatment courses intended for general well-being for adults and older adults, as well as treatment courses for obsessive-compulsive disorder (OCD) or post-traumautic stress disorder (PTSD). The courses entail 4-6 lessons that are provided in a text form over 8-10 weeks. The therapist stays in regular contact with the participant. The contact varies depending on the problem and intensity of symptoms. For example, those enrolled to increase general wellbeing receive less contact than those with the OCD or PTSD diagnosis. Additionally, the program allows the patient to decide how much contact they prefer to receive. The preliminary results of this tailored intervention program have been positive.

In sum, the effects of therapist support in Internet-based treatments remain unresolved, and may depend on the type and severity of problem being addressed as well as individual preference. Furthermore, the interpretation of the existing literature is complicated given the many differences in the programs being compared. Overall, minimal therapist support appears to be beneficial for self-help programs, as it may serve to reduce attrition and increase engagement by providing participants with accountability and motivation to complete the program.

1.4.1. Use of videoconferencing to provide minimal therapist support

Videoconferencing involves real-time video and audio transmission between

individuals over the Internet, obviating the need to be in the same physical location. Videoconferencing has been effectively used to deliver full courses of treatment for a wide range of disorders (e.g., Himle et al., 2006, Bouchard et al., 2006; Yuen, Goetter, Herbert, & Forman, 2013). One of the evident advantages of videoconferencing beyond those of telephone and email is that it is a medium that allows for both verbal and non-verbal communication.

The telephone and email support that often supplements guided self-help programs have one potential disadvantage – lack of visual connection. The video input, in addition to providing the same elements of other modes of therapist support, may further personalize the treatment and make the patient feel more connected to his or her therapist. Nevertheless, it remains unknown whether this add-on is necessary or has benefits that may lead to a better treatment outcome.

There are a variety of available platforms for videoconferencing, including Skype, NetMeeting, Facetime, and Google Talk. Skype (www.skype.com) has many advantages over other applications. It is a secure, web-downloaded application, compatible with both PC and Macintosh operating systems, and available free of charge. Skype provides a compromise between in-person and less personalized email/phone modes of interaction. In contrast to previous studies that have employed this application for full treatment (non-self-help) delivery (e.g., Yuen et al., 2013), Skype could be used to provide just a brief check-in similar to that provided in other Internet-based self-help treatments. This brief face-to-face time may serve to enhance experience of the self-help intervention, enhance adherence, and prevent attrition. Additionally, the video component may be particularly

beneficial for treatment of social anxiety disorder, as it provides an opportunity for a regularly scheduled social interaction serving as a mini exposure.

1.5. Current Study

The purpose of the current study was to develop and to assess the preliminary efficacy and acceptability of an Internet-delivered, minimally guided self-help, acceptance-based CBT intervention for treatment of SAD in adults. Internet-based self-help interventions based on ACT principles have not been previously studied for treatment of SAD. First, it was important to assess if this model and treatment program would result in effect sizes comparable to those observed in other standard CBT treatments (both Internet-based and traditional in-person formats). Secondly, research has been unclear regarding the necessity and role of therapist support for Internet-based interventions. Furthermore, previous studies have only studied therapist support provided in select formats, specifically email, telephone, and on-line chat forums. It was hypothesized that videoconferencing would hold certain advantages over other communication formats in this context, and for this population.

In addition, it was necessary to determine if the proposed mechanisms of action within the ACT model, such as mindfulness, defusion, and experiential acceptance, would mediate treatment outcome in the novel intervention. Finally, pre-treatment factors that may result in differential treatment response were explored. Previous studies have demonstrated that baseline levels of psychological acceptance may be associated with treatment gains in an acceptance-based intervention (Yuen, Goetter, Park et al., 2010).

Thirteen individuals received an Internet-based self-help intervention with a weekly Skype check-in with a therapist. The Internet-based self-help intervention

consisted of eight weekly modules. The modules presented core content and prompted assignment of exposures exercises. Participants completed self-report measures at pre-treatment, mid-treatment, and post-treatment to assess treatment effects and potential treatment mechanisms. Clinician-administered measures at pre- and post-treatment were also used to assess the outcome of the program.

1.5.1. Hypotheses

Primary Hypotheses

- Hypothesis 1: Participants would rate our Internet-based self-help treatment program as acceptable; therapists of the Skype check-ins would rate the program as feasible.
- Hypothesis 2: Symptoms of social anxiety would show significant improvements from pre- to post-treatment, with treatment-related effect sizes comparable to other studies.
- Hypothesis 3: Secondary outcome measures including quality of life and other psychosocial functioning would improve between pre-treatment and post-treatment.
- Hypothesis 4: Theoretically relevant processes measures (mindfulness, defusion, and experiential acceptance) would change from pre-treatment to post-treatment.

Exploratory hypotheses

- Hypothesis 5: ACT processes (including mindfulness, defusion, and experiential acceptance) would be associated with treatment outcome.

- Hypothesis 6: Baseline levels of theoretically relevant predictors (i.e. psychological acceptance, awareness, defusion, and psychological inflexibility) would be associated with treatment outcome.

2. METHODS

2.1. Participants

Participants were recruited locally and nationally (from 11 states that offered explicit permission to do so given licensure restrictions[1]; international participants were considered on case by case basis) through on-line advertisements and referrals. The study website provided information about SAD, an overview of the study, and an email address to express interest. Online advertisements were posted on message boards, associations, and organizations for SAD. Individuals who contacted Drexel University's Social Anxiety Treatment Program (SATP) and lived outside of the Philadelphia area were also informed of the study.

2.1.1. Inclusion/Exclusion Criteria

Participants were adults (18-65) with a primary diagnosis of generalized SAD (based on *DSM-IV-TR* criteria; see Figure 1 for CONSORT diagram). To be included in the study, participants had to meet the following criteria: (1) have a primary diagnosis of the generalized subtype of SAD as assessed by the Social Anxiety section of Structured

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[1] As part of a previous study, our research group contacted the state boards to inquire whether their residents would be allowed to participate in a research study with the therapist licensed in a different state (Herbert et al., 2012). Out of the 49 states that were contacted (excluding Pennsylvania, which is the state in which the study is located), only 11 states gave us explicit permission to do so. The states included were: Pennsylvania, New Jersey, New York, Maryland, Hawaii, Idaho, Iowa, South Dakota, Washington, West Virginia, and Wisconsin.

Clinical Interview for DSM-IV and the Mini International Neuropsychiatric Interview (MINI); SAD had to be primary to any comorbid Axis I disorders (e.g. depression, other anxiety disorder); primacy was operationalized by two criteria, both of which had to be met: the disorder with the earlier onset, as well as the condition that is associated with the most current distress; (2) not taking psychotropic medication, or on a stable dose of psychotropic medication; (3) agree to refrain from receiving other psychological treatment for SAD for the duration of the study; (4) be fluent in English; (5) have access to a computer with Internet and web-camera; and (6) residence in one of the permitted states (see footnote on p.27). Participants were excluded if (1) they reported active suicidal ideation; (2) had history of psychotic symptoms, bipolar disorder, or a developmental disability; or (3) reported a history of substance dependence within past six months.

The study sample consisted of 13 adults (69.2% female) with a mean age of 33.2 years (*SD* = 10.4) and ranging from 23 and 57 in age. The majority of the sample was Caucasian (69.2%), employed full-time (69.2%), and single (46.2%). Educational attainment was as follows: 53.8% had a college degree, 23.1% attended some college, and 15.4% had a graduate degree. See Table 1 for complete demographic information.

Only four participants had not received any type of mental health treatment in the past. Of those who had received treatment, two participants had brief group treatment for social anxiety more than five years ago, and two participants received SAD treatment in the context of another issue. Five individuals had prior mental health services for other mood and anxiety conditions. Seven participants were on a stable dose of psychotropic

medications. None of the participants reported having ever received any form of acceptance-based therapy.

2.2. Procedure

Study advertisements included the SATP clinic contact information for individuals interested in participating in the study. Individuals were able to express interest by phone, email, or via an online form. As part of a telephone-based screening with a staff member, potential participants were asked questions about problems that they were currently experiencing and their reason for calling. They were provided with a description of the study procedures. If interested in determining their eligibility for the study, individuals then proceeded to the consent procedure. Remote consent was necessary given that the purpose of the study was to examine the feasibility and dissemination of an Internet-based self-help intervention.

The consenting process was as follows: (1) potential participants received the consent form by email; (2) the staff member explained the consent form in detail over the phone, providing the individual with the opportunity to ask questions and/or voice concerns; and (3) the staff member assessed and ensured the individual's understanding of the risks and benefits of participating in the study. During the consenting process, participants were informed of the voluntary nature of their participation and the limits of the intervention (i.e., self-help, not individual psychotherapy). Participants were informed that they were free to withdraw from the research at any time without penalty if they wished to receive another form of treatment or start new psychotropic medication, or for any other reason. Risks specific to the use of Internet and email communication (i.e., transmitting personal information) were also thoroughly conveyed.

Potential participants were encouraged to read the consent form thoroughly and to ask any questions that they might have before signing the document. If they agreed to the terms stated in the consent form, participants sent the signed document to the clinic by fax, mail, or email (as a scanned attachment). If returning the signed document by mail, participants were provided with a self-addressed stamped envelope to return the consent form to the researchers.

After the signed consent form was received by the clinic, potential participants were invited to participate in a structured interview conducted by telephone. During this time the Mini International Neuropsychiatric Interview (M.I.N.I.; Sheehan et al., 1998) was administered to determine eligibility for the study based on the criteria stated above (see inclusion/exclusion). In addition, the social anxiety section of the SCID-IV for Axis I disorders (SCID; First, Spitzer, Gibbon, & Williams, 1996) was included for diagnostic reliability. For those who were not eligible, staff members explained how the program was not the best fit for their needs and were provided appropriate treatment referrals.

Following enrollment, all participants received a 15-20 minute phone instruction for using the website and a Skype video tutorial. Participants were then given access to the Internet interface and told that they may begin treatment, starting with the first module. See Figure 2 for an overview of the study procedures.

2.2.1. Intervention

All participants received the newly developed Internet-based self-help intervention. This Internet program was developed and adapted from a manualized in-person treatment program developed by our group (*Acceptance Based Behavior Therapy for Social Anxiety Disorder*; Herbert, Forman, & Dalrymple, 2009). The program has

been used in several trials of SAD (Dalrymple & Herbert, 2007; Yuen et al., 2013a,b). The employed interface was a modular e-learning system, using CourseSites by Blackboard (www.coursesites.com; see figure 3 for screen shots). CourseSites is a free website host that facilitates the development and dissemination of learning courses on the Internet. The website is password-protected and requires individual user login-in, which offers the ability to track user activity (e.g. number of log-ins). The program was comprised of eight modules in the form of online presentations, with an average duration of 30 minutes per module per week. The online presentations were developed using PowerPoint and Camtasia software to present slides accompanied by audio narration. These presentations were supplemented by reading materials, exercises, video clips, quizzes and homework assignments. The content of the modules focused on introducing and illustrating core ACT concepts (e.g., mindfulness, willingness, cognitive diffusion; see Figure 4 for sample illustration) and skills (e.g. gentle attention refocusing). In addition, the intervention emphasized behavioral principles effective for SAD, that are not exclusive to ACT, including the importance of practicing feared situations (i.e. exposure), limiting use of safety behaviors, and social skills. For an overview of development considerations for the intervention, see Figure 5.

Participants were instructed to work through the treatment program in a sequential order, and encouraged to complete one module per week. There were quizzes to assess the understanding of key concepts before granting the participant access to the next module. Each module briefly reviewed the content from previous weeks, and built on it. After each module, the patient was instructed to self-assign exposure exercises to complete for a given week. Examples of the type of expected exposures were provided.

Participants were prompted to enter the description of self-assigned exposures and date/time of anticipated completion. The purpose of this task was to ensure commitment and increase adherence to the homework assignments. The next module prompted the participants to enter the assignments that were completed in the past week. Other homework assignments included readings of articles/handouts and completion of additional forms, such as various self-monitoring assessments. Adherence and completion of modules for each participant was monitored on a weekly basis, using the built-in computerized statistics in the interface. Additionally, the therapist would check to see if the weekly module was completed prior to the weekly check-in. In the case that it was not, the therapist would encourage the participant to complete it prior to the video-call, in the context of reminding the patient of the importance of completing assignments in a timely manner. Participants were therefore also aware that in addition to the study coordinator and the computerized system, the therapist had access to their homework assignments and quizzes.

Confidentiality was ensured in the following ways. Participants were informed that they should complete the study procedures on a private computer. In addition, all study data was stored in a locked file and on a password-protected computer in a research office. Participants were assigned a de-identified number to be used for logging-in to the interface and for completion of surveys. Only the PI and project coordinator had access to the key linking ID numbers to participants' information.

2.2.2. Skype Check-in

In addition to access to the Internet-based program, participants had a scheduled weekly therapist check-in. Trained clinical psychology doctoral student therapist

completed the Skype check-ins. The guidelines and procedures for check-ins were developed to ensure consistency across patients. The weekly check-ins were limited to 10-25 minutes (except in the event of a crisis, or technological disruption). This time was intended to provide support (e.g., empathic listening), clarify treatment concepts as needed, address technological questions, and discuss general issues with treatment. The therapists reviewed specific treatment content as requested by the participant. The basic structure of the sessions was as follows: review of homework (exposure assignments), review of module concepts (as needed), and assistance with assignment of new homework (exposures). The therapists did not engage in formal psychotherapy per se, and limited the discussion to issues concerning their progress in the program and their social anxiety.

2.3. Measures

Participants were asked to complete an online questionnaire packet at the following time points: before treatment, mid-treatment (i.e., following completion of 4 treatment modules), post-treatment (i.e., at the conclusion of 8 treatment modules), and at follow-up (after 3 months post-treatment; this follow-up assessment and related data analyses are not included as part of the proposed thesis project). In addition, participants completed a brief weekly measure before starting each module. Online questionnaires were hosted on the Qualtrics website (www.qualtrics. com), which has been utilized in a number of IRB approved studies by our group at Drexel University.

2.3.1. Clinician-Administered/Rated Measures

- **Mini International Neuropsychiatric Schedule** (M.I.N.I.; Sheehan et al., 1998) is a brief structured interview used as a diagnostic instrument for *DSM-IV* Axis I

disorders. It has good inter-rater and test-retest reliability (Lecrubier et al., 1997). The MINI has been demonstrated to be concordant with SCID-P diagnoses (good to very good kappa coefficient) and to have, on average, good sensitivity (Sheehan et al., 1997; Sheehan et al., 1998). It has also been rated as acceptable by patients (Pinninti, Madison, Musser, & Rissmiller, 2003).

- **Structured Clinical Interview for DSM-IV Axis I Disorders** (SCID; First, Spitzer, Gibbon, & Williams, 1996). The SCID is a structured diagnostic interview for Axis I disorders based on *DSM-IV* criteria. It has been shown to have good interrater reliability (Ventura, Liberman, Green, Shaner, & Mintz, 1998). Only the social anxiety section of the SCID was utilized to minimize patient burden.
- **Anxiety Disorders Interview Schedule—Revised** (ADIS-R; DiNardo & Barlow, 1988). The ADIS-R is a widely used structured diagnostic interview for anxiety disorders. For the purposes of this study, only the social phobia section of the ADIS was administered. It provides a more detailed assessment of SAD symptoms than the SCID alone.
- **Clinical Global Impressions Scale** (CGI; National Institute of Mental Health, 1985). The CGI is a commonly used clinical tool to indicate symptom severity and overall symptom improvement on 7-point Likert scales.

2.3.2. Self-Rating Measures

- **Social Phobia and Anxiety Inventory** (SPAI; Turner, Beidel, Dancu, & Stanley, 1989). The SPAI is a comprehensive 45-item self-report measure to assess symptoms of SAD. Ratings are given on a 7-point Likert-like scale. The SPAI

has good test-retest reliability, internal consistency, concurrent validity, and discriminant validity (Beidel, Borden, Turner, & Jacob, 1989; Herbert, Bellack, & Hope, 1991; Peters, 2000; Turner et al., 1989)

- **Liebowitz Social Anxiety Scale** (LSAS-SR; Baker, Heinrichs, Kim, & Hofmann, 2002; Liebowitz, 1987). The LSAS-SR is a self-report version of LSAS (Liebowitz, 1987), consisting of a 24-item measure to assess fear and avoidance experienced in social and performance situations. Each item is rated on a Likert scale from 0 to 3. The LSAS is a reliable, valid, and sensitive measure for SAD (Heimberg et al., 1999). The LSAS-SR has good test-retest reliability (r = .83), internal consistency (Cronbach's alpha = .95), convergent validity, and discriminant validity (Baker, Heinrichs, Kim, & Hofmann, 2002).
- **Brief Version of the Fear of Negative Evaluation Scale** (Brief FNE; Leary, 1983). The Brief FNE is a self-report measure consisting of 12 items assessing fear of negative evaluation with ratings made on a 5-point Likert scale. It has been shown to have excellent test-retest reliability and inter-item reliability, good discriminant validity, and adequate construct validity (Collins, Westra, Dozois, & Steward, 2005).
- **Beck Depression Inventory-II** (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a commonly used 21-item self-report questionnaire to assess symptoms of depression, with good psychometric properties (Osman, Kopper, Barrios, Osman, & Wade, 1997). Ratings are given on an ordinal scale from 0 to 3.
- **Quality of Life Inventory** (QOLI; Frisch, Cornell, Villanueva, & Retzlaff, 1992; Frisch, 1994). The QOLI is a 32-item self-report measure to assess overall life

satisfaction in a number of areas of life, such as health, friendships, and work. The QOLI has good test re-test reliability (r = .80 to .91) and internal consistency (Cronbach's alpha = .77 to .89; Frisch et al., 1992).

- **Drexel Defusion Scale** (DDS; Forman et al., 2012). The DDS is a 10-item self-report measure to assess an individual's ability to defuse from thoughts and feelings. Ratings are given on a 6-point Likert scale.
- **Philadelphia Mindfulness Scale** (PHLMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). The PHLMS is a 20-item self-report measure to assess mindfulness on the subscales of present-moment awareness and psychological acceptance. Ratings are given on a 5-point Likert scale. It has good construct validity, concurrent validity, and internal consistency (Cronbach's alpha = .86, .91 for awareness and acceptance, respectively).
- **Acceptance and Action Questionnaire-II** (AAQ-II; Bond et al., 2011). The AAQ-II is a 7-item self-report measure to assess the construct of psychological inflexibility. Ratings are given on a 7-point Likert scale. AAQ-II has been demonstrated to have satisfactory reliability and validity. Lower scores indicate psychological flexibility.
- **Sheehan Disability Scale (**SDS; Leon, Olfson, Portera, Farber & Sheehan, 1992). The SDS is a well-established self-report measure used to assess impairment in the work life, social life, and family life domains. The measure consists of three items, asking respondents to rate the degree of impairment from their psychological symptoms in these domains on an 11-point Likert scale. The measure has been shown to have satisfactory reliability, criterion and construct

validity (Leon, Shear, Portera, & Klerman, 1992).

- **Reaction to Treatment Questionnaire** (RTQ; Holt & Heimberg, 1990). The RTQ is a 17-item measure administered after the 1st session (in this case, prior to module 2) to assess patient expectancies of the treatment, including credibility of treatment rationale, confidence that the treatment will reduce social fears, and expected change in severity of symptoms of social anxiety following treatment.
- **Client Satisfaction Survey** (CSS; Dalrymple & Herbert, 2007). The CSS is a self-report measure assessing patient satisfaction and treatment acceptability, with items that address the following domains: satisfaction with treatment, satisfaction with therapist, symptom reduction, avoidance reduction, and expectations of symptoms and avoidance one year and five years from now. The ratings are on a 5-point Likert scale. Participants are also asked the following open-ended questions: 1) "What did you find the most beneficial about this treatment?" 2) "What did you find the least beneficial about this treatment?" 3) "Do you have any suggestions for improving this treatment?"
- **Demographics Questionnaire**. This questionnaire was administered prior to start of treatment. Background questions regarding gender, race, marital status, education, employment status, and previous treatment history were included.

2.3.3. Weekly Self-Report Measures

- **Social Anxiety Session Change Index** (SASCI; Hayes, Miller, Hope, Heimberg, & Justerd, 2008) is a 4-item self-report measure to assess change since start of treatment with respect to the following: anxiety in and avoidance of social situations, concern about embarrassment, and interference of anxiety in social

activities. Ratings are given on a 7-point Likert scale to compare current symptoms with pre-treatment symptoms (1 = much less; 4 = not different; 7 = much more). The SASCI has been shown to have good internal consistency across sessions (alpha = .89; Hayes et al., 2008). This measure will be given before each module to assess self-rated progress in treatment.

- **Before Session Questionnaire (BSQ; Forman, Chapman, Herbert, Goetter, Yuen, & Moitra, 2012)**. The BSQ is a 19-item self-report measure developed by our group for ongoing, weekly assessments in ACT trials. The items are ratings given on a 7-point Likert scale. Participants are asked to make a rating based on how they felt in the past week in the following domains: well-being, life satisfaction, symptom intensity, progress toward goals, acceptance, defusion, willingness, and avoidance. At this time, psychometric data are not available for this measure. The BSQ was given to participants before each module.

2.4. Assessment Schedule

	Screening	**Pre-tx**	**Weekly**	**After 1st module**	**Midpoint (after 4th module**	**Post-tx (8th module)**	**Follow-up (3 months)**
SCID/MINI	X					X	
ADIS-R	X					X	X
CGI	X					X	X
Demographics Questionnaire	X						
SPAI		X			X	X	X
LSAS-SR		X			X	X	X
Brief FNE		X			X	X	X
BDI-II		X			X	X	X
QOLI		X			X	X	X
AAQ-II		X			X	X	X
DDS		X			X	X	X
PHLMS		X			X	X	X
SDS		X			X	X	X
SASCI			X				
BSQ			X				
CSS						X	

3. RESULTS

Participants were enrolled in the program on an on-going basis. Thirteen participants began treatment and all completed treatment (0% attrition). One participant was not available to complete clinician-administered post-treatment assessment but completed the self-report post-treatment questionnaire.

Prior to conducting any of the analyses, violation of assumptions for given tests were examined. If violations existed, they were addressed by transforming the data appropriately and relevant limitations are acknowledged in the interpretation of results.

Hypothesis 1: Participants would rate this Internet intervention as acceptable; Skype therapists would rate the support as feasible.

All participants completed a client satisfaction survey (CSS) following their participation in the program. The CSS ratings were examined to determined how satisfied participants were with the treatment and how effective they found it to be for treatment of their social anxiety symptoms (Table 7– 12). Clients reported being satisfied with their treatment (92.3% completely or mostly satisfied) and with their therapist (92.3% were completely or mostly satisfied). Most clients found that the treatment decreased their fears in social situations (77.0% strongly agreed or agreed) and decreased their avoidance of related situations (92.3% strongly agreed or agreed). Most expected their fears and avoidance to be less severe one year from completion of program and five years following the program (only 7.7% predicted fairly severe symptoms, while 0 % predicted very severe symptoms). Nearly all participants (92.3%) found receiving the Internet-based self-help program as very or fairly easy; one participant was neutral (7.7%).

Similarly, nearly all clients (92.3%) found the therapist support very helpful or helpful. All would recommend this treatment to a friend.

Due its exploratory nature and small sample size, there was only one therapist (first author) assigned to all participants. The therapist rated the delivery of this treatment (both Internet program and Skype support) as very feasible and fairly easy to administer. The mean number of minutes spent per session was 16.9 (SD = 5.6). The total mean number of minutes spent on Skype for each participant over an 8-week program was 130 minutes. The majority of the sessions did not experience any technical difficulties (80.4%). There were minor to moderate technical difficulties in 19.6% of the sessions. The most commonly therapist-reported technical problem was poor connectivity or dropped calls (55.5% of sessions with technical difficulties), followed by disruption in video (35.0%), unexpected freezing of the call (10.0%), and disruptions in sound (5.0%). In all cases, the technical difficulty was resolved and therapist and client were able to resume the session.

Hypothesis 2: Symptoms of social anxiety would improve from pre- to post-treatment assessments.

Repeated measures *t*-tests were used to test for significant differences in symptom change as assessed by outcome measures, specifically the SPAI-SP, LSAS-Total, LSAS-F, LSAS-A, Brief-FNE, CGI-severity, and BDI (Table 2). The results were significant for all measures, with effect sizes (d = 0.90 to 1.47) categorized as large to very large.

At post-treatment, 10 of 12 of participants still met *DSM-IV-TR* criteria for SAD. Based on clinician rated improvement at post-treatment, 8.3% were considered "very much improved," 41.7% as "much improved," and 50% as "minimally improved."

Hypothesis 3: *Quality of life and other psychosocial functioning would improve between pre- to post- treatment assessments.* A repeated measures *t*-test was used to evaluate change in SDS-total, SDS-work, SDS-social, and QOLI measures (Table 2). All were significant with medium to very large effect sizes (d = 0.57 to 1.14).

Hypothesis 4: *Theoretically relevant process measures, including mindfulness, defusion, and experiential acceptance, would change from pre to post treatment.*

Repeated measures *t*-tests were used to test for significant change in pre- to post-treatment process measures, specifically PHLMS-Acceptance, PHLMS-Awareness, AAQ-II, and DDS. The differences in PHLMS-Acceptance and PHLMS-Awareness were very small and not significant. Participants did demonstrate an overall significant decrease in psychological inflexibility (AAQ, d = 0.94) and an increase in defusion (d = 1.06).

Exploratory Hypotheses

Due to the small sample size of this study, Pearson's r (effect sizes) was used to assess the relationship between variables for correlational analyses. The strength of relationship was judged based on Cohen's (1988) conventions for effect sizes: small ≥ 0.1, medium ≥ 0.3, large ≥ 0.5.

Hypothesis 5: Change in Mindfulness, defusion, and experiential acceptance would be associated with treatment outcome. A correlational matrix was used to examine the relationship between pre-treatment to mid-point changes in mindfulness, defusion, and experiential acceptance with mid-point to post-treatment changes in primary outcome measures. Pre to mid-treatment increases in PHLMS-awareness residualized gain scores were moderately associated with decreases in social anxiety symptoms (LSAS-Total: r =

-.66, p = .01; SPAI: r = -.39, p = .18; Brief FNE: r = -.17, p = .57). Other measures were inconsistent in their results (See Table 3). The associations between pre- to post-treatment residualized gain scores on process variables and pre- to post-treatment residualized gain scores on social anxiety measures were also explored (See Table 4). There was a moderate to large association between increases in defusion and decreases in symptoms of social anxiety (SPAI: r = -.36, p = .24; Brief FNE: r = -.51, p = .08). There was also a moderate to large positive association between changes in scores on psychological flexibility and changes on social anxiety measures (LSAS: r = .39, p = .18; SPAI: r = .35, p = .25; Brief FNE: r = .53, p = .06).

Hypothesis 6: Baseline levels of theoretically relevant predictor variables would be associated with treatment outcome changes. Correlational analyses were conducted between baseline levels of acceptance, awareness, defusion, and psychological inflexibility and residual treatment gains in social anxiety symptoms. Higher baseline PHLMS acceptance scores were moderately associated with greater changes in social anxiety (LSAS: r = -.23, p = .45; SPAI: r = -.44, p = .14; Brief FNE: r = -.46, p = .12). Baseline levels of PHLMS awareness scores were not associated with treatment outcome. Higher baseline levels of defusion were significantly associated with greater changes in LSAS (r = -.70, p = .01), SPAI (r = -.67, p = .01), and changes in Brief FNE (r = -.53, p = .06). Lower baseline levels of psychological inflexibility were moderately associated with changes in outcome (SPAI: r = .41, p = .16; Brief FNE: r = .43, p = .14). Baseline RTQ scores were slightly associated with treatment outcome (SPAI: r = - .14, p = .64; and Brief FNE: r = -.22, p = .46, See Table 5).

Correlations were also used to examine whether program adherence including login-in frequency and number of minutes spent on Skype was associated with SAD symptom change at post-treatment as measured by LSAS (See Table 6). All participants completed the weekly written homework assignments (specifically, self-monitoring, Daily Experiences Diary). It was not documented, however, how many had successfully completed all of their exposure assignments. The number of times the participant clicked through the website content was significantly associated with residual change in social anxiety measures (LSAS: $r = .67$, $p = .01$; SPAI: $r = .63$, $p = .02$; Brief FNE: $r = .50$, $p = .08$). The number of login-ins was highly associated with change in Brief FNE ($r = .61$, $p = .08$) but only moderately with residual change in SPAI ($r = .48$, $p = .19$). It was not associated with residual change in LSAS ($r = .16$, $p = .68$). The total time spent on Skype check-ins was slightly associated with treatment outcome change (LSAS: $r = -.16$, $p = .61$; SPAI: $r = -.15$; $p = .62$; Brief FNE: $r = -.36$, $p = .23$).

4. DISCUSSION

The current study developed a novel Internet-based intervention for social anxiety disorder and examined its feasibility, acceptance, and initial effectiveness as delivered with minimal therapist support provided via teleconferencing. To date, this is the only study utilizing videoconferencing as the medium for the support component in a guided self-help program. Another unique feature of the program is the acceptance-based theoretical foundation of the program. For social anxiety disorder, most of the currently available programs have been based on traditional Beckian concepts (e.g. cognitive restructuring), whereas acceptance-based approaches in an Internet-based self-help format have not yet been explored for this population.

4.1. Feasibility and Acceptability

Participants viewed this treatment program and format of delivery as acceptable and feasible. The majority of participants were satisfied with the program and with the Skype therapist support. Following completion of the program, most believed that their symptoms of social anxiety had improved and would continue to improve in the future (one and five years from present). In qualitative feedback, participants reported that they found the check-in to be the most beneficial part of the treatment, specifically the accountability and encouragement present in the weekly interaction. Of note, our program experienced 0% attrition, which is lower than the average for other researched Internet programs (mean: 10-12.3%) and may be another indication of participants' satisfaction with the intervention. Although impressive, this finding is preliminary given the small sample size of the study.

In developing this Internet program on a low-cost budget, there were considerations that had to be addressed, specifically the type of interface to host the program, the presentation and storage of content, and ways of motivating the participant to stay on track. The content of the current program was adapted from our in-person protocol. Within the context of low-cost development, the level of interactivity in the website was limited. The modules included illustrations to demonstrate metaphors and video clips of other mock patients. There were weekly quizzes and assessments. Overall, this program was technologically more advanced than the typical self-help bibliotherapy or text-based Internet programs, and incorporated components that are unique to this platform. In evaluating the content of the program, 76.9% of participants found it

engaging or very engaging. This finding suggests that engaging (and effective, see section below) programs could be created on a limited budget.

From the therapist's perspective, the Skype check-in sessions were convenient and easier to schedule than in-person sessions. The average number of time spent per Skype check-in session was 16.9 minutes per week (*SD* = 5.6), ranging from 5.4 to 34.6 minutes (see Table 13). The total mean number of minutes spent on Skype for each participant over an 8-week program was 130 minutes, which is significantly less than the in-person therapy demands. These calculations do not, however, include the time that the therapist spent grading participants' homework assignments and quizzes. Most notable is the finding that participants were able to establish a therapeutic alliance with a therapist in a remote environment and in minimal time (i.e. 15-minutes a week vs. the traditional 60 minute session). The flexibility of scheduling check-ins allowed those working during normal office hours, who otherwise would be unable, to receive treatment. This flexible nature of the support session was at times problematic when participants requested very late evening times or weekend hours, emphasizing the need to set boundaries of the program and of therapist availability prior to treatment. Relatedly, one of the challenges, inherent to most self-help treatment programs, is the patient's commitment to treatment. As compared to an in-person session, the participant does not need to block out a large amount of time or travel to the office location. Thereby, the convenience and flexibility of the remote therapist support may limit the individual's overall investment (and consequently, reducing commitment) in the program. Reduced commitment can have implications for homework adherence, less engagement in the course content, and perhaps most importantly, engaging in less exposure exercises.

None of the participants experienced technical problems in accessing the website or in utilizing the program. The technical problems that were encountered were confined to the therapist support component involving real-time synchronous communication via Skype, which is highly dependent on the Internet connection and speed of the client and therapist at a given time. Some of the participants were located in rural areas and expressed that their Internet connection is frequently unreliable. Several steps can be taken to reduce technical difficulties: (1) use of non-wireless Internet connections when possible, (2) conduct regular checks of the video and audio quality of the camera (outside of weekly check-ins), (3) allow the use of other devices to connect, e.g. Skype application on a cell phone, (4) permit use of other various videoconferencing software. Given that the quality and speed of Internet connections and of technological platforms continue to improve and are becoming more widely available, it is likely that technological difficulties will decrease in the future, with the hope of eventually completely eliminating such interference.

4.2. Treatment Outcome

In addition to patient satisfaction, the newly developed program was associated with significant reductions in social anxiety symptoms and improvement in quality of life and other indices of psychosocial functioning. More participants believed that the program decreased their avoidance of social situations than their fear, which is consistent with the acceptance-based framework that focuses less on the level of anxiety than on reduction of both physical and experiential avoidance. The effect sizes ranged from large to very large on primary outcome self-report measures (d = 0.88 – 1.47) and quality of life (d = 1.12). These are at least comparable to (and even larger than) effect sizes of

other state-of-the-art Internet self-help programs based on CT for SAD (e.g. meta-analysis Tulbure, 2011, average $d = 0.86$). In fact, effect sizes for social anxiety measures were larger or at least just as large as previously published pre- to post- treatment effect sizes for in-person trials (e.g. Heimberg et al., 1998, average $d = 0.81 – 0.92$; Davidson et al., 2004, average $d = 1.36$; and our own studies Dalrymple & Herbert, 2007, average $d =$ 0.72 - 1.24) as well as those reported in meta-analytic reviews (e.g. Acarturk et al., 2009; $d = 0.70$; Feske & Chambless, 1995; $d = 0.86$-1.10).

Along with primary social anxiety changes, the treatment program was associated with significant gains on the quality of life measures (**d =** 1.12). Of note, this effect size is larger than the previously examined traditional CBT approaches for SAD. For example, Eng and colleagues (2001) reported a pre-post effect size of 0.49 following a 12-week CBGT course for SAD. In acceptance-based approaches and in our previous studies, the effect sizes on quality of life were larger than the traditional CT but still lower than the present study (e.g. Dalrymple & Herbert, 2007: $d = 0.74$; Yuen et al., 2013a: $d= 0.53$). Relatedly, the post-treatment QOLI mean of the current study ($M = 1.07$) is within 1.5 standard deviations of the normative mean ($M = 2.63$; $SD = 1.11$; Frisch et al., 1992). Anecdotally, many participants reported that they found the values module in the treatment as one of the most novel and useful concepts; this may help to explain the observed difference in the quality of life. This large improvement in quality of life is consistent with the acceptance-based framework. ACT model in particular, on which the current acceptance-based protocol was largely based, stresses quality of life and well-being as major targets of treatment, more so than symptom reduction. For this reason, it

is not surprising that this treatment would impact quality of life more strongly than other intervention programs that do not address this domain directly.

These preliminary findings suggest that interventions based on acceptance-based principles utilizing Skype support may be at least equally efficacious as the best existing traditional CBT programs, and provide another distinct approach to treating individuals with SAD. Acceptance-based approaches, which emphasize valued living, may have a greater potential to increase quality of life in patients. Furthermore, this delivery method could be used to overcome some of the barriers associated with the dissemination of evidence-based treatments both to those residing in rural (or other) areas who may not have access to treatment, and to those who may be hesitant, because of their social fears and avoidance, to seek in-person treatment.

Participants' self-reported improvement was confirmed by the clinicians' assessment. The severity of participants' SAD symptoms was rated as significantly lower from pre- to post-treatment and was also of large effect size (d = .99). At post-treatment, however, only 2 of the 12 participants available for interview no longer met criteria for social phobia, and 4 of 12 no longer met criteria for avoidant personality disorder. The disparity between the self-report measures and diagnostic remission rates suggests that the program was effective in reducing symptoms but not effective enough to result in diagnostic change for most participants. Despite the relatively low diagnostic remission rate, this program is promising for a number of reasons. All participants were considered as at least "minimally improved" after an 8-week period of time, and with minimal support. It may be that for those who are of greater severity, a longer or more intensive program may be necessary. Of note, based on CGI ratings, 46.2% of the sample was

considered to be markedly ill prior to beginning the program, 38.5% were of moderate severity, and 15.4% were severely ill; suggesting that our sample was relatively severe. At the end of the program, 25% were considered mildly ill, 50% were moderately ill, and only 8% were classified as markedly ill and 8% as severely ill. These findings suggest that this program may be productively integrated into a stepped care approach, whereby resources can be efficiently allocated. That is, an individual with mild severity may benefit from the initial treatment dose with minimal therapist support, whereas an individual of moderate and higher severity may see a reduction in symptoms from the program but require extended or follow-up care to continue improvement. For those of moderate severity, the change in symptoms may result in a willingness to seek in-person treatment and motivation to continue to engage in exposure exercises and application of new strategies. All of these possibilities, of course, will require further research.

To further assess clinical improvement of participants, the percent of responders was calculated using the clinical significant improvement criteria (Jacobson & Truax, 1991). Reliable and clinically significant change contextualizes observed individual change with respect to potential measurement error (reliable change) and in comparison with population norms (clinical significance). For reliable change, an individual score needs to be greater than the range for variability in measurement. For clinically significant change, an individual needs to be within the distribution of those without the disorder. Two primary outcome measures were used for estimation with the following test-retest reliabilities, LSAS ($r = 0.94$; Fresco et al., 2001) and SPAI ($r = 0.86$; Rodenbaugh et al., 2000). Based on the LSAS measure, three participants were classified as responders, that is, they were within two standard deviations of normative data (Fresco

et al. 2001). Specifically, these three individuals had a score of 38.9 or below on the LSAS. Based on SPAI-SR and associated normative data (Bunnell et al., 2013), seven participants (or 54%) were considered responders with a score of 92.5 or below. Additionally, in using diagnostic criteria cut-off scores, 11 of 13 patients were below the 60-cut off point for LSAS (Rytwinski et al., 2009) and 10 of 12 patients were below the 88-cut off point for SPAI (Peters,2000). These findings suggesting that based on self-report measures, most of the patients were significantly improved and at post-treatment were experiencing symptoms of sub-clinical levels.

4.3 Process of Change and Moderators of Treatment Outcome

Levels of defusion and psychological flexibility significantly increased from pre- to post-treatment. These findings are consistent with the acceptance-based framework, as individuals need to be able to gain distance from their internal experiences and to reduce avoidance of situations that may elicit anxiety-related thoughts and feelings. The increases in these processes were also moderately associated with change in social anxiety symptoms, highlighting the potential mechanisms of action and the importance of defusion and psychological flexibility in an acceptance-based treatment. Mindfulness processes, specifically awareness and acceptance, did not significantly change from pre- to post-treatment. The lack of significant difference may be due to the nature of the assessment used to measure mindfulness. The PHLMS, a bi-dimensional measure of mindfulness, assesses a more stable, trait-like quality as compared to a more fluctuating state. Moreover, it may be that an eight-week intervention is too brief to contribute to a change on trait-like assessment. As mentioned above, the small size of this sample affords only conservative interpretability of these results.

Baseline levels of psychological acceptance, defusion, and psychological inflexibility were on average moderately associated with treatment outcome. This suggests that an acceptance-based treatment may more appropriate for individuals who are initially higher in their levels of acceptance, flexibility, and defusion. These factors could facilitate the selection of appropriate treatment packages for patients. Acceptance-based programs could also present an alternative option for those who do not find CT packages as effective. Future studies with larger sample sizes are necessary to identify the role of defusion, psychological flexibility, and mindfulness as potential mechanisms of change in an acceptance-based Internet treatment for SAD. Similarly, future research is needed to identify individual factors associated with greatest treatment gains, with the hope of providing optimal treatment matching.

4.4 Strengths and Weaknesses

A major strength of this study is that it is one of the first to examine an acceptance-based treatment in an Internet self-help format for social anxiety disorder. Additionally, the use of videoconferencing as a medium for guided-support has not been previously studied. Videoconferencing has many potential advantages over previously studied formats such as emails, texts, and phone calls. The videoconferencing component offers a novel way of including accountability and building therapeutic alliance in a self-help program. Furthermore, it provides another way of assessing and ensuring participant engagement (e.g. the video input allows the therapist to notice the participant's behavior during the session and his immediate environment or potential distractions, which would not be visible by other media such as phone). Based on our qualitative experience, it appears that Skype check-in is necessary to increase accountability to module completion

and more importantly to encourage the participant to engage in exposure assignments. The weekly check-in with another person serves as a strong reminder to complete one of the core behavioral assignments of SAD treatment. The same program with no support might have been successful in educating the participant in novel techniques (e.g. acceptance and willingness) but may not have provided the same level of encouragement for the exposure assignments as the videoconferencing check-in. Although email and text support may be helpful in increasing adherence to exposures, it is our hypothesis that videoconferencing has a significant advantage over these formats (as discussed above). Specifically, the face-to-face video component and the knowledge that the therapist has dedicated a specific time to speak with the patient may serve to facilitate the therapeutic alliance. In relation to SAD, videoconferencing provides a novel way of incorporating at least one weekly exposure (with the therapist) for the participant.

This program was developed with minimal funding and provided to participants at no charge. All participants already had access to computers and the videoconferencing platform (Skype) was available for free. CourseSites is a free website typically used for online learning courses. For these reasons, the study was economically feasible and provides preliminary evidence for cost-effectiveness associated with disseminability. In support of the utility of the program, over 50% of the participants (n = 7) in our sample were located in rural or suburban areas with limited access to CBT professionals. For those who did live within potential access to professionals (n = 6), they nevertheless reported preferring this treatment format due to convenience and reduced cost. This model supports the use of therapist-supported self-help programs in the context of a stepped-care model of treatment delivery.

There are however limitations that warrant attention. Due to the study aims of developing and testing initial efficacy of the program, the study sample was intentionally small (n = 13). The small sample size precluded adequately evaluating hypotheses regarding mechanisms and predictors of change in an acceptance-based program. In addition, a direct comparison to in-person or other CT-Internet programs, as well as possibly including a no-treatment or minimal-treatment control group would be necessary to solidify our initial findings regarding efficacy of this program. Due to limited resources, only the first author was the therapist on the study. Although, independent assessors were used to evaluate clinical improvement, it would be beneficial to have multiple therapists to avoid potential bias and to test the training and standardization of delivering this component of treatment. On a larger scale in dissemination of such programs, it is important to consider that therapists must be trained not just in providing assistance but also need to demonstrate competency with therapeutic framework of the intervention (e.g. ACT, in this case), which may contribute to additional costs associated with training. Additionally, the assessors were not blind to the condition (given that the study consisted of only one group) or to the assessment time point, which might have unintentionally influenced their ratings of improvement.

One of the challenges in Internet self-help interventions (as with any type of exposure-based CBT treatment) is the ability to increase the patient's willingness to engage in exposure exercises outside of the session. Although the importance of exposure exercises was emphasized both in the modules themselves and during the Skype check-ins, this may not have always been enough to motivate patients to engage in such exercises. If a participant would report difficulty in completing a homework assignment,

the therapist would often briefly provide trouble-shooting tips and follow-up in the subsequent check-in. The accountability provided by a brief weekly videoconference may not be sufficient, especially for those who are of greater clinical severity. Relatedly, the therapist also checked the website to make sure that the participant had completed the weekly module and associated homework. It is unknown whether this process may have also contributed to positive treatment outcomes by enhancing the sense of accountability. The current study's intervention may be improved by further emphasizing the importance of exposure and by including in-session exposure exercises, which constitutes a major component for in-person treatment. In doing so, however, the self-help format of the intervention may be compromised and may not be as appealing to some patients with SAD.

Participants were nationally and internationally recruited which raises various issues related to interjurisdictional practice and therapist licensure. According to Herbert and colleagues (2012), the biggest challenge to the dissemination of evidence-based treatment and to the adoption of remote technologies is in fact related to current status of legal regulations (Herbert et al., 2012; also see Yuen et al., 2012). The American Psychological Association's Practice Organization (APAPO) reviewed the licensure laws of all 50 states, and found that only 22 of 50 states have enacted telehealth laws. Only three, however, specifically apply to psychologists (APAPO, 2010). The interpretability of the state legislation regarding provision of telepsychological services is left to the state boards; however only eight state psychology licensing boards currently have such policies. Practitioners are often left without clear guidance, with no policies in certain states to refer to, or with policies that are often ambiguous specifically on the topic of

interjustictional practice. Herbert and colleagues (2012) highlight the inconsistency of regulations across states, which range from prohibition, temporary practice exception, laissez-faire approaches, to permitting interstate practice. It is also unclear whether the policies vary in the context of non-profit research studies and for-profit clinical settings, similarly in cases of trainees as opposed to licensed clinicians providing these services.

The regulatory ambiguity has been identified in the context of providing remote treatment services to patients in states outside of the therapist's state. It has not yet been explicitly discussed in the context of self-help support services. In states that specifically prohibit treatment from a therapist licensed in a state different from where the client is physically located, is self-help support considered part of the "treatment" category? Most of the currently available Internet-based self-help programs have been developed and utilized outside of the U.S. and have mostly neglected the question of therapist liability. Unfortunately at this time, researchers are often left to make their own judgment in determining whether the "minimal therapist support" in a self-help intervention (regular 15-20 minute contact in form of email, phone, text, or videoconferencing) is considered to be a variation of the traditional therapist-patient relationship and subject to the same standards as an in-person session. In the present study, we took the conservative approach and limited enrollment to the states that gave us explicit permission to enroll participants in their states for a research study. This approach not only significantly limited our recruitment pool but also denied many participants, who expressed interest in our study, access to an intervention program solely due to their state of residence.

As telepsychological innovations and practices continue to develop and advance, it is no longer possible for the legislative bodies to deny the significance of this practice

in the field. The regulations concerning these practices remain a limiting factor for dissemination of empirically supported interventions and also suppress related research. In 2011, APA and the Association of State and Provincial Psychology Boards (ASPPB) assembled a Telepsychology Task Force with goal of developing national guidelines to provide the necessary clarification in standardizing the provision of telepsychological services. The initial draft of the guidelines (APA, 2012) dedicates one section to interjurisdictional practice and states that, "psychologists are encouraged to be familiar with and comply with all relevant laws and regulations when providing telepsychology services to clients/patients across jurisdictional and international borders" (p.15). It is our hope that more guidance will be provided in future drafts and that it will facilitate the much-needed (and now delayed) discussion among the regulatory boards. The field desperately needs to achieve a resolution on this issue, in order to overcome the current legal barriers to providing patients with services that they may not otherwise have access to.

4.5. Future Directions

The current study provides preliminary support for the efficacy of an acceptance-based intervention in an Internet-based self-help format with minimal guidance via videoconferencing, and adds to a growing body of research on remote treatments. One of the challenges for remote interventions is staying current and relevant. As the technological landscape continues to evolve, treatment modalities need to adapt to match the needs of patients, utilizing the interfaces present in our patients' lives. An example of the changing landscape is the use of mobile phones for Internet access; as of 2012, 55% of Americans connect to the Internet by using their mobile phones (Rainie, 2012). It is

also predicted that by 2020, mobile phone will replace computers as the primary medium for Internet usage (Anderson & Rainie, 2008). This highlights the importance of creating webpages that can also be optimized for viewing on mobile phones. The Internet no longer needs to be connected to a computer; it has the capability to travel with the individual, thereby creating novel opportunities for intervention. Relatedly, mobile applications represent the newer technology that has become popular in the last five years. Mobile applications are gaining attention of researchers (research field termed *m*health) as potential supplementary tools for CBT treatment: engaging patients in treatment, providing psychoeducation, monitoring symptoms throughout the treatment, and providing encouragement and review after the treatment ends to maintain therapeutic gains (for review, see Price et al., in press). In the context of self-help interventions for SAD, technological innovations could be used to encourage completion of exposure assignments and to reinforce concepts. For example, patients could be prompted or reminded via text messaging to do an exposure on a given day, or an app could be utilized to provide relevant exposure suggestions based on patient's location at a given moment. Additionally, text messaging and apps could be used as ecological momentary assessment tools. For example, patients could receive a tailored message asking them to rate the degree of cognitive defusion, willingness to engage in exposure, and anxiety levels at various times throughout the day. Based on these responses, patients could have the option to also receive tailored and instructive feedback; thereby these technologies could serve a dual purpose (i.e. assessment and intervention). In summary, novel technologies could provide new opportunities to supplement and enhance Internet-based

self-help interventions, specifically as means to increase accountability and provide a regular on-going, supportive contact between the patient and clinician.

In an effort to increase cost-effectiveness, another way of reducing therapist time may be to implement crowd-sourcing in interactive learning communities, as an alternative to traditional forums. For example, participants could upload videos of themselves performing a role-play scenario (e.g. giving a speech) and having other participants rate it based on specific parameters (e.g. how anxious did the person appear, how engaging was the speech, etc.). The therapist would provide oversight to maintain the quality of these interactions. Crowd-sourcing would provide participants with both peer support and expert advice. There may be confidentiality barriers to such implementation (e.g. use of participant video) but none that would extend beyond that of a typical forum format and would simply require consent of the individuals for participation. Internet self-help interventions need to reconsider and re-conceptualize the traditional elements of these programs to match the current technological capability and thereby increase participant engagement and cost-effectiveness.

Another point of consideration is that most of the currently available Internet self-help programs are based on traditional CT. Although both CT and ACT interventions share a behavioral component, there are key differences that may impact treatment outcome as has been preliminary demonstrated in face-to-face studies (e.g. Arch et al., 2012). Future studies are needed to compare acceptance-based to traditional cognitive-therapy variations in an Internet self-help format. ACT relies heavily on metaphors and may therefore be well-suited for the visual capability of Internet-based platforms. Relatedly, it is useful to conduct dismantling studies to determine the active components

of the intervention with the goal of maximizing treatment efficacy. Additionally, most treatments do not work for all individuals; it is therefore imperative to conduct moderation studies with the hopes of being able to provide treatment that is appropriate for the individual based on specific characteristics. Such treatment matching could include a range of options: theoretical orientation of the program (e.g. ACT vs. CT), modality (e.g. self-help vs. remote vs. face-to-face format), and duration and length of therapist contact.

Self-help interventions are generally employed for their cost-effectiveness. Any program with therapist support, however, requires some allocation of resources, which necessarily impacts the availability of such treatment programs. For this reason, future studies need to (1) determine if therapist support is necessary in the first place, (2) determine the level of necessary expertise (e.g., therapist vs. trainee), (3) identify the particular modality of therapist support that is most effective (e.g., email vs. phone vs. text message vs. videoconference), (4) consider patient preferences, and (5) quantify the minimal time required to maximize the overall cost-benefit ratio.

Table 1. Demographic data

	Percentage (n = 13)
Gender	
Male	30.8 % (4)
Female	69.2 % (9)
Ethnicity	
Caucasian	69.2 % (9)
Asian	15.4 % (2)
African American	0.0 % (0)
Hispanic	7.7 % (1)
Other	7.7 % (1)
Education	
High school diploma	7.7 % (1)
Some college	23.1 % (3)
College degree	53.8 % (7)
Graduate degree	15.4 % (2)
Employment	
Full-time	69.2 % (9)
Part-time	7.7 % (1)
Unemployed	23.1 % (3)
Student Status	
Full-time	15.4 % (2)
Part-time	23.1 % (3)
Non student	61.5 % (8)
Marital Status	
Single (no current romantic partner)	46.2 % (6)
Married	0.0 % (0)
Living with partner (not married)	7.7 % (1)
Not living with current partner	30.8 % (4)
Divorced	15.4 % (2)
Widowed	0.0 % (0)
English first language	
Yes	92.3 % (12)
No	7.7 % (1)

Table 2. Means, standard deviations, and effect sizes

	M	*SD*	ES	*t*-test (pre-to-post-tx)
SPAI-SP				
Pre-treatment	139.53	23.52		
Mid-treatment	108.57	36.33		
Post-treatment	89.068	42.34	1.47	5.61 ($p < .001$)
LSAS-Total				
Pre-treatment	78.85	25.69		
Mid-treatment	59.38	31.05		
Post-treatment	51.85	32.50	0.92	5.33 ($p < .000$)
LSAS-Fear				
Pre-treatment	41.85	13.71		
Mid-treatment	32.23	16.06		
Post-treatment	28.23	16.54	0.90	6.48 ($p < .001$)
LSAS-Avoidance				
Pre-treatment	37.00	13.82		
Mid-treatment	27.15	15.37		
Post-treatment	23.62	16.42	0.88	4.11 ($p = .001$)
CGI-Severity				
Pre-treatment	4.75	0.75		
Post-treatment	3.75	1.22	0.99	3.63 ($p = .004$)
Brief-FNE				
Pre-treatment	50.23	9.01		
Mid-treatment	42.15	9.62		
Post-treatment	39.85	8.69	1.17	4.33 ($p = .001$)
BDI				
Pre-treatment	13.31	7.96		
Mid-treatment	8.08	6.99		
Post-treatment	5.69	5.53	1.11	3.46 ($p = .005$)
QOLI				
Pre-treatment	-0.79	2.16		
Mid-treatment	-0.06	1.20		
Post-treatment	1.07	0.94	1.12	2.67 ($p = .020$)

Table 2. Means, standard deviations, and effect sizes (continued)

SDS-Total				
Pre-treatment	19.08	5.20		
Mid-treatment	14.08	5.45		
Post-treatment	13.00	7.40	0.95	3.57 (p = .004)
SDS-Work				
Pre-treatment	6.23	2.46		
Mid-treatment	4.62	2.50		
Post-treatment	4.62	2.84	0.61	2.72 (p = .019)
SDS-Social				
Pre-treatment	8.46	1.85		
Mid-treatment	6.31	2.50		
Post-treatment	5.54	3.13	1.14	4.22 (p = .001)
SDS-Family				
Pre-treatment	4.38	2.93		
Mid-treatment	3.15	2.41		
Post-treatment	2.85	2.38	0.57	2.01 (p = .067)
PHLMS-Acceptance				
Pre-treatment	26.00	5.64		
Mid-treatment	28.31	9.24		
Post-treatment	27.92	6.33	0.32	1.67 (p = .121)
PHLMS-Awareness				
Pre-treatment	33.15	2.91		
Mid-treatment	33.15	3.65		
Post-treatment	33.23	3.27	0.03	.101 (p = .921)
AAQ-II				
Pre-treatment	31.92	6.09		
Mid-treatment	27.31	7.38		
Post-treatment	25.62	7.25	0.94	2.82 (p = .015)
DDS				
Pre-treatment	20.54	8.47		
Mid-treatment	24.46	9.66		
Post-treatment	30.92	10.94	1.06	5.70 (p<.001)

Table 3. Correlations between pre- to mid-treatment residual gain of process variables and mid- to post-treatment residual gain in social anxiety measures.

	LSAS	SPAI	Brief FNE
PHLMS-Acceptance	- 18 (p = .55)	-.12 (p = .69)	-.27 (p = .37)
PHLMS-Awareness	**-.66 (p = .01)**	-.39 (p = .18)	-.17 (p = .57)
DDS	.27 (p = .38)	.08 (p = .79)	.33 (p = .27)
AAQ – II	-.10 (p = .74)	-.06 (p = .85)	.06 (p = .84)

Table 4. Correlations between pre-to-post residual gains in process measures and pre- to post-treatment residual gain in social anxiety measures.

	LSAS	SPAI	Brief FNE
PHLMS-Acceptance	-.02 (p = .95)	-.00 (p = .99)	-.36 (p = .23)
PHLMS-Awareness	.23 (p = .45)	.09 (p = .77)	.27 (p = .38)
DDS	-.01 (p = .96)	-.36 (p = .24)	-.51 (p = .08)
AAQ – II	.39 (p = .18)	.35 (p = .25)	.53 (p = .06)

Table 5. Correlations between hypothesized predictors (pre-treatment) and pre-to-post treatment residual gain in social anxiety measures.

	LSAS	SPAI	Brief FNE
PHLMS-Acceptance	-.23 (p = .45)	-.44 (p = .14)	-.46 (p = .12)
PHLMS-Awareness	.02 (p = .96)	.15 (p = .63)	-.09 (p = .78)
DDS	-.70 (p = .01)	-.67 (p = .01)	-.53 (p = .06)
AAQ – II	-.14 (p = .65)	.41 (p = .16)	.43 (p = .14)
RTQ	-.03 (p = .93)	-.14 (p = .64)	-.22 (p = .46)

Table 6. Correlations between website use and Skype check-in, and pre-to-post-treatment residual gain in social anxiety measures.

	LSAS	SPAI	Brief FNE
Content items (clicks)	**.67 (*p* = .01)**	**.63 (*p* = .02)**	.50 (*p* =.08)
Logins	.16 (*p* = .68)	.48 (*p* = .19)	.61 (*p* =.08)
Total time on Skype	-.16 (*p* = .61)	-.15 (*p* = .62)	-.36 (*p* =.23)

Table 7. Satisfaction with treatment and therapist support

Satisfaction	Treatment	Therapist Support
Completely/Very Satisfied	46.2%	92.3%
Mostly Satisfied	46.2%	0.0%
Neutral	0.0%	7.7%
Somewhat Satisfied	7.7%	0.0%
Not at all satisfied	0.0%	0.0%

Table 8. Program effectiveness – Self-report

Degree of Agreement	"This treatment has decreased my fears in social situations"	"This treatment has decreased my avoidance of social situations"
Strongly Agree	30.8%	46.2%
Agree	46.2%	46.2%
Neutral	23.1%	7.7%
Disagree	0.0%	0.0%
Strongly Disagree	0.0%	0.0%

Table 9. Predictions of future symptom severity

Severity	"How severe do you expect your fears and avoidance to be one year from now?"	"How severe do you expect your fears and avoidance to be five years from now?"
Not at all Severe	53.8%	69.2%
Somewhat Severe	15.4%	15.4%
Neutral	23.1%	7.7%
Fairly Severe	7.7%	7.7%
Very Severe	0.0%	0.0%

Table 10. Difficulty of receiving Internet self-help treatment

Difficulty	Percentage of Participants
Very Easy	61.5%
Fairly Easy	30.8%
Neutral	7.7%
Fairly Difficult	0.0%
Very Difficult	0.0%

Table 11. Utility of Skype therapist support

Degree of Helpfulness	Percentage of Participants
Very Helpful	69.2%
Mostly Helpful	23.1%
Neutral	7.7%
Somewhat Helpful	0.0%
Not at all Helpful	0.0%

Table 12. Level of engagement – Self-report

Content Engagement	Percentage of Participants
Very Engaging	23.1%
Engaging	53.8%
Neutral	23.1%
Somewhat Engaging	0.0%
Not at all Engaging	0.0%

Table 13. Time of Skype check-in (minutes)

Session #	N	Mean		Median	Minimum	Maximum
1	13	14.6	(5.9)	14.0	7.3	29.5
2	13	15.9	(4.0)	14.8	10.3	24.0
3	13	17.8	(5.9)	16.0	5.4	26.0
4	13	17.6	(5.1)	19.4	10.4	27.4
5	12	16.5	(5.6)	16.3	9.5	25.0
6	13	16.8	(5.2)	17.2	6.0	25.0
7	13	18.9	(6.9)	16.2	8.4	34.6
8	12	17.3	(5.9)	14.9	10.1	30.0
Total	102	16.9	(5.6)	16.1	5.4	34.6

Table 14. Technical difficulties present in Skype check-in

Severity of difficulties	Percentage of sessions (*n*=102)
No technical difficulties	80.4%
Insignificant (quality of session not affected)	4.9%
Minor (quality of session minorly affected)	10.8%
Moderate (quality of session moderately affected)	3.9%
Major (quality of session majorly affected)	0.0%
Severe (could not complete session)	0.0%

Table 15. Types of technical difficulties encountered (n = 20)

Technical difficulty	Percentage of sessions
Dropped calls or poor connectivity	55.0%
Poor video quality	35.0%
Poor sound quality	5.0%
Unexpected freezing	10.0%

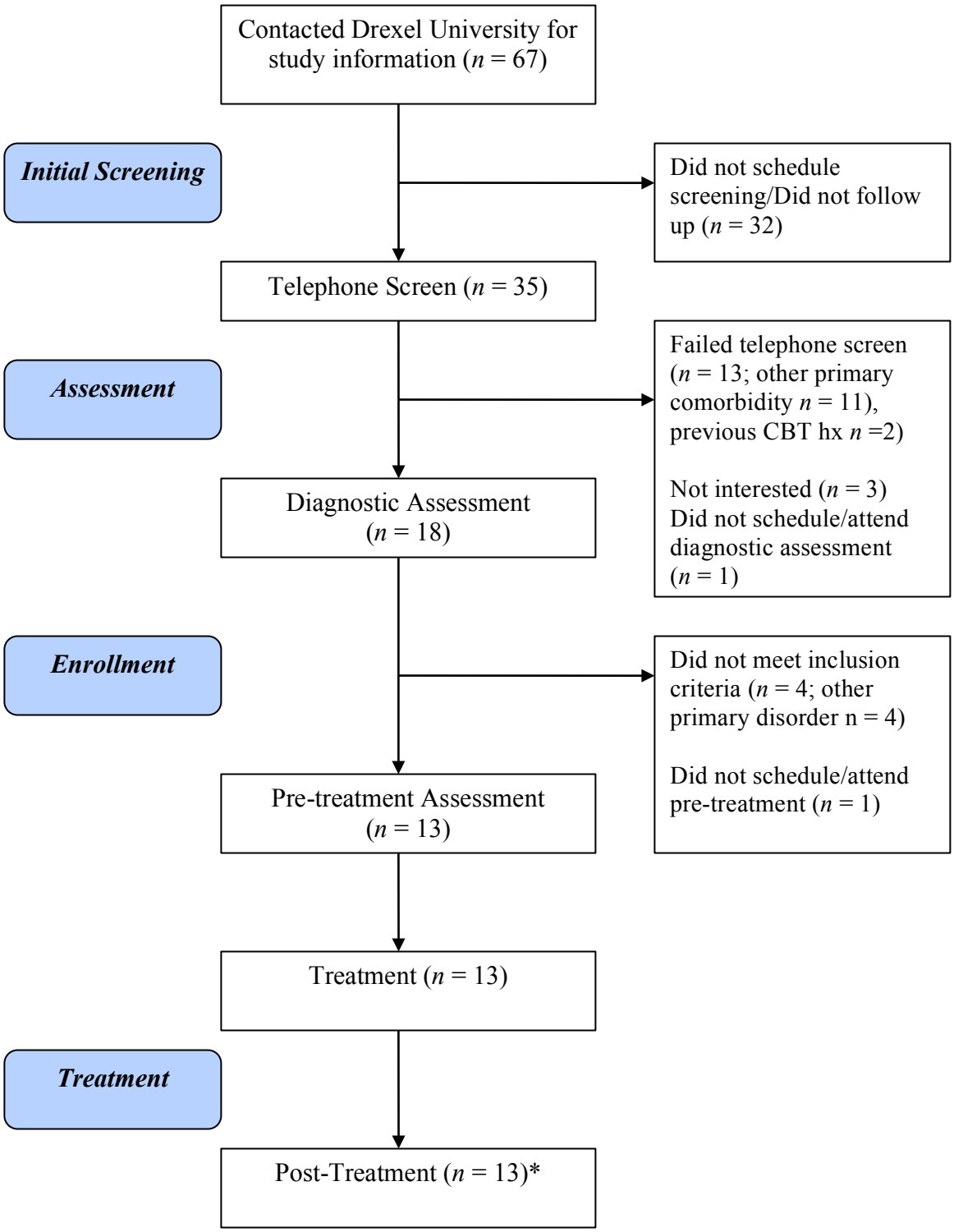


Figure 1. CONSORT diagram of participant flow

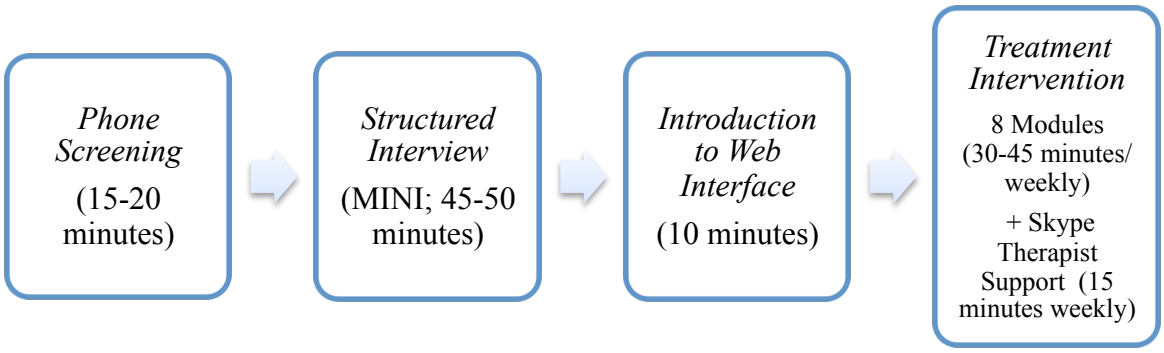
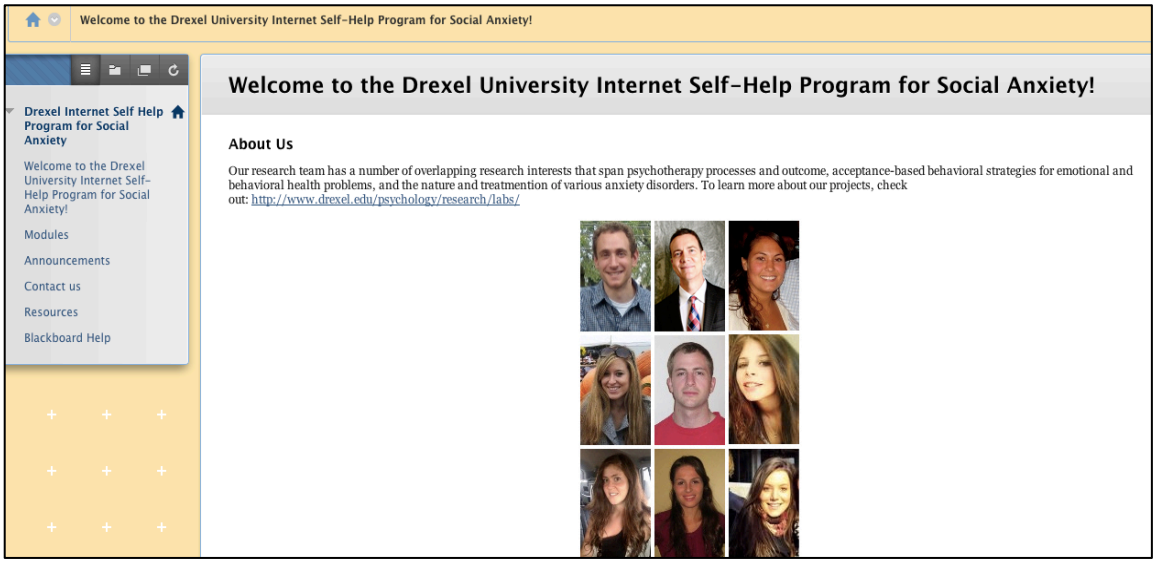


Figure 2. Overview of study procedures with time estimation



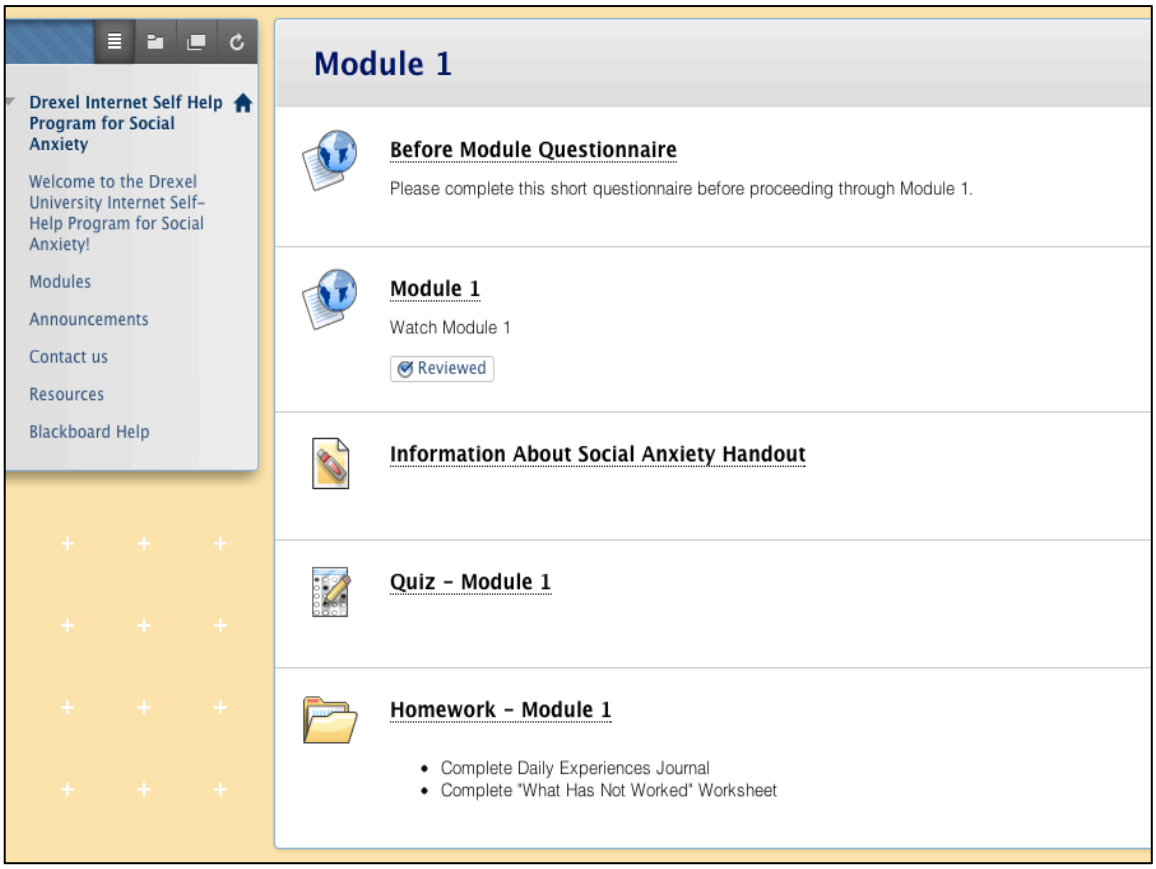


Figure 3. Screen shot of interface

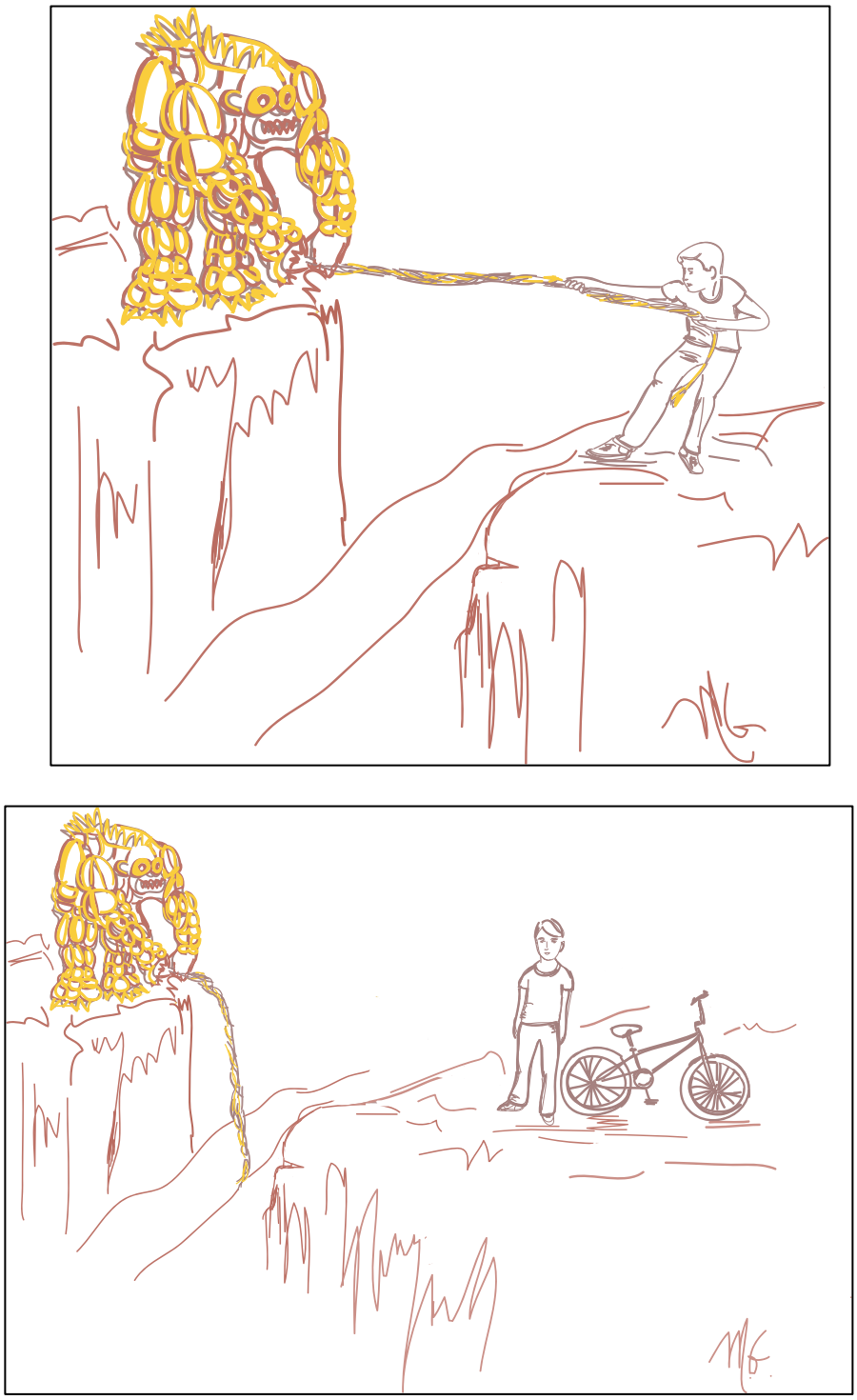


Figure 4. Illustration of the Tug of War Metaphor

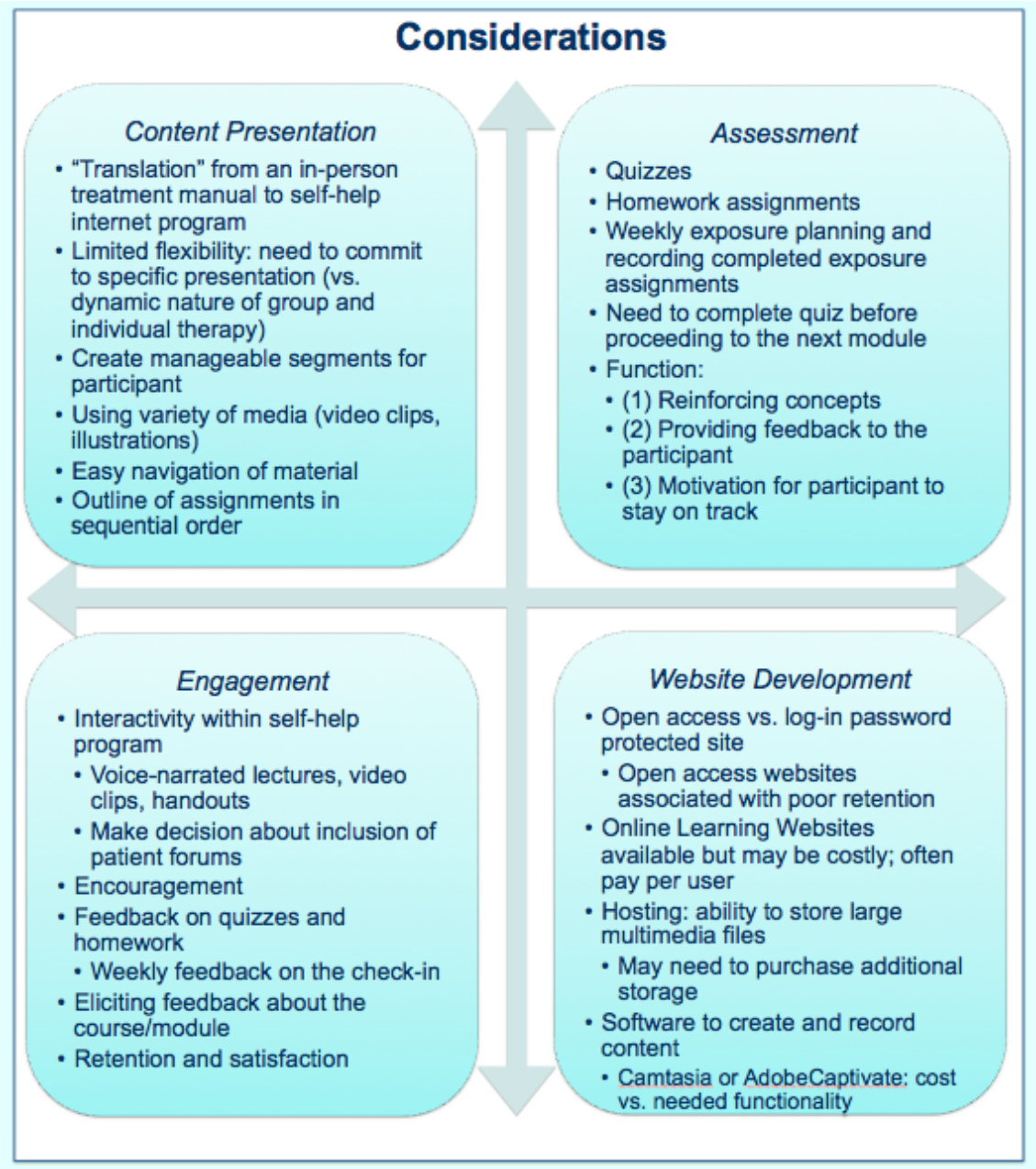


Figure 5. Development considerations

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APPENDIX A: Intervention Outline

1. Outline of a typical CBT Internet intervention (from Andersson et al. 2006)

Module	Description of Content
1	Introduction to the program; social anxiety disorder & its symptoms; facts about CBT
2	Outline of social anxiety model and relationship between thoughts, feelings, and cognitive symptoms; introduces automatic thoughts and explanation about identifying AT.
3	Cognitive distortions and how to restructure thoughts
4	Therapeutic goals and use of behavioral experiments
5	Exposure and reality testing
6	Self-focus and attention training
7	Troubleshooting potential problems with exposure
8	Social skills
9	Role of perfectionism, procrastination, and self-confidence; relapse prevention

2. Outline of proposed ABBT intervention (adapted from SATP protocol; Herbert, Forman, & Dalrymple, 2009)

Module	Description of Content
1	Introduction; Overview of ACT; creative hopelessness; control as the problem
2	Role and effects of safety behaviors and self-focused attention; gentle refocusing strategy
3	Willingness and exposure assignments; social skills
4	Values
5	Cognitive defusion
6	Mindfulness
7	Conceptualized/observing self
8	Post-treatment plan; relapse prevention

Outline of the Internet Intervention

Note – Metaphors and experiential exercises are italicized and are from the ACT text (Hayes, Strosahl, & Wilson, 1999, 2011) unless otherwise stated.

Module 1

- Introduction to the study; treatment and study guidelines
    - Overview of intervention, including various components within each module (i.e., didactic presentations, quizzes, homework assignments)
    - Importance of completing modules in a timely manner
    - Confidentiality issues – identifying information will not be used in the interface Each user is assigned a unique log-in ID
    - Review of importance of completing study measures

- Psychoeducation about SAD

- Overview of ACT rationale

- Creative hopelessness
    - Individual is asked to think about and write down ways in which social anxiety has limited his or her life.
    - Present the idea that many of the patient's goals can be classified into two broad categories: anxiety-reduction and enhanced functioning. Reflect the commonly perceived relationship between the two goals, i.e., anxiety needs to be reduced before one is able to achieve other life goals.
    - "What Hasn't Worked" Exercise
        - Provide a list of ways individuals often control their anxiety. Participant is then asked to list his or her own prior attempts, and then evaluate the effectiveness of these strategies.
        - Blue ribbon idea – It is not the case that the individual has not tried hard enough in the past; it is not a lack of effort.

- Introducing control as the problem
    - Demonstrate unsuccessfulness attempts at controlling our internal experiences, even (and especially) when there are high incentives for doing so.
    - *Exercises: Chocolate cake (attempts at controlling our thoughts), Polygraph (physiological control)*
    - It is instinctive to (and we have been conditioned to) try to control and get rid of distressing internal experience, much like we do with external events/stimuli.
        - *Mice-in-cream* parable (from Eifert & Forsyth)
        - But, this does not work with internal events.
        - Review emotional and cognitive control efforts, as well as small scale (e.g. safety behaviors and self-focused attention) and large

scale behaviors (anxiety controlling life) aimed at avoiding experiencing symptoms of anxiety.

- What is the alternative?
  - *Metaphor: Tug of War with a Monster*
    - What it means to really "drop the rope?"
      - The monster (anxiety) will still be on the other side and may get louder and more annoying from time to time.
      - If not engaging in the tug of war, individual is free to do whatever one needs/wants to do.
      - Dropping the rope is a process, not a single act.
  - *Metaphor: Passengers on the Bus*

  - Briefly introduce the idea of willingness to experience distressing internal experiences (thoughts/feelings), while moving forward with life anyway. Note that we understand that this might feel impossible right now, but that we will work on skills to enhance willingness.

- Module Review
- Quiz
- Homework: Instructions for creating a fear hierarchy; and for completing Daily Experiences Diary

Module 2

- Brief review of previous session: creative hopelessness, control as the problem, and willingness

- Present instructions and rationale for conducting exposure exercises
  - Exposure as a way to: (1) practice acceptance/willingness, (2) practice gentle refocusing of attention externally (this will be discussed further in a few minutes), and (3) work on social skills. Note that only practice leads to change
  - Participant will be instructed to select exposure exercises from their fear hierarchy to do for homework.
  - Participant will be prompted to write out the exposure assignments (at least three) that they are planning on doing over the coming week.

- Introduction to new concepts: safety behaviors and self-focused attention
  - Examples of common safety behaviors
  - Safety behaviors as experiential avoidance, and self-focused attention also part of control agenda.

- Video of safety behaviors experiment with a "sample" patient. Participant is asked to rate performance as an observer.

  - Instructions for performing their own safety behaviors experiment as homework.

- Gentle external refocusing of attention

- Reviewing "dropping the rope" in context of Module 2: not engaging in safety behaviors and increasing willingness to experience anxiety.

- Module Review
- Quiz
- Homework: Daily Experiences Diary, Feeling Good Exercise, Exposure Exercises (focus on dropping safety behaviors and gentle refocusing)

Module 3

- Review of the idea of willingness as an alternative to control
  - *Metaphor: Two Scales*
    - True willingness: anxiety is welcome to occur.

- Two types of discomfort: "clean" and "dirty"
  - Unlike clean anxiety, dirty anxiety is associated with unnecessary distress and reflects low levels of willingness

- Review instructions and rationale for conducting exposure exercises

- Addressing common barriers to conducting exposures

- Overview of Social Skills
  - Social skills lie on a continuum.
  - Three different domains of social skills: verbal, nonverbal, paralinguistic
  - Examples within each domain

- Module Review
- Quiz
- Homework: Daily Experiences Diary, Self-assigned exposures (practicing social skills)

Module 4

- Re-cap of previous modules

- Common exposure troubleshooting

- Values: Introduction to values. What are they? Encourage participant to reflect. Introduce common problem – values are often vague, unclear, and unarticulated; this insufficient clarity precludes clear focus on them in our daily life.
  - *Metaphor: Values as compass points*

        - Goals as being consistent with one's values. Values are broad our directions in life and relate to the long-term. Goals are achievable "mileposts" that are linked to values, and tend to be oriented more to the short-term.
    - *Metaphor: Funeral exercise*
        - "being free of anxiety" tends to dominate one's life but not what patient would like his life to stand for.
        - Also *Tombstone Exercise*
            - Participant is encouraged to think of and record two or three of his/her own key values.
    - Participant is asked to think about which values connect with his/her decision to enroll in this treatment program?
    - Explore how reduction of safety behaviors and outward focus is related to one's life values.
    - Distinction between outcome versus process
        - Goal-oriented focus is important but equally important to stay present.
        - *Metaphor: the Skiing metaphor*
    - Willingness and valued action
        - Commonly believed "barriers" to goals or values: distressing thoughts/feeling
        - Willingness to welcome anxiety/distress and move in the desired direction
        - Values and associated goals are what makes willingness worth it.

- Review
- Quiz
- Homework: Daily Experiences Diary, Values Assessment Rating Form, Self-assigned exposures – focus on the actual interaction and not just about "getting it done"

Module 5

- Review concepts surrounding values, including willingness and its relationship to values and associated goals. Highlight some of patient's key values.

- Introduction to cognitive defusion/deliteralization

    - Thoughts and feelings that we have are not necessarily "true."
        - Examples: having the thought that I'm the President of USA does not mean that I really am.
        - We therefore frequently believe that we need to determine the accuracy of our thoughts and feelings. This works in some situations. But often, it just leads to an endless quest of trying to figure out what is true, which is not only unnecessary, but counterproductive.

        - An alternative possibility is to acknowledge the presence of thought or feeling without trying to evaluate its truth.
            - Thoughts are often automatic and programmed by our experience. "Jack and Jill went up the _____" and "Mary had a little ____."
            - In social situations, distressing thoughts are rooted somewhere in our history, and now may arise simply out of habit.
    - The following experiential exercises will be described for the participant to try, and will also be demonstrated in a video format.

Exercise	Take-home message
Pick-up-the-pen	○ Thoughts do not need to influence behavior
"Hand in front of the face" *Yellow glasses metaphor*	○ Demonstrate fusion and defusion from thoughts and feelings. ○ Thoughts/feelings tend to "color" our perception when we are fused with them.
"I'm a Banana"	○ All thoughts are just thoughts, some we just more easily believe. ○ Connecting this concept to social anxiety: What are some thoughts (re: social anxiety) that are easy for you to believe?
"I'm having the thought/feeling that" *And/but exercise*	○ "I'm having the thought that…" provides cognitive distance ○ We often we use the word "but" as an excuse not to move engage in behaviors consistent with our values. In replacing "but" with "and" – you is able to engage in values-consistent action and simultaneously experience negative internal experiences (e.g. nervous, uncomfortable, etc.)

    - Goal of defusion: to learn to look *AT* your thoughts rather than *FROM* them; uncoupling between internal experiences and action.

- Review
- Quiz
- Homework: Daily Experiences Diary, continue to practice cognitive defusion, Self-assigned exposures (focus on cognitive defusion)

Module 6

- Review of control (i.e. focus on anxiety-reduction) as the problem

- Introduction to mindfulness: nonjudgmental awareness of moment-to-moment experience
    - The purpose of increasing mindfulness: accepting internal events without trying to change them. Different from Eastern philosophy, the goal of increasing mindfulness is to increase ongoing awareness and psychological acceptance of internal events, which in turn fosters values-consistent behavior.
    - "How-to"
        - *Exercises: Leaves on a stream*, *Clouds in the sky*

- Practicing mindfulness
    - Setting a designated daily time for regular, structured practice
    - Incorporate throughout the day in "real time"

- Cognitive defusion/deliteralization continued
    - Language getting in the way of values-consistent action – one *can* experience opposing thoughts/feelings simultaneously.
        - Possible to engage in behaviors (social interactions) and feel anxiety.
    - Mistaking "reasons" for "causes"
        - Looking for causes of anxiety often draws our attention away from present moment and may make the social situation worse.
        - Even if cause is known, it would not make the anxiety disappear.
    - Can still perform behavior without knowing the origin of anxious thoughts/physiological sensations.
    - Goal of cognitive defusion: increase willingness
        - *Content on cards* (Video demonstration or create a similar exercise)

- Review
- Quiz
- Homework: Mindfulness meditation (and record experience on Mindfulness Monitoring Form), Reasons as causes exercise, Daily Experiences Diary, Self-assigned exposures (continue to practice cognitive defusion in exposures)

Module 7

- Review of mindfulness

- Introduction to the idea of conceptualized self (and ways of decreasing attachment to it)
    - Conceptualized self limits behavioral flexibility and often leads to self-fulfilling prophecies.
    - Examples (e.g., "victim" identity; "good student" identity)

  - Relation to cognitive fusion and self-focused attention

- Introduction to the observing self as an alternative
  - Observing self ("self as vehicle") is a content-free locus of experience, free of judgment.
  - *House and furniture* analogy
  - *Observer exercise:* internal events come and go, but the observing self is the same
  - Linking observing self to the mindfulness exercises
    - *"I am having the thought"* exercise: observing the thoughts without trying to change them.

- Decreased attachment to conceptualized self (i.e., viewing it as just one of many possible stories) can vastly increase behavioral flexibility.

- Section on maintaining/increasing motivation to continue to do exposure exercises

- Review
- Quiz
- Homework: Mindfulness meditation (increase time), Practice "I'm having the thought…" exercise, Daily Experiences Diary, Self-assigned exposures.

Module 8

- Review of willingness
  - *Joe the Bum*, *Jump Exercise, Looking for Mr. Discomfort*

- Overview of barriers to willingness
  - FEAR/ACT algorithm

***F**usion with thoughts*	***A**ccept reaction and be present*
***E**valuation of experiences*	***C**hoose valued direction*
***A**voidance of experiences*	***T**ake action*
***R**eason giving for behavior*	

    - Participant will be asked to print out the table presented on the screen and encouraged to review it after treatment as a reminder.

- Relapse prevention
  - Normalization – *Path up the Mountain metaphor*
    - Progress is about moving in the direction towards one's values.

- Homework: Continue self-assigned exposures, Create and record a plan for next month of goals and homework to practice.

APPENDIX B: Measures

Demographics Questionnaire

Age: _____ Date of Birth (mm/dd/yyyy) : _____
Gender (circle one): Male Female

Employment status:
(0)☐ full-time (1)☐ part-time (2)☐ occasional/per diem
(3)☐ disability/SSI (4)☐ no income

Occupation:_____

Student status (if applicable):
(0)☐ full-time (1)☐ part-time
Student type (if applicable):
(0) ☐ undergraduate (1)☐ graduate

Level of Education
(0) ☐ Some high school
(1) ☐ High school degree
(2)☐ Some college
(3) ☐ College Degree
(4) ☐ Grad/Prof. School
(5) ☐ GED

Marital/relationship status:
(0) ☐ single (no current romantic partner)
(1) ☐ married
(2) ☐ living with partner (not married)
(3) ☐ not living with current partner
(4) ☐ divorced
(5) ☐ widowed

Ethnicity (*check all that apply*):
(0) ☐ African American / Black
(1) ☐ Caribbean / Haitian
(2) ☐ African
(3) ☐ Asian American
(4) ☐ Asian / Pacific-Islander
(5) ☐ White / European American / Caucasian
(6) ☐ European
(7) ☐ Latino/Latina / Hispanic American / Hispanic

(8) ☐ Native American / American Indian
(9) ☐ Multiracial
(10) ☐ Other:

Is English your first language?

(0) ☐ Yes
(1) ☐ No; I learned starting at age: _____

Have you been in counseling/therapy before? Yes No

If YES please answer the following:

To what extent did the treatment benefit you?
(0) ☐ No Benefit
(1) ☐ Minimal
(2) ☐ Moderate
(3) ☐ Highly Beneficial

During what time period did you receive services? _____

For how long did you receive services? _____

For what reason did you receive services?

_____

What was your diagnosis (if known)? _____

Who was the service provider and what was his/her credentials (PhD, MD, etc.)

_____

Describe the services you received (setting, type of treatment, what discussed, exercises, homework etc.) Please indicate date(s) and a brief description of treatment (including reason for treatment). Also indicate any medications you have taken (including dates) for mental health reasons.

_____
_____
_____
_____
_____

Beck Depression Inventory – II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, then pick out the one statement in each group which best describes the way you have been feeling during the past TWO WEEKS INLCLUDING TODAY. Check the box next to the statement you have picked. If several statements in a group seem to apply equally well, choose the one in the lower position.

1. Sadness

I do not feel sad.
I feel sad.
I am sad all the time.
I am so sad or unhappy that I can't stand it.

2. Pessimism

I am not discouraged about my future.
I feel more discouraged about my future than I used to be.
I do not expect things to work out for me.
I feel that the future is hopeless and that things cannot improve.

3. Past Failure

I do not feel like a failure.
I have failed more than I should have.
As I look back, I see a lot of failures.
I feel I am a total failure as a person.

4. Loss of Pleasure

I get as much pleasure as I ever did from the things I used to enjoy.
I don't enjoy things the way I used to.
I get very little pleasure from the things I used to enjoy.
I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

I don't feel particularly guilty.
I feel guilty over many things I have done or should have done.
I feel quite guilty most of the time.
I feel guilty all of the time.

6. Punishment Feelings

I don't feel I am being punished.
I feel I may be punished.
I expect to be punished.
I feel I am being punished.

7. Self Dislike

I feel the same about myself as ever.
I have lost confidence in myself.
I am disappointed in myself.
I dislike myself.

8. Self Criticism

I don't criticize or blame myself any more than usual.
I am more critical of myself than I used to be.
I criticize myself for all my faults.
I blame myself for everything bad that happens.

9. Suicidal Thoughts and Dying

I don't have any thoughts of killing myself.
I have thoughts of killing myself, but I would not carry them out.
I would like to kill myself.
I would kill myself if I had the chance.

10. Crying

I don't cry any more than I used to.
I cry more now than I used to.
I cry over every little thing.
I feel like crying, but I can't.

11. Agitation

I am no more restless or wound up than usual.
I feel more restless or would up than usual.
I am so restless or agitated that it's hard to stay still.
I am so restless or agitated I have to keep moving or doing something.

12. Loss of Interest

I have not lost interest in other people or activities.
I am less interested in other people or things than before.
I have lost most of my interest in other people or things.
It's hard to get interested in anything.

13. Indecisiveness

I make decisions about as well as I ever did.
I find it more difficult to make decisions than usual.
I have much greater difficulty in making decisions than I used to.
I have trouble making any decisions.

14. Worthlessness

I do not feel I am worthless.
I don't consider myself as worthwhile or useful as I used to.
I feel more worthless compared to other people.
I feel utterly worthless.

15. Loss of energy

I have as much energy as ever.
I have less energy that I used to have.
I don't have enough energy to do very much.
I don't have enough energy to do anything.

16. Change in Sleeping Pattern

I have not experienced any change in my sleeping pattern.
I sleep somewhat more than usual.
I sleep somewhat less than usual.
I sleep a lot more than usual.
I sleep a lot less than usual.
I sleep most of the day.
I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

I am no more irritable than usual.
I am more irritable than usual.
I am much more irritable than usual.
I am irritable all the time.

18. Changes in Appetite

I have not experienced any changes in my appetite.
My appetite is somewhat less than usual.
My appetite is somewhat greater than usual.
My appetite is much less than before.
My appetite is much greater than usual.
I have no appetite at all.
I crave food all the time.

19. Concentration Difficulty

I can concentrate as well as ever.
I can't concentrate as well as usual.
It's hard to keep my mind on anything for very long.
I find I can't concentrate on anything.

20. Tiredness or Fatigue

I don't get more tired than usualI get tired or fatigue more easily than usual.
I am too tired or fatigued to do a lot of the things I used to do.
I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

I have not noticed any recent change in my interest in sex.
I am less interested in sex than I used to be.
I am much less interested in sex now.
I have lost interest in sex completely.

Quality of Life Inventory (QOLI)

Instructions: Below you will see sixteen areas that relate to your life in the left column. For each area, on the scale from 0 to 2, rate how important (Column 2) that area is to your life, and then in Column 3, choose **one** of the six numbers, to rate how satisfied (or happy) you are with each of these areas.

Life Domain	How important is this to you?	How satisfied are you with this area of your life?
	0- Not Important 1- Important 2- Very Important	-3- Very Unsatisfied -2- Somewhat Unsatisfied -1- A little Unsatisfied +1- A little Satisfied +2- Somewhat Satisfied +3- Very Satisfied
1. Health		
2. Self-Esteem		
3. Goals and Values		
4. Money		
5. Work (/School)		
6. Play		
7. Learning		
8. Creativity		
9. Helping		
10. Love		
11. Friends		
12. Children		
13. Relatives		
14. Home		
15. Neighborhood		
16. Community		

SPAI

Below is a list of behaviors that may or may not be relevant for you. Based on your personal experience, please indicate how frequently you experience these feelings and thoughts in social situations. A social situation is defined as a gathering of two or more people. For example: A meeting; a lecture; a party; bar or restaurant; conversing with one other person or group of people, etc. FEELING ANXIOUS IS A MEASURE OF HOW TENSE, NERVOUS, OR UNCOMFORTABLE YOU ARE DURING SOCIAL ENCOUNTERS. Please use the scale listed below and indicate the number which best reflects how frequently you experience these responses.
Please use the scale listed below and indicate the number which best reflects how frequently you experience these responses.

1	2	3	4	5	6	7
Never	Very Infrequent	Infrequent	Sometimes	Frequent	Very Frequent	Always

1. I feel anxious when entering social situations where there is a small group	1 2 3 4 5 6 7
2. I feel anxious when entering social situations where there is a large group	1 2 3 4 5 6 7
3. I feel anxious when I am in a social situation and I become the center of attention	1 2 3 4 5 6 7
4. I feel anxious when I am in a social situation and I am expected to engage in some activity	1 2 3 4 5 6 7
5. I feel anxious when making a speech in front of an audience	1 2 3 4 5 6 7
6. I feel anxious when speaking in a small informal meeting	1 2 3 4 5 6 7
7. I feel so anxious about attending social gatherings that I avoid these situations	1 2 3 4 5 6 7
8. I feel so anxious in social situations that I leave the social gathering	1 2 3 4 5 6 7
9. I feel anxious when in a small gathering with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7

10. I feel anxious when in a large gathering with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
11. I feel anxious in a bar or restaurant with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
12. I feel anxious and I do not know what to do when in a new situation with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
13. I feel anxious and I do not know what to do when in a situation involving conflict with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
14. I feel anxious and I do not know what to do when in an embarrassing situation with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7

15. I feel anxious when discussing intimate feelings with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
16. I feel anxious when stating an opinion to:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
17. I feel anxious when talking about business with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
18. I feel anxious when approaching and/or initiating a conversation with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
19. I feel anxious when having to interact for longer than a few minutes with:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7

20. I feel anxious when drinking (any type of beverage) and/or eating in front of:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
21. I feel anxious when writing or typing in front of:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
22. I feel anxious when speaking in front of:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
23. I feel anxious when being criticized or rejected by:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
24. I attempt to avoid social situations where there are:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7

25. I leave social situations where there are:	
Strangers	1 2 3 4 5 6 7
Authority Figures	1 2 3 4 5 6 7
Opposite sex	1 2 3 4 5 6 7
People in general	1 2 3 4 5 6 7
26. Before entering a social situation I think about all the things that can go wrong. The types of thoughts I experience are:	
Will I be dressed properly?	1 2 3 4 5 6 7
I will probably make a mistake and look foolish	1 2 3 4 5 6 7
What will I do if no one speaks to me?	1 2 3 4 5 6 7
If there is a lag in the conversation what can I talk about?	1 2 3 4 5 6 7
27. I feel anxious before entering a social situation	1 2 3 4 5 6 7
28. My voice leaves me or changes when I am talking in a social situation	1 2 3 4 5 6 7
29. I am not likely to speak to people until they speak to me	1 2 3 4 5 6 7
30. I experience troublesome thoughts when I am in a social setting. For example:	
I wish I could leave and avoid the whole situation	1 2 3 4 5 6 7
I experience troublesome thoughts when I am in a social setting	1 2 3 4 5 6 7
If I mess up again I will really lose my confidence	1 2 3 4 5 6 7
What kind of impression am I making?	1 2 3 4 5 6 7
Whatever I say it will probably sound stupid	1 2 3 4 5 6 7
31. I experience the following prior to entering a social situation:	
Sweating	1 2 3 4 5 6 7
Blushing	1 2 3 4 5 6 7
Shaking	1 2 3 4 5 6 7
Frequent urge to urinate	1 2 3 4 5 6 7

Heart palpitations	1 2 3 4 5 6 7
32. I experience the following in a social situation:	
Sweating	1 2 3 4 5 6 7
Blushing	1 2 3 4 5 6 7
Shaking	1 2 3 4 5 6 7
Frequent urge to urinate	1 2 3 4 5 6 7
Heart palpitations	1 2 3 4 5 6 7
33. I feel anxious when I am home alone	1 2 3 4 5 6 7
34. I feel anxious when I am in a strange place	1 2 3 4 5 6 7
35. I feel anxious when I am on any form of public transportation (i.e., bus, train, airplane)	1 2 3 4 5 6 7
36. I feel anxious when crossing streets	1 2 3 4 5 6 7
37. I feel anxious when I am in crowded public places (i.e., stores, church, movies, restaurants, etc.)	1 2 3 4 5 6 7
38. Being in large open spaces makes me feel anxious	1 2 3 4 5 6 7
39. I feel anxious when I am in enclosed places (elevators, tunnels, etc.)	1 2 3 4 5 6 7
40. Being in high places makes me feel anxious (i.e., tall buildings)	1 2 3 4 5 6 7
41. I feel anxious when waiting in a long line	1 2 3 4 5 6 7
42. There are times when I feel like I have to hold on to things because I am afraid I will fall	1 2 3 4 5 6 7
43. When I leave home and go to various public places, I go with a family member or friend	1 2 3 4 5 6 7
44. I feel anxious when riding in a car	1 2 3 4 5 6 7
45. There are certain places I do not go to because I may feel trapped	1 2 3 4 5 6 7

LSAS

Directions: For each of the following situations, please indicate how much FEAR or ANXIETY you experience in that situation.	FEAR OR ANXIETY 0 = None 1 = Mild 2 = Moderate 3 = Severe	AVOIDANCE 0 = Never (0%) 1 = Occasionally (1-33%) 2 = Often (33-67%) 3 = Usually (67-100%)
1. Telephoning in public		
2. Participating in small groups		
3. Eating in public places		
4. Drinking with others in public places		
5. Talking to people in authority		
6. Acting, performing, or giving a talk in front of an audience		
7. Going to a party		
8. Working while being observed		
9. Writing while being observed		
10. Calling someone you don't know very well		
11. Talking with people you don't know very well		
12. Meeting strangers		
13. Urinating in a public bathroom		
14. Entering a room when others are already seated		
15. Being the center of attention		
16. Speaking up at a meeting		
17. Taking a test		
18. Expressing disagreement or disapproval to people you don't know very well disagreement or disapproval to people you don't know very well		
19. Looking at people you don't know very well in the eyes		
20. Giving a report to a group		
21. Trying to pick up someone		
22. Returning goods to a store		
23. Giving a party		
24. Resisting a high pressure salesperson		

Social Interaction Anxiety Scale (SIAS)

Patient Name: _____ **Date:** _____

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

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

CHARACTERISTIC	NOT AT ALL	SLIGHTLY	MODERATELY	VERY	EXTREMELY
1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2. I have difficulty making eye contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends my own age.	0	1	2	3	4
6. I tense up if I meet an acquaintance in the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with just one other person.	0	1	2	3	4
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4
11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

PHL-MS

Instructions: Please circle how often you experienced each of the following statements *within the past week.*

1. I am aware of what thoughts are passing through my mind.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

2. I try to distract myself when I feel unpleasant emotions.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

3. When talking with other people, I am aware of their facial and body expressions.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

4. There are aspects of myself I don't want to think about.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

5. When I shower, I am aware of how the water is running over my body.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

6. I try to stay busy to keep thoughts or feelings from coming to mind.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

7. When I am startled, I notice what is going on inside my body.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

8. I wish I could control my emotions more easily.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

9. When I walk outside, I am aware of smells or how the air feels against my face.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

10. I tell myself that I shouldn't have certain thoughts.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

11. When someone asks how I am feeling, I can identify my emotions easily.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

12. There are things I try not to think about.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

13. I am aware of thoughts I'm having when my mood changes.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

14. I tell myself that I shouldn't feel sad.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

15. I notice changes inside my body, like my heart beating faster or my muscles getting tense.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

16. If there is something I don't want to think about, I'll try many things to get it out of my mind.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

17. Whenever my emotions change, I am conscious of them immediately.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

18. I try to put my problems out of mind.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

19. When talking with other people, I am aware of the emotions I am experiencing.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

20. When I have a bad memory, I try to distract myself to make it go away.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

Drexel Defusion Scale (DDS)

Defusion is a term used by psychologists to describe a state of achieving distance from internal experiences such as thoughts and feelings. Suppose you put your hands over your face and someone asks you, "What do hands look like?" You might answer, "They are all dark." If you held your hands out a few inches away, you might add, "they have fingers and lines in them." In a similar way, getting some distance from your thoughts allows you to see them for what they are. The point is to notice the process of thinking as it happens rather than only noticing the results of that process, in other words, your thoughts. When you think a thought, it "colors" your world. When you see a thought from a distance, you can still see how it "colors" your world (you understand what it means), but you also see that you are doing the "coloring." It would be as if you always wore yellow sunglasses and forgot you were wearing them. Defusion is like taking off your glasses and holding them several inches away from your face; then you can see how they make the world appear to be yellow instead of only seeing the yellow world.

Similarly, when you are defused from an emotion you can see yourself having the emotion, rather than simply being in it. When you are defused from a craving or a sensation of pain, you don't just experience the craving or pain, you see yourself having them. Defusion allows you to see thoughts, feelings, cravings, and pain as simply processes taking place in your brain. The more defused you are from thoughts or feelings, the less automatically you act on them.

For example, you may do something embarrassing and have the thought "I'm such an idiot." If you are able to defuse from this thought, you will be able to see it as just a thought. In other words you can see that the thought is something in your mind that may or may not be true. If you are not able to defuse, you would take the thought as literally true, and your feelings and actions would automatically be impacted by the thought. Based on the definition of defusion above, please rate each scenario according to the extent to which you would normally be in a state of defusion in the specified situation. You may want to read through all the examples before beginning to respond to the questions. (Important: you are not being asked about the degree to which you would think certain thoughts or feel a certain way, but the degree to which you would defuse if you did.)

0	*1*	*2*	*3*	*4*	*5*
Not at all	*A little*	*Somewhat*	*Moderately*	*Quite a lot*	*Very much*

1. **Feelings of Anger.** You become angry when someone takes your place in a long line. To what extent would you normally be able to *defuse* from feelings of anger?

2. **Cravings for Food.** You see your favorite food and have the urge to eat it. To what extent would you normally be able to *defuse* from cravings for food?

3. **Physical Pain.** Imagine that you bang your knee on a table leg. To what extent would you normally be able to *defuse* from physical pain?

4. **Anxious Thoughts.** Things have not been going well at school or at your job, and work just keeps piling up. To what extent would you normally be able to *defuse* from anxious thoughts like "I'll never get this done."?

5. **Thoughts of self.** Imagine you are having a thought such as "no one likes me." To what extent would you normally be able to *defuse* from negative thoughts about yourself?

6. **Thoughts of Hopelessness.** You are feeling sad and stuck in a difficult situation that has no obvious end in sight. You experience thoughts such as "Things will never get any better." To what extent would you normally be able to *defuse* from thoughts of hopelessness?

7. **Thoughts about motivation or ability.** Imagine you are having a thought such as "I can't do this" or "I just can't get started." To what extent would you normally be able to *defuse* from thoughts about motivation or ability?

8. **Thoughts about Your Future.** Imagine you are having thoughts like, "I'll never make it" or "I have no future." To what extent would you normally be able to *defuse* from thoughts about your future?

9. **Sensations of Fear.** You are about to give a presentation to a large group. As you sit waiting your turn, you start to notice your heart racing, butterflies in your stomach, and your hands trembling. To what extent would you normally be able to *defuse* from sensations of fear?

10. **Feelings of Sadness.** Imagine that you lose out on something you really wanted. You have feelings of sadness. To what extent would you normally be able to *defuse* from feelings of sadness?

11. **Anxiety About Group Social Situations**. You are preparing to go to a party and experience thoughts such as "I won't make a good impression" and "I won't be able to start and maintain conversations." To what extent would you normally be able to defuse from anxious thoughts about a group social situation?

12. **Anxiety About One-on-One Interpersonal Situations**. You find yourself alone with a coworker or classmate whom you don't know well. This person says hello, and looks as if he or she want to talk. You experience thoughts such as "I won't have anything to say" and symptoms of anxiety such as a racing heart and flushing. To what extent would you normally be able to defuse from such anxious thoughts and feelings in one-on-one interpersonal situations?

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

Before-Session Questionnaire (BSQ)

Participant ID: _____ Today's Date: _____

The following questions ask about how things have been going for you over the past week. Please read each statement carefully, and then make a rating on the scale provided as to how much the statement applies to you over the past week.

1	Overall, I would rate my ***general sense of well-being*** over the past week as...	1 Very good	2	3	4 Okay	5	6	7 Very poor
2	When I consider my ***psychological and emotional state***, I would say I am...	1 Doing exceptionally well	2	3	4 Doing okay	5	6	7 Doing very poorly
3	In terms of my ***overall satisfaction with my life***, I am...	1 Perfectly satisfied	2	3	4 Somewhat satisfied	5	6	7 Not at all satisfied
4	In terms of my overall satisfaction with my ***school/work life***, I am...	1 Perfectly satisfied	2	3	4 Somewhat satisfied	5	6	7 Not at all satisfied
5	In terms of my overall satisfaction with my ***romantic life***, I am...	1 Perfectly satisfied	2	3	4 Somewhat satisfied	5	6	7 Not at all satisfied
6	The ***frequency and intensity of my specific symptoms or problems*** over the past week has been...	1 Very low	2	3	4 Average	5	6	7 Very high
7	The ***amount of distress*** I have experienced from my symptoms or problems over the past week has been...	1 Very low	2	3	4 Medium	5	6	7 Very high
8	In terms of ***overall level of depression***, this week I have felt...	1 Not very depressed	2	3	4 Somewhat depressed	5	6	7 Extremely depressed
9	In terms of ***overall level of anxiety***, this week I have felt...	1 Not very anxious	2	3	4 Somewhat anxious	5	6	7 Extremely anxious
10	In considering my most important goals, I would rate my ***progress toward my goals*** over the past week as...	1 A lot of progress progress	2	3	4 Some progress	5	6	7 Little
11	Whenever I had ***bothersome thoughts*** over the past week, I tended to...	1 Just notice them without them trying to change them them	2	3	4	5	6	7 Try to change or get rid of
12	Whenever I had ***bothersome feelings*** over the past week, I tended to...	1 Just notice them without them trying to change them them	2	3	4	5	6	7 Try to change or get rid of
13	My ***thoughts*** tend to be...	1 Unrealistically positive	2	3	4 Fairly accurate	5	6	7 Unrealistically negative
14	When I have ***thoughts that I "know" are unrealistically negative***...	1 I'm able to see them as just thoughts and not as the truth	2	3	4	5	6	7 I can't help but take them as the truth

15	In terms of the ***effect of my emotions on my behavior***, my anxiety, depression and other distress...	1 Does not prevent me from doing anything of importance 2 3 Keeps me from doing some important things 4 5 6 7 Prevents me doing many important things
16	I ***engaged in social situations*** the past week…	1 Very little 2 3 4 5 6 7 Very much
17	The ***amount of distress*** I experienced when engaged in social situations the past week was…	1 Very low 2 3 4 Medium 5 6 7 Very high
18	The ***amount of distress*** I experienced when anticipating social situations the past week was…	1 Very low 2 3 4 Medium 5 6 7 Very high
19	Socially anxious thoughts and feelings ***prevented me from participating*** in work/school, leisure, or social activities this past week…	1 Very little 2 3 4 5 6 7 Very much

SASCI

Using the scale below, please answer the following questions concerning how you are doing today with how you were doing BEFORE YOU BEGAN TREATMENT. Put your rating in the blank to the right of the question.

1	2	3	4	5	6	7
Much less	Moderately less	Slightly Less	Not different	Slightly More	Moderately More	Much More

<u>Compared with how you felt BEFORE THE BEGINNING OF TREATMENT</u>:

1. How anxious do you currently become in anticipation of or when in social/performance situations (situations where you interact with or do something in front of people)?

   _____

2. How much do you currently avoid social/performance situations, being the center of attention, or talking with people?

   _____

3. How concerned are you, currently, about doing/saying something embarrassing or humiliating in front of others, or that others might think badly of you for what you do or say.

   _____

4. Currently, how much does your anxiety about social/performance situations interfere with your ability to participate in work/school or in social activities?

   _____

Reaction to Treatment Questionnaire

On a scale of 1 (low) to 10 (high), please rate your reaction to your experience of treatment so far. Indicate your rating by selecting the appropriate number.

1. How logical does this type of treatment seem to you?

   1 2 3 4 5 6 7 8 8 9 10
   Not Logical ... Very Logical

2. How confident are you that this treatment will be successful in eliminating your fear of public speaking?

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

3. How confident would you be in recommending this treatment to a friend who was extremely anxious about public speaking?

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

4. How successful do you feel this treatment would be in decreasing different fears?

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Successful ... Very Successful

You may not be fearful in the following situations. If you were fearful in them, how confident would you be that this treatment would eliminate your fear? (Select the number which corresponds to your level of confidence)

5. Writing in public

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

6. A first date

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

7. Giving a speech

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

8. Being introduced

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

9. Eating in public places

   1 2 3 4 5 6 7 8 8 9 10
   Not at all Confident ... Very Confident

10. Meeting people in authority

1	2	3	4	5	6	7	8	8	9	10
Not at all Confident										Very Confident

11. Being under observation by others

1	2	3	4	5	6	7	8	8	9	10
Not at all Confident										Very Confident

12. Being teased

1	2	3	4	5	6	7	8	8	9	10
Not at all Confident										Very Confident

13. Using the telephone

1	2	3	4	5	6	7	8	8	9	10
Not at all Confident										Very Confident

14. What is your main fear? _____

15. How severe is your main fear now?

1	2	3	4	5	6	7	8	8	9	10
Not at all Severe										Very Severe

16. How severe do you expect your main fear to be immediately following treatment?

1	2	3	4	5	6	7	8	8	9	10
Not at all Severe										Very Severe

17. How severe do you expect your main fear to be:

    a. One year after treatment?

1	2	3	4	5	6	7	8	8	9	10
Not at all Severe										Very Severe

    b. Five years after treatment?

1	2	3	4	5	6	7	8	8	9	10
Not at all Severe										Very Severe

Client Satisfaction Survey

1. How satisfied are you with the treatment that you received?

1	2	3	4	5
Not at all Satisfied	Somewhat Satisfied	Neutral	Mostly Satisfied	Completely Satisfied

2. How much do you agree/disagree with this statement: "This treatment has decreased my fears in social situations."

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

3. How much do you agree/disagree with this statement; "This treatment has decreased my avoidance of social situations.

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

4. How severe do you expect your fears and avoidance to be one year from now?

1	2	3	4	5
Not at all Severe	Somewhat Severe	Neutral	Fairly Severe	Very Severe

5. How severe do you expect your fears and avoidance to be five years from now?

1	2	3	4	5
Not at all Severe	Somewhat Severe	Neutral	Fairly Severe	Very Severe

6. Would you recommend this treatment to a friend? Yes No

7. What did you find the most beneficial about this treatment?

8. What did you find the least beneficial about this treatment?

9. How easy or difficult was it to receive Internet treatment?

1	2	3	4	5
Very difficult	Fairly difficult	Neutral	Fairly easy	Very Easy

10. Do you have any suggestions for improving this treatment? If yes, please explain.

Post Treatment Skype Check-in Therapist Survey

1) How many times have you implemented this treatment support for social anxiety using Skype? _____

2) How feasible was it to implement treatment support using Skype?

1	2	3	4	5
Very Unfeasible	Fairly Unfeasible	Neutral	Fairly Feasible	Very Feasible

3) How easy or difficult was it to implement this treatment support using Skype?

1	2	3	4	5
Very Difficult	Fairly Difficult	Neutral	Fairly Easy	Very Easy

4) What was easy about implementing this treatment support using Skype?

5) What was difficult about implementing this treatment support using Skype?