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Running head: ANXIETY CHANGE EXPECTANCY SCALE

**Development of the Anxiety Change Expectancy Scale (ACES) and  
Validation in College, Community, and Clinical Samples**

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Running head: ANXIETY CHANGE EXPECTANCY SCALE

**Development of the Anxiety Change Expectancy Scale (ACES) and  
Validation in College, Community, and Clinical Samples**

(Title Page for Masked Review: December 10, 2003)

### **Abstract**

This study investigated the psychometric properties of a newly developed 20-item instrument that assesses anticipation of anxiety change: the Anxiety Change Expectancy Scale (ACES). Study 1 evaluated the ACES in undergraduate students, self-identified as experiencing difficulties with anxiety. Study 2 examined the ACES in a community sample of persons with anxiety difficulties. Study 3 tested the utility of the ACES in predicting treatment change in a group of individuals with generalized anxiety disorder undergoing group cognitive behavioral therapy for anxiety. The ACES demonstrated excellent internal reliability (coefficient alphas = .89-.91) and test-retest reliability ( $r = .97$  over 3 weeks). The ACES also exhibited good convergent, divergent, and factorial validity and was predictive of treatment-related changes in anxiety symptoms and worry. The results of these studies provide strong support for the ACES as a reliable and valid measure of expectancies for change in anxiety.

## **Development of the Anxiety Change Expectancy Scale (ACES) and Validation in College, Community, and Clinical Samples**

Client expectancy for therapeutic gain has a long history of receiving theoretical and empirical attention in relation to psychotherapy. Expectancies for therapeutic outcome refer to the client's expectations that therapy will lead to change. Such expectancies have been discussed in the context of placebo effects and are posited to partially account for the substantive beneficial effects (estimates of up to 50% of psychotherapy efficacy) of placebo administration (Kirsch, 1990; Kirsch, Mearns, & Catanzaro, 1990). Expectancies are thought to constitute common factors inherent in psychotherapy and which may be operative in varying models of treatment to produce positive outcomes (Grencavage & Norcross, 1990). Jerome Frank (1973; Frank & Frank, 1991) outlined an important role for optimism or positive expectations about change in many forms of healing. More recently, Snyder, Ilardi, Michael, and Cheavens (2000) advanced a theory of hope that incorporates goals, pathways (the perception that there are routes capable of producing the desired goal), and agency (perceived capability to begin and sustain movement toward the desired pathway and goal).

Outcome expectancies may be particularly important early in treatment (Snyder et al., 2000; Ilardi & Craighead, 1994). For instance, positive expectations of treatment outcome are believed to account for the phenomenon of early rapid improvement observed in between 40% and 60% of clients participating in cognitive behavioural therapy (CBT) for depression. Some researchers have estimated that up to 70% of the total change in psychotherapy is achieved in the very early stages of treatment (Fennell & Teasdale, 1987; Ilardi & Craighead, 1994), and before specific change techniques have been applied. Optimism about change is also regarded as an important explanatory

construct in Miller and Rollnick's model of Motivational Interviewing (1991, 2002). Miller and Rollnick (2002) posit that increasing optimism about change is a desirable goal of motivational interviewing and may help to facilitate change by preparing clients to engage with subsequent treatment. Empirical evidence suggests that using Motivational Interviewing as a prelude to further treatment enhances engagement with and attendance in treatment (Burke, Arkowitz, & Dunn, 2002; Burke, Arkowitz, & Menchola, 2003).

Support for the importance of hope and positive expectancies for change in relation to treatment outcome in depression has been observed consistently (Ilardi & Craighead, 1994; Lewinsohn, Hoberman, & Clarke, 1989; Oei & Sullivan, 1999; McCranie & Riley, 1992; Snyder et al., 2000; Whisman, Miller, Norman, & Keitner, 1995). Stewart et al. (1993) found that a patient's beliefs that he/she will be ineffectual in exerting positive change over his/her life (based on a composite of items from the BDI, the Beck Hopelessness Scale and the Dysfunctional Attitude Scale) was significantly related to poor response to CBT. Hopelessness about change among depressed clients is also dropout in CBT (Westra, Dozois, & Boardman, 2002).

In the area of anxiety, measures of treatment expectancy and treatment credibility have been developed with the intent of ensuring equivalence across treatment groups on this factor, rather than elucidating the impact or role of this nonspecific factor in contributing to treatment outcome (e.g., establishing the mechanisms through which expectancy influences outcome). For example, Borkovec and Nau (1972) developed a brief treatment credibility measure that has been widely used to ensure that descriptions of active treatment and psychological placebo controls are equally credible and engender similar levels of confidence in the treatment procedures. Holt and Heimberg (1990) have

extended the use of this measure to be specific to particular situations in individuals with social phobia who are undergoing treatment. More specific measures about role expectations and credibility of specific treatment procedures in various forms of therapy have also been developed (e.g., Expectations About Counseling Questionnaire; Tinsley, Workman, & Kass, 1980). Studies using these measures have been largely consistent in supporting a positive relationship between treatment outcome expectancies and treatment outcome (Arnkoff, Glass, & Shapiro, 2002). In the area of anxiety, for example, Chambless, Tran and Glass (1997) reported that lower treatment expectancy, as measured by the Treatment Expectancy Scale (Borkovec & Nau, 1972), was related to poorer treatment response in individuals undergoing group CBT for social phobia. Similar findings have been reported by Kirsch and Henry (1977, 2003) with subclinical speech anxiety, and by Safren, Heimberg, and Juster (1997) with social phobia. Finally, several studies using a measure of treatment readiness, which incorporates a subscale assessing 'credibility or acceptance of psychological treatment' (the Nijmegen Motivation List), have provided some further support for a positive relationship between treatment credibility and outcome in anxiety (for a review, see Keijsers, Hoogduin, & Schaap, 1994).

Given the prominence and importance attributed to expectancies for change, the development of a reliable and valid measure of this construct is warranted both clinically and conceptually. Such a measure would, for instance, facilitate investigations of the role that expectancy plays in contributing to therapeutic gains in CBT for anxiety.

Investigators have speculated that expectation of benefit may induce clients to comply with treatment procedures such as exposure, thereby enhancing outcome (Bootzin & Lick, 1979; Chambless et al., 1997). Lightsey (1997) suggested that generalized self-



efficacy (or willingness to persist with a task despite adversity) may mediate the relationship between expectancy and treatment outcome. As yet, these hypotheses remain under-investigated in the context of CBT, and the mechanisms underlying this effective and well-supported treatment for anxiety remain poorly understood. Moreover, development and application of expectancy measures may also be useful as outcome measures to assess motivational treatments which are beginning to emerge as adjuncts to CBT for anxiety (Arkowitz & Westra, in press; Maltby, Tolin, & Diefenbach, 2002; Murphy, Rosen, Cameron, & Thompson, 2002; Westra & Phoenix, 2003).

The goal of this study was to facilitate the investigation of expectancy effects in anxiety treatment by developing and validating a measure of expectancy for changing anxiety. Arnkoff et al. (2002) note that one of the limits of the expectancy literature is that treatment credibility has been considered together with outcome or success-expectancy and that these variables may very well have independent contributions to treatment outcome. Existing measures of expectancy effects have focused on particular treatments, treatment procedures, and expected outcomes of implementation of specific treatment techniques. That is, in attempting to control for credibility of treatment, these measures have been focused on expectancies about the effect of particular change strategies, rather than on individual differences in expectancy for, or predisposition toward, anxiety change. The proposed measure then is intended to measure *change-expectancy* rather than treatment-expectancy. The measure under investigation in the present studies would serve to quantify individual differences in change-expectancy specific to anxiety prior to treatment and would serve as a complement to measures of treatment credibility, or other measures of outcome expectancy.

### **Initial Item Development**

The development of the Anxiety Change Expectancy Scale (ACES) was conducted using a rational-sequential approach, which combined both analytic and empirical strategies in a logical series of stages (Golden, Sawicki, & Frazen, 1984; Jackson, 1970). In the initial test-construction, we adhered to the following guiding principles : 1) the importance of theory; 2) suppressing unwanted variance due to respondent response style (e.g., extreme responses); 3) the importance of scale homogeneity and empirical demonstration of internal consistency, and; 4) the demonstration of construct validity and support for the structural composition of scale. Thus, while the early stage of scale construction was primarily analytic (i.e., theoretically based), concomitant emphasis was placed on item analysis.

Item content stemmed from the empirical literature on predictors of treatment outcome in the domain of anxiety and depression (both of these areas were considered given the high rates of comorbidity between these disorders (Dozois, Dobson, & Westra, 2004). Items were generated that operationalized important constructs related to optimism/pessimism regarding change, and change expectancy. For example, the items from the Burns Hopelessness Scale (1980) were adapted for inclusion given the relationship found in a previous study between this scale and treatment outcome in CBT for depression (Westra et al., 2002). Items were also developed on the basis of anxiety patient verbalizations regarding the change process during assessment and treatment. The primary construct that we intended the ACES to assess was expectancy regarding change, specific to anxiety. Items were developed to reflect beliefs regarding the controllability and anticipation of successful management of anxiety, and pessimism and optimism regarding the management of anxiety.

A large pool of 140 items were initially evaluated by eight Ph.D. level anxiety experts and four clinical psychology graduate students. Each item was rated separately on a 5-point Likert scale (0, indicating that the item should be deleted; 5 signifying that the item was outstanding) for its quality (readability, freedom from offensiveness) and construct representativeness (specificity to the construct of change expectancy). Analyses of these expert ratings allowed for scale refinement and reduction of the original item pool. After a number of items were discarded on theoretical and rational grounds, the remaining were evaluated and retained on empirical grounds (e.g., item-total correlations, alpha if item deleted). The mean quality rating of the final set of 20 items was 4.38 ( $SD = .27$ ). The average rating of the appropriateness of the items was 4.61 ( $SD = .24$ ). The Flesch-Kincaid reading formula (Microsoft Word 2000™) indicated that the scale was written at a grade 8 reading level.

Our objectives were to create a scale that was brief, easy to administer and to score, psychometrically sound, and would provide a comprehensive assessment of change expectancy specific to anxiety. The ACES consists of 20 items that assess expectancy for anxiety change. Each item is scored on a 1 (strongly disagree) to 5 (strongly agree) Likert scale. Total scores may range from 20-100, with higher scores reflective of greater positive expectancy for changing anxiety. Eleven items are reverse scored to reduce biases associated with acquiescent response styles. ACES items are presented in Appendix A.

### ***STUDY 1: EVALUATION IN A COLLEGE SAMPLE***

The purpose of Study 1 was to evaluate the psychometric characteristics of the ACES in a sample of anxious college students.

## Method

### *Participants*

The sample was comprised of 252 undergraduate students (73% female) from the University of Western Ontario. Participants were self-identified as experiencing difficulties with anxiety and obtained an average Beck Anxiety Inventory score of 14.27 ( $SD = 9.93$ ), which falls in the high end of the mild range of symptomatology. The average age of participants was 20.05 ( $SD = 4.71$ ) years. The sample was predominantly single (94%), 5% were married or co-habiting, and 1% were divorced or separated.

### *Measures*

In addition to the ACES, participants completed measures included to assess the convergent and divergent validity of the ACES. Constructs assessed in this regard included anxious symptomatology, hopelessness, self-esteem, social desirability, and motivation for change. Participants also provided information about the nature of their current fears and worries.

*Background and Problem Information.* A 10-item checklist was used to gather information about the type of the anxiety difficulties that respondents were experiencing. The items reflected a broad range of anxiety problems and participants indicated which of these fears/worries applied to them.

*Beck Anxiety Inventory (BAI).* The BAI (Beck & Steer, 1990) is a 21 item self-report questionnaire of physiological symptomatology related to anxiety. Items are scored on a 4-point (0-3) scale. This instrument demonstrates high internal consistency estimates ( $\alpha = .92$ ) and exhibits strong convergent and discriminant validity (Beck, Epstein, Brown, & Steer, 1988).

*Beck Hopelessness Scale (BHS)*. The BHS (Beck & Steer, 1988) is a self-report scale that assesses general negative expectancies about the future. This measure consists of 20 items that are rated on a true or false scale. The internal consistency of the BHS is high, with coefficient alphas ranging from .84-.93 (Hill, Gallagher, Thompson, & Ishida, 1988). This instrument also shows good temporal reliability and excellent validity (Dozois & Covin, 2004).

*Rosenburg Self-Esteem Scale (RSE)*. The RSE (Rosenberg, 1979) is an index of self-esteem commonly used in the empirical literature. Ten items are rated on a 4-point scale, with half of these reverse scored. The RSE exhibits excellent psychometric properties (Corcoran & Fischer, 2000).

*Marlowe-Crowne Social Desirability Scale*. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) is comprised of 33 items rated true/false. This inventory is the most widely adopted measure of social desirability (Beretvas, Meyers & Lette, 2002).

*University of Rhode Island Change Assessment (URICA)*. The URICA (McConaughy et al., 1983) was used to assess readiness for change. The URICA consists of four subscales (8 items each), representing a different stage of change contained in the Transtheoretical Model (Prochaska, 2000): precontemplation (not yet considering change), contemplation (actively considering change), action (taking steps toward change), and maintenance (consolidating change). This instrument is a generic measure of change-readiness (i.e. not specific to any particular problem domain) and generally performs well on a number of psychometric criteria (e.g. Dozois, Westra, Collins, Fung, & Garry, in press). Six URICA items were adapted to be applicable to administration in a community, non-treatment-seeking sample (e.g. the original URICA

item of "I'm hoping this place will help me to better understand myself" was changed to "I'm hoping there are programs which will help me to better understand myself"). A motivation index, computed by adding scores for Contemplation, Action and Maintenance and subtracting the Precontemplation score (see Carpenter, Miele, & Hasin, 2002), was used to determine the degree of relationship between the new ACES measure and motivation for change. Higher scores on this index reflect greater readiness for change.

### ***Procedure***

Individuals who acknowledged difficulties with anxiety were recruited through a web-based research participation pool. The advertisement for the sign-up procedure indicated that students were invited to participate if they experienced "difficulties with anxiety (e.g., excessive worry, test anxiety, panic, etc.)". After obtaining informed consent, participants were instructed to complete a package of questionnaires. The scales were presented in randomized order for each participant.

## **Results**

### ***Internal Consistency***

The item means, standard deviations and item-total correlations for the 20 items of the ACES are presented in Table 1. The internal reliability of the ACES was excellent (coefficient alpha = .91). The item-total correlations were moderate and ranged from .39 to .67. The average score on the ACES was 72.35 ( $SD = 12.21$ ).

### ***Convergent/Divergent Validity***

The correlations between the ACES and the measures used to gauge divergent and convergent validity are presented in Table 2. The ACES correlated in expected directions with ancillary measures. In support of convergent validity, higher scores on the ACES

were significantly associated with lower hopelessness, higher self-esteem and motivation for change. In relation to anxiety symptoms, the ACES was negatively correlated with self-reported symptoms (e.g., BAI, background problems). There was no significant relationship between the ACES and social desirability or age. No significant differences were found between females and males on total ACES scores,  $t(250) = .08, p = ns$ .

### ***Factorial Structure***

Data from the ACES items were factor analyzed using principal components analysis with a varimax rotation. This analysis revealed four factors with eigenvalues exceeding unity. The eigenvalues were 7.507, 1.768, 1.301, and 1.061. Examination of the magnitudes of eigenvalues was performed using Cattell's (1966) scree analysis. This analysis suggested that three factors should be extracted to yield the most parsimonious solution to the data. Other factor solutions were also considered by constraining the number of factors (i.e., to 1, 2, 3, and 4) and inspecting the residual correlation matrix (see Tabachnik & Fidell, 1996). When a three-factor solution was analyzed, there were 39% nonredundant residuals with values exceeding .05. This number was much larger when 1- or 2-factor solutions were analyzed (i.e., 60% and 49%, respectively) and essentially the same when the analyses constrained the number of factors to four (i.e., 38%).

These three factors accounted for a cumulative 53% of the common variance in participants' responses. Factor I consisted mainly of items pertaining to Negative Expectancies about change. This factor accounted for 37.5% of the variance. Factor II (8.8% of the variance) was made up primarily of items related to Positive Experiences with controlling anxiety. Factor III (Positive Expectancies) accounted for 6.5% of the variance. The factor loadings for each item are presented in Table 3.

## ***STUDY 2: EVALUATION IN A COMMUNITY SAMPLE***

The purpose of Study 2 was to evaluate the psychometric properties of the ACES in a sample of individuals from the community who experienced difficulties with anxiety. Participants were administered the same measures as described in Study 1. In addition, they completed the Beck Depression Inventory - II (BDI-II; Beck, Steer, & Brown, 1996), the most widely used self-report measure of depressive symptomatology (Dozois & Covin, 2004). This instrument consists of 21 items, each of which are rated 0-3 in severity.

### **Method**

#### ***Participants and Procedure***

One hundred and eighty-four individuals (82% female) responded to newspaper advertisements indicating that we were recruiting participants who experienced difficulties with anxiety. Packages were mailed out to participants with instructions to complete the questionnaires and return them in the self-addressed and stamped envelopes. The average age of participants was 47.38 ( $SD = 14.69$ ) years. The average number of years of education was 13.98 ( $SD = 2.48$ ). The majority of the sample (75%) was married or co-habiting, 25% were single, 21% were divorced or separated and 4% were widowed.

### **Results**

#### ***Sample Descriptives***

The average scores on the Beck Anxiety Inventory (BAI) and Beck Depression Inventory-II (BDI-II) were 21.24 ( $SD = 11.98$ ) and 19.79 (10.59), respectively. These scores fall in the moderate range of severity for anxiety and the high end of the mild range for depressive severity.



***Internal Consistency***

Consistent with Study 1, Cronbach's alpha was .89 in the community sample, which indicates excellent internal consistency. The mean score on the ACES was 68.08 ( $SD = 11.96$ ).

***Convergent/Divergent Validity***

The ACES correlated significantly with the BDI-II ( $r = -.39, p < .001$ ), the BHS ( $r = -.39, p < .001$ ), self-esteem ( $r = .31, p < .001$ ), and motivation for change ( $r = .21, p < .01$ ). The significant relationship, and relatively stronger relationship, of the ACES with hopelessness in particular, supports the convergent validity of the measure. That is, higher hopelessness was associated with less positive expectancies for change. There was no significant relationship between this measure and variables unintended to reflect the construct of interest (i.e., age, gender, social desirability). The ACES was not significantly associated with the BAI.

***Factorial Structure***

Principal components analysis was used to assess the factorial structure of the ACES. This analysis revealed three factors with eigenvalues exceeding unity. Together, the three factors accounted for a cumulative 54% of the variance in participants' responses. Confirmatory factor analysis (LISREL 8.51; Jöreskog & Sörbom, 2002) was also used to assess the adequacy of fit of factor loadings from the community data to those of the undergraduate sample. The loadings yielded a moderate fit to intended structure ( $GFI = .76$ ;  $AGFI = .70$ ;  $RMS = .13$ ).

***STUDY 3: EVALUATION IN A CLINICAL SAMPLE***

Consistent with the intended use of the ACES, we assessed the ability of this scale to predict change as a function of treatment. In this final study, we were also interested in

evaluating the psychometric properties of the ACES in a clinical sample of individuals with generalized anxiety disorder (GAD) undergoing CBT for anxiety.

## **Method**

### ***Participants***

The sample consisted of 43 individuals (79% female) who met diagnostic criteria for GAD, according to the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I, Version 2.0; First, Gibbon, Spitzer, & Williams, 1996). The mean age of this sample was 37.86 ( $SD = 10.24$ ) years. Fifty-four percent of the sample had at least some college background, 37% had completed high school and 9% did not complete high school. All participants had at least one additional comorbid Axis I disorder and this is consistent with high comorbidity rates observed in GAD samples (Brown & Barlow, 2002). The most common comorbid disorders were Social Phobia (60%) and Major Depression (51%). In addition, comorbidity with other Axis I disorders were observed (26% with Panic Disorder, 9% with Specific Phobia, and 2% with Dysthymia).

### ***Measures***

Participants completed the same measures that are outlined in Study 2. In addition, they completed the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is a 16-item self-report measure of the tendency to worry excessively. This instrument has excellent internal consistency, test-retest reliability, and validity (Roemer, 2001) and is commonly used in GAD treatment outcome studies. Finally, comprehensive information was obtained on participant's treatment histories. In particular, the number and duration of previous types of treatment (medication trials, counseling trials) was assessed.

### ***Procedure***

The ACES, BHS, BDI-II, RSE and Marlowe-Crowne Social Desirability Scale were administered at pretreatment assessment. The BAI and PSWQ were administered both at pretreatment and at the end of group CBT and served as the primary outcome variables in this study. This treatment was eight sessions (2.5 hours per session) twice weekly and consisted of a heterogeneous group of anxiety disorders including panic disorder, social phobia, and generalized anxiety disorder. Treatment was manualized (Westra, 1998) and based on well-evaluated treatments for anxiety (cf. Barlow & Craske, 1994; Craske, Barlow & O'Leary, 1992). This program, implementing CBT principles, has demonstrated efficacy in producing significant anxiety symptom reduction (Westra, Stewart, & Conrad, 2002). The therapists were a variety of allied health professionals who were all extensively trained by the second author in CBT; each had at least 2 years experience in successfully implementing group CBT for anxiety.

## **Results**

### ***Internal Consistency***

The internal reliability of the ACES was excellent in this clinical sample (coefficient alpha = .91). The item-total correlations were moderate and ranged from .29 to .77. The average score on the ACES was 71.81 ( $SD = 10.64$ ).

### ***Test-Retest Reliability***

Although the ACES was not administered following treatment in this clinical sample, a small heterogeneous clinically anxious sample of individuals ( $n = 17$ ) was used as a preliminary test of the temporal stability of this measure. Forty-five percent of these individuals were diagnosed with Panic Disorder, 30% with Social Phobia, and 25% with

GAD. The 3-week test-retest reliability of the ACES in the absence of treatment was .97, indicating excellent temporal stability of ACES scores.

### ***Convergent/Divergent Validity***

Consistent with the results of Study 1 and Study 2, the ACES correlated significantly and positively with self-esteem ( $r = .38, p < .05$ ) and a strong negative correlation with hopelessness ( $r = -.54, p < .001$ ) was obtained. More importantly, this measure also correlated significantly with changes in BAI ( $r = .44, p < .01$ ) and worry (PSWQ:  $r = .46, p < .01$ ) from pre to post CBT. Finally, ACES scores correlated negatively and significantly with the number of previous treatments participants received. In support of the construct validity of the ACES, the greater the number of previous treatments (for medication,  $r = -.38, p < .05$ ; for psychotherapy,  $r = -.31, p < .05$ ), the lower an individual's expectancy for changing anxiety.

### ***Incremental Validity***

To assess the incremental validity of the ACES, hierarchical multiple regression analyses were conducted using BAI and PSWQ scores at the end of treatment as separate criterion variables. In each analysis, time 1 scores on the BAI and PSWQ were entered in the first step. In the second step BHS scores were entered (to ensure that the ACES predicted outcome over and above general hopelessness). In the final step, the ACES scores were entered. As shown in Table 4, the ACES was sensitive to change in anxiety and worry over treatment and significantly predicted post-treatment BAI and PSWQ scores, respectively, even after pre-treatment scores on these measures and general hopelessness were controlled statistically.

## Discussion

This series of studies appraised the psychometric characteristics of the ACES in an analogue anxious sample, a community sample of individuals self-identified as experiencing significant anxiety, and in a clinical sample of individuals with GAD presenting for treatment. This instrument appears to exhibit excellent psychometric properties. The ACES demonstrated excellent internal consistency across the three samples and correlated in expected directions with a number of theoretically related and unrelated indices, supporting the convergent and divergent validity of the scale. The ACES also appears to exhibit good factorial validity. In addition, the ACES significantly predicted anxiety symptom change in CBT for GAD over and above baseline symptomatology and general hopelessness. This latter finding, in particular, supports the potential utility of the intended use of the ACES in gauging treatment response-potential prior to the initiation of treatment.

One of the intended contributions of the ACES is to supplement existing indices of treatment outcome expectancies (typically assessed in relation to specific treatment procedures) with a broader measure of change expectancies allowing quantification of individual differences in orientation to anxiety change. Assuming that the findings regarding the predictive utility of the ACES are replicable, this measure may be useful for intake assessments to identify those individuals who show low expectancies for change. This idea is consistent with the recommendations of Safren et al. (1997), who observed relationships between treatment outcome expectancies and therapy outcome in social anxiety. In particular, these investigators suggested that "early detection of low expectancies for treatment outcome should be a priority....and should become a specific focus of attention early on (in treatment)" (p. 697). Individuals low in expectancy for

change or in treatment outcome expectancy, might benefit from preparatory work, conducted prior to engagement in therapy, to instill hope, improve expectancies and facilitate readiness for change (for a review of treatment preparatory interventions see Walitzer, Dermen, & Connors, 1999). For example, Irving et al. (1997) found support for hypothesis that those initially low in hope benefited to a greater extent from treatment-orientation sessions, in terms of outcome on measures of well-being, prior to individual therapy, compared to those high in hope. As such, one potential use of the ACES may be as an outcome measure for the efficacy of emerging motivational interventions as preludes to further treatment (cf. Arkowitz & Westra, in press; Maltby, Tolin, & Diefenbach, 2002; Murphy et al., 2002).

The ACES may also be a potentially useful instrument to investigate mechanisms of change in anxiety treatment (cf. Arnkoff et al., 2002; Lick & Bootzin, 1975). Several lines of investigation suggest that the assessment of change expectancies is important in understanding variability in treatment outcome and that these expectancies themselves may change over the course of therapy. For example, Holt and Heimberg (1990) reported that treatment credibility and treatment outcome expectancy were lower after the fourth session of CBT for social anxiety than at the end of session one. Furthermore, Arnkoff et al. (2002) suggested that understanding how expectancies change over the time course of treatment may be a very important area for further research. This research agenda seems reasonable as client expectancies can be confirmed or disconfirmed based on their experience in treatment and the outcome of their efforts (Kirsch, 1990). Moreover, expectancies for change or for treatment outcome may also be influenced by therapist factors or the quality of the therapeutic alliance. In support of this, Safren et al. (1997) reported that treatment outcome expectancies were significantly and positively correlated

with patient ratings of group cohesion in CBT. Similarly, in the NIMH Depression Collaborative study, the quality of the therapeutic alliance mediated the relationship between expectancies of treatment efficacy and treatment outcome (Meyer et al., 2002). In short, reliable and valid quantification of expectancies for change may significantly advance our ability to investigate and understand the processes through which CBT for anxiety achieves its efficacy.

Another area for future investigation involves determining how, or if, change-expectancy is influenced by previous change attempts, as this may have implications for treatment-seeking and treatment outcome. The present study has provided correlational evidence that an increased number of different treatments (e.g. multiple antidepressant trials, multiple counseling trials) is associated with reduced change-expectancy. That is, repeated, presumably unsuccessful, change attempts are associated with reduced anticipation of change. Future studies could investigate whether this relationship is causal. Prior research has indicated that previous experience in context-specific situations is a powerful determinant of expectations. For example, patient expectations of nausea in chemotherapy can be significantly predicted from past experiences of nausea in that situation (Montgomery & Bovbjerg, 2003) Others have speculated that treatment or change expectancy may play a role in instigating help-seeking behavior (Thurer & Hirsch, 1981) and this hypothesis awaits empirical evaluation. Elucidating the factors associated with treatment seeking and treatment engagement would be potentially valuable in attempting to reduce the enormous disparity that exists between anxiety prevalence and rates of treatment initiation (for a review see Collins, Westra, Dozois, & Burns, 2003). The present series of studies support the psychometric properties of the ACES and the potential clinical utility of this measure in predicting outcomes in CBT for

anxiety. It should be noted however, that the relationship between anxiety change expectancy and CBT outcome may be correlational rather than causal. For example, perhaps both expectancies and treatment outcome are influenced by some third variable(s). Further research with other anxiety populations is necessary to establish the psychometric properties of the ACES and to investigate the clinical utility of the measure. It also remains to be determined whether anxiety change-expectancy, as quantified by the ACES, is indeed distinct from treatment outcome expectancies examined in previous studies, and whether this measure provides incremental value in predicting and understanding CBT outcomes in anxiety.



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Table 1.

Item Characteristics of the Anxiety Change Expectancy Scale.

<b>Item</b>	<b>Mean</b>	<b>SD</b>	<b>Item Total <i>r</i></b>	<b>Alpha if item deleted</b>
1	3.65	1.07	.5268	.9055
2	3.39	1.20	.5026	.9065
3	3.09	1.31	.5456	.9057
4	3.61	1.07	.5831	.9040
5	3.97	1.01	.6096	.9034
6	3.73	1.07	.6187	.9031
7	3.41	1.08	.6711	.9016
8	4.23	.88	.5355	.9053
9	3.80	1.07	.6411	.9024
10	3.55	1.07	.5054	.9060
11	3.19	1.12	.5746	.9043
12	3.67	.87	.6109	.9037
13	3.87	.90	.5649	.9046
14	3.82	.84	.5533	.9050
15	3.76	.87	.5943	.9040
16	3.95	.92	.3895	.9085
17	3.43	.91	.5307	.9054
18	3.69	.81	.4910	.9063
19	3.51	.99	.5883	.9039
20	3.22	1.02	.4375	.9077

Table 2

Correlations of Demographic and Ancillary Measures with the ACES.

<b>Variable</b>	<b>ACES</b>
Sex	.02
Age	.05
Background Problems	-.26**
Social Desirability	.12
Beck Anxiety Inventory	-.43**
Beck Hopelessness Scale	-.54**
Self-esteem	.49**
Motivation for Change	.20**

\*\*  $p < .01$ ; Higher scores on the ACES reflect more positive expectancies for changing anxiety.

Table 3: Factor Loadings for the Anxiety Change Expectancy Scale

Item	Factor I: <i>Negative Expectancies</i>	Factor II: <i>Positive Experiences</i>	Factor III: <i>Positive Expectancies</i>
11	<b>.738</b>	.009	.177
2	<b>.696</b>	.290	.189
17	<b>.677</b>	.007	.341
14	<b>.674</b>	.006	.347
7	<b>.665</b>	.247	.004
3	<b>.636</b>	.010	.146
1	<b>.600</b>	.215	.117
6	<b>.575</b>	.382	.203
13	.101	<b>.768</b>	.336
4	.155	<b>.757</b>	.168
16	.126	<b>.739</b>	.005
12	<b>.361</b>	<b>.645</b>	.010
10	.130	<b>.560</b>	.326
19	.158	.207	<b>.758</b>
20	.251	.232	<b>.688</b>
9	.009	.009	<b>.637</b>
18	.233	.295	<b>.601</b>
5	<b>.471</b>	.000	<b>.517</b>
15	.327	<b>.423</b>	<b>.434</b>
8	.315	.244	<b>.419</b>

*Note.* The coefficients that are  $\geq .40$  are presented in boldface.

Table 4

*Prediction of Post-CBT Anxiety Symptoms*

<b>Predictors</b>	<b><math>\beta</math></b>	<b>R<sup>2</sup></b>	<b><math>\Delta</math>R<sup>2</sup></b>
Criterion = BAI (post-CBT)			
1. BAI (pre-CBT)	.511	.333	
2. BHS	.028	.354	.063
3. ACES	-.449	.495	.148**
Criterion = PSWQ (post-CBT)			
1. PSWQ (pre-CBT)	.466	.256	
2. BHS	.019	.299	.043
3. ACES	-.368	.397	.098*

\* $p < .05$ ; \*\* $p < .01$

*Note.* BAI = Beck Anxiety Inventory; BHS = Beck Hopelessness Scale; PSWQ = Penn State Worry Questionnaire; ACES = Anxiety Change Expectancy Scale.

**Appendix A: The Anxiety Change Expectancy Scale (ACES)**

Listed below are a number of statements concerning beliefs about change. Please read each item carefully, and circle one of the 5 options that best reflect how you feel about the statement *right now*.

**1 = Strongly Disagree**  
**2 = Disagree**  
**3 = Undecided**  
**4 = Agree**  
**5 = Strongly Agree**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. I feel pessimistic that my anxiety problems could ever change for the better.                                    | 1 | 2 | 3 | 4 | 5 |
| 2. Even though I try, nothing seems to help with my anxiety.  | 1 | 2 | 3 | 4 | 5 |
| 3. It would be extremely difficult or impossible to solve my problems with anxiety.                                 | 1 | 2 | 3 | 4 | 5 |
| 4. I have had some positive experiences with being able to control my anxiety through talking positively to myself. | 1 | 2 | 3 | 4 | 5 |
| 5. My problems with anxiety are too severe to benefit from treatment.   | 1 | 2 | 3 | 4 | 5 |
| 6. Self-help methods may help others control their anxiety but they won't work for me.                              | 1 | 2 | 3 | 4 | 5 |
| 7. I don't believe I will ever feel truly relaxed and not worried.  | 1 | 2 | 3 | 4 | 5 |
| 8. Facing my fears has never helped me to reduce my anxiety.  | 1 | 2 | 3 | 4 | 5 |
| 9. When I force myself to do something that scares me, often it's not as bad as I thought.                          | 1 | 2 | 3 | 4 | 5 |
| 10. I have had some success in reducing my anxiety.   | 1 | 2 | 3 | 4 | 5 |
| 11. There is very little anyone could do to help me solve my anxiety problems.                                      | 1 | 2 | 3 | 4 | 5 |
| 12. Even when I try to talk positively to myself, it doesn't help my anxiety.                                       | 1 | 2 | 3 | 4 | 5 |
| 13. Positive thinking is helpful to me in managing my anxiety.  | 1 | 2 | 3 | 4 | 5 |
| 14. There is no solution to my anxiety problems.  | 1 | 2 | 3 | 4 | 5 |
| 15. I am optimistic that my anxiety can change for the better.  | 1 | 2 | 3 | 4 | 5 |
| 16. I have found that I can reduce my anxiety by telling myself to relax or by using relaxation exercises.          | 1 | 2 | 3 | 4 | 5 |
| 17. I'll never be able to control my anxiety and worry.   | 1 | 2 | 3 | 4 | 5 |
| 18. I believe it's quite possible for me to feel less worried and relaxed.  | 1 | 2 | 3 | 4 | 5 |
| 19. If I work hard, I can have a positive impact on my problems with anxiety.                                       | 1 | 2 | 3 | 4 | 5 |

20. There are factors contributing to my anxiety that I can learn to control.            1       2       3       4       5

*Note.* Items 1, 2, 3, 5, 6, 7, 8, 11, 12, 14, and 17 are reverse scored