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Assessing Client Progress Session by Session in the Treatment of Social Anxiety Disorder: The Social Anxiety Session Change Index

Sarah A. Hayes
University of Nebraska-Lincoln, shayes_unl@yahoo.com

Nathan A. Miller
University of Nebraska-Lincoln

Debra A. Hope
University of Nebraska-Lincoln, dhope1@unl.edu

Richard G. Heimberg
Temple University

Harlan R. Juster
New York State Department of Health

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Abstract

Frequent assessment during therapy can improve treatments and provide accountability. However, clinicians often do not monitor progress because of the time it takes to administer and score assessments. In response, the Social Anxiety Session Change Index (SASCI) was developed. The SASCI is a short, easily administered rating of subjective improvement that asks clients with social anxiety disorder how much they have changed since the beginning of therapy. Change on the SASCI was related to change in fear of negative evaluation, a core aspect of social anxiety, and to clinician-rated improvement, but not to ratings of anxiety sensitivity or depression. Because it is brief and easily interpretable, the SASCI can be used in a variety of clinical settings to monitor change across therapy. The SASCI is presented along with examples of how the information gathered from frequent administration can inform clinical practice.

Barlow, Hayes, and Nelson (1984) highlight three key reasons why clinicians should measure their clients' change across therapy: to improve treatment, to enhance clinical science, and to provide accountability. In short, these authors posit that assessing change during treatment allows modifications in the treatment procedure to enhance results; gives scientist-practitioners a better understanding of effective treatment techniques; and provides evidence of treatment effectiveness to insurance companies and other third-party payers. Research has shown that tracking clients' progress can improve outcome (see Lambert et al., 2003). A brief weekly progress update would allow for an efficient and sensitive method to

assess client improvement or relapse from week to week. Changes from the previous week could be used as a tool in session to either investigate what worked well over the week, or to make adjustments if needed. Further, researchers could utilize a session-by-session measure as a way to understand the elements and processes of treatment that lead to change. In addition, therapists have reported that they are interested in using such data to improve their services (e.g., Bickman et al., 2000). However, one of the primary difficulties in utilizing regular assessments in clinical settings is the time required to administer, score, and interpret frequent assessments. In our own work with social anxiety disorder, we found the need for an efficient instrument for ongoing assessment of change, but nothing was available. In response, we developed a brief measure of subjective change that can be administered, interpreted, and utilized in busy clinical practices and research settings.

Traditionally, treatment research has focused on changes in symptoms from pretreatment to posttreatment (Kazdin, 2003). Whereas this approach provides a global account of the efficacy of the treatment, it neglects important intermediate steps of therapeutic change. For example, Laurenceau, Hayes, and Feldman (2007) state that psychotherapy researchers, in addition to understanding what treatments work, are interested in studying how and why treatments work. To begin to answer these questions, it is vital to understand how and when change occurs during treatment rather than waiting until treatment is over. As an alternative to the traditional pre-post design, change can be measured at each session. Measuring change frequently allows for a more precise index of when change is occurring. For example, by examining frequent assessments during treatment for depression, Tang and DeRubeis (1999) found that change occurs in sudden gains rather than in a linear pattern. In contrast, Hofmann, Schulz, Meuret, Moscovitch, and Suvak (2006) found few sudden gains in the treatment of social anxiety disorder. Answering questions about the pattern and timing of change will also be of interest to the scientist-practitioner concerned with maximizing outcome and understanding the psychotherapeutic process. The answers to these questions will aid the scientist-practitioner in discerning when change should be generally expected and allowing the clinician to identify cases in which he or she should modify therapy to enhance outcome.

Despite the aforementioned benefits of explicitly assessing therapeutic change, less than one third of licensed clinicians report measuring outcome in their clinical practices (Phelps, Eisman, & Kohout, 1998). To better understand clinicians' attitudes toward empirical assessment, Garland, Kruse, and Aarons (2003) conducted interviews and focus groups with a diverse sample of mental health providers who were required by the state of California to conduct outcome assessments. An overwhelming majority (90%) of respondents indicated that the greatest barrier to conducting assessments was the time required to administer and score them. When asked how they would change the assessment procedures, the most common response was to improve the feasibility and simplify the interpretation of the measures. Given these concerns and recommendations, it appears that short, sensitive, and easily interpretable measures that can be administered frequently over the course of therapy are needed. Additionally, if a clinician is going to be able to use the information from the measure in session, the measure must be able to be scored and interpreted quickly. Finally, if a measure is going to be used to measure change session to session or week to week, it is vital that the measure be sensitive to small amounts of change.

One place where a session-by-session measure of change may be useful is to improve our understanding of cognitive-behavioral therapy (CBT) for social anxiety disorder. Several meta-analyses have been conduced which demonstrate the efficacy of CBT for social anxiety disorder (i.e., Fedoroff & Taylor, 2001; Gould, Buckminster, Pollack, Otto, & Yap, 1997); however, less is known about how CBT works. By measuring change frequently throughout treatment, it may be possibly to identify which elements of treatment are contributing to client change. To address the need for such an instrument, our research group developed the Social Anxiety Session Change Index (SASCI). The SASCI asks clients to use a Likert-type scale to indicate how much they feel that they have changed from the beginning of therapy on four dimensions: anxiety, avoidance, concern about humiliation and embarrassment, and interference. More specifically, the questions ask how *anxious* the respondent becomes in anticipation of or when he or she is in social or performance situations; how much the respondent *avoids* social or performance situations; how *concerned* the respondent is about embarrassing or humiliating him- or herself in front of others; and how much the respondent's anxiety *interferes* with work or social activities.

The four items of the SASCI are presented in Appendix A. These four dimensions were selected to reflect the diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*; American Psychiatric Association, 1994). For a diagnosis of social anxiety disorder, one must experience anxiety in social or performance situations (Criterion A); he or she must avoid the feared social or performance situations (Criterion C); and the anxiety or avoidance must be distressing or interfere significantly with the individual's routine (Criterion E). By mirroring the *DSM-IV* criteria, the SASCI should efficiently assess the areas of functioning most relevant to social anxiety disorder. This short, face-valid assessment is easily interpretable, as the clinician can obtain an overall picture of the client's view of subjective change at a glance. The SASCI has the added benefit of being potentially sensitive to progress made in that it assesses change since the beginning of therapy.

Although the SASCI is specific to social anxiety, we see this as a model for parallel measures for related disorders such as panic disorder or depression. In clinical settings it would be possible to have a series of measures similar to the SASCI for common client concerns. In some ways, the SASCI is similar to Kiresuk and Sherman's (1968) Goal-Attainment Scaling. For example, they both focus on frequent assessment of operationalized components of the client's presenting complaint. However, with Goal-Attainment Scaling, a separate set of questions is developed for each client, whereas the SASCI presents the same set of questions to clients with the same target disorder. Standard questions that can be used across multiple clients should improve the feasibility of assessment. By using the same questions across clients, clinicians could become familiar with the scoring and should be able to relate change across clients to determine whether a certain client is changing as expected.

This study sought to provide psychometric data on the SASCI used to assess change during treatment for social anxiety disorder. Overall, it was expected that change on the SASCI would be related to change on a well-established, but somewhat lengthier measure of social anxiety. SASCI change and posttreatment SASCI scores were expected to be related to pre-

to-post treatment change on measures of social anxiety, but not to measures of depression or other forms of anxiety.

Method

Participants

Participants were 42 adult clients (52.4% women) with a mean age of 36.95 (*SD* = 13.97) seeking treatment for social anxiety disorder at either the Anxiety Disorders Clinic of the University of Nebraska–Lincoln (UNL; *n* = 26) or at the Adult Anxiety Disorders Clinic of Temple University (*n* = 16). The majority of participants (*n* = 28) were part of a multicenter treatment outcome study. The remaining 14 participants were clients seen as training cases for the larger study, clients who did not meet the inclusion criteria set forth in the larger study, or clients who attended the clinics after the larger study was completed. The majority of the sample (85.7%) was European American, whereas the remainder described themselves as African American (7.1%), Hispanic (4.8%), or Native American (2.4%).

Participants were selected for this study if they had a primary diagnosis of social anxiety disorder and received treatment for social anxiety based on the treatment manual by Hope, Heimberg, Juster, and Turk (2000). They were included even if they had comorbid conditions, so long as social anxiety was their primary diagnosis. Diagnoses were determined through the use of the Anxiety Disorders Interview Schedule for *DSM-IV* (ADIS-IV; Brown, DiNardo, & Barlow, 1994). The ADIS-IV includes a Clinician's Severity Rating (CSR) based on the extent that the anxiety related to a specific diagnosis interferes with daily functioning (see description below). A client was included in this study if his or her principal ADIS-IV diagnosis was social anxiety disorder, with a CSR of at least 4. All interviews were conducted by advanced graduate students in clinical psychology or doctoral-level psychologists who had undergone the rigorous training regimen suggested by the developers of the ADIS-IV. Training consisted of watching three interviews conducted by an experienced interviewer, then conducting at least three interviews under observation. A subset of the recorded interviewers from the UNL site were independently rated by a second trained rater and yielded a kappa of .87. In no case did it become apparent during treatment that a diagnosis other than social anxiety disorder would have been a more appropriate principal diagnosis. Participants were included even if they were taking psychotropic medications; however, they were asked to remain on stable doses throughout treatment. Participants were excluded if they required immediate attention (e.g., they were at immediate harm to themselves or someone else or they were actively psychotic) or if they were currently receiving psychotherapy from another mental health provider.

Measures

SASCI—The SASCI is a 4-item self-report measure administered before each therapy session to assess the progress that the client believed he or she had made since the beginning of treatment. It asks respondents to use a 7-point Likert-type scale ranging from 1 (*much less than the start of treatment*) to 4 (*not different from the start of treatment*) to 7 (*much more than the start of treatment*) to report their level of anxiety in social/performance situations, avoidance of social/performance situations, concern about embarrassing or humiliating

themselves, and how much anxiety interferes with their social activities (see Appendix A for the specific items). This study used the total SASCI score, based on the sum of the four items. A total score of 16 indicates no change since the beginning of treatment. Scores of 4 to 15 indicate improvement while scores of 17 to 28 indicate deterioration. The internal consistency of the SASCI across sessions was good, with alphas ranging from .84 to .94 for each session ($M = .89$).

Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983)—The BFNE is a well-established 12-item questionnaire that measures the client's fears of being negatively evaluated, often considered a core feature of social anxiety disorder. The BFNE is highly correlated ($r = .96$) with the original Fear of Negative Evaluation scale (FNE; Watson & Friend, 1969). Studies have demonstrated convergent and discriminant validity for the BFNE (Rodebaugh et al., 2004; Weeks et al., 2005). In a clinical sample of individuals with either social phobia or panic disorder, the BFNE was shown to have excellent reliability and validity (Collins, Westra, Dozois, & Stewart, 2005). In the Collins et al. (2005) study, the BFNE also appeared to be sensitive to pre- to posttreatment change. The original version of the scale, the FNE, was the best predictor of long-term outcome in two studies (Mattick & Peters, 1988; Mattick, Peters, & Clarke, 1989). In a subset of the current sample (28 for pretreatment; 21 for posttreatment), Cronbach's alpha coefficients were .88 for the pretreatment BFNE and .92 for posttreatment BFNE scores.[1]

Clinician's Severity Rating (CSR)—The CSR, a component of the ADIS-IV, is a summary rating made by the interviewer that quantifies the degree of distress and interference experienced by the client as a result of each specific diagnosis he or she receives. CSRs range from 0 (*not at all severe*) to 8 (*extremely severe/distressing*), with a CSR of 4 (*moderate impairment*) generally considered the cutoff for clinical significance (Heimberg et al., 1990).

Clinical Global Impressions Scale (CGI; National Institute of Mental Health, 1985)—The CGI measures therapeutic improvement and severity of symptoms. In this study, we examined only the improvement item, which was completed by the ADIS interviewer. Improvement is measured on a 7-point Likert-type scale ranging from a score of 1 (*markedly improved*) to 7 (*markedly worse*). The CGI has been shown to be positively related to both self-report and clinician-administered measures of social anxiety, depression, impairment, and quality of life among clients with social anxiety disorder (Zaider, Heimberg, Fresco, Schneier, & Liebowitz, 2003).

Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987)—The LSAS is a 24-item interviewer-rated measure designed to assess fear and avoidance of specific social situations. Respondents rate their level of fear on a 4-point scale ranging from 0 (*none*) to 3 (*severe*) and degree of avoidance on a 4-point scale ranging from 0 (*never or 0%*) to 3 (*usually or 67% to 100%*) over the previous week. The clinician is asked to make the final judgment for each rating. Heimberg et al. (1999) found excellent internal consistency (.96) and strong

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[1]Internal consistency calculations for the BFNE were based on a subset of the sample because responses to the individual items for 14 clients were not available.

correlations between the LSAS total score (the sum of fear and avoidance ratings) and other measures of social anxiety. In a subset of the current sample (28 for pretreatment; 17 for posttreatment), alpha coefficients were .94 for the pretreatment LSAS and .96 for posttreatment LSAS scores.

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)—The SIAS is a self-report instrument designed to measure fears of interacting with others. The scale contains 20 items which are rated according to how anxious the situations would make the respondent on a 5-point Likert-type scale from 0 (*not at all characteristic or true of me*) to 4 (*extremely characteristic or true of me*). This scale has demonstrated good reliability and validity (e.g., Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). In a subset of the current sample (28 for pretreatment; 21 for posttreatment), alpha coefficients were .87 for the pretreatment SIAS and .88 for posttreatment SIAS scores.

Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986)—The ASI is a 16-item self-report measure of fear of anxiety-related symptoms. Items are rated on a 5-point scale ranging from 0 (*very little*) to 4 (*very much*). The reliability of the ASI has been found to be acceptable in clinical samples (e.g., Taylor, Koch, & McNally, 1992). ASI scores have been shown to be elevated in individuals with anxiety disorders, with individuals with panic disorder exhibiting significantly higher scores than those diagnosed with other anxiety disorders (Taylor et al., 1992). The ASI was included to assess the specificity of the SASCI to social anxiety rather than to global improvement. In a subset of the current sample (17 for pretreatment; 11 for posttreatment), alpha coefficients were .88 for the pretreatment ASI and .84 for posttreatment ASI scores.

Beck Depression Inventory–II (BDI-II; Beck, Steer, & Brown, 1996)—The BDI-II is an extensively used 21-item measure of depression. The BDI-II has been shown to have acceptable reliability and validity (Dozois, Dobson, & Ahnberg, 1998). The]BDI-II was also included to assess the specificity of the SASCI to social anxiety rather than to global improvement. In a subset of the current sample (28 for pretreatment; 20 for posttreatment), alpha coefficients were .91 for the pretreatment BDI-II and .88 for posttreatment BDI-II scores.

Procedure

After an initial phone screening, all potential clients were administered the ADIS-IV. All participants underwent individual CBT for social anxiety using the protocol *Managing Social Anxiety: A Cognitive Behavioral Approach* (Hope et al., 2000). This treatment is provided in 16 sessions and involves five segments: psychoeducation, training in cognitive restructuring, role-played and *in vivo* exposures, advanced cognitive restructuring, and preparation for termination. Therapists in this study were doctoral-level clinical psychologists or advanced graduate students supervised by a licensed clinical psychologist. Preliminary results from the larger treatment study showed a marked decrease in symptomatology from pre- to posttreatment effect sizes (*ES* ranged from 1.35 to 1.83), which is comparable to the effect sizes for Heimberg's Cognitive Behavioral Group Therapy (CBGT; Heimberg & Becker, 2002) (*ES* ranged from 0.84 to 1.13; Heimberg, 2002).

Clients completed the SASCI and BFNE before each session. However, the SASCI was not completed before the first session since this measure asks for a comparison to the first session. The additional psychopathology measures were administered either as a part of a questionnaire battery or as part of a clinical interview that were both completed at both pre- and posttreatment assessment. The CGI rating was made only at posttreatment. Only the participants from the University of Nebraska ($n = 26$) completed the ASI.

Data Analysis

In this study, growth curve analysis was used to measure symptom change across time in treatment. Growth curve analysis is a method for examining longitudinal data in which the emphasis is on individual differences. First, a separate growth trajectory is estimated for each individual, then the individual growth trajectories are combined to provide sample means. Growth curve analysis describes growth using two parameters: intercept and slope. In this study, the mean intercept is the average estimated score at the end of treatment and the mean slope is the average change from one session to the next. Because each individual has an estimated final score and change rate, these two parameters can be correlated with each other and with outcome measures.

Francis, Fletcher, Stuebing, Davidson, and Thompson (1991) outlined a number of advantages of growth curve analysis over more traditional modes of analysis (e.g., trend analysis using ANOVA) in studying longitudinal change. For example, in growth curve analysis, the focus is on individual change and participants with missing data can be included in the analysis through the use of maximum likelihood (ML) estimation techniques. For the analysis presented here, a simultaneous growth process model was run using MPlus 3.01 (Muthén & Muthén, 2004), a structural equation modeling software package. The simultaneous growth process model allows for the comparison of two separate growth models. Here, a model based on the SASCI is compared to a model based on the BFNE.

Results

Table 1 presents the means and standard deviations of SASCI and BFNE scores for each session. Table 2 presents the pre-and posttreatment means for each of the outcome variables. Overall, clients improved on all outcome measures. There were no site differences on any of the session or outcome ratings.

A growth model was constructed which simultaneously estimated the change in SASCI and BFNE scores across treatment. Based on this linear growth model, on average, clients began the second therapy session with an SASCI score of 15.31 ($SD = 2.77$), which decreased by 0.44 points per session to end at 9.15 ($SD = 3.84$) (see Fig. 1). In other words, at the beginning of the second session clients reported little change from the beginning of treatment; however, by the end of treatment, they reported moderately less symptoms than at the beginning of treatment. This growth rate indicates that there was a statistically significant decrease in the SASCI scores across treatment ($Z = -11.68$, p < .01). The average BFNE score at the first session was 49.43 ($SD = 7.06$), similar to the mean of a large clinical sample of persons with social anxiety disorder ($M = 46.91$, $SD = 9.27$; Weeks et al., 2005), which decreased by 0.83 points per session to end at 36.98 ($SD = 10.41$) (see Fig. 1). This

growth rate indicates that there was also a statistically significant decrease in the BFNE scores across treatment ($Z = -7.46$, p < .01).

Validity of the SASCI

As shown in Table 3, the session-by-session change and ending score on the SASCI correlated significantly with the session-by-session change and ending score of the BFNE. In other words, clients who improved more rapidly on the BFNE also improved more rapidly on the SASCI. Clients with lower scores on the BFNE at the final session also reported lower scores on the SASCI at the final session. Finally, clients who demonstrated a more rapid decrease across sessions on both the SASCI and BFNE also had lower scores on both measures at the final therapy session.

Table 4 presents the correlations between the SASCI and BFNE session-by-session change and final scores and the outcome variables. The final scores on the SASCI and BFNE were compared to the posttreatment scores on the outcome measures, whereas the session-by-session change scores were compared to the pre- to posttreatment change on the outcome measures. Similar to the BFNE, lower posttreatment scores on the CGI, CSR, and LSAS were significantly associated with lower SASCI scores at the final therapy session. Lower scores on the SIAS were significantly associated with lower scores on the final SASCI score and a trend toward significance for the final BFNE scores. Session-by-session improvement on both the SASCI and the BFNE was related to more improvement from pre- to posttreatment on the CSR and LSAS. There was a trend for change on the SIAS to be related to change on the SASCI and the BFNE. In other words, subjective improvement based on the SASCI, and the BFNE, was related to clinician-rated improvement at the end of treatment.

To examine whether the SASCI is specifically detecting change in social anxiety symptoms rather than change in general distress or global improvement, ratings on the SASCI were also compared to scores on measures of anxiety sensitivity and depression. As can be seen in Table 4, pre- to posttreatment change on these measures (BDI-II and ASI) was not significantly related to session-by-session change on the SASCI; however, more rapid change on the BFNE was associated with more improvement on the ASI. As expected, the final SASCI and BFNE scores were not significantly related to final scores on the BDI-II or the ASI.

Clinical Utility of the SASCI

If the SASCI is completed by clients prior to each therapy session, it can quickly alert the therapist to changes that have occurred over the week so that the therapist can focus session time on such changes if necessary. This approach allows the therapist to adapt therapy as necessary, which may lead to improved clinical outcome. To illustrate how the SASCI could be used to enhance therapy, four examples are presented in Fig. 2.

Little Improvement Over Time — The Case of Mr. A

Mr. A was a 21-year-old man treated for social anxiety disorder and comorbid depression. Over the first 10 weeks of therapy, Mr. A consistently reported on the SASCI that he did not

feel any different than at the beginning of treatment. Over this time, he reported slight increases and decreases on the SASCI; however, these differences were not large enough to be clinically significant. His therapist noticed this pattern and became concerned since most clients make improvements by this point in the therapy protocol. This observation prompted Mr. A's therapist to ask Mr. A during Session 10 what he felt was and was not working in therapy. Mr. A revealed that he was feeling frustrated because even though he was engaging in more social situations, he still experienced heightened anxiety during them. His therapist then pointed out that Mr. A engaged in more difficult situations and that the situations that used to make him anxious were no longer anxiety provoking. This reframing helped Mr. A to understand that what makes him anxious in the present will not be anxiety provoking in the future.

Sudden Worsening — The Case of Mrs. B

Mrs. B was a 48-year-old woman who sought treatment because of her anxiety about giving presentations at work following a promotion. Over the first several weeks of therapy, Mrs. B's SASCI scores were decreasing steadily. During this time, her verbal reports to her therapist were equally positive. In her sixth session, Mrs. B completed her first in-session exposure, giving a presentation to the therapist. She endorsed minimal anxiety during the exposure, reported that the experience was very useful, and stated that she was ready to try a presentation at work. Before the next session Mrs. B reported a sudden and large increase in her SASCI score. In response to her therapist's inquiry, Mrs. B reported that she had given a presentation at work and that it had not gone as well as she hoped. In the resulting discussion, the therapist was able to challenge some of Mrs. B's negative assumptions regarding the quality of the presentation. Furthermore, the therapist realized that Mrs. B's level of anxiety may have been more severe than she had previously revealed. For the next couple of sessions, therapy progressed at a slower pace so that Mrs. B was able to gain experience with less anxiety-provoking situations before returning to situations near the top of her anxiety hierarchy.

Sudden Improvement — Ms. C

Ms. C was a 31-year-old woman initiating treatment for generalized social anxiety disorder. Through the first several sessions, Ms. C's SASCI scores indicated that she felt that she was improving. However, between Sessions 8 and 9, Ms. C's SASCI responses indicated a large improvement. Ms. C's therapist used her SASCI scores to start a conversation about what had changed. Ms. C reported that she finally realized that if she told herself that the anxiety would not last forever, then she could make it through almost any situation. Ms. C and her therapist were able to use this new rational response throughout the rest of therapy and she continued to make progress.

Several Changes Over Time — The Case of Mr. D

Mr. D was a 46-year-old man who initiated treatment for generalized social anxiety. Through the first several sessions, Mr. D reported little change in his anxiety; however, at Sessions 5 and 7, his SASCI scores indicated that he felt worse than at the beginning of treatment, especially on the second item of the measure (avoidance). His therapist noticed this pattern and, during Session 7, asked Mr. D to describe his behavior during the worse

weeks compared to the better weeks. Mr. D revealed that, during the worse weeks, he let his anxiety get the better of him, avoiding all anxiety-provoking situations. This led to increased feelings of hopelessness and a sense that he would never change. Identification of this pattern allowed the therapist to provide evidence to Mr. D that he feels better when he does not avoid situations. Mr. D then agreed to decrease his avoidance. This proved to be a turning point in Mr. D's treatment, as once he stopped avoiding situations his hopefulness for treatment increased and his anxiety began to decrease.

Discussion

This study introduces the SASCI, a short, easily administered rating of subjective improvement which can be frequently administered over the course of therapy for social anxiety disorder. Overall, clients rated themselves as improving from session to session across therapy. In this study, the SASCI demonstrated good internal consistency. In addition, change on the SASCI and final session SASCI scores were significantly related to improvement on a number of more commonly utilized, but more complex and lengthy measures of social anxiety. Taken together, change on the SASCI mirrored change on the BFNE and on additional measures of social anxiety symptoms. Thus, that SASCI is as sensitive to symptom improvement as the well-established measures to which it was compared.

Preliminary evidence suggests that the SASCI may have better discriminant validity than the BFNE since change on the BFNE, but not the SASCI, was related to change in anxiety sensitivity. Interestingly, Weeks et al. (2005) also found a significant correlation between the BFNE and ASI in a sample of clients with social anxiety disorder. McWilliams, Stewart, and MacPherson (2000) conducted a factor analysis of the items of the ASI and the BFNE and found that the ASI and BFNE shared a higher-order factor which they termed "Threat Sensitivity." It may be this Threat Sensitivity that is driving the strong association between the BFNE and the ASI. It is also possible that the SASCI and BFNE related differently to anxiety sensitivity because anxiety sensitivity is a trait whereas the SASCI measures a state. Change on the SASCI and final SASCI scores were unrelated to anxiety sensitivity or depression. The SASCI appears to assess change specific to social anxiety rather than more global change in psychological distress. Further, because it is brief and easily interpretable, it has the potential to be used session by session in a variety of clinical settings to monitor change across time. Although this study showed that the SASCI is reliable and valid, future research is needed to show that the SASCI has similar psychometric properties in other samples and compared to clinician-administered measures.

There are a number of measures, such as the BFNE, that could be used as a session-by-session measure of social anxiety change. However, the SASCI has a number of features that make it more feasible as a frequent assessment. First, it consists of only four items. Although we acknowledge that the time that it takes to score the BFNE is minimal, the SASCI takes virtually no time to score, as the clinician can gauge the client's self-reported change by merely glancing at the four items. Secondly, unlike the BFNE, which contains four reverse-keyed items, the scoring of the SASCI is straightforward. The BFNE has been criticized for the reverse-scored items since inclusion of these items has been shown to

weaken its psychometric properties (Rodebaugh et al., 2004; Weeks et al., 2005). Additionally, the SASCI provides a running assessment of symptom change by asking respondents to indicate how much they have changed since the beginning of treatment. Finally, the item content of the SASCI may be more relevant to the clinician than the item content of the BFNE.

A potential problem with the SASCI is that it relies on clients' ability to accurately remember their clinical state at the beginning of treatment and then to accurately indicate how much they have changed since that time. Such a style of reporting may be influenced by report bias. However, at the final treatment session, clients' perceptions of how much they changed were positively related to change as assessed by independent assessors. Since in most cases it was the same independent assessor who made the pre- and posttreatment ratings, these assessors were able to make objective ratings of change rather than relying entirely on the client's self-report. This suggests that clients were able to proficiently reflect on their change since the beginning of treatment. An additional criticism is that in order to keep the SASCI brief, only one item is included for each of the four dimensions of social anxiety.

Our treatments focus on social anxiety disorder, and we therefore developed a measure to specifically address aspects of social anxiety. However, we see the SASCI serving as a model for similar measures addressing related disorders. These related measures could ask clients to respond using a similar Likert-type scale to quantify how they are doing at the time compared to the time before treatment began. The specific questions can be adjusted to match the diagnostic criteria for different disorders. For example, a measure for panic disorder with agoraphobia could use the same format to ask:

Compared with how you felt before the beginning of treatment:

1. How often do you experience panic symptoms?

2. How much do you worry about having a panic attack?

3. How much do you currently avoid situations because of your worries about having a panic attack?

4. How much do your panic attacks or your worries about having a panic attack interfere with your ability to participate in work/school or in social activities?

In clinical settings, we envision having a series of related measures so that the clinician could use a similar measure for clients with various presenting problems. Such measures could be administered frequently with a minimal burden on clients or clinicians. Additionally, using the same measure of treatment progress would allow clinicians to better gauge the effectiveness of treatment elements for each client in time to make changes before therapy progresses too far in any particular direction. Utilizing a brief, regular assessment has the potential to help individualize and improve our treatments.

Acknowledgments

Appendix A: The Social Anxiety Session Change Index (SASCI) SASCI

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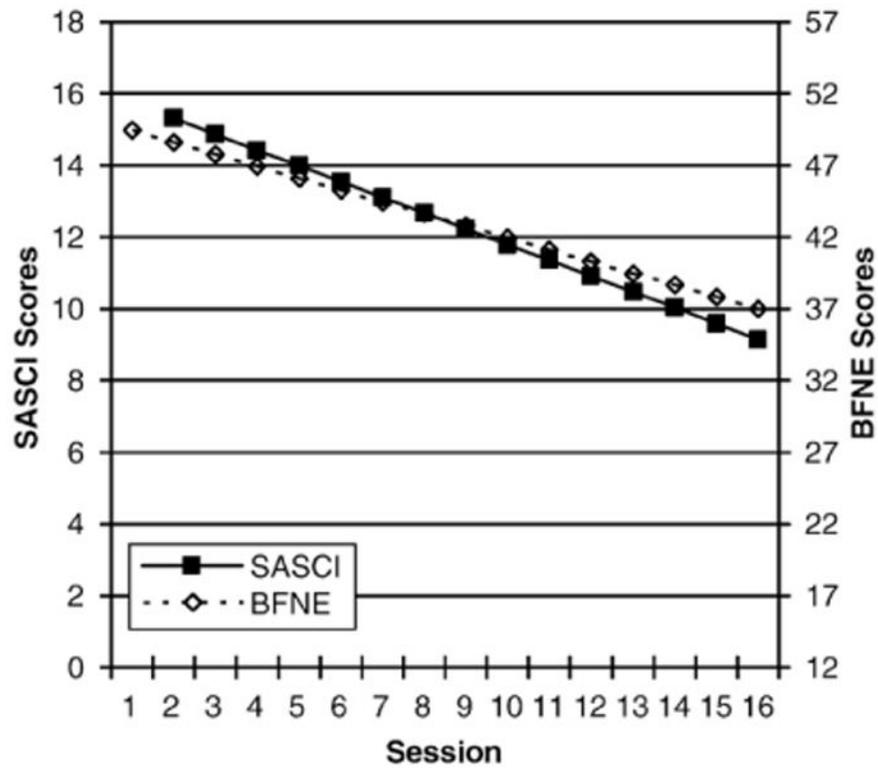
Figure 1.
Average Social Anxiety Session Change Index (SASCI) and Brief Fear of Negative
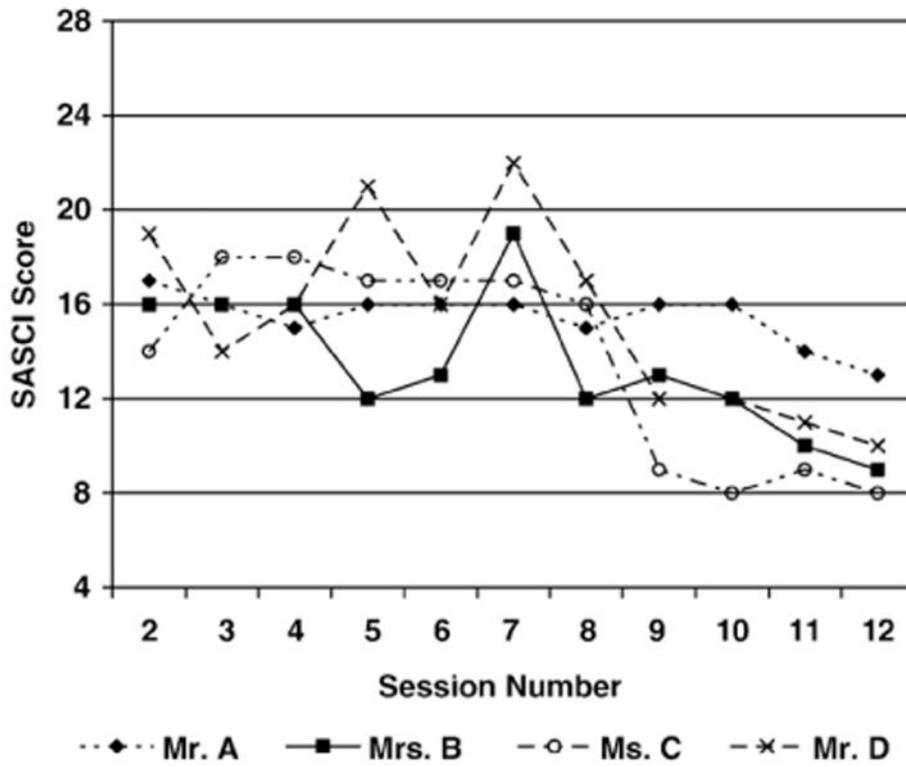Evaluation Scale (BFNE) growth curves.

Figure 2.
Social Anxiety Session Change Index (SASCI) scores during therapy for case vignettes of the clinical utility of the SASCI.

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Table 1

Means and standard deviations of SASCI and BFNE scores

	Session															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SASCI																
M	–	16.33	14.74	14.69	13.64	13.57	13.57	12.78	12.68	12.13	11.85	11.57	10.94	10.89	9.85	9.68
SD	–	2.80	3.63	3.15	2.78	2.83	3.06	3.54	2.87	3.01	2.95	3.66	3.50	2.88	3.29	3.10
N	–	39	39	41	42	42	42	40	37	35	33	33	34	33	33	30
BFNE																
M	48.56	48.57	48.12	47.19	46.14	43.95	44.17	43.19	44.19	42.53	42.15	42.06	41.09	40.35	38.80	37.55
SD	7.75	6.74	7.42	7.55	8.16	8.06	8.22	9.12	6.64	6.41	6.35	6.47	6.86	6.94	7.30	8.23
N	41	42	42	42	42	42	42	40	37	36	34	33	34	34	32	31

Note. SASCI = Social Anxiety Session Change Index; BFNE = Brief Fear of Negative Evaluation Scale.

Table 2

Pre- and Posttreatment means and standard deviations for each outcome variable

	Pretreatment		Posttreatment		F
	M	SD	M	SD	
CGI	–	–	2.00	0.78	–
CSR	5.83	0.85	3.69	1.65	50.53***
LSAS	73.56	19.02	50.83	21.85	38.72***
SIAS	49.64	13.21	30.41	13.43	59.23***
BDI	17.38	10.57	8.83	9.37	19.31***
ASI[a]	33.19	9.01	20.19	9.30	17.16***

Note.

[a]The ASI was only completed by clients from the University of Nebraska–Lincoln (*n* = 26). CGI = Clinical Global Impressions Scale Improvement Rating; CSR = Clinician's Severity Rating of the Anxiety Disorders Interview Schedule; LSAS = Leibowitz Social Anxiety Scale; SIAS = Social Interaction Anxiety Scale; BDI = Beck Depression Inventory–II; ASI = Anxiety Sensitivity Index.

***
$p < .001$.

Table 3

Correlations between the session-by-session change and final session scores on the SASCI and the BFNE

	1.	2.	3.
1. SASCI Session-by-Session Change	–		
2. SASCI Final Score	.70[**]	–	
3. BFNE Session-by-Session Change	.71[**]	.75[**]	–
4. BFNE Final Score	.62[**]	.78[**]	.77[**]

Note. SASCI = Social Anxiety Session Change Index; BFNE = Brief Fear of Negative Evaluation Scale.

[**]
p < .01.

Table 4

Correlations between growth parameters and outcome measures

	SASCI		BFNE	
	Final Score[a]	**Session-by-Session Change**[b]	**Final Score**[a]	**Session-by-Session Change**[b]
CGI	.56**	–	.55*	–
CSR	.63**	−.53*	.65**	−.60**
LSAS	.62**	−.58*	.73**	−.54*
SIAS	.54*	−.52^	.43^	−.34^
BDI	−.05	−.10	−.22	−.25
ASI[c]	.12	−.39	.12	−.64*

Note.

[a]The Final Score of the SASCI and the BFNE is compared to the posttreatment score on the outcome measures.

[b]The Session-by-Session Change of the SASCI and the BFNE is compared to the change from pre-to posttreatment on the outcome measures.

[c]The ASI was only completed by clients at the University of Nebraska ($n = 26$). CGI = Clinical Global Impressions Scale Improvement Rating ($n = 27$); CSR = Clinician's Severity Rating of the Anxiety Disorders Interview Schedule ($n = 25$); LSAS = Liebowitz Social Anxiety Scale ($n = 23$); SIAS = Social Interaction Anxiety Scale ($n = 24$); BDI = Beck Depression Inventory – II ($n = 27$); ASI = Anxiety Sensitivity Index ($n = 16$).

^$p < .10$;

*$p < .05$;

**$p < .01$.