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ABSTRACT

Title of Thesis: Development of the Seasonal Beliefs Questionnaire: A Measure of

Cognitions Specific to Seasonal Affective Disorder

Robert D. Lippy, Master of Science, 2005

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Rohan's (2002) integrative, cognitive-behavioral model proposes that individuals with

seasonal affective disorder (SAD) experience frequent thoughts related to light

availability and the seasons. To-date, no measure exists to determine the existence and

extent of these hypothesized SAD-specific cognitions. This study developed a

preliminary 94-item self-report measure, the Seasonal Beliefs Questionnaire (SBQ),

which was administered with several depression, seasonality, and cognitive measures via

a secure website to 104 college students from two universities. Volunteers returned

approximately 2 weeks later and completed the SBQ again. The SBQ demonstrated high

internal consistency (Cronbach's alpha = .98), high test-retest reliability (r = .93), good

convergent validity with other cognitive measures for SAD (rs = .57 - .84) and good

divergent validity (r = .27). Based on these promising preliminary psychometrics,

continued validation of the SBQ is warranted. Future studies with larger samples will

reduce the number of items and perform a confirmatory factor analysis.

TITLE PAGE

DEVELOPMENT OF THE SEASONAL BELIEFS QUESTIONNAIRE:

A MEASURE OF COGNITIONS SPECIFIC TO SEASONAL AFFECTIVE

DISORDER

by

Robert D. Lippy

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Introduction

Over the last decade, increasing evidence suggests a cognitive component in seasonal affective disorder (SAD). Specifically, cognitive constructs associated with nonseasonal major depressive disorder (MDD) also are operative in SAD, including negative automatic thoughts (Hodges & Marks, 1998, Rohan, Sigmon, & Dorhofer, 2003), dysfunctional attitudes (Hodges & Marks, 1998), negative attributional style (Levitan et al., 1998), and rumination (Rohan et al., 2003, Young & Azam, 2003). Rohan's (2002) integrative cognitive-behavioral model further proposes a role for SAD-specific cognitions related to light availability and the seasons. The purpose of the present study was to develop an instrument to measure SAD-specific cognitions: the Seasonal Beliefs Questionnaire (SBQ).

The remainder of the Introduction provides background material on seasonal affective disorder (SAD). This review includes the clinical features and epidemiology of SAD and a review of current biological and psychological etiological hypotheses. Information on two important cognitive theories of depression, Beck's cognitive model and Nolen-Hoeksema's response styles theory also is reviewed. Biological (e.g., light therapy) and psychological (e.g., cognitive-behavioral therapy) treatments for SAD are then discussed. Cognitive measures that were developed for nonseasonal MDD and preliminary cognitive measures for SAD are summarized. Overall, this review makes clear the need to develop SAD-specific cognitive measures that target thoughts related to light availability and the seasons.

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Seasonal Affective Disorder (SAD): Clinical Features and Epidemiology

During the past two decades research focusing on seasonal affective disorder (SAD), a pattern of Major Depressive Episodes (MDEs) that recur in the fall and winter and remit in the spring (Rosenthal et al., 1984) has increased substantially. In the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., DSM-IV; American Psychiatric Association, 1994), SAD is classified as a Seasonal Pattern Specifier for recurrent Major Depressive Episodes in Major Depressive Disorder, Bipolar I, or Bipolar II. This specifier is warranted when the MDEs characteristically begin at a certain time of year and completely remit (or change to mania or hypomania) at a specific time of the year over at least the past 2 years (APA, 1994). The most common seasonal pattern is fall/winter onset and spring/summer remission of depression, although a summer-type SAD also has been reported (Wehr, Sack, & Rosenthal, 1987). Symptoms common in both SAD and nonseasonal depression include depressed mood and difficulty concentrating. In contrast to the melancholic or typical symptoms more commonly associated with nonseasonal depression, SAD is often accompanied by reverse vegetative or atypical depressive symptoms such as anergia, hypersomnia, weight gain, and carbohydrate craving (Kasper et al., 1989a; Rosenthal et al., 1984).

Major Depressive Disorder (MDD) has long been a significant public health issue affecting a substantial portion of the U.S. general population (Kessler, 2002). The World Health Organization ranked depression as the world's most burdensome disease in middle-adulthood because of its substantial prevalence, chronicity, and associated disability (Murray & Lopez, 1996). Lifetime prevalence rates for MDD range from 10 to 25% for women and from 5 to 12% for men (APA, 1994). Within the recurrent

depressed population, 10-20% of all cases follow a seasonal onset pattern (Magnusson, 2000). Studies have estimated that 4-9% of the U.S. population has SAD (Booker & Hellekson, 1992; Kasper, Wehr, Bartko, Gaist, & Rosenthal, 1989b; Rosen et al., 1990). In Europe, studies generally have found lower rates, ranging from 1 to 2.5% (Magnusson, 2000; Mersh, Middendorp, Bouhuys, Beersma, & Van den Hoofdakker, 1999).

Atypical depressive symptoms (i.e., low energy, overeating, weight gain, and hypersomnia) that co-occur with the fall and winter seasons are normally distributed in the general population. Thus, it appears that seasonal fluctuations in mood, energy, and behavior -- or "seasonality" -- is a continuum, with individuals with full-blown SAD at one end and individuals with no seasonal variations at the other end. In between these extremes are individuals who experience mild to moderate seasonal symptoms that are less severe than in SAD. This condition has been defined as subsyndromal SAD (S-SAD; Kasper et al., 1989a). Similar to the relationship between Minor Depression and Major Depression, S-SAD is characterized by mild to moderate atypical depressive symptoms (i.e., anergia, hypersomnia, and hyperphagia), coinciding with fall and/or winter (Kasper et al., 1989a). S-SAD has a higher prevalence rate (approximately 13.5%) than full-blown SAD (approximately 7%; Kasper et al., 1989b), indicating that SAD and S-SAD together affect a substantial number of people.

SAD Etiology

Biological Mechanisms

Etiological models of SAD have focused almost exclusively on biological factors. Early studies indicated that SAD symptoms improved with exposure to bright light (i.e., light therapy; Lewy, Kern, Rosenthal, & Wehr, 1982; Rosenthal et al., 1984). Numerous

biological mechanisms have been proposed to link low light availability in winter to SAD onset, including phase-delayed circadian rhythms, insufficient light entering the retina, an abnormal response to increased melatonin production, and reduction of serotonergic activity (Lee, Blashko, Janzen, Paterson, & Chan, 1997; Magnusson & Boivin, 2003). However, as a whole, support for these biological mechanisms in SAD has been mixed (Dalgleish et al., 1996; Magnusson & Boivin, 2003; Rosenthal & Wehr, 1992; Tam, Lam, & Levitt, 1995).

Psychological Mechanisms

   Dual Vulnerability. Although the majority of research has focused on the biological etiology of SAD, recent work has proposed a role for psychological factors, which may maintain or exacerbate SAD symptoms (e.g., Azam and Young, 1998; Hodges and Marks, 1998; Rohan et al., 2003). Young's dual vulnerability hypothesis (1991, 1999) represented the first attempt at a theoretical integration of physiological and psychological mechanisms underlying SAD. Young's model proposes two separate vulnerabilities among individuals who experience SAD symptoms: (1) a physiological vulnerability to experience the "core" SAD symptoms (i.e., fatigue, hypersomnia, and increased weight/appetite) during fall and winter, and (2) a psychological vulnerability to develop the "secondary" cognitive, affective, and behavioral symptoms of depression (e.g., difficulty concentrating, loss of interest, depressed mood, social withdrawal) in reaction to the core vegetative symptoms. Young based his hypothesis on a retrospective study in which SAD participants reported onset of fatigue, hypersomnia, and increased appetite prior to developing the cognitive and affective symptoms (Young et al., 1991). Young et al. (1991) hypothesized that the temporal difference in symptom onset

suggested different underlying mechanisms for these symptom clusters. According to

Young et al. (1991), the clinical manifestation of SAD occurs when individuals prone to

substantial physiological seasonal changes also develop the cognitive and affective

symptoms, which are similar to symptoms of nonseasonal depression, in reaction to the

"primary" physiological symptoms. Based on this formulation, Young et al. (1991) were

some of the first to suggest psychotherapy as a possible treatment for the cognitive and

affective symptoms of SAD.

Despite the promise of Young's dual vulnerability hypothesis, very little research

has been conducted to test or to expand upon the model. Lam, Tam, Yatham, Shiah, and

Zis (2001) used Young's concept of a dual vulnerability in SAD to develop a spectrum of

disease model (Appendix A). The model was designed to explain the heterogeneity of

symptoms in winter depression and illustrates a need to go beyond the DSM-IV

categorical diagnosis of SAD to include qualitatively different types of winter depression.

Lam et al. (2001) proposed that different loadings on a "depression vulnerability factor"

and a "seasonality vulnerability factor" lead to SAD, S-SAD, SAD with incomplete

summer remission (ISR), or nonseasonal depression.   Lam and colleagues' (2001)

model proposes that S-SAD results from a primary loading on the seasonality factor and a

minimal loading on the depression factor. "Pure" nonseasonal depression is at the other

extreme with a primary loading on the depression factor and a minimal seasonality

loading. In between these two extremes, individuals with intermediate loadings on

seasonality and depression factors fall (i.e., SAD if seasonality > depression and SAD

with ISR if depression > seasonality). Lam et al.'s (2001) model conceptualized a

spectrum of disease between SAD and depression with the "dual" vulnerabilities being a

vulnerability to seasonality and a vulnerability to depression. Therefore, this model did not maintain a dual focus on physiological and psychological factors as in Young's model.

Integrative, Cognitive-Behavioral Model. Although Young's dual vulnerability model (1991, 1999) proposed a possible psychological vulnerability in the etiology of SAD, Rohan (2002) added depth and breadth to the model by proposing a specific content for the psychological vulnerability. In particular, the integrative, cognitive-behavioral model (Appendix B) proposes that the psychological vulnerability incorporates components of Beck's (1967, 1976) cognitive model of depression (maladaptive schemas, attitudes, and automatic thoughts), rumination (Nolen-Hoeksema, 1987), and behavioral withdrawal from positive reinforcement (Lewinsohn, 1974). Regarding the cognitive component, Rohan's (2002) model assumes that individuals with SAD experience some of the same negative, self-defeating thoughts characteristic of nonseasonal depression, but also have SAD-specific cognitions related to light availability and the winter season.

Based on clinical experience with SAD participants, Rohan and colleagues hypothesized that SAD is characterized not only by negative cognitions common in depression, but also by automatic negative thoughts and core beliefs about the winter season, light availability, and the changing environment. For example, in the fall, individuals with SAD may focus attention on leaves changing color or daylength getting shorter, which could lead to negative automatic thoughts such as "My mood falls with the leaves" and "I dread the days getting shorter."

Similar to Young's dual vulnerability hypothesis, Rohan's (2002) integrative, cognitive-behavioral model encompasses both a physiological and a psychological vulnerability to SAD. Contrary to Young's (1991, 1999) model, Rohan's (2002) model posits that SAD episode onset may begin through activation of either vulnerability, which may subsequently activate the other vulnerability in an interactive, reverberating circuit. Rohan's model suggests that a negative appraisal of environmental cues (e.g., leaves changing color, daylength growing shorter) or perhaps an expectation for the onset of SAD symptoms with the arrival of winter triggers activation of the psychological vulnerability and the onset of SAD symptoms. Alternatively, SAD symptoms may initially occur when environmental changes (e.g., reduced photoperiod) activate the physiological vulnerability, which, in turn, activates the psychological vulnerability. The integrative, cognitive-behavioral model, unlike the dual vulnerability model, does not associate specific SAD symptoms with either the psychological or the biological vulnerability.

Thus, newer models of SAD etiology have extended traditional biological models by integrating a role for psychological factors in SAD. Such models have expanded from Young's dual vulnerability model to Rohan's more content-specific integrative, cognitive-behavioral model. Evidence for a psychological component in SAD is reviewed below. However, a review of the psychological theories of nonseasonal depression on which these studies are based is necessary first. Two cognitive models are particularly relevant, Beck's model (1967, 1976) and Nolen-Hoeksema's response styles theory (1991).

Beck's Cognitive Model

According to Beck's (1967, 1976), cognitive model, there are various levels of cognitive processes. The highest level (i.e., farthest from consciousness) is comprised of schemas -- relatively enduring, internal structures of stored features of stimuli, ideas, or experience -- that are used to organize new information in a meaningful way, thereby determining how phenomena are perceived and conceptualized (Beck, 1967). Schemas are learned during early childhood and represent the predominant "core" beliefs an individual holds about the self, world, and future (Beck, 1967; Beck, Rush, Shaw & Emery, 1979). Individuals tend to interpret events through the "lens" of the broadest type of schemas, called core beliefs. Core beliefs are both global and stable and can be either positive or negative, depending on current mood. In depression, the negatively-oriented core beliefs that tend to be more rigid, absolute, and impermeable are operative (Beck, 1967). The cognitive triad, negative core beliefs about self, world, and future, is apparent in the schematic content of individuals with depression (Beck et al., 1979). Common core beliefs for depression-prone individuals include: "I am a failure," "I am worthless," and "I am unlovable" (J. Beck, 1995).

Core beliefs influence expression of a second, intermediate level of cognition, which consists of attitudes, rules, and assumptions (J. Beck, 1995). Attitudes and rules are often unarticulated. However, similar to core beliefs, over time they can be identified through inference, with effort, and with the assistance of a cognitive therapist (J. Beck, 1995). These intermediate beliefs also influence how an individual thinks, feels, and behaves by acting like a filter through which information about the self, the world, and the future is processed. Examples of attitudes and beliefs that are common in depression

(i.e., dysfunctional attitudes) include: "If I do not do as well as other people, it means I am an inferior person," "If I fail partly, it is as bad as being a complete failure," and "Being isolated from others is bound to lead to unhappiness" (Weissman & Beck, 1978).

A third level of cognitive processing involves automatic thoughts, which are the most accessible, conscious cognitions according to Beck's model (1967, 1976). Automatic thoughts are spontaneous, mental reactions to specific events and, if negative, can drive a negative emotional state (Beck, 1967, 1976). Automatic thoughts can be qualified as: (a) effortless, involuntary, or unintentional; (b) generally outside conscious awareness, but may become accessible to consciousness; (c) relatively quick to reach consciousness and difficult to stop or regulate; (d) consuming minimal attentional or processing capacity; (e) relying on a parallel-type processing; (f) stereotypic, involving familiar and highly practiced tasks; and (g) utilizing low levels of cognitive processing with minimal analysis (Beck, 1976). The content of automatic thoughts is a product of the specific underlying schemas that are activated at the time. Similar to schemas, automatic thoughts can be either negative or positive; however, according to Beck's cognitive model, a preponderance of negative automatic thoughts is associated with depression.

Response Styles Theory

The basis of Nolen-Hoeksema's response styles theory of depression (1991) is that individuals have a consistent style of responding to a depressed mood, either with rumination or distraction, and that these responses affect the subsequent course and severity of the depressed mood. Ruminative responses refer to activities that repetitively focus an individual's attention on his/her depressed mood and its implications (Nolen-

Hoeksema, 1991). In contrast, distractive responses involve generally pleasant or neutral activities aimed at diverting attention away from depressed mood.

Rumination contributes to exacerbation and/or increased duration of depressed mood in a laboratory setting following a negative mood induction (Nolen-Hoeksema, Morrow, & Frederickson, 1993). A ruminative response style represents a "trait-like" pattern, which has been found to increase an individual's likelihood of developing a subsequent full-blown Major Depressive Episode (Just & Alloy, 1997). Rumination among dysphoric individuals can also contribute to negatively-biased self-referent information processing (i.e., negative automatic thoughts and dysfunctional attitudes) as hypothesized in Beck's cognitive model of depression (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998).

Nolen-Hoeksema and colleagues (1993) outlined three possible mechanisms by which rumination may contribute to increased intensity, duration, and range of depressive symptoms: (1) through the biasing effect of mood state on information-processing (e.g., causing recall of negative memories and pessimistic inferences; Blaney, 1986; Bower, 1981), (2) by interfering with attention, concentration, and the maintenance of simple instrumental behaviors (e.g., Musson & Alloy, 1988; Strack, Blaney, Ganellen, & Coyne, 1985), or (3) by interfering with more complex, effective problem-solving (e.g., Morrow, 1990). Alternatively, individuals with a predominantly distractive response style may actually derive some degree of protection from intensified, prolonged depressed mood (Nolen-Hoeksema et al., 1993).

Evidence for a Cognitive Contribution to SAD

With the emergence of combined physiological/psychological models of SAD, support for cognitive factors in SAD is burgeoning. Hodges and Marks (1998) were some of the first researchers to explore possible cognitive factors in SAD. In an application of Beck's model, they compared individuals with SAD, individuals with nonseasonal depression, and nondepressed controls on automatic thoughts and dysfunctional attitudes. Relative to the nondepressed control group, the SAD and nonseasonal depression groups reported more frequent negative automatic thoughts and dysfunctional attitudes; however, SAD and nonseasonal depression participants did not differ from each other on these cognitive measures.

Ironically, additional support for cognitive factors in SAD was provided by a study conducted with the intent to show that cognitions play a much lesser role than biological changes in the pathophsyiology of SAD (Levitan, Rector, & Bagby, 1998). Contrary to Levitan and colleagues' (1998) expectations, individuals with SAD evidenced a similar negative attributional style (i.e., a tendency to attribute negative events to global and stable factors) as compared to individuals with nonseasonal depression. These two studies provided preliminary evidence that, when depressed, individuals with SAD experience some of the same negative cognitions (i.e., automatic thoughts, dysfunctional attitudes, and attributional styles) that individuals with nonseasonal depression experience (Hodges & Marks, 1998; Levitan et al., 1998). Thus, there appears to be overlap in the negative cognitive styles that characterize SAD and nonseasonal depression.

Because these studies were cross-sectional in nature, longitudinal studies were needed to assess the pattern of negative thinking across the seasons in SAD. Rohan, Sigmon, and Dorhofer (2003) conducted a prospective, longitudinal comparison of women with a history of SAD and nondepressed female controls to determine how cognitive-behavioral factors associated with nonseasonal depression (e.g., negative automatic thoughts and dysfunctional attitudes) change across fall, winter, and summer in SAD. Women with a SAD history consistently experienced more negative automatic thoughts relative to controls, regardless of the season (i.e., fall, winter, or summer), with their highest level of negative automatic thoughts occurring in the winter. Rohan and colleagues (2003) also found that SAD history women did not differ from controls in dysfunctional attitudes overall, but experienced greater levels of dysfunctional attitudes in the fall as compared to the summer. In addition, Rohan et al. (2003) found that women with a SAD history endorsed greater rumination frequency than nondepressed controls, and rumination frequency in the fall predicted the intensity of SAD-related symptoms during the subsequent winter, above and beyond fall depressive symptoms. It is possible that the fall peak in dysfunctional attitudes interacted with rumination and/or stress to contribute to more frequent negative automatic thoughts in the winter among SAD history women.

In an analog study, Rohan, Sigmon, Dorhofer, and Boulard (2004) conducted a longitudinal comparison of college women with subsyndromal SAD (S-SAD) and a group of nondepressed female controls to determine whether cognitive correlates of SAD generalize to individuals with S-SAD. Women with S-SAD demonstrated more frequent negative automatic thoughts during the winter and nonwinter months than controls, but

reported the most frequent automatic negative thoughts in the winter. This pattern of findings is a replication of Rohan et al.'s (2003) study of SAD participants in a S-SAD sample. It is noteworthy that both women with a SAD history and women with S-SAD reported more frequent negative automatic thoughts than nondepressed controls across the seasons, even when their depressive symptoms had remitted.

In another extension of response styles theory to SAD, Young and Azam (2003) had SAD participants keep daily records of specific ruminative and distractive coping strategies. Consistent with Rohan et al. (2003), results revealed that frequency of ruminative responses measured in the fall significantly predicted subsequent winter depression severity, after controlling for fall depression levels. However, after controlling for fall depression, frequency of distracting responses in the fall did not predict winter depression severity. Young and Azam's (2003) findings, in combination with Rohan et al. (2003), suggest that frequent rumination may represent a cognitive vulnerability for SAD symptom onset.

Taken together, the results of the studies performed by Hodges and Marks (1998), Levitan et al. (1998), Rohan et al. (2004), and Young and Azam (2003) provide preliminary evidence that cognitive factors play a role in the development and/or maintenance of SAD. At a minimum, cognitive factors including negative automatic thoughts, dysfunctional attitudes, negative attributional style, and rumination appear to be correlates of both seasonal and nonseasonal depression.

Treatments for SAD

Light Therapy

To date, the "gold standard" for SAD treatment involves direct exposure to bright artificial light (i.e., light therapy), a treatment based on the proposed biological mechanisms for SAD. The most common type of light therapy involves daily exposure to a metal box containing fluorescent lamps producing between 2,500 and 10,000 luminal intensity (lux) for approximately 20-120 minutes during the symptomatic months. Therefore, light therapy requires a considerable daily time commitment for an individual with SAD.

The effectiveness of light therapy for SAD has been demonstrated in various studies and reviewed extensively (e.g., Lee et al., 1997; Tam et al., 1995; Terman et al., 1989). In a quantitative synthesis of the literature, Terman et al. (1989) conducted a pooled analysis from 14 research centers involving 332 light therapy participants over 5 years. Results revealed that 47% of individuals with SAD did not experience remission with light therapy (Terman et al., 1989). Only 43% of participants experiencing moderate to severe SAD symptoms remitted with light therapy (Terman et al., 1989). Therefore, roughly half of SAD patients do not remit with light therapy, especially those experiencing more severe symptoms.

In addition, other concerns have been raised with light therapy, including residual symptoms and poor compliance. Postolache et al. (1998) found that residual depressive symptoms are common with light therapy in that the degree of observed improvement with light therapy was less complete than spontaneous remission status during the subsequent summer. In addition, the majority of SAD participants who enroll in light therapy trials (59%) discontinue light use after the research protocol for cited reasons of "ineffectiveness" and "inconvenience" of the treatment regimen (Schwartz, Brown,

Wehr, & Rosenthal, 1996). Of those who continued long-term light therapy, Schwartz et al. (1996) found that 38% of participants with "pure" SAD and 88% of participants with "complicated" SAD experienced a breakthrough Major Depressive Disorder, despite regular light use. Given the remission rates, the persistence of residual symptoms, noncompliance with light use, and the recurrent nature of SAD, there is a clear need to find efficacious supplements or alternatives to light therapy.

Cognitive-Behavioral Therapy (CBT)

Because of the problems associated with light therapy and based on preliminary support that negative cognitions are operative in SAD, cognitive-behavioral therapy (CBT) appears to be a plausible complementary and/or alternative treatment for SAD. In particular, CBT may be an option for treating individuals with SAD who are refractory to light therapy. The presence of negative automatic thoughts, dysfunctional attitudes, and rumination in SAD provide a viable, cognitive target for intervention via CBT.

Based on Beck's (1967, 1976) cognitive model, CBT for depression is a structured, short-term, present-oriented psychotherapy. CBT is directed toward problem-solving and modifying dysfunctional thinking and behavior (Beck, 1967). A fundamental premise of Beck's model is that distorted or dysfunctional thinking is associated with depressed mood and maladaptive behavior. Therefore, CBT works to produce enduring improvements in mood and behavior through modification of an individual's underlying dysfunctional beliefs (J. Beck, 1995). Utilizing a variety of techniques such as cognitive restructuring (i.e., identifying negative cognitions, challenging their validity through Socratic questioning, and eliciting alternative rationale responses), and behavioral

activation (i.e., structuring and scheduling pleasant activities), therapists collaborate with patients to change their thinking, mood, and behavior.

CBT has been used for decades as a highly efficacious treatment for nonseasonal depression. Several studies have shown that CBT is an effective treatment for nonseasonal depression when compared to various control groups and other treatment modalities. In one of the first meta-analytic studies on CBT use for depression, Dobson (1989) compared participants across 28 randomized clinical studies that compared CBT to wait list, no treatment, various psychotherapies, pharmacotherapy, and behavior therapy. Results revealed that CBT evidenced the greatest change in depression severity; CBT participants had, on average, outcomes superior to 98% of no-treatment or wait-list controls, 67% of behavior therapy participants, 70% of pharmacotherapy participants, and 70% of other therapy participants. In a more recent meta-analysis of 48 high-quality controlled trials, Gloaguen, Cottraux, Cucherat, and Blackburn (1998) demonstrated clear superiority for CBT relative to other psychotherapies, antidepressant therapy, and wait-list conditions (effect size comparisons with CBT: -0.24, -.0.38, and -0.82, respectively, all significant at $p = 0.01$). In both of these meta-analyses, the magnitude of the difference between CBT and the other treatment modalities is noteworthy.

Furthermore, studies have shown that CBT reduces the risk of relapse in nonseasonal depression compared to other forms of treatment (Blackburn et al., 1986; Paykel et al., 1999; Simons et al., 1986) up to 6 years post-treatment (Fava et al., 2004). With regard to this "treatment durability," Gloaguen et al.'s (1998) meta-analysis found that 60% of individuals treated with pharmacotherapy relapsed at 1-year followup compared to only 29.5% of individuals treated with CBT. CBT's lasting effects have

been attributed to active, ongoing use of skills learned in CBT to alleviate residual and subsequent depressive symptoms, although studies have not directly tested this assumption (Gloaguen et al., 1998). Given the long-term shortcomings of light treatment for SAD (i.e., high relapse rates resulting from noncompliance with regular light use) and the recurrent nature of SAD, the prophylactic effects of CBT further bolster the rationale for using CBT in the treatment of SAD. Collectively, these results support the clinical effectiveness of CBT for treating acute, nonseasonal depression as well as durability for CBT's effects beyond the conclusion of treatment.

Despite overwhelming support for CBT's efficacy in treating nonseasonal depression, studies are just beginning to extend CBT to the treatment of SAD. One small preliminary study found that both group cognitive therapy and group behavioral therapy significantly improved SAD symptoms relative to a wait-list control (Sigmon et al., 2000). More recently, another research group has begun to test the efficacy of a full CBT protocol (i.e., restructuring negative cognitions and behavioral activation). In a pilot study, Rohan, Tierney Lindsey, Roecklein, and Lacy (2004) designed a novel, SAD-tailored, CBT protocol and tested it against, and in combination with, light therapy. Specifically, these researchers compared their group-based CBT, light therapy (LT), and the combination of group CBT and light therapy (CBT+LT) for SAD over a 6-week randomized clinical trial.

Throughout the treatment phase, CBT participants received 12 twice-weekly sessions of CBT in small groups of participants based on a manual (Rohan, 2000). The SAD-tailored CBT protocol promoted the use of more adaptive coping strategies during the winter season. For example, the CBT protocol included the behavioral activation and

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cognitive restructuring components typical of CBT, but added a role for environmental cues in the onset of symptoms and the maintenance of depressive behaviors. Consistent with the integrative, cognitive-behavioral model (Rohan, 2002), some cognitive restructuring sought to identify and challenge SAD-specific automatic negative thoughts as proposed in Rohan's (2002). In addition, to increase prophylactic benefits, participants learned to identify SAD symptoms, particularly those that occur at the beginning of an episode, and to design a personalized relapse-prevention plan for implementation next fall/winter. During the treatment phase of this study, light therapy was self-administered via a standard light box to participants in two daily 45-minute doses of 10,000-lux light, once in the morning (between 6:00 and 9:00 am) and once in the evening (between 6:00 and 9:00 pm). CBT+LT participants received all elements of both the CBT and LT protocols.

Results demonstrated statistically significant pre- to post-treatment symptom reductions in all three treatment groups on two separate outcome measures with no significant differences between the treatments. At the 1-year naturalistic followup of the sample during the subsequent winter, relapse rates (i.e., the return of SAD symptoms severe enough to qualify for a full-blown recurrence) were determined. Remarkably, the CBT and CBT+LT groups had no episode recurrences (both groups 0%), whereas LT alone had a recurrence rate of 63%. In addition, CBT- and CBT + LT-treated participants reported significantly fewer severe depressive symptoms than participants treated with LT alone at the 1-year followup. Inspection of the trends in symptom severity from pre- to post-treatment to 1-year followup on both outcome measures suggested that individuals in the CBT and CBT+LT groups sustained their acute treatment gains at the

1-year followup, whereas LT participants did not. These findings are consistent with the observed treatment durability for CBT in the nonseasonal depression literature.

Based on these preliminary findings, Rohan et al. (2005) initiated a randomized clinical trial comparing their CBT, LT, and CBT+LT to a minimal contact/delayed treatment control group (MCDT). This was a larger study than the feasibility study whereby 61 participants were randomized to treatment over the 3-year study ($N = 54$ completers). As hypothesized, results revealed that all three active treatments (CBT alone, LT alone, and CBT+LT) improved symptoms across a 6-week trial relative to the minimal contact/delayed treatment control group on both patient- and blind interviewer-rated measures of depression severity. More importantly, the CBT + LT group (79%) demonstrated a statistically superior remission rate to the MCDT group (23%) at post-treatment, whereas CBT (46%) and LT (57%) did not differ significantly from MCDT. The overall pattern of results was replicated in intent-to-treat analyses using all randomized participants. This study provides further support for the efficacy of CBT in the treatment of individuals with SAD.

To assess whether the efficacy of the CBT for SAD protocol may have resulted from changing cognitions, Tierney Lindsey (2003) assessed the changes in cognitive constructs (i.e., automatic thoughts, dysfunctional attitudes, and rumination) for the three active treatment modalities (CBT, CBT+LT, and LT) across the 6-week trial. This analysis pooled data from the feasibility study with data from the first 2 years of the controlled trial, available at the time. Results showed that, regardless of treatment modality, SAD participants' negative automatic thoughts and dysfunctional attitudes significantly improved across treatment, and rumination descriptively, but not

significantly, improved. One possible rationale for the lack of CBT's specificity with

regard to improving cognitions was the use of measurement instruments designed for and

normed on nonseasonal depression samples. These nonsignificant results may indicate

that dysfunctional attitudes and negative automatic thoughts as measured by the two

instruments in Tierney Lindsey's (2003) mechanistic study (i.e., the Automatic Thoughts

Questionnaire and Dysfunctional Attitudes Scale) are not as relevant to SAD as they are

to nonseasonal depression. As suggested by Rohan et al. (2004), the content of some

cognitions in SAD may be qualitatively different (e.g., related to light availability,

seasonal changes, and weather) than in nonseasonal depression. A measurement

instrument designed specifically for the proposed SAD-specific cognitions is needed. To

provide a foundation for devising a SAD-specific cognitive measure, the development of

cognitive measures for depression is reviewed next.

Cognitive Measures for Depression

Several instruments exist to assess cognitions that are hypothesized to maintain or

exacerbate depression. The most often used and most thoroughly researched

measurement tools to assess cognitive processing are based on Beck's cognitive model of

depression (1967, 1976). The measures reviewed below have been developed to reflect

the different levels of cognitive processing described in Beck's model (i.e, dysfunctional

attitudes, automatic thoughts, and core beliefs).

Dysfunctional Attitudes Scale (DAS)

Weissman and Beck (1978) developed the Dysfunctional Attitudes Scale (DAS;

Appendix C) to identify the common assumptions underlying the typical idiosyncratic

cognitions endorsed by individuals with depression. As the name implies, the DAS was

designed to quantify cognitions at the level of attitudes and assumptions. The rationale

for creating this self-report questionnaire was the lack of an objective method to quantify

the relative presence or absence of these cognitive processes in depression at the time

(Weissman & Beck, 1978).

The specific DAS items were generated by the authors with the goal that items

should reflect the relative presence or absence of appropriate, idiosyncratic beliefs that

characterize patients with depression (Weissman & Beck, 1978). Potential items then

were screened by psychiatry interns, tested on college instructors ($N = 25$), and refined on

undergraduate students ($N = 275$), resulting in a reliable and valid 40-item measure.

Example items include: "If I fail at my work, then I am a failure as a person," and "It is

difficult to be happy unless one is good looking, intelligent, rich, and creative."

Participants' ratings are given on a 7-point Likert scale indicating how much they agree

with each statement: 7 = "totally agree," 6 = "agree very much," 5 = "agree slightly," 4 =

"neutral," 3 = "disagree slightly," 2 = "disagree very much," and 1 = "totally disagree."

In their original psychometric study, Weissman and Beck (1978) found that the

DAS demonstrated good internal reliability (Cronbach's alpha = 0.86), good test-retest

reliability ($r = 0.71$), and good concurrent validity with the Beck Depression Inventory

(BDI; $r = 0.53$). The results of a later study with undergraduate students (Dobson &

Breiter, 1983) also showed good internal reliability (Cronbach's alphas = 0.90 and 0.88

for males and females, respectively) and good concurrent validity between the DAS and

the BDI ($r = 0.30$).

Automatic Thoughts Questionnaire (ATQ)

Hollon and Kendall (1980) created a self-report measure of the frequency of automatic negative thoughts associated with depression, the Automatic Thoughts Questionnaire (ATQ; Appendix D). The ATQ, like the DAS, was created because of a lack of suitable measures of cognitions associated with depression. Because one of the primary goals of CBT for depression is a restructuring of negative automatic thoughts, Hollon and Kendall (1980) recognized the need to assess changes in thought content as a function of treatment with a valid, reliable measure.

The questionnaire items for the ATQ were generated retrospectively by asking male and female undergraduate students ($N = 788$) to recall a depressing experience and to report any associated cognitions. Potential items then were piloted on additional undergraduate students ($N = 312$) to pare the original 100 items down using empirical discriminate validity analyses. This procedure resulted in a reliable and valid 30-item measure. Examples of ATQ items are: "I'm no good," "No one understands me," and "There must be something wrong with me." For each item, a rating is given on a 5-point Likert scale with the following anchors: 1 = "not at all," 2 = "sometimes," 3 = "moderately often," 4 = "often," and 5 = "all the time." The rating indicates how frequently the respective thought occurred over the last week.

Hollon and Kendall (1980) showed that the ATQ possesses excellent internal reliability (Cronbach's alpha = 0.96), excellent split-half reliability ($r = 0.97$), and good concurrent validity with the Beck Depression Inventory (BDI; $r = 0.45$). A separate analysis with an equal number of male and female college students (Dobson & Breiter, 1983) confirmed the high reliability and validity of the ATQ (Cronbach's alphas = 0.96 and 0.95 for males and females, respectively; intercorrelation with the BDI of $r = 0.30$).

Young Schema Questionnaire (YSQ)

The Young Schema Questionnaire (YSQ; Young and Brown, 1994) is another measure that, like the DAS and the ATQ, is based on Beck's cognitive model of depression (1967; 1976). The original 205-item version of the YSQ was developed by Young to measure 16 early primary maladaptive cognitive schemas/core beliefs. The YSQ was subsequently modified to a shorter 75-item version (YSQ-Short Form; Appendix E) to assess 15 early maladaptive schemas (Young, 1998): emotional deprivation, abandonment/instability, mistrust/abuse, social isolation/alienation, defectiveness/shame, failure, dependence/incompetence, vulnerability to harm or illness, enmeshment/underdeveloped self, subjugation, self sacrifice, emotional inhibition, unrelenting standards/hypercritical ness, entitlement/grandiosity, insufficient self-control/self-discipline. The YSQ was the first measure specifically designed to measure core beliefs.

The questionnaire items were based on the observations and reasoning of experienced clinicians (Young & Brown, 1994). Examples of YSQ items include: for abandonment ("I need other people so much that I worry about losing them," and "I worry that people I feel close to will leave me or abandon me"), for vulnerability to harm ("I can't seem to escape the feeling that something bad is about to happen," and "I worry about being attacked"), and for unrelenting standards ("I must meet all my responsibilities," and "I can't let myself off the hook easily or make excuses for my mistakes"). Individuals complete the questionnaire using a 6-point Likert scale: 6 = "Describes me perfectly," 5 = "Mostly true of me," 4 = "Moderately true of me," 3 = "Slightly more true than untrue," 2 = "Mostly untrue of me," and 1 = "Completely untrue

of me." Having two or more ratings of 5 or 6 on the subset of items measuring a particular schema indicates endorsement of the corresponding schema. Most people have two or three of the primary schemas, and often even more (Young and Brown, 1994).

The YSQ has demonstrated adequate test-retest reliability (rs = 0.51 - 0.82 for 13 subscale factors), internal consistency (Cronbach's alpha range = 0.83 - 0.96) and convergent (with the BDI: r = 0.59) and discriminant (with the Self-Esteem Questionnaire: r = -.26; Schmidt, Joiner, Young, & Telch, 1995) validity. Welburn, Coristine, Dagg, Pontefract, and Jordan (2002) examined the psychometric properties of the YSQ-Short Form (SF) in a clinical sample from a psychiatric day treatment program. The results of their analysis showed that the YSQ-SF possesses adequate to very good internal reliability (Cronbach's alpha range = 0.76 - 0.93 for 15 subscale factors) and adequate to excellent convergent validity with the Brief Symptom Inventory (BSI; range of intercorrelations: rs = 0.05 – 0.69). Welburn et al. (2002) also performed a factor analysis, which supported the 15 schema subscales proposed by Young.

Measurement of SAD-Specific Cognitions

Although all three of the above questionnaires are reliable and valid measures of maladaptive cognitions based on Beck's cognitive model of depression (1967, 1976), they were all developed for use in nonseasonal depression. Further, although nonseasonal depression and SAD share cognitive similarities, a preponderance of etiological models for SAD propose mechanisms that are different than those hypothesized in the etiology of nonseasonal depression. Thus, a few researchers have begun to address this need for more SAD-specific cognitive measures. Available measures are reviewed below.

Seasonal Attitudes Scale (SAS)

The Seasonal Attitudes Scale (SAS; Sigmon, Rohan, Boulard, Whitcomb, & Dorhofer, 2000; Appendix F) was designed to measure feelings, behavior, and reactions regarding the changing seasons. Participants are asked to rate how well the statements describe their attitudes on a 7-point Likert scale with the following anchors: 1 = "does not describe me at all," 4 = "describes me somewhat," and 7 = "describes me very well." A preliminary study (Sigmon et al., 2000) found that the SAS possesses good internal reliability (Cronbach's alpha = 0.86), good test-retest reliability (r = 0.81), and good convergent validity (rs = 0.41 and 0.38 with the BDI and ATQ, respectively).

Although better tailored for SAD than any previous measure, the 25-item questionnaire uses a broad approach by measuring not only attitudes and assumptions in SAD, but also behavioral and affective changes (i.e., symptoms) associated with the changing seasons. In this respect, the SAS does not appear to be very different from the Seasonal Pattern Assessment Questionnaire (SPAQ; Rosenthal et al., 1984). The SPAQ asks respondents to rate the degree to which six factors (i.e., mood, energy, appetite, weight, sleep length, and social activities) change across the seasons and sums these to generate a global seasonality score (GSS; Kasper et al., 1989). Similar to the SPAQ, the SAS is heavily tied to SAD symptomology. For example, several SAS items are similar to the GSS items for mood (e.g., "As winter approaches, I start to feel down" and "During the summer months I start to feel less depressed"), energy level (e.g., "As winter approaches, my energy level begins to decrease" and "As summer approaches, I begin to feel more energetic"), weight (e.g., "I tend to gain weight during the winter months" and "During the summer months, I tend to lose weight"), appetite (e.g., "I notice that I like to

eat different types of food depending on the season" and "My appetite increases as the amount of daylight decreases"), and activity level (e.g., "During the winter months, I tend to engage in fewer social activities" and "I feel more active when there is more sunlight in the day"). Although there is likely to be a cognitive appraisal involved in rendering SAS ratings for these items, the respondent is rating *symptoms* rather than cognitions per se.

After eliminating all SAS items that appear symptom-specific, very few items remain to measure cognitions in SAD that are well-matched to Rohan's (2002) model. Examples of more cognitive SAS items are "When the seasons change, I know that it will affect my mood and behavior" and "I feel that there is little to do to improve my mood in the winter months."

Seasonal Automatic Thoughts Survey (SATS)

In an attempt to create a SAD-specific measurement tool with a more cognitive emphasis, Whitcomb-Smith, Sigmon, and Kendrew (2002) created the Seasonal Automatic Thoughts Survey (SATS; Appendix G). Items were generated for the SATS based on typical cognitions that individuals with SAD have reported. The SATS has 22 items and uses a 5-point Likert scale: 1 = "not at all," 2 = "occasionally," 3 = "moderately often," 4 = "often," and 5 = "all the time." Preliminary results indicate that the SATS possesses excellent internal reliability (Cronbach's alpha = 0.92) and adequate convergent validity with other instruments related to seasonality and depression ($r = 0.65$, 0.70, 0.63; BDI, ATQ, and SAS, respectively). Further assessment is needed to determine the test-retest reliability of the SATS in addition to testing with a clinical sample.

The SATS was designed to assess the frequency and intensity of negative automatic thoughts associated with SAD. However, the SATS also contains many cognitions related to depression in general, not just SAD. Approximately one-third (8 of 22) of the items on the SATS reflect automatic thoughts associated with general, *nonseasonal* depression similar to Hollon and Kendall's (1980) ATQ: "I am overwhelmed," "It is hard to be social," and "I can't do this much longer." Similar to the SAS, several SATS items reflect specific SAD symptoms. Approximately one-half (10 of 22) of the items on the SATS are related to *symptoms* of SAD or depression in general such as the following: "I'm too tired to do anything" (anergia), "It is hard to get out of bed in the morning" (hypersomnia), and "I can't control my food cravings" (hyperphagia). There are a few SATS items that represent SAD-specific cognitions consistent with Rohan's (2001) model (e.g., "Everything is so dark and dreary" and "I am going to be depressed until spring"). However, a thorough measure focused on SAD-specific cognitions is lacking to date.

Study Purpose

Several cognitive correlates of SAD have been identified in recent work, including negative automatic thoughts, dysfunctional attitudes, and rumination (Hodges & Marks, 1998; Levitan et al., 1998; Rohan et al, 2003; Young & Azam, 2003). Although these preliminary studies show support for the role of cognitive factors in SAD, further studies need to be conducted to explicate the specific role of these cognitive factors. It is unknown whether these cognitive constructs may contribute to SAD symptom onset, maintenance, and/or recurrence. Because SAD-specific cognitive measures did not exist at the time, these preliminary studies included only measures

based on Beck's model of nonseasonal depression. Therefore, SAD-tailored cognitive measures should be developed and included in future SAD studies.

There is no measure available to assess the SAD-specific cognitions proposed in Rohan's (2002) integrative, cognitive-behavioral model. Unlike prior attempts at SAD-specific measures that focus on the general symptomology of SAD (i.e., the SAS) and on automatic thoughts that are not necessarily specific to SAD (i.e., the SATS), a new questionnaire is needed to determine whether Rohan's (2002) hypothesized cognitions about light, winter, and weather are present in SAD. Development of a new SAD-tailored cognitive measure would help to determine whether individuals with SAD experience cognitions distinct in content from cognitions associated with nonseasonal depression.

This study developed a new self-report questionnaire to measure the cognitive constructs proposed in Rohan's (2002) integrative, cognitive-behavioral model, and determined the instrument's psychometric properties (i.e., reliability and validity). Items were derived through qualitative analysis of thoughts that were self-reported by participants with SAD from a prior study. The preliminary items were pilot-tested on a sample of SAD participants to determine appropriateness of the items. The questionnaire, called the *Seasonal Beliefs Questionnaire (SBQ)*, subsequently was administered to a general volunteer sample at two universities. It was expected that scores on this new measure would approximate a normal distribution and would be highly correlated with the depression measures outlined above (i.e., DAS, ATQ, SAS, SATS), but will not be significantly correlated with a measure of a different construct (i.e., the Current Behaviors Scale, a measure of Attention Deficit Disorder).

Hypotheses

Hypothesis One: Validity

With regard to validity, it was hypothesized that both convergent and divergent validity will be demonstrated for the SBQ. Convergent validity is the association between a given measure and other measures of the same construct. The SBQ should be related to measures of depression, in general, and to SAD, in specific. However, if two measures are extremely highly correlated, then they are essentially measuring the same construct (Streiner & Norman, 1995). Convergent validity was examined by computing Pearson's correlations between scores on the SBQ and scores on other depression-, cognition-, and SAD-related questionnaires. Because no consensus exists as to the maximum acceptable correlation, it was predicted that the new questionnaire would demonstrate a moderate correlation ($r > 0.40$) with the Structured Interview Guide for the Hamilton Rating Scale for Depression – Seasonal Affective Disorder Version - Self Report (SIGH-SAD-SR), the Center for Epidemiological Studies – Depression Scale (CES-D), the Seasonal Pattern Assessment Questionnaire (SPAQ), the Automatic Thoughts Questionnaire (ATQ), the Dysfunctional Attitudes Scale (DAS), the Seasonal Attitudes Scale (SAS), and the Seasonal Automatic Thoughts Survey (SATS).

Because the SATS is the most conceptually related measure to the SBQ, it was expected to have the highest correlation with the SBQ. It was further predicted that the SIGH-SAD-SR, SPAQ, and SAS would correlate strongly with the SBQ because they are SAD-specific measures. The CES-D, ATQ, and DAS were expected to have somewhat lower correlations with the SBQ because they are related to general, nonseasonal depression. Due to these conceptual overlaps, the SBQ and these SAD and depression

measures were expected to covary. However, it was expected that the SBQ and the other measures would also vary separately because the SBQ uniquely focuses on cognitions specific to SAD as proposed in Rohan's (2002) model.

Divergent validity was determined by a correlation between scores on the SBQ and scores on the Current Behaviors Scale (CBS), a measure of attentional deficits and hyperactivity such as those related to Attention Deficit Hyperactivity Disorder (ADHD). Because seasonal thoughts were expected to be relatively unrelated to attentional deficits, it was predicted that the SBQ would exhibit a low correlation with the CBS, but not a zero correlation because there are some similar features to both constructs (e.g, attention and focus).

Hypothesis Two: Reliability

It was predicted that the SBQ would possess good reliability in terms of internal consistency and stability over time (test-retest). Internal consistency was calculated using Cronbach's coefficient alpha (Cronbach, 1951). Cronbach's alpha (α) is an intraclass correlation coefficient defined as the mean correlation among individual questionnaire items, each of which has been measured for every member of a sample. High inter-item correlations suggest that items are all measuring the same construct (DeVellis, 1991). Although coefficient alpha is dependent on the magnitude of the correlations between individual items and the number of items on the scale, alpha should be above 0.70 (Nunnally, 1978; Nunnally & Bernstein, 1994), but probably not higher than 0.90, as correlations above 0.90 generally indicate item redundancy (Steiner & Norman, 1995). Following factor analysis of a measure, separate coefficient alphas are typically computed for each factor grouping because the overall coefficient alpha can be less

informative, especially if the number of items is large. Therefore, the overall coefficient alpha for the SBQ will require supplementation with internal consistency data for each individual factor based on further study.

Test-retest reliability was computed with Pearson's correlations between total SBQ scores at the initial and 2-week followup assessments. For test-retest reliability of scale items, Pearson's $r > 0.70$ is considered acceptable (Anastasi & Urbina, 1997; Nunnally, 1978). Total SBQ scores were expected to demonstrate high (> 0.70) test-retest reliability.

Method

Phase One: Item Development

Phase one involved the generation of items for a self-report questionnaire of thoughts and attitudes related to the winter season, light availability, and the changing environment with items given in a first person, affirmative statement form. Items for the new questionnaire were derived from Rohan's (2002) model, clinical observations, and self-disclosed cognitions from SAD participants during cognitive-behavioral therapy (CBT) in our ongoing clinical trial. The initial items were generated based on Rohan's clinical observations of individuals with SAD enrolled in research projects. Additional items were added based on the Principal Investigator's extensive review of tape-recorded sessions of our CBT treatment protocol. Any verbally reported negative thought with the hypothesized SAD-specific content from the recorded sessions was considered as a potential SBQ item.

Items were grouped into seven a priori factor categories: Global Winter Negativity, External Control Over Mood, Sensitivity to Cues Signaling Winter,

Avoidance of Winter, Personal Deficiency, Positive Expectations for Spring, and Global

Summer Positivism. Additionally, a total of 19 reverse items were added to avoid a

positive response bias (e.g., "Winter is the best season of the year" versus "I hate

winter"). The addition of these items resulted in a 94-item questionnaire called the

Seasonal Beliefs Questionnaire (SBQ; Appendix H). Instructions were added to ask

respondents to rate items based on how they "generally think" on a 7-point Likert-type

scale with anchors from 1 = "totally disagree" to 7 = "totally agree."   The response

format is similar to previous measures such as the ATQ, SAS, and SAS, but the content is

more closely targeted to Rohan's (2002) integrative, cognitive-behavioral model.

Phase Two: Descriptive Feedback from SAD Participants

The next step in the development of the SBQ involved obtaining feedback from a

clinical sample for which the new measure was designed to target. To obtain this

important feedback, a preliminary 75-item SBQ and a feedback form (Appendix I) were

mailed to past and current SAD participants in Rohan and colleagues' ongoing clinical

trial. The feedback form asked questions about the clarity of the instructions and the

individual items, asked for possible items to be excluded or included, and solicited any

general comments about the SBQ. Inclusion criteria for prospective respondents

included: a) consent to be contacted for future SAD-related research on the original

signed informed consent form for the clinical trial, b) a diagnosis of Major Depression,

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Disorders (SCID, First et al., 1996) given as part of the treatment study, and c) having

experienced a clinical SAD episode at the time of their inclusion in the clinical trial

[based on Terman et al.'s (1989) criteria of a total Structured Interview Guide for the

Hamilton Rating Scale for Depression – Seasonal Affective Disorder Version score $\geq$ 20].

After obtaining Uniformed Services University of the Health Sciences (USUHS) Institutional Review Board approval, the preliminary SBQ and feedback form were mailed to 95 past SAD participants. A cover letter in the packet explained the reason for the additional contact and the purpose of the present study and invited respondents to complete the SBQ, provide written comments on the enclosed feedback form, and return the materials in a pre-paid envelope. Forty-eight participants returned their packets (response rate = 51%).

Although the returned SBQ measures were not quantitatively analyzed, anecdotally, there was an overall strong endorsement of the majority of the items. Many of the SAD respondents provided written comments that the SBQ items were "right on target" with the way they thought about light, weather, and the changing seasons. This type of comment was consistently reported on the feedback form. Based on feedback from several respondents, one item was deleted due to its potentially offensive nature: "I am a slave to Mother Nature." Additionally, some participants suggested minor rewording of a few items. Interestingly, none of the respondents recommended adding any new items to the SBQ. All respondents indicated that the instructions were clearly written. The most frequent feedback was that many of the items were redundant. However, this redundancy was intentional in order to ensure the comprehensiveness of item development. The future goal will be to maintain the most frequently endorsed items, and then to subsequently eliminate redundant items based on further study using SAD patients with a current winter major depressive episode.

Phase Three: Administration to a Large Sample

After the SBQ items were developed and reviewed by past SAD participants,
phase three was undertaken. This phase entailed administration of the revised SBQ to a
large sample from the general population where, presumably, seasonality, depression, and
related cognitions are normally distributed. Because of guidance to obtain a sufficiently
large sample (e.g., Nunnally & Bernstein, 1994), two separate college student samples
were used: one from American University in Washington, D.C. and a second from
Pennsylvania State University in State College, Pennsylvania. There were no specific
inclusion or exclusion criteria for either sample except that study volunteers had to be at
least 18 years old. Institutional Review Board approval was obtained for the study from
both universities and from the Uniformed Services University of the Health Sciences
(USUHS).

Procedure

In addition to the SBQ, eight other self-report questionnaires were administered to
study volunteers in order to determine convergent and divergent validity: *Dysfunctional
Attitudes Scale* (DAS; Appendix C), *Automatic Thoughts Questionnaire* (ATQ; Appendix
D), *Seasonal Attitudes Scale* (SAS; Appendix F), *Seasonal Automatic Thoughts Survey*
(SATS; Appendix G), *Center for Epidemiological Studies – Depression Scale* (CES-D;
Appendix J), *Structured Interview Guide for the Hamilton Rating Scale for Depression –
Seasonal Affective Disorder Version - Self Report* (SIGH-SAD-SR; Appendix K),
Seasonal Pattern Assessment Questionnaire (SPAQ; Appendix L), and *Current
Behaviors Scale* (CBS; Appendix M). Of these questionnaires, the ATQ, DAS, SAS, and
SATS were thoroughly discussed above and will not be reviewed here. The other

measures (CES-D, SIGH-SAD-SR, SPAQ, and CBS) were included because of their relevance to depression, seasonality, or divergent constructs, and are discussed below.

For logistical reasons and for ease of administration, the questionnaires were converted to an electronic format as an internet-based protocol. The questionnaires were built on a secure website (https://cim01.usuhs.mil/mps/rlippy/index.tpx) using internet survey creation software (Test Pilot™) owned by the Uniformed Services University of the Health Sciences (USUHS). Volunteers were recruited using campus flyers and in-class announcements.

After accessing the website, participants self-registered by typing a unique password and user identification code of their choosing. After log-on and registration, participants read an informed consent form before they were allowed to proceed to the 9 questionnaires. All questionnaire items required either clicking on a specific response category or typing a very brief response on the keyboard. After the questionnaires, demographic information was obtained such as age, race, gender, current place of residence and number of years lived there, previous permanent place of residence and number of years lived there, as well as relevant weather information for that day (i.e., approximate hours of daylight, approximate temperature, and overall weather condition [mostly sunny, mostly cloudy, raining, snowing, etc.]). The entire questionnaire battery, including demographic information, took volunteers approximately 1 hour to complete. A final prompt thanked volunteers for their time and reminded them to return to the website in 2 weeks to finish the project. At the 2-week point, a general email was sent to volunteers to remind them of the second assessment and to email the Principal Investigator if they had any questions (e.g., forgotten password). At the second session,

volunteers completed the SBQ again to help determine its test-retest reliability. Volunteers were required to complete both sessions to obtain their respective compensation. The incentive of obtaining 1.5 extra credit points to apply towards a psychology course was used for American University students. For Penn State University students, volunteers received two coupons worth $10 each at their campus bookstore.

Measures

Center for Epidemiological Studies – Depression Scale (CES-D). The CES-D (Radloff, 1977; Appendix J) is a 20-item self-report measure that assesses symptoms of depression in the general population. Each of the 20 items on the scale states an experience related to depression including depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy, and sleep and appetite disturbances. Sixteen of the items express negative experiences and four items express positive experiences, which are reverse-scored. Responses are coded on a four-point Likert scale and include: "Rarely, or none of the time (less than 1 day)," "Some or little of the time (1-2 days)," "Occasionally or a moderate amount of time (3-4 days)" and "Most or all of the time (5-7 days)." For each item, the respondent selects the value (1, 2, 3, or 4) that best describes how frequently the experience occurred during the previous week.

A total score is calculated as the sum of responses to the 20 items, with total scores ranging between 0 and 60, with higher scores indicating more symptoms, weighted by frequency of occurrence during the past week. A cutoff score of 16 has been used in prior studies to indicate possible clinical depression (Weissman et al., 1977). In the

original study, Ratloff (1977) reported high internal consistency (ranging from .84 to .90) and moderate test-retest reliability (ranging from .32 to .67) for 3 different population samples. Good reliability and validity have been found across a wide variety of demographic characteristics including age, education, geographic area, and racial, ethnic, and language groups (Radloff, 1977, 1991; Radloff & Locke, 1986).

Structured Interview Guide for the Hamilton Rating Scale for Depression –
Seasonal Affective Disorder Version - Self Report (SIGH-SAD-SR). The SIGH-SAD
(Williams et al., 1992; Appendix K) is comprised of the 21-item Structured Interview Guide for the Hamilton Rating Scale for Depression (HAM-D) and the supplementary 8-item SAD subscale that assesses atypical or reverse vegetative symptoms most commonly found in seasonal depression (i.e., anergia, hypersomnia, and hyperphagia). The Hamilton Rating Scale for Depression (HAM-D) has been the gold standard for the assessment of depression for over 40 years (Bagby et al., 2004). The HAM-D has been shown to possess adequate psychometric properties including: internal consistency, test-retest reliability, and convergent and predictive validity (Bagby et al., 2004). The SIGH-SAD is the most commonly used measure to assess SAD symptom severity in research studies. The Self-Report version (SIGH-SAD-SR) of the SIGH-SAD was used to conform to the online survey format of this study.

Seasonal Pattern Assessment Questionnaire (SPAQ). The Seasonal Pattern
Assessment Questionnaire (SPAQ, Rosenthal, Bradt, & Wehr, 1984; Appendix L) is one of the most widely used self-report instruments to screen for SAD. It has several scales designed to assess mood and behavioral changes with the seasons. One of the central features of the SPAQ is the Global Seasonality Score (GSS), which sums 6 items that

measure seasonal variations in mood, appetite, weight, sleep, energy, and socializing. Each GSS item is scored on a 5-point Likert scale, ranging from 0 (no change) to 4 (extremely marked change), and the GSS ranges from 0 to 24. In addition to GSS, other SPAQ items evaluate the degree to which seasonal changes are experienced as a problem and specific month of the year when respondents "feels worst." Together with GSS, these items are used to classify respondents as SAD, subsyndromal SAD (S-SAD), or no diagnosis. The SPAQ has shown high internal reliability (Cronbach's $\alpha = 0.82$, Magnusson et al., 1997) and test-retest reliability ($r = 0.62$, Raheja et al., 1996).

Current Behaviors Scale (CBS). The Current Behaviors Scale (Murphy & Barkley, 1998; Appendix M) was chosen as a comparison measure of divergent validity because it measures a construct that is quite different from SAD. The Current Behaviors Scale (CBS) is a new name given to the Current Symptoms Scale (CSS) that was developed as a measure of the presence or absence of the 18 symptoms of attention deficit hyperactivity disorder (ADHD) as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; APA, 1994). The 18 items of the CBS directly reflect the DSM-IV ADHD symptoms associated with the two ADHD subtypes (i.e., 9 "inattentive" items and 9 "hyperactive/impulsive" items) and, thus, possesses high face validity. Each item is measured on a 4-point Likert scale with anchors 0 ("Never or rarely") and 3 ("Very often"), allowing quantification of the number and degree of symptoms. The CBS has been shown to possess good internal consistency (Cronbach's $\alpha = 0.63 - 0.75$) and good test-retest reliability ($r = 0.82$; Aycicegi & Harris, 2003).

Participant Safeguards

Because this study involved obtaining sensitive confidential information from volunteers, several safeguards were implemented. With regard to general confidentiality, participant information was obtained via a secure internet website (https:) requiring a personal username and password. Once participants completed the questionnaires, their data was encrypted using current security software and sent to a protected, limited-access server located at USUHS. This procedure ensured that any data intercepted during transmission could not be decoded and prevented individual responses from being traced back to an individual respondent. Only the Principal Investigator, Dr. Rohan, and the USUHS software technical staff had access to this server and to the data.

In addition, specific participant safeguards had to be implemented regarding information collected concerning potential suicidality of some participants. Specifically, on the SIGH-SAD-SR, one item assesses levels of suicidal ideation. If respondents endorsed anything other than a 0 ("I have not had any thoughts about dying or about hurting or killing myself, or that life is not worth living"), they received the following feedback automatically at the end of the first on-line assessment: *"On the SIGH-SAD-SR questionnaire, you reported (1 "I have had thoughts that life is not worth living, or that I'd be better off dead"/ 2 "I have thought about dying, or wish I were dead"/ 3 "I have thought about killing myself, or I have done something to hurt myself"/ 4 "I have tried to kill myself"). You would likely benefit from seeing a mental health professional who can help you deal with these thoughts. One resource available to you is the (AU Counseling Center at (202) 885-3500 / PSU Center for Counseling and Psychological Services at (814) 863-0395). If you feel significantly depressed, have suicidal thoughts, or actually want to harm yourself, we recommend that you call the National Suicide Hopeline*

Network immediately at 1-800-SUICIDE (1-800-784-2433), a 24-hour suicide/crisis

hotline. Please do not hesitate to use this resource."   Participants who endorsed either a

3 ("I have thought about killing myself, or I have done something to hurt myself") or a 4

("I have tried to kill myself") on this item, received a personal follow up phone call by

Dr. Rohan, a licensed psychologist.

Additionally, tailored feedback was also given to respondents whose CES-D score

indicated they might be experiencing symptoms of depression. For the CES-D,

investigators have designated a cutoff score of 16 as a suitable indicator to differentiate

depressed from nondepressed patients (Comstock & Helsing, 1976). Therefore, if a

volunteer scored above 16 on the CES-D, they received the following feedback upon

completion of all the questionnaires: "*One of the questionnaires you just completed, the*

Center for Epidemiological Studies – Depression Scale (CES-D), measures symptoms

associated with depression. Your score on this questionnaire was ____. Your score

suggests that you may be experiencing some symptoms of depression. Your score on this

questionnaire does not necessarily mean that you are currently depressed. Only a mental

health professional can diagnose depression. However, you may benefit from seeing a

mental health professional who can evaluate your symptoms and, if indicated,

recommend an effective treatment. One resource available to you is the (AU Counseling

Center at (202) 885-3500 / PSU Center for Counseling and Psychological Services at

(814) 863-0395)." This feedback was designed to provide useful referral information for

any volunteers who might have depression-related problems.

Results

All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS) version 11.0.

Participant Demographics, Depression Severity, and Seasonality

Phase three of the study included 104 volunteers from both universities [56 American University (AU), 48 Penn State University (PSU)]. Participant characteristics (gender, age, race, and education level) and mean CES-D, SIGH-SAD-SR, and global seasonality scores (GSS), overall and by university, and statistical comparisons between universities are presented in Table 1. The two universities did not significantly differ on gender, age, or racial composition. The mean age for participants was 21.1 years (SD = 4.7, range = 18 - 50 years). The sample as a whole consisted of a significantly greater proportion of females (71%) than males (22%), χ^2 (1, *N*=97) = 26.81, *p* < .001, a significantly higher proportion of white (66%) than non-white students (30%), χ^2 (1, *N*=97) = 17.33, *p* < .001, and a significantly higher proportion of students with some college (i.e., 85%; included "High School," "Some College," and "Associates/2-yr" degree) than advanced degrees (i.e., 9%; included "Bachelors/4-yr" degree, "Masters" degree, and "Graduate/Medical" degree), χ^2 (1, *N*=97) = 64.34, *p* < .001. The PSU sample had a significantly higher proportion (19%) of students with advanced degrees (i.e., Bachelor's, Master's, Doctorate) than the AU sample (0%), χ^2 (1, *N*=97) = 10.13, *p* < .001.

Data collection began in the summer of 2004 and ended in February 2005. The overall Chi-square comparing seasons of assessment was significant, χ^2 (2, *N*=104) = 11.34, *p* < .01. A greater proportion of students participated in the fall months (63%; i.e.,

Sept. – Nov.) than in the winter (29%; i.e., Dec. – Feb.), χ^2 (1, N=104) = 16.12, $p < .001$,

and summer (9%; i.e., Jun. – Aug.), χ^2 (1, N=104) = 71.12, $p < .001$. Differences in mean

SBQ scores across seasons of assessment did not reach statistical significance, $F(2,103) =$

1.652, $p = .197$. Interestingly, mean SBQ scores were descriptively highest for students

who participated during the summer months ($M = 423.11$, $SD = 69.7$), and mean SBQ

scores were roughly equivalent during the fall ($M = 369.83$, $SD = 89.2$) and winter

months ($M = 370.03$, $SD = 74.5$). The universities differed on the overall proportions of

students who completed the study in certain seasons. Specifically, a greater proportion of

AU students than PSU students completed the study in the summer (16% vs. 0%,

respectively), χ^2 (1, N=9) = 8.45, $p < .05$. On the other hand, a greater proportion of PSU

students than AU students completed the study in the winter (40% vs. 20%, respectively),

χ^2 (1, N=30) = 5.01, $p < .05$.

The two university samples did not significantly differ on depression severity on

the CES-D or SIGH-SAD-SR (see Table 1). Mean CES-D scores were generally higher

than anticipated for a college sample. As discussed above, a cutoff score of 16 on the

CES-D has been used in prior studies to indicate possible clinical depression (Weissman

et al., 1977). Thus, the mean CES-D score in this study (18.6, $SD = 11.8$) suggested that

the student sample was, on average, mildly depressed. Similar to mean CES-D scores,

the mean SIGH-SAD score (15.7, $SD = 11.8$) was higher than would be expected for a

college sample. Criteria to define a current depressive episode include a SIGH-SAD

score ≥ 20 (Terman et al., 1990). The mean SIGH-SAD score obtained in this study did

not meet, but approached, this cutoff, indicating at least mild levels of depression in this

sample, on average.

The universities did not significantly differ on mean global seasonality scores

(GSS) on the SPAQ (see Table 1). As would be expected because of its higher latitude,

the mean GSS score at PSU was descriptively somewhat higher than the mean GSS score

at AU. Based on previous epidemiological research (e.g., Rohan & Sigmon, 2000; Rosen

et al., 1990), a GSS score of 8 or 9 is included in the criteria for subsyndromal SAD (S-

SAD; i.e., mild to moderate seasonal symptoms). Therefore, the mean GSS observed in

this study (9.2, $SD = 5.1$) suggests that mild seasonality characterizes this sample.

Insert Table 1 about here

Hypothesis One: Validity

Correlations between the Seasonal Beliefs Questionnaire (SBQ) and the other

seasonal-related measures are presented in Table 2. Correlations between the SBQ and

the nonseasonal depression-related measures are presented in Table 3. The distribution

of SBQ scores is presented in Figure 1. SBQ scores were approximately normally

distributed in this sample.

Insert Table 2 about here

Insert Table 3 about here

Insert Figure 1 about here

Overall, the SBQ demonstrated adequate convergent validity with the other

depression and seasonality measures, all rs >.28, all ps < .01. Contrary to prediction, the

Seasonal Attitudes Scale (SAS), not the Seasonal Automatic Thoughts (SATS),

demonstrated the highest correlation with the SBQ, sharing 69.8% of the variance. With

the exception of the SAS, the relative rankings of the correlations of the other measures

with the SBQ were in the predicted order. As predicted, the next highest correlations

were between the SBQ and the SAD-specific measures: the SATS (32.7% shared variance with the SBQ), Seasonal Pattern Assessment Questionnaire (SPAQ)-Global Seasonality Score (GSS; 24.3% shared variance), and Structured Interview Guide for the Hamiliton Rating Scale for Depression – Seasonal Affective Disorders Version-Self Rating (SIGH-SAD-SR; 11.8% shared variance).

The general, nonseasonal depression measures had the next highest correlations with the SBQ. These measures included the Dysfunctional Attitudes Scale (DAS; 9.5% shared variance with the SBQ), Automatic Thoughts Questionnaire (ATQ; 8.2% shared variance), and Center for Epidemiological Studies – Depression Scale (CES-D; 8.0% shared variance). Although statistically significant, the Current Behaviors Scale (CBS) had the lowest correlation and shared the smallest proportion of variance with the SBQ (7.7% shared variance), providing support for divergent validity of the SBQ.

Hypothesis Two: Reliability

SBQ scores were examined for reliability in terms of internal consistency and stability over time (test-retest). As predicted, the overall internal consistency of the SBQ was high. Cronbach's coefficient α was .978, $p < .001$. The coefficient α was also calculated for each university separately, but showed only slight deviation from the overall sample coefficient α (PSU = .968, AU = .983). The split-half reliability coefficient was also high and statistically significant, Guttman split-half = .942, $p < .0001$.

Test-retest reliability was calculated using Pearson's correlations between the first assessment and the second assessment, approximately 2 weeks later. Although e-mail reminders were sent to all volunteers, only 74 / 104 participants returned to complete the

second assessment for a followup rate of 71.2%. The test-retest reliability was high and statistically significant, $r = .93$, $p < .001$. Test-retest reliability was significantly higher for the AU, $r = .95$, $p < .001$ than for the PSU sample, $r = .89$, $p < .001$, $z = 1.69$, $p < .05$.

Despite efforts to ensure that the followup assessment occurred approximately 2 weeks after the initial assessment for all volunteers (e.g., email reminders at the 2-week point), there was considerable variability in time between assessments. The mean time between assessments was 18.5 days ($SD = 8.4$). Because the testing software package did not allow for preventing volunteers to log-on before 2 weeks had elapsed, several volunteers completed the second assessment before the 2-week interval, with the earliest follow-up occurring 5 days after the initial assessment. The longest delay between assessments was 46 days. There was a significantly longer mean time between assessments for the AU volunteers ($M = 20.8$, $SD = 9.8$ days) relative to the PSU volunteers ($M = 16.6$, $SD = 6.5$ days), $t (72) = 2.18$, $p = .03$. In conclusion, SBQ scores appear to be relatively stable over an interval of 2 – 4 weeks.

Discussion

The present study generated items for a self-report measure of SAD-specific thoughts related to the seasons, light availability, and cues about the changing seasons. The resulting measure, the Seasonal Beliefs Questionnaire (SBQ), was pilot tested on a sample of university students. SBQ scores approximated a normal distribution in this study. The SBQ demonstrated statistically significant and positive correlations with two measures of thoughts and attitudes towards the seasons [i.e., the Seasonal Attitudes Scale (SAS) and the Seasonal Automatic Thoughts Survey (SATS)], a measure of dispositional seasonality [i.e., the Seasonal Pattern Assessment Questionnaire (SPAQ)], two measures

of cognitions related to depression [i.e., the Automatic Thoughts Questionnaire (ATQ) and the Dysfunctional Attitudes Scale (DAS)], and two measures of current depression severity [i.e., the Center for Epidemiological Studies – Depression scale (CES-D) and the Structured Interview Guide for the Hamilton Rating Scale for Depression – Seasonal Affective Disorder – Self Report version (SIGH-SAD-SR)]. The observed correlations with the SBQ were in the predicted order of strength, with the highest correlations between the SBQ and two preliminary cognitive measures for SAD (i.e., the SATS and SAS). The observed correlations suggest good convergent validity for the SBQ.

The SBQ also demonstrated a high internal consistency based on an intraclass correlation coefficient (e.g., Cronbach's coefficient α), indicating general homogeneity of the items comprising the SBQ. Test-retest reliability over approximately a 2-week period was high, indicating stability of SBQ scores over a short time. Longer-term stability of the SBQ is yet to be determined. Longer-term test-retest reliability of the SBQ is dependent on the state- versus trait-oriented nature of the cognitions measured by the SBQ, as discussed further below. Therefore, based on these promising preliminary psychometrics, continued validation of the SBQ is warranted.

As expected, the SBQ exhibited the highest correlations with the four seasonal-specific measures: SAS, SATS, SPAQ, and SIGH-SAD-SR. Contrary to prediction, the SAS, not the SATS demonstrated the highest correlation with the SBQ and shared the greatest proportion of variance (69.8%). The SBQ not only demonstrated the highest correlation with the SAS, the overall pattern of correlations for the SBQ was most similar to that of the SAS. The high observed correlation between the SBQ and the SAS was not expected because the SAS item content is heavily tied to the symptoms of SAD (e.g.,

energy, appetite, mood, weight), whereas the SBQ is more cognitive in nature. In contrast to the SAS, the SBQ focuses more extensively on the unique cognitions regarding light availability and the changing seasons (Rohan, 2002).

There are several possible reasons for the high observed correlation between the SBQ and SAS. First, both scales assess reactions to the changing seasons and light availability. Similar to the SBQ, the majority of items on the SAS reflect thoughts related to the changing seasons (e.g., "I have always been affected by the changing seasons," "When the seasons change, I know that it will affect my mood and behavior," "I believe that my behavior is affected by the changing seasons"). Additionally, 7 of the 25 (28%) SAS items refer to daylight or day length, which is the focus of several SBQ items. Second, the directions for the SBQ and the SAS are similar in that both require respondents to answer items based on "how you generally think." When responding to the SBQ and the SAS, participants may have been referencing a variety of time frames. In contrast, directions on the SATS require respondents to indicate the frequency of specific thoughts over "the past week."

Does the SBQ add anything above and beyond the two preliminary cognitive measures developed for high seasonality samples (i.e., the SATS and the SAS)? The general, nonseasonal depression measures correlated higher and shared more variance with the SATS than with the SBQ: DAS (rs = .516 vs. .308; 27% vs. 9% shared variance), ATQ (rs = .684 vs. .286; 47% vs. 8% shared variance), and CES-D (rs = .640 vs. .282; 41% vs. 8% shared variance), respectively. This is consistent with the SATS items' focus on cognitions (e.g., "I am overwhelmed," "I can't do this much longer") and symptoms of depression (i.e., depressed mood, fatigue, appetite changes), in general, not

necessarily specific to SAD. Although the SATS is highly correlated with the SBQ, the SATS appears to be more closely related to the construct of nonseasonal depression than the SBQ is. Future studies are needed to determine whether the SBQ and SAS are assessing the same or related constructs.

The SBQ was not intended, nor was it designed to be, heavily influenced by nonseasonal depression-related constructs. Consistent with this aim, the SBQ demonstrated relatively modest correlations with two cognitive measures designed for nonseasonal depression, the DAS and the ATQ, $r = .308$, 9.5% shared variance and $r = .286$, 8.2% shared variance, respectively. Therefore, the content of the SBQ appears distinguishable from that of the DAS and the ATQ, which were based on Beck's (1967, 1976) cognitive model of nonseasonal depression.

Similarly, the SBQ correlated modestly with measures of <u>current</u> depressive symptom severity, the CES-D, $r = .282$ (8.0% shared variance) and the SIGH-SAD-SR, $r = .343$ (11.8% shared variance). The item development of the SBQ and its relatively low correlation with nonseasonal, general depression measures is consistent with the conceptualization of SAD as a unique syndrome of depression with its own unique etiology, prevalence, recurrence, and treatment (Danilenko & Putilov, 1996). These modest correlations with nonseasonal depression measures also support the idea that the SBQ is tapping into new and unique SAD cognitions as proposed in Rohan's (2002) integrative, cognitive behavioral model.

Similarly, because participants were tested across the year rather than in the winter only, when seasonal symptoms peak, those observed correlations were expected. Although the SIGH-SAD-SR was designed for use with high seasonality samples, it

remains a measure of current depressive symptom severity, focusing on symptoms "over

the past week." Importantly, the SBQ was more strongly related to a dispositional

seasonality measure, SPAQ global seasonality score, than with the current depression

measures.

The next appropriate step in the development and validation of any new measure

is to optimize the scale length (Devellis, 1991). The intent in the initial development of

the SBQ was to generate a large pool of items at the risk of being overly inclusive and

redundant (Devellis, 1991). In subsequent studies, the 94 SBQ items will be empirically

reduced to a more feasible and efficient (e.g., less burdensome, non-redundant) 30 to 40

items. Item reduction can be accomplished in a number of ways. The effect of omitting

each scale item on the overall alpha can be examined. The items that, when omitted,

have the least negative effect on alpha should be dropped first (Devellis, 1991). Because

the overall coefficient alpha is high and because many of the individual items already

have high item-total correlations, this method would not be useful in this study.

Alternatively, the item-total scale correlation method excludes those items with the

lowest correlations between item and total scale scores. For example, items that are

correlated less than .20 with the total score would be eliminated (Devillis, 1991). For the

same reasons this method also would not be very useful in this study. Another method of

item reduction is to use item loadings in a factor analysis. For example, items not

substantially correlated with any of the factors of the scale would be eliminated Devillis,

1991). Although there is no consensus on the best method of item reduction (Devillis,

1991), the factor analysis method appears to be the best-suited strategy to reduce the number of SBQ items.

Another important direction for the continued development of the SBQ is to determine its factor structure. When the individual SBQ items were initially generated, they were grouped a priori into seven descriptive factor categories: "Global Winter Negativity," "External Control over Mood," "Sensitivity to Cues Signaling Winter," "Avoidance of Winter," "Personal Deficiency," "Positive Expectations for Spring," and "Global Summer Positivism." Therefore, a confirmatory factor analysis should be conducted to determine if this a priori grouping applies, or if more appropriate concept-related factors account for the majority of variance in total SBQ scores. In addition, after determining the factor structure of the SBQ, internal reliability will need to be determined for each factor.

Although the sample size of the current study was sufficient to determine the preliminary psychometrics of the SBQ (i.e., validity and reliability), available guidelines suggest that the sample size is too small to show a stable factor structure in the SBQ. Large sample sizes are recommended for factor analyses to ensure that the resultant groupings are not simply due to the effects of sampling error (Nunnally & Bernstein, 1994). Many studies suggest that the proportion of sample size to the number of items used for factor analysis should be in the range of 4:1 to 5:1 (Streiner & Norman, 1999). Based on these recommendations, the current 94-item SBQ would require a sample size ranging from 376 to 470 to perform a reliable factor analysis. Guadagnoli and Velicer (1988) conducted a Monte Carlo study to empirically determine the sample size required for a factor analysis and determined that the necessary sample size depended on the

saturation level (i.e., the magnitude of the factor loadings; eigenvalues) and number of items per factor. They suggested that a pattern composed of 10 to 12 items per factor with loadings of 0.40 would generate an accurate solution at sample sizes greater than 150 and that factors with fewer than 10 items would require a sample size of 300 or more (Guadagnoli & Velicer, 1988). Based on this approach, the sample size of this study would need to be at least doubled and possibly tripled before a stable factor analytic solution could be determined.

For this preliminary study of the SBQ, assessments took place across the year, over three seasons (i.e., fall, winter, spring). Consequently, mean SBQ scores for each season were examined to determine whether season affected SBQ scores. Interestingly, mean SBQ scores for the total sample were descriptively highest in the summer, although summer was not statistically different from fall or winter. However, only 17% of participants were assessed in the summer and no participants were assessed in the spring. Therefore, future studies with larger samples of college students and equal subsamples assessed in each of the four seasons are needed to determine whether there are seasonal differences in the SBQ.

Items on the SBQ reflect cognitions at two levels of Beck's (1967, 1976) cognitive model (i.e., intermediate beliefs and automatic thoughts). By definition, automatic thoughts are moment-to-moment cognitions activated in response to the situation at hand. Intermediate beliefs can also be situationally activated, but tend to reflect a more latent, stable level of cognition. Unlike the ATQ and DAS, which measure cognitions that wax and wane with depressive episodes (Persons & Miranda, 1992), it is expected that the cognitions captured by the SBQ are more trait-like or dispositional in

nature. Spring and summer, the seasons when seasonal symptoms are in remission, could serve to reinforce the cognitions assessed by the SBQ. For example, degree of conviction in cognitions such as "I hate winter" and "I need sunshine to feel happy" could be reinforced by positive affect experienced in the summer, when the photoperiod is longest in duration.

One of the main limitations to this study was the use of a college sample. Ideally, a study on the psychometric properties of the SBQ would include administration to a large representative SAD sample. Logistical constraints (e.g., no funding, no research assistants, limited time-frame, etc.) were the primary prohibitive reasons against using a clinical sample. However, the use of a general college sample is an accepted practice in the preliminary development of a new measure. Many questionnaires, including some of the questionnaires used in this study (e.g., ATQ, DAS, SAS, and SATS) have used college students to establish their preliminary psychometric properties. DeVillis (1991) suggested that in order to concentrate on the adequacy of the items, the sample should be sufficiently large (i.e., 100-300 participants) to eliminate subject variance as a significant concern. Also, the SBQ scores of the two samples used in this study were normally distributed, indicating a continuum of the construct of interest (i.e., attitudes and beliefs about the changing seasons and the weather). Thus, although the exclusive use of a college sample in the present study was not an ideal methodology, the sample used was appropriate at this stage in the validation of the SBQ. Future validation studies should include administration of the preliminary SBQ to clinically diagnosed and currently episodic SAD patients.

Another main limitation to this study was the relatively small sample size. The present study fell far short of an initial recruitment goal of 500 participants for a comprehensive psychometric study, including factor analysis. The necessary sample size to establish the basic psychometric properties (i.e., reliability and validity) of a new measure ranges from 200 participants (Guilford, 1956; Kline, 1986) to 300 participants (Nunnally, 1978). However, these recommendations are based on limited empirical support. In addition, these suggestions do no take into account that for a confidence interval (CI) of a given width, the sample size varies with the magnitude of the reliability coefficient. For example, for a 90% CI with α set at 0.05, Nunnally's $N = 300$ recommendation yields more power than is necessary to detect a statistically significant difference for any reliability coefficient greater than 0.18. Similarly, Guilford's and Kline's $N = 200$ recommendation results in more power than is required to detect any reliability coefficient greater than 0.58 (Streiner & Norman, 1999).

For the above reasons, a sample size estimation for reliability studies was calculated using a formula derived from Pearson correlations and Fisher's Z transformations (Streiner & Norman, 1999). The reliability coefficient of the SBQ obtained in this preliminary investigation was α = .978. However, because the internal reliability coefficient is expected to decrease after reducing the overall number of items, a more conservative α of .90 was used to estimate sample size. With Type I error set at 0.05, a sample size of approximately 100 participants would be needed to obtain an α of .90 with a 95% CI and only 65 participants would be needed for a 90% CI. Based on Streiner and Norman's (1999) sample size estimation procedure, the sample size included in this study ($N = 104$) has sufficient power to determine the basic psychometrics (i.e.,

reliability and validity) of the SBQ. Nevertheless, the preliminary results obtained in this

study should be viewed with caution because of the overall relatively small sample size

and the use of a college student sample. More definitive validation of the SBQ will

require replication with larger samples (Devellis, 1991).

Another limitation relates to the reliability coefficient alpha obtained in the study.

All things being equal, the larger the alpha, the more reliable the measure (Streiner &

Norman, 1999). Devellis (1991) advises during the initial measure development stage to

strive for alphas that are slightly higher than the experimenter would like so that if alphas

decrease slightly when used in a new research context, they will still be acceptably high.

The high observed alpha may be appropriate for this stage in the validation of the SBQ.

Although, the high alpha obtained in this study could be interpreted as a positive and

favorable psychometric attribute of the SBQ, uncritically accepting high values of alpha

is problematic. First, coefficient alpha is dependent not only on the magnitude of the

correlations among the items, but also on the number of items in the scale. In other

words, a scale can be made to look more homogeneous (reliable) by simply doubling the

number of items, even though the average inter-item correlation remains the same.

Second, if alpha is too high, then it may suggest a high level of item redundancy (e.g.,

several items asking the same question in slightly different ways; Boyle, 1991). Streiner

and Norman (1999) suggest that alpha should be above 0.70 (Nunnally, 1978), but

probably not higher than 0.90. Because the SBQ contains a relatively large number of

items, the resulting alpha is likely inflated.

Another limitation of this study involves the exclusive use of self-report

measures. Because most SBQ items are highly face-valid, the SBQ is likely subject to

the same general responses biases inherent to all self-report questionnaires, including:

social desirability (i.e., faking bad or faking good), acquiescence bias (i.e., 'yea-saying'

or 'nay-saying'), and ceiling effects. There are few, if any, ways to counter these biases

in self-report measures. The main method used here to counter these biases, especially

ceiling effects, was imbedding 18 reverse-coded items in the SBQ. Therefore, the biases

related to self-report measures likely manifest in the SBQ, but their presence does not

likely invalidate the SBQ. In addition, this study could have been improved by including

a measure of social desirability to empirically examine this variable as a confound.

If found to be reliable and valid in larger studies and in studies using clinical SAD

samples, the SBQ could be used to provide further support for the psychological

vulnerability in Rohan's (2002) integrative, cognitive-behavioral model of SAD. One

test of the SAD-specific cognitive component of the model would be a cross-sectional

comparison of individuals with SAD, individuals with nonseasonal depression, and

never-depressed controls on cognitive vulnerability measures to elucidate the unique vs.

overlapping cognitive features. A longitudinal study in which SAD patients are followed

over time (i.e., across all seasons) could help to determine whether the cognitions

assessed by the SBQ change over the seasons or remain consistent over time. This type

of design would determine whether SBQ scores wax and wane with a SAD episode.

Specifically, it could determine whether SBQ cognitions are only a concomitant (i.e., co-

occurrence) or possibly a consequence (i.e., "scar") of SAD. In order to determine

whether SBQ cognitions are an antecedent to SAD, a prospective, developmental

psychopathology study in which a large sample from the general population is followed

from adolescence into adulthood would be needed. Some individuals would eventually

develop SAD and others would not. If SBQ scores were elevated prior to initial SAD episode onset, SBQ cognitions may be an antecedent, and possibly causally related, to SAD.

In addition to questionnaires like the SBQ that measure effortful cognitions, future studies of cognitions that are unique to SAD should also include experimental tasks to measure more implicit cognitions. The implicit associations test (IAT; Greenwald, McGhee, & Schwartz, 1998) is an experimental cognitive task that assesses automatic judgments (i.e., attitudes, thinking) outside of awareness. The IAT may represent a less face-valid method of determining whether individuals with SAD have implicit negative cognitions about low light availability or winter seasonal cues. Rohan and colleagues (2003) are currently using an IAT to measure implicit cognitive associations between light and positive valence and dark and negative valence.

Although premature at this time, a future potential use of the SBQ is to help inform cognitive-behavioral therapy (CBT) for SAD and evaluate its mechanisms. If further study determines that cognitions about the seasons and light availability are an important cognitive feature of SAD, greater time and emphasis could be placed on this type of cognitive restructuring in the CBT for SAD protocol (Rohan, 2000). According to Beck's (1967, 1976) cognitive model of depression, the modification of negative thoughts about oneself, others, and the world is the purported mechanism of change in cognitive therapy. In the same manner, maladaptive beliefs specific to individuals with SAD, such as the thoughts measured by the SBQ, could represent the potential mechanism of change underlying CBT for SAD. Rohan's (2000) SAD-tailored CBT protocol for seasonal depression includes cognitive restructuring with specific emphasis

on challenging negative automatic thoughts about the changing seasons, light availability, and other environmental cues. This focus would presumably be most adequately captured by the SBQ. Future studies could administer the SBQ repeatedly across CBT sessions to determine whether cognitive change specific to beliefs about the seasons and light availability precedes changes in depression. If change in SBQ cognitions is identified as a mechanism of change in CBT for SAD, strategies aimed at changing SBQ-type cognitions could be emphasized more in the treatment to enhance CBT's efficacy.

Table 1

Participant Demographics, Depression Severity, and Seasonality

	All Participants (*N* = 104)	PSU (*n* = 48)	AU (*n* = 56)	Statistic (Comparing Sites)	*p*
Gender, No. (%)				χ^2 (1, *N*=97) = .44	.51
Males	23 (22)	10 (21)	13 (23)		
Females	74 (71)	38 (79)	36 (64)		
Age, *M* (*SD*)	21.1 (4.7)	21.9 (5.9)	20.2 (3.0)	*t* (95) = 1.77	.08
Race, No. (%)				χ^2 (1, *N*=97) = .01	.95
White	69 (66)	34 (71)	35 (63)		
Nonwhite	31 (30)	14 (29)	17 (30)		
Black	5 (5)	1 (2)	4 (7)		
Asian	17 (16)	10 (21)	7 (13)		
Nat. American	0 (0)	0 (0)	0 (0)		
HA/Pac Islander	1 (1)	1 (2)	0 (0)		
Latino	4 (4)	1 (2)	3 (5)		
International	4 (4)	1 (2)	3 (5)		
Education, No. (%)				χ^2 (1, *N*=97) = 16.3	.01
Some college	88 (85)	39 (81)	49 (88)		
High School	12 (12)	2 (4)	10 (18)		
Some College	74 (71)	37 (77)	37 (66)		
Assoc/2-yr	2 (2)	0 (0)	2 (4)		
Bachelors degree	9 (9)	9 (19)	0 (0)		
Bachelors/4-yr	3 (3)	3 (6)	0 (0)		
Masters	4 (4)	4 (8)	0 (0)		
Grad./Medical	2 (2)	2 (4)	0 (0)		
Testing, No. (%)				χ^2 (1, *N*=104) = 11.3	.01
Summer	9 (9)	0 (0)	9 (16)		
Fall	65 (63)	29 (60)	36 (64)		
Winter	30 (29)	19 (40)	11 (20)		
Spring	0 (0)	0 (0)	0 (0)		
Depression, *M* (*SD*)					
CES-D	18.6 (11.8)	17.4 (11.6)	19.3 (12.0)	*t* (95) =.79	.43
SIGH-SAD-SR	15.7 (11.8)	15.6 (12.2)	15.8 (11.5)	*t* (95) =.08	.94
GSS, *M* (*SD*)	9.2 (5.1)	9.6 (5.4)	8.7 (4.9)	*t* (95) = .81	.42

Notes. 7 participants did not report any demographic information. PSU = Penn State University, AU = American University. Summer = Jun. – Aug., Fall = Sep. – Nov., Winter = Dec. – Feb., Spring = Mar. – May, CES-D = Center for Epidemiologic Studies – Depression Scale, SIGH-SAD-SR = Structured Interview Guide for the Hamiliton Rating Scale for Depression – Seasonal Affective Disorders Version-Self Rating, GSS = Global Seasonality Score on the Seasonal Pattern Assessment Questionnaire (SPAQ).

Table 2

Pearson's Correlations Between SBQ and Seasonal Measures

	SAS	SATS	SPAQ	SIGH-SAD-SR
Seasonal Beliefs Questionnaire (SBQ)	**.836****	**.572****	**.493****	**.343****
Seasonal Attitudes Scale (SAS)		.533**	.508**	.362**
Seasonal Automatic Thoughts Survey (SATS)			.696**	.650**
Seasonal Pattern Assessment Questionnaire (SPAQ)				.492**
Structured Interview Guide for the Hamilton Rating Scale for Depression – Seasonal Affiective Disorder - Self Report version (SIGH-SAD-SR)				
Dysfunctional Attitudes Scale (DAS)	.232*	.576**	.445**	.403**
Automatic Thoughts Questionnaire (ATQ)	.300**	.684**	.424**	.708**
Center for Epidemiological Studies – Depression Scale (CES-D)	.288**	.640**	.511**	.385**
Current Behaviors Scale (CBS)	.338**	.485**	.385**	.501**

* $p < 0.05$ (2-tailed)
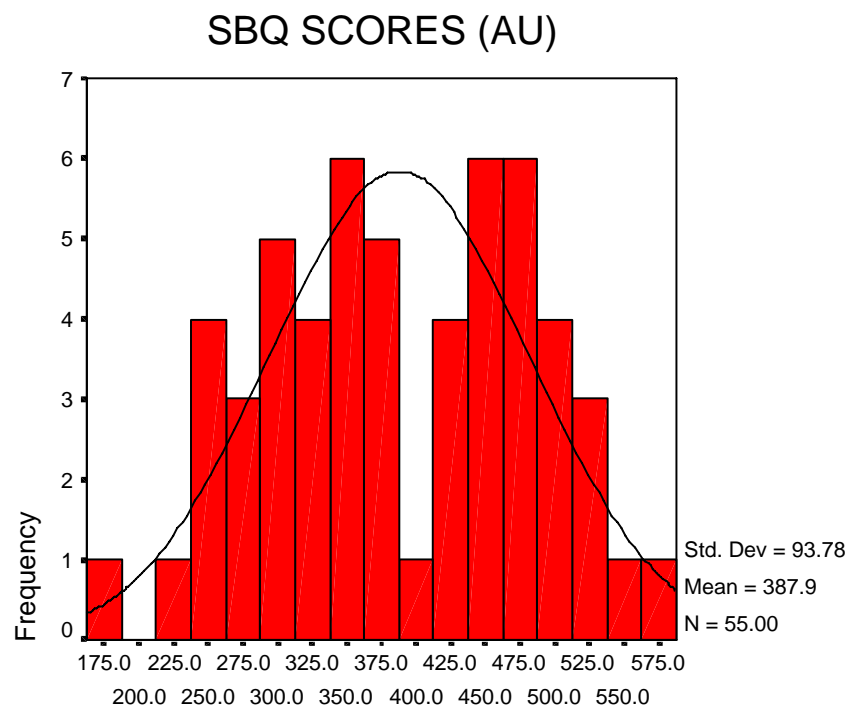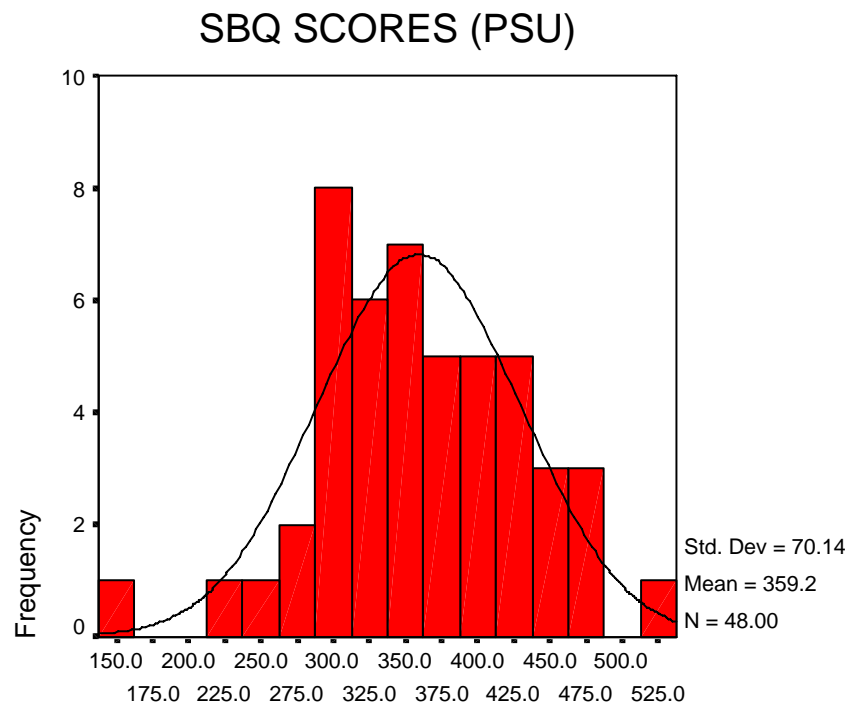
** $p < 0.01$ (2-tailed)

Table 3

Pearson's Correlations Between SBQ and Nonseasonal Measures

	DAS	ATQ	CES-D	CBS
Seasonal Beliefs Questionnaire (SBQ)	**.308****	**.286****	**.282****	**.277****
Dysfunctional Attitudes Scale (DAS)		.607**	.574**	.382**
Automatic Thoughts Questionnaire (ATQ)			.809**	.486**
Center for Epidemiological Studies – Depression Scale (CES-D)				.444**
Current Behaviors Scale (CBS)				

* *p* < 0.05 (2-tailed)

** *p* < 0.01 (2-tailed)

Figure 1. SBQ score distributions.

SBQ SCORES (PSU)

Std. Dev = 70.14
Mean = 359.2
N = 48.00

SBQ SCORES (AU)

Std. Dev = 93.78
Mean = 387.9
N = 55.00
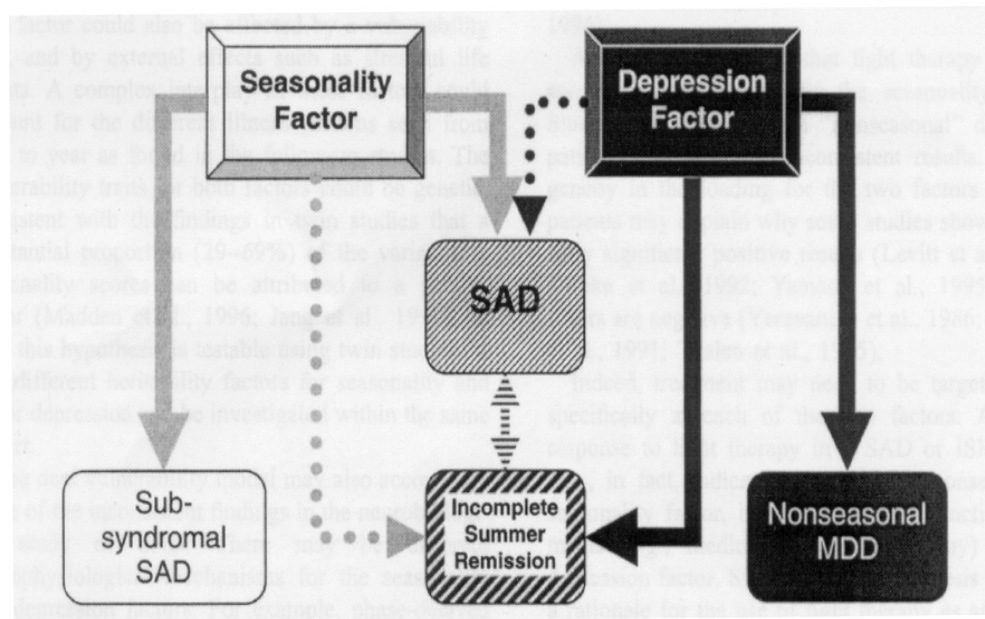
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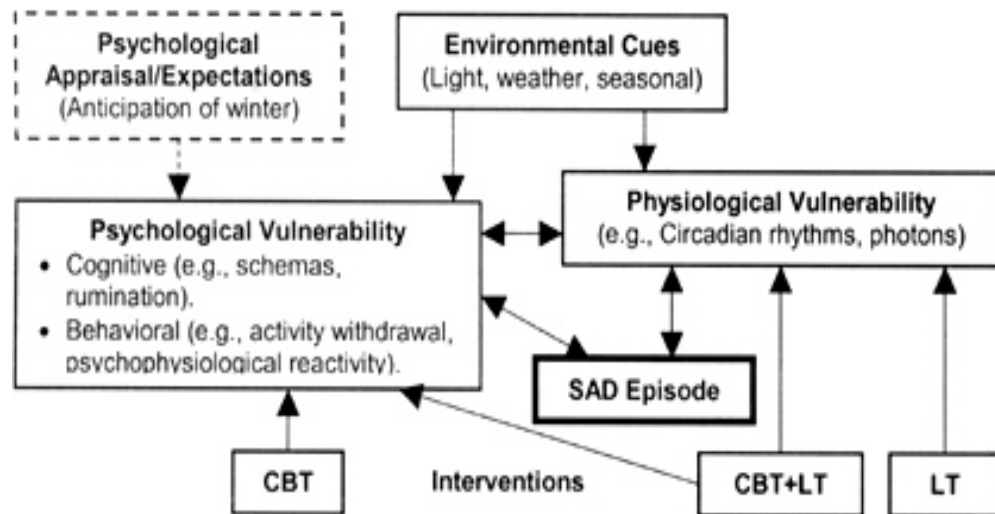
APPENDIX A

Spectrum of Disease Model for SAD (Lam et al., 2001)

Integrative, Cognitive-Behavioral Model (Rohan, 2002)

APPENDIX C

Dysfunctional Attitudes Scale

This inventory lists different attitudes or beliefs which people sometimes hold. Read *each* statement carefully and decide how much you agree or disagree with the statement. To each of the attitudes, show your answer by circling the number that BEST DESCRIBES HOW YOU THINK, according to the screening criteria.

7	6	5	4	3	2	1
totally agree	agree very much	agree slightly	neutral	disagree slightly	disagree very much	totally disagree

Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements. To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like most of the time.

REMEMBER: ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK <u>MOST OF THE TIME</u>.

_____ 1. It is difficult to be happy unless one is good looking, intelligent, rich, and creative.

_____ 2. Happiness is more a matter of my attitude towards myself than the way other people feel about me.

_____ 3. People will probably think less of me if I make a mistake.

_____ 4. If I do not do well all the time, people will not respect me.

_____ 5. Taking even a small risk is foolish because the loss is likely to be a disaster.

_____ 6. It is possible to gain another person's respect without being especially talented at anything.

_____ 7. I cannot be happy unless most people I know admire me.

_____ 8. If a person asks for help, it is a sign of weakness.

_____ 9. If I do not do as well as other people, it means I am an inferior person.

_____ 10. If I fail at my work, then I am a failure as a person.

_____ 11. If you cannot do something well, there is little point in doing it at all.

_____ 12. Making mistakes is fine because I can learn from them.

7	6	5	4	3	2	1
totally agree	agree very much	agree slightly	neutral	disagree slightly	disagree very much	totally disagree

_____ 13. If someone disagrees with me, it probably indicates that he does not like me.

_____ 14. If I fail partly, it is as bad as being a complete failure.

_____ 15. If other people know what you are really like they will think less of you.

_____ 16. I am nothing if a person I love doesn't love me.

_____ 17. One can get pleasure from an activity regardless of the end result.

_____ 18. People should have a reasonable likelihood of success before undertaking anything

_____ 19. My value depends greatly on what others think of me.

_____ 20. If I don't set the highest standards for myself, I am likely to end up a second rate person.

_____ 21. If I am to be a worthwhile person, I must be truly outstanding in one major respect.

_____ 22. People who have good ideas are more worthy than those who do not.

_____ 23. I should be upset if I make a mistake.

_____ 24. My own opinions of myself are more important than others' opinions of me.

_____ 25. To be a good, moral, worthwhile person, I must help everyone who needs it.

_____ 26. If I ask a question, it makes me look inferior.

_____ 27. It is awful to be disapproved of by people important to you.

_____ 28. If you don't have other people to lean on, you are bound to be sad.

_____ 29. I can reach important goals without slave driving myself.

_____ 30. It is possible for a person to be scolded and not get upset.

_____ 31. I cannot trust other people because they might be cruel to me.

_____ 32. If others dislike you, you cannot be happy.

_____ 33. It is best to give up your own interests in order to please people.

_____ 34. My happiness depends more on other people than it does on me.

_____ 35. I do not need the approval of other people in order to be happy.

_____ 36. If a person avoids problems, the problem tends to go away.

7	6	5	4	3	2	1
totally agree	agree very much	agree slightly	neutral	disagree slightly	disagree very much	totally disagree

_____ 37. I can be happy even if I miss out on many of the good things in life.

_____ 38. What other people think about me is important.

_____ 39. Being isolated from others is bound to lead to unhappiness.

_____ 40. I can find happiness without being loved by another person.

APPENDIX D

Automatic Thoughts Questionnaire

Instructions: Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and put the number in the blank that most closely corresponds to your answer.

1	2	3	4	5
not at all	sometimes	moderately often	often	all the time

_____ 1. I feel like I'm up against the world.

_____ 2. I'm no good.

_____ 3. Why can't I ever succeed?

_____ 4. No one understands me.

_____ 5. I've let people down.

_____ 6. I don't think I can go on.

_____ 7. I wish I were a better person.

_____ 8. I'm so weak.

_____ 9. My life's not going the way I want it to.

_____ 10. I'm so disappointed in myself.

_____ 11. Nothing feels good anymore.

_____ 12. I can't stand this anymore.

_____ 13. I can't get started.

_____ 14. What's wrong with me?

_____ 15. I wish I were somewhere else.

_____ 16. I can't get things done.

_____ 17. I hate myself.

_____ 18. I'm worthless.

_____ 19. Wish I could just disappear.

_____ 20. What's the matter with me?

_____ 21. I'm a loser.

	1	2	3	4	5
	not at all	sometimes	moderately often	often	all the time

_____ 22. My life is a mess.

_____ 23. I'm a failure.

_____ 24. I'll never make it.

_____ 25. I feel so helpless.

_____ 26. Something has to change.

_____ 27. There must be something wrong with me.

_____ 28. My future is bleak.

_____ 29. It's just not worth it.

_____ 30. I can't finish anything.

Young Schema Questionnaire –Short Form

INSTRUCTIONS: Listed below are statements that a person might use to describe himself or herself. Please read each statement and decide how well it describes you. When there you are not sure, base your answer on what you emotionally **feel**, not on what you **think** to be true. Choose the **highest rating from 1 to 6** that describes you and write the number in the space before the statement.
RATING SCALE:

      1 = Completely untrue of me.
      2 = Mostly untrue of me
      3 = Slightly more true than untrue
      4 = Moderately true of me
      5 = Mostly true of me
      6 = Describes me perfectly

1. _____ Most of the time, I haven't had someone to nurture me, share him/herself with me, or care deeply about everything that happens to me.
2. _____ In general, people have not been there to give me warmth, holding, and affection.
3. _____ For much of my life, I haven't felt that I am special to someone.
4. _____ For the most part, I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.
5. _____ I have rarely had a strong person to give me sound advice or direction when I'm not sure what to do.
*ed
6. _____ I find myself clinging to people I'm close to, because I'm afraid they'll leave me.
7. _____ I need other people so much that I worry about losing them.
8. _____ I worry that people I feel close to will leave me or abandon me.
9. _____ When I feel someone I care for pulling away from me, I get desperate.
10. ____ Sometimes I am so worried about people leaving me that I drive them away.
*ab
11. _____ I feel that people will take advantage of me.
12._____ I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.
13._____ It is only a matter of time before someone betrays me.
14. _____ I am quite suspicious of other people's motives.
15. _____ I'm usually on the lookout for people's ulterior motives.
*ma
16. _____ I don't fit in.
17. _____ I'm fundamentally different from other people.
18. _____ I don't belong; I'm a loner.
19. _____ I feel alienated from other people.
20. _____ I always feel on the outside of groups.
*si
21. _____ No man/woman I desire could love me one he/she saw my defects.
22. _____ No one I desire would want to stay close to me if he/she knew the real me.

23. _____ I'm unworthy of the love, attention, and respect of others.
24. _____ I feel that I'm not lovable.
25. _____ I am too unacceptable in very basic ways to reveal myself to other people.
*ds
26. _____ Almost nothing I do at work (or school) is as good as other people can do.
27. _____ I'm incompetent when it comes to achievement.
28. _____ Most other people are more capable than I am in areas of work and achievement.
29. _____ I'm not as talented as most people are at their work.
30. _____ I'm not as intelligent as most people when it comes to work (or school).
*fa
31. _____ I do not feel capable of getting by on my own in everyday life.
32. _____ I think of myself as a dependent person, when it comes to everyday functioning.
33. _____ I lack common sense.
34. _____ My judgment cannot be relied upon in everyday situations.
35. _____ I don't feel confident about my ability to solve everyday problems that come up.
*di
36. _____ I can't seem to escape the feeling that something bad is about to happen.
37. _____ I feel that a disaster (natural, criminal, financial, or medical) could strike at any
           moment.
38. _____ I worry about being attacked.
39. _____ I worry that I'll lose all my money and become destitute.
40. _____ I worry that I'm developing a serious illness, even though nothing serious has been
           diagnosed by a physician.
*vh
41. _____ I have not been able to separate myself from my parent(s), the way other people my age
           seem to.
42. _____ My parent(s) and I tend to be over involved in each other's lives and problems.
43. _____ It is very difficult for my parent(s) and me to keep intimate details from each other,
           without feeling betrayed or guilty.
44. _____ I often feel as if my parent(s) are living through me--I don't have a life of my own.
45. _____ I often feel that I do not have a separate identity from my parent(s) or partner.
*em
46. _____ I think that if I do what I want, I'm only asking for trouble.
47. _____ I feel that I have no choice but to give in to other people's wishes, or else they will
           retaliate or reject me in some way.
48. _____ In relationships, I let the other person have the upper hand.
49. _____ I've always let others make choices for me, so I really don't know what I want for
           myself.
50. _____ I have a lot of trouble demanding that my rights be respected and that my feelings be
           taken into account.
*sb
51. _____ I'm the one who usually ends up taking care of the people I'm close to.
52. _____ I am a good person because I think of others more than of myself.
53. _____ I'm so busy doing for the people that I care about, that I have little time for myself.
54. _____ I've always been the one who listens to everyone else's problems.
55. _____ Other people see me as doing too much for others and not enough for myself.
*ss
56. _____ I am too self-conscious to show positive feelings to others (e.g., affection, showing I
           care).
57. _____ I find it embarrassing to express my feelings to others.
58. _____ I find it hard to be warm and spontaneous.

59. _____ I control myself so much that people think I am unemotional.
60. _____ People see me as uptight emotionally.
*ei
61. _____ I must be the best at most of what I do; I can't accept second best.
62. _____ I try to do my best; I can't settle for "good enough."
63. _____ I must meet all my responsibilities.
64. _____ I feel there is constant pressure for me to achieve and get things done.
65. _____ I can't let myself off the hook easily or make excuses for my
        mistakes.
*us
66. _____ I have a lot of trouble accepting "no" for an answer when I want something from other
        people.
67. _____ I'm special and shouldn't have to accept many of the restrictions placed on other
        people.
68. _____ I hate to be constrained or kept from doing what I want.
69. _____ I feel that I shouldn't have to follow the normal rules and conventions other people do.
70. _____ I feel that what I have to offer is of greater value than the contributions of others.
*et
71. _____ I can't seem to discipline myself to complete routine or boring tasks.
72. _____ If I can't reach a goal, I become easily frustrated and give up.
73. _____ I have a very difficult time sacrificing immediate gratification to achieve a long-range
        goal.
74. _____ I can't force myself to do things I don't enjoy, even when I know it's for my own good.
75. _____ I have rarely been able to stick to my resolutions.
*is

Seasonal Attitudes Scale

<u>Instructions</u>: Please indicate to what extent the following statements about the seasons adequately describe your attitudes. There are no right or wrong answers, just indicate what <u>*you*</u> generally think or feel. Put the number that corresponds to your choice in the blank before the item.

1	2	3	4	5	6	7
does not describe me at all			describes me somewhat			describes me very well

____ 1. I have always been affected by the changing seasons

____ 2. As winter approaches, my energy level begins to decrease.

____ 3. Sunny long days make me feel the best.

____ 4. I notice that I like to eat different types of food depending on the season.

____ 5. My appetite increases as the amount of daylight decreases.

____ 6. I feel the best during the summer months.

____ 7. As winter approaches, I start to feel down.

____ 8. During the summer months, I start to feel less depressed.

____ 9. I believe I am affected by the changing seasons more than most people.

____ 10. When the seasons change, I know that it will affect my mood and behavior.

____ 11. As summer approaches, I begin to feel more energetic.

____ 12. I often think about the changing seasons and what will happen to my mood.

____ 13. I tend to gain weight during the winter months.

____ 14. My energy level starts to decrease as the amount of daylight decreases.

____ 15. During the winter months, I tend to engage in fewer social activities.

____ 16. I believe there is a close relationship between the changing seasons and my mood.

	1	2	3	4	5	6	7
	does not describe me at all			describes me somewhat			describes me very well

___ 17. I feel more active when there is more sunlight in the day.

___ 18. During the summer months, I tend to lose weight.

___ 19. When the days start getting shorter, I start feeling worse.

___ 20. During the summer months, I begin to feel like my old self again.

___ 21. I feel the worst during the winter months.

___ 22. I am very aware of how seasons affect my mood and behavior.

___ 23. I feel that there is little to do to improve my mood in the winter months.

___ 24. When the amount of daylight starts increasing in the spring, I start to feel better.

___ 25. I believe that my behavior is affected by the changing seasons.

Seasonal Automatic Thoughts Survey

<u>Directions</u>: Below is a list of thoughts that people might have during the day. Please read each thought and indicate how often, if ever, you had each thought in the past week. Please read each item carefully and write the number in the blank that best describes how frequently you had the thought in the past week.

1	2	3	4	5
not at all	occasionally	moderately often	often	all the time

___ 1. I worry that I won't have enough energy.

___ 2. I'm going to feel worse when the days get much shorter.

___ 3. I am overwhelmed.

___ 4. I shouldn't be eating this much.

___ 5. No one else feels this way every year.

___ 6. The amount of daylight has been changing lately.

___ 7. I am dreading the next few months.

___ 8. I'm too tired to do anything.

___ 9. I am worried about how bad I will feel this winter.

___ 10. I wish spring would get here sooner.

___ 11. It is hard to get out of bed in the morning.

___ 12. I am always going to feel down in the winter months.

___ 13. There are signs that the season is changing.

___ 14. I can't control my food cravings.

___ 15. I'm going to be depressed until spring.

___ 16. I can't do this much longer.

___ 17. There is nothing that I can do to stop depression from coming.

1	2	3	4	5
not at all	occasionally	moderately often	often	all the time

___ 18. I dread the cold.

___ 19. Everything is so dark and dreary.

___ 20. I just want to crawl into bed for a long time.

___ 21. There are not enough hours in the day to accomplish everything I need to do.

___ 22. It is hard to be social.

Seasonal Beliefs Questionnaire

<u>Directions</u>: Below is a list of <u>thoughts, attitudes, and beliefs about the seasons</u> that people might have. Please read each statement carefully and decide how much you agree or disagree with it. For each item, write the number that corresponds to how much you agree or disagree with that statement in the blank space in front of it. Answer each statement based on HOW YOU GENERALLY THINK.

1	2	3	4	5	6	7
totally disagree	disagree very much	disagree slightly	neutral	agree slightly	agree very much	totally agree

___ 1. I function better when the sun is shining.

___ 2. I feel trapped in the winter.

___ **3. I am not concerned with the amount of daylight**

___ 4. My mood falls with the leaves.

___ 5. Winter days are better if the sun is out.

___ 6. Winter is a problem for me.

___ **7. I am neutral to the end of summer.**

___ 8. I wish I could take a vacation to a warm place.

___ 9. I need sunshine to feel happy.

___ **10. Winter is the best season of the year.**

___ 11. I feel cheated when the days get shorter.

___ 12. I can't be productive on dark, dreary days.

___ 13. I hate winter.

___ 14. Dark, gloomy days are depressing.

___ 15. I crave light.

___ **16. As the days get longer, I feel the same.**

___ 17. Dark, winter days are the worst.

___ 18. The weather should not affect me.

___ 19. When the first flowers bloom, my slump begins to lift.

___ 20. Dark, winter days bring me down.

___ 21. I dread the days getting shorter.

___ 22. I wish the summer would never end.

1	2	3	4	5	6	7
totally disagree	disagree very much	disagree slightly	neutral	agree slightly	agree very much	totally agree

___ 23. Winter is such a hassle.

___ 24. When I look out the window, my mood adjusts to the weather.

___ **25. I look forward to winter.**

___ 26. When the leaves change, I know it won't be long until I start to feel down.

___ 27. I feel great all summer long.

___ **28. Bright days are depressing.**

___ 29. Everything is easier in the summertime.

___ 30. There's no point to winter.

___ 31. Losing minutes of daylight in winter isn't fair.

___ **32. I don't pay much attention to the changing seasons.**

___ 33. Everything looks dead during winter.

___ 34. I wish I could live some place warmer.

___ 35. I should give myself a break because of the bad weather.

___ 36. I can't do anything when it's dark or cold.

___ **37. Spring is no better than any other season.**

___ 38. Everything takes so much effort in the winter.

___ 39. I can't get motivated in the winter.

___ 40. It's difficult to feel good on dark, dreary days.

___ 41. The sun energizes me.

___ **42. I thrive across all the seasons.**

___ 43. I'm in a fog all winter long.

___ 44. As the days grow shorter, I anticipate the coming winter.

___ 45. I can't function when it's cold.

___ 46. I wish I could just skip winter.

___ **47. I dread the summertime.**

___ 48. I wish we never had dreary weather.

___ 49. I feel really down in the winter.

___ 50. It's hard to get up in the dark.

1	2	3	4	5	6	7
totally disagree	disagree very much	disagree slightly	neutral	agree slightly	agree very much	totally agree

___ **51. I love winter.**

___ 52. I count the days until spring.

___ 53. It's not fair that I feel down every winter.

___ 54. The weather determines how I feel.

___ **55. Sunlight doesn't affect my mood.**

___ 56. I'm a summer person.

___ 57. Winter feels so long.

___ 58. Spring revitalizes me.

___ 59. The end of daylight savings signals the downturn of my mood.

___ 60. I hate the cold.

___ 61. There's something wrong with me in the winter.

___ 62. I get more productive as the days grow longer.

___ **63. Winter is not a problem for me.**

___ 64. I wish I could hibernate the winter away.

___ 65. All is well if the sun is shining.

___ 66. It's easiest to just stay in bed during winter.

___ **67. I function well in the winter.**

___ 68. I don't expect much of myself in the winter.

___ 69. I can't handle the winter.

___ 70. Dark, dreary days exhaust me.

___ **71. I feel the same as the days grow shorter.**

___ 72. Things seem worse in the winter.

___ 73. I can't seem to get going on dark, dreary mornings.

___ 74. Summer empowers me.

___ 75. As the days get longer, my mood gets better.

___ 76. I'm a failure in the winter.

___ **77. I welcome cold winter days.**

___ 78. I'm stuck in a rut in the winter.

1	2	3	4	5	6	7
totally disagree	disagree very much	disagree slightly	neutral	agree slightly	agree very much	totally agree

___ 79. Winter is draining.

___ 80. I should be happy like other people in the wintertime.

___ **81. The transition into fall and winter is pleasant.**

___ 82. I wish I could control the sunlight.

___ 83. Winter is my bad time.

___ 84. I can't cope with dark days.

___ **85. How I feel is irrelevant to the weather.**

___ 86. I am going to have the winter blues every year.

___ 87. I love sunny, summer days.

___ 88. I'm not a winter person.

___ 89. I'm always happier when it's warmer.

___ 90. My outlook on life gets better with the arrival of spring.

___ 91. I don't feel like being around anyone in the winter.

___ **92. Summer lasts too long.**

___ 93. I can't snap out of my winter funk.

___ 94. I'm ineffective in the winter.

* Bold indicates reverse items (for manuscript clarification; actual questionnaire items

are not bolded)

SBQ Feedback Form

1. Were the instructions on the first page clear? If NO, how could they be changed to improve clarity?

2. Were there any specific items that were unclear or that did not make sense? Please explain.

3. What is your opinion on the length of this questionnaire / number of items? (We plan to reduce the number of items by about half from what it is now for the final version).

4. Are there any specific items that you think should not be included that were not included in this questionnaire? Please explain.

5. Are there any important items that you think should be included that were not included in this questionnaire?

6. Do you have any other general comments, ideas, or opinions about this questionnaire that you would like to share?

THANK YOU for completing this questionnaire and for providing your feedback! We value your comments and suggestions, which will help to improve this questionnaire.

Center for Epidemiological Studies – Depression Scale

CES-D

Below is a list of the ways you might have felt or behaved. Please tell us how often you have felt this way during the past week.

Rarely or none of the time = less than 1 day
Some or a little = 1-2 days
Occasionally = 3-4 days
Most or all of the time

		Rarely or not at all	Some or a little	Occasionally	Most or all the time
1	I was bothered by things that usually don't bother me.				
2	I did not feel like eating; my appetite was poor.				
3	I felt that I could not shake off the blues even with help from my friends and family.				
4	I felt that I was just as good as other people.				
5	I had trouble keeping my mind on what I was doing.				
6	I felt depressed.				
7	I felt that everything I did was an effort				
8	I felt hopeful about the future				
9	I thought my life had been a failure				
10	I felt fearful				
11	My sleep was restless.				
12	I was happy.				
13	I talked less than usual.				
14	I felt lonely.				
15	People were unfriendly.				
16	I enjoyed life.				
17	I had crying spells.				
18	I felt sad.				
19	I felt that people disliked me.				
20	I could not get "going."				

Structured Interview Guide for the Hamilton Rating Scale for Depression –

Seasonal Affective Disorder Version - Self Report

(SIGH-SAD-SR)

Have you been physically ill in the past week? Circle one: *yes / no.* If yes, please explain: _____

Females (pre-menopausal): About when did your last period begin? ___ ___ / ___ ___ / ___ ___

In the questions that follow, please circle the number of one alternative in each set that best describes how you have been during the past week. If you have changed during the last few days, circle the alternative that best describes how you are today. Before you select an alternative in each set, read all of the choices to make sure you pick the most accurate one.

DURING THE PAST WEEK . . .

H1

0 - I have *not* been feeling down or depressed at all

1 - I have been feeling somewhat down or depressed.

2 - I have been feeling quite down or depressed.

3 - I have been feeling and looking very depressed (or others have said so).

4 - I haven't been able to think about anything except how bad or depressed I feel.

H2

0 - I have been keeping busy and have been interested in the things I've been doing.

1 - I haven't been quite as interested in doing things as I used to be.

2 - I have definitely not been as interested in things as I used to be, and I have had to push myself to do them.

3 - I have not been doing much because I feel so bad.

4 - I have stopped doing nearly everything — I just sit or sleep most of the day.

Note: When an item refers to how you "normally" are, it means when you are feeling OK, or as close to OK as you get.

A1

0 - I have been interested in socializing with others as much as normal.

1 - I have still been interacting with others but am less interested in doing so.

2 - I have been interacting less with other people in social situations.

3 - I have been interacting less with others at home or at work.

4 - I have become quite withdrawn at home or at work.

H3 *(This question is about your interest in sex, not your actual sexual activity*
0 - My interest in sex has been about the same as it was before I became depressed, or greater than normal.
1 - I have not been quite as interested in sex as I was before I became depressed.
2 - I have been much less interested in sex than I was before I became depressed.

Remember, "normal" means how you're feeling when you're OK.

H4
0 - My appetite has been normal or greater than normal.
1 - I have had less appetite than normal, but I eat without anyone having to urge me.
2 - I have had so little appetite that I have not been eating regularly unless someone urges me to.

H5 *(Circle "0" for this question if you have lost weight due to dieting,or have lost weight that you had previously gained when you were depressed.)*
0 - I don't think I have lost any weight since I became depressed, or if I have lost weight, I have started to gain it back.
1 - I have probably lost some weight (that I haven't gained back at all) because I haven't felt like eating.
2 - I have definitely lost weight (that I haven't gained back at all) because I haven't felt like eating.

A2
0 - I have *not* gained weight above my normal level in the past week.
1 - I have probably gained weight (two or more pounds) in the past week, and my current weight
is above normal for me.
2 - I have definitely gained weight (two or more pounds) in the past week, and my current weight
is above normal for me.

A3 *(This question is about your appetite, not what you have actually been eating*
0 - My appetite has been normal or less than normal.
1 - I have wanted to eat just a little more than normal.
2 - I have wanted to eat somewhat more than normal.
3 - I have wanted to eat much more than normal.

A4 *(This question is about what you have actually been eating.)*
0 - I have *not* been eating more than normal.
1 - I have been eating a little more than normal.
2 - I have been eating somewhat more than normal.
3 - I have been eating much more than normal.

A5
0 - I have *not* been craving or eating sweets or starches any more than when I feel normal.
1 - I have been craving or eating sweets or starches somewhat more than when I feel normal.
2 - I have been craving or eating sweets or starches much more than when I feel normal.
3 - I have had an irresistible craving for sweets or starches.

If you circled "1", "2" or "3" for the question above, please also answer the following:

The craving or eating has focused mainly on:
1 - sweets
2 - starches
3 - both sweets and starches

List any specific foods you have been craving: _____

Which of the following describes you best?
1 - I have been craving sweets or starches, but have been able to control eating them.
2 - I have actually been eating sweets or starches excessively.

At what time of day has the craving or eating usually occurred?
0 - It can occur at any time — it comes and goes.
1 - It usually occurs in the morning.
2 - It usually occurs in the afternoon or evening.
3 - It has been nearly all the time.

H6
0 - I have *not* had any difficulty falling asleep at night.
1 - Some nights it has taken me longer than half an hour to fall asleep.
2 - I have had trouble falling asleep every night.

H7
0 - I have *not* been waking up in the middle of the night, or if I have gotten up to go to the bathroom, I have fallen right back asleep.
1 - My sleep has been restless and disturbed during the night.
2 - I have been waking during the night without being able to get right back to sleep, or I've been getting out of bed in the middle of the night (not just to go to the bathroom).

H8

0 - I have been oversleeping *or* waking up at a reasonable hour in the morning.
1 - I have been waking up very early in the morning, but I have been able to go back
to sleep.
2 - I have been waking up very early in the morning without being able to go back
to sleep, especially if I've gotten out of bed.

Remember, "normal" means how you're feeling when you're OK.
**A6 (*When I am feeling normal, I usually sleep about ___ hours each day, including
naps.)***

0 - I have been sleeping no more than I usually do when I feel normal.
1 - I have been sleeping at least one hour more than I usually do when I feel normal.
2 - I have been sleeping at least two hours more than I usually do when I feel normal.
3 - I have been sleeping at least three hours more than I usually do when I feel normal.
4 - I have been sleeping at least four hours more than I usually do when I feel normal.

The following question asks about how difficult it has been waking up in the morning:
0 - Usually I have been waking up on time and quickly feeling wide awake.
1 - Although I've had to depend on an alarm clock to wake up on time, I've usually felt
wide awake within 30 minutes.
2 - I've been feeling sleepy for 30 minutes or longer after I wake up.
3 - It's been a major effort to get out of bed, and I've continued to feel sleepy for at
least three hours after I wake up.
4 - I've been falling back asleep after the alarm, or feeling sleepy for at least five
hours after I first wake up.
If you have been using an alarm, what time is it set for? ____:____ AM / PM (circle)

H9

0 - I have *not* had a heavy feeling in my limbs, back or head. ↓
1 - I have had a heavy feeling in my limbs, back, or head, some of the time.
2 - I have had a heavy feeling in my limbs, back, or head, a lot of the time.

H9b

0 - I have *not* been bothered by backaches, headache, or muscle aches. ↓
1 - I have been bothered some of the time by backaches, headache, or muscle aches.
2 - I have been bothered a lot of the time by backaches, headache, or muscle aches.

Remember, "normal" means how you're feeling when you're OK.
H9c

0 - I have *not* been feeling more tired than normal.
1 - I have felt slightly more tired than normal.
2 - I have been more tired than normal for at least a few hours per day.
3 - I have felt tired much of the time most days.
4 - I have felt an overwhelming fatigue all of the time.

H10
0 - I have ***not*** been putting myself down, or feeling like a failure or that I
have let other people down, or feeling guilty about things I have done.
1 - I have been feeling like a failure or that I have let other people down.
2 - I have been feeling very guilty or thinking a lot about bad things I have done,
or bad mistakes I have made.
3 - I believe that my being depressed is a punishment for something bad that I've done.
4 - I have been hearing voices accusing me of bad things, or seeing things that are
scary, that others said were not really there.

H11
0 - I have ***not*** had any thoughts about dying or about hurting or killing myself,
or that life is not worth living.
1 - I have had thoughts that life is not worth living, or that I'd be better off
dead.
2 - I have thought about dying, or wish I were dead.
3 - I have thought about killing myself, or I have done something to hurt myself.
4 - I have tried to kill myself.

H12
0 - I have ***not*** been feeling especially tense or irritable, or worrying a lot.
1 - I have been feeling somewhat tense or irritable.
2 - I have been worrying about little unimportant things — that I wouldn't ordinarily
worry about — or I have been excessively tense or irritable.
3 - Other people notice that I look or sound tense, anxious, or fearful.
4 - I feel tense, anxious, or fearful all of the time.

Check off all the following physical symptoms that have <u>bothered</u> you in the past week:

_ dry mouth	_ cramps	_ hyperventilating
_ gas	_ belching	_ sighing
_ indigestion	_ heart palpitations	_ having to urinate frequently
_ diarrhea	_ headaches	_ sweating

If you checked off any of the symptoms listed above, please also answer the following:
(0 if none)
1 - Altogether, the symptom(s) have only been bothering me a little bit.
2 - Altogether, the symptom(s) have been bothering me somewhat.
3 - Altogether, the symptom(s) have been bothering me a lot.
4 - Altogether, the symptom(s) have been making it difficult for me to function.

DURING THE PAST WEEK . . . *Page 6*

Circle one of the following:
0a - These symptoms bother me only when I am depressed.
0b - These symptoms bother me from time to time, but they get worse when I'm depressed.
2 - In my experience, these symptoms occur whether or not I am depressed.
3 - I think these symptoms are due to physical illness or a medication that I am taking.

If you circled "3" above, what illness or medication? _____

H14
0 - I have *not* been thinking much about my physical health.
1 - I have been worrying about being or becoming physically ill.
2 - I have been spending most of my time worrying about my physical health.
3 - I have been complaining frequently about how I feel physically, or asking for help a lot.
4 - I am sure that I have a physical disease, even though the doctors tell me that I don't.
Have you had a specific medical problem this week? If yes, please describe:

H15
0a - Although previously I was depressed, this past week I have felt distinctly better. (recode 2 to 0?)
0b - I have become depressed, or have continued feeling depressed, in the past week.
If neither 0a nor 0b is true, circle 1 or 2 below:

1 - I haven't been feeling very good, but it's not because of depression — rather, I ate something bad, or overworked, or had a virus, or just have been needing a rest.
2 - Depression has not been a problem of mine, now or before.

Remember, "normal" means how you're feeling when you're OK.
H16
0 - My rate of speech and thought are normal.
1 - My speech and physical movements are slightly slowed down, or my thoughts are slightly slower, which has made it difficult for me to concentrate.
2 - My physical movements, speech or thoughts are somewhat slow compared to normal, and other people have noticed this.
3 - My physical movements are markedly slower, or my speech or thoughts are so slow that it has been hard to have a conversation with me.
4 - My physical movements are greatly slowed down, or my speech and thoughts are so slow
that it has been difficult for me to think or talk at all.

H17
0 - I have *not* been restless or fidgety.
1 - I have been somewhat restless, or sometimes have been playing with my hands, hair, or other things.
2 - I have been very restless, or often have been playing with my hands, hair, or other things.
3 - I have trouble sitting still, and need to keep moving about a lot of the time.
4 - I am unable to sit still, or have been wringing my hands, biting my nails, pulling my hair, or biting my lips, nearly all the time.

H18a
0 - Overall, the problems I have been asked about in this questionnaire have bothered me equally in the morning and in the late evening.
1 - Overall, these problems have bothered me more in the morning.
2 - Overall, these problems have bothered me more in the late evening.

H18b *If you circled "1" or "2" for the question above, please also circle one of the following:*
(0 if none)
1 - I have been feeling only a little worse in the mornings (*or* evenings).
2 - I have been feeling much worse in the mornings (*or* evenings).

In the following question, a "slump" means a temporary reduction in mood or energy from which you recover, at least partially, later in the day.
0 - I have *not* regularly had a slump in my mood or energy in the afternoon or evening.
1 - I have regularly had a slump in my mood or energy in the afternoon or evening.

If you circled "1" for the question above, please also answer the following:
The slumps usually begin about ___ p.m. and end about ___ p.m.
Please specify:
0 - Once these slumps occur, they usually last till bedtime.
1 - I usually come out of these slumps at least an hour before bedtime.

A8 *If you usually come out of these slumps at least an hour before bedtime, please also circle one of the following:*
(0 if none)
1 - Usually, the slumps have been only mild in intensity.
2 - Usually, the slumps have been moderate in intensity.
3 - Usually, the slumps have been severe in intensity.

How would you characterize the slumps?
0 - They are mostly in my mood.
1 - They are mostly in my energy.
2 - They are in both mood and energy.

H19
0 - I have ***not*** been having any sensation that things around me are unreal,
or that I'm in a dream.
1 - I have been having only very mild sensations of unreality.
2 - I have been having some definite sensations of unreality or of being in a dream.
3 - I have been having sensations of unreality a lot of the time.
4 - I have been so bothered by sensations of unreality that it has been hard for me
to function.

H20
0 - I have ***not*** thought that anyone was trying to give me a hard time or hurt me.
1 - I have been suspicious of people.
2 - I have noticed certain things that probably mean that someone is trying to
harm me.
3 - I am sure someone is trying to get me or hurt me.

H21a
0 - I have ***not*** had things that I've had to do over and over again, like checking the ↓
locks on the doors several times, or repeatedly washing my hands.
1 - I have been compelled to check certain things repeatedly — more than should be
necessary.
2 - I have been spending excessive amounts of time checking certain things repeatedly.

H21b
0 - I have ***not*** been bothered by thoughts that run over and over in my mind
but don't make any sense to me.
1 - I have been a little bothered by thoughts that keep running through my
mind but don't make any sense to me.
2 - I have been very bothered by thoughts that keep running through my mind
but don't make any sense to me.

(T29 = H21 + A8)
(SIGH-SAD 29-item total)

Seasonal Pattern Assessment Questionnaire

The purpose of this form is to find out how your mood and behavior change over time. NOTE: We are interested in *your* experience; *not others* you may have observed.

To what degree do the following change <u>with the seasons</u>? Please indicate the appropriate number in front of the item.

no change	slight change	moderate change	marked change	extremely marked change
0	1	2	3	4

_____ a. sleep length   _____ b. social activity

_____ c. mood (overall feeling of well being)   _____ d. weight

_____ e. appetite   _____ f. energy level

_____ g. exercising

_____ h. binge eating (Binge eating means eating a very large amount of food within 2 hours while feeling like one cannot   stop eating or control how much one is eating. If you don't binge eat, leave item h blank.)

_____ i. purging (Purging means vomiting or taking laxatives, water pills, or diet pills after eating. If you don't purge, leave item i blank.)

In the following questions, circle all applicable months. You may have one circle for a single month or you may have several circles for a cluster of months, or any grouping of months. If an item does not apply to you, leave it blank. For example, if you do not purge, leave items c and j blank.

At what time of the year do you:

a. feel best   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

      No particular month

b. tend to gain most weight   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

      No particular month

c. purge most   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

      No particular month

d. socialize most   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

      No particular month

e. sleep least   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

f. eat most   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

g. binge least   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

h. lose most weight   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

i. socialize least   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

j. purge least   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

k. feel worst   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

l. eat least   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

m. sleep most   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

n. binge most   Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

No particular month

Using the following scale, indicate how the following weather changes make you feel.
Place your response in front of the item.

-3 = in very low spirits or markedly slowed down
-2 = moderately low/slowed down
-1 = mildly low/slowed down
 0 = no effect
+1 = slightly improves your mood or energy level
+2 = moderately improves your mood or energy level
+3 = markedly improves your mood or energy level
 -- = don't know

_____ a. cold weather

_____ b. hot weather

_____ c. humid weather

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_____ d. sunny days

_____ e. dry days

_____ f. gray cloudy days

_____ g. long days

_____ h. high pollen count

_____ i. foggy, smoggy days

_____ j. short days

How much does your weight fluctuate during the course of the year? (circle one)

0 - 3 lbs.   4 - 7 lbs.   8 - 11 lbs.   12 - 15 lbs.   16 - 20 lbs.   over 20 lbs.

Approximately how many hours of each 24-hour day do you sleep during each season? (include naps)

_____ a. winter (Dec. 21 - Mar. 20)

_____ b. spring (Mar. 21 - June 20)

_____ c. summer (June 21 - Sept. 20)

_____ d. fall (Sept. 21 - Dec. 20)

Do you notice a change in food preference during different seasons? Yes___ No___

If yes, please specify the changes.

_____

_____

If you experience changes with the seasons, do you feel that these are a problem for you?

Yes_____ No_____

If this is a problem, circle the severity: Mild   Moderate   Marked   Severe   Disabling

Current Behaviors Scale

Please circle the number next to each item that best describes your behavior
DURING THE PAST 6 MONTHS.

Items:	Never or Rarely	Some-times	Often	Very Often
1. Fail to give close attention to details or make careless mistakes in my work	0	1	2	3
2. Fidget with hands or feet or squirm in seat	0	1	2	3
3. Difficulty sustaining my attention in tasks or fun activities	0	1	2	3
4. Leave my seat in classroom or in other situations in which seating is expected	0	1	2	3
5. Don't listen when spoken to directly	0	1	2	3
6. Feel restless	0	1	2	3
7. Don't follow through on instructions and fail to finish work	0	1	2	3
8. Have difficulty engaging in leisure activities or doing fun things quietly	0	1	2	3
9. Having difficulty organizing tasks and activities	0	1	2	3
10. Feel "on the go" or "driven by a motor"	0	1	2	3
11 Avoid, dislike, or am reluctant to engage in work that requires sustained mental effort	0	1	2	3
12. Talk excessively	0	1	2	3
13. Lose things necessary for tasks or activities	0	1	2	3
14. Blurt out answers before questions have been completed	0	1	2	3
15. Easily distracted	0	1	2	3
16. Have difficulty awaiting turn	0	1	2	3
17. Forgetful in daily activities	0	1	2	3
18. Interrupt or intrude on others	0	1	2	3

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