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Measurement of Perceived Control Over Anxiety-Related Events

RONALD M. RAPEE

Macquarie University, Australia

MICHELLE G. CRASKE

University of California, Los Angeles

TIMOTHY A. BROWN

State University of New York at Albany

DAVID H. BARLOW

State University of New York at Albany

Measures of perceived control over different, specific spheres of an individual's life may form more homogeneous constructs than measures of a broad, general locus of control. Along these lines, it is likely that anxiety and the anxiety disorders may be characterized by a lack of perceived control over particular events and occurrences such as certain internal emotional reactions or externally threatening events. The present study was aimed at developing a questionnaire to measure this construct. Initial item selection was based on data from 250 anxious subjects. Reliability and factor-structure were replicated with a nonclinical group. The scale showed good inter-item and test-retest reliability as well as good discriminant and convergent validity. The scale appears promising for clinical application and for use in studies on the nature and treatment of anxiety and related disorders.

Research from a variety of psychological subdisciplines has indicated that a lack of perceived control can result in subjective, behavioral, and physiological indications of distress (e.g., Geer, Davison, & Gatchel, 1970; Glass & Singer, 1970; Miller, 1979; Sanderson, Rapee, & Barlow, 1989; Weiss, 1972). Moreover, it has been demonstrated that repeated experience with uncontrollable, aversive events can lead to chronic, pathological emotional states, including anxiety and depression, in some individuals (Abramson, Seligman, & Teasdale, 1978; Barlow, 1988, 1991; Mineka, 1985).

Send reprint requests to Ron Rapee, School of Behavioural Sciences, Macquarie University, Sydney, N.S.W., 2109, Australia.

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Based on these findings, it appears that the degree to which people view events as within their control can become a dispositional characteristic. As such, this trait may be a fundamental mediator of motivation and psychopathology (Barlow, 1988; Rotter, 1966, 1975). According to Rotter (1966), individuals differ in the degree to which they perceive reinforcement as being contingent upon their behavior. Rotter described an individual who believes that reinforcement is a result of his or her own actions as having a high belief in internal control. An individual who believes that reinforcement is a result of random forces has a high belief in external control. Based on these ideas, Rotter (1966) published a scale assessing this characteristic, which he termed "internal - external locus of control."

Over the years, Rotter's locus of control scale has received extensive research attention. While the scale has generally stood up well to testing, one major concern relates to the dimensional aspects of the measure. Rotter's original aim was to develop a measure of an individual's generalized expectancy of control over events related to all areas of his or her life. As such, the instrument contains items pertinent to a wide variety of situations and events and it is this breadth and generality which has resulted in the most controversy (Berrenberg, 1987; Coan, Fairchild, & Dobyns, 1973; Klockars & Varnum, 1975; Lange & Tiggemann, 1981; Rotter, 1975).

Several investigators have suggested that perceived control should be considered a multidimensional construct (Berrenberg, 1987; Coan et al., 1973; Harper, Oei, Mendalgio, & Evans, 1990; Klockars & Varnum, 1975). Even Rotter (1975) has suggested that there are likely to be a number of sub-constructs that are more internally consistent than the broad construct. Support for a multidimensional view of perceived control has come from two major sources. First, while internal reliability of Rotter's scale is adequate, it is not especially high, ranging from .65 to .79 (Harper et al.; Lange & Tiggemann, 1981; Rotter, 1966). The limited internal reliability seems to reflect a degree of heterogeneity among the items. More importantly, factor analyses of Rotter's and similar scales have generally resulted in more than one factor (Berrenberg, 1987; Coan et al.; Harper et al.; Klockars & Varnum; Lange & Tiggemann; Levenson, 1973; Paulhus, 1983). Thus, the above evidence suggests that perceived control is likely to vary somewhat within an individual across different spheres of his or her life. For this reason, it may be of value to develop measures of control specific to the sphere one is trying to assess.

Emotional disorders such as anxiety and depression have been associated with a perception of a lack of control over aversive events (Alloy, Kelly, Mineka & Clements, 1990; Barlow, 1988, 1991; Lang, 1985). These aversive events may be external threats and stressors or internally generated sensations. In a recent conceptualization of the emotional disorders, Barlow (1988, 1991) suggested that a perception of lack of control is central to the experience of both anxiety and depression. In particular, a sense of lack of control over negative events such as emotional and bodily reactions is viewed as a crucial

element in some emotional disorders. Specifically, Barlow suggested that the unexpected experience of bursts of focal or discrete emotions may lead to anxiety or affective disorders in vulnerable individuals because they view their own emotions or bodily reactions as being out of control. For example, in panic disorder, vulnerable individuals unexpectedly experience an intense, short-lived burst of the discrete emotion of fear. These individuals then develop "anxiety" over the possibility of the reoccurrence of this response in an uncontrollable manner.

Existing scales measuring perceived control (e.g., Craig, Franklin, & Andrews, 1984; Rosenbaum, 1980; Rotter, 1966) do not assess these specific aspects of control. Therefore, we felt that it was important to develop a measure of perceived control over emotional reactions and perceived control over external threats, the Anxiety Control Questionnaire (ACQ), that is more directly relevant to the anxiety disorders.

STUDY 1

Method

Development of Items and Format

Fifty-three items were generated by the authors based on face validity of the construct we were attempting to measure. These included perceived control over a variety of potentially threatening internal and external events and situations (e.g., mental or physical reactions, disasters, other people, etc.).In order to minimize response bias, a rating scale was selected which represented both ends of a continuum of agreement (agree/disagree) and approximately one-half the items were reversed. A 6-point scale was used to force respondents to select either end of the scale. The scale was rated from 0 (strongly disagree) to 5 (strongly agree). Scoring consists of totaling the values (reversing appropriate items) such that higher scores indicate greater perceived control.

Subjects

Selection of items for the final scale involved administration of the ACQ to 250 subjects obtained from a specialty anxiety disorders clinic. All subjects sought treatment for an anxiety-related problem and met criteria for one of the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition, revised anxiety disorders (DSM-III-R; American Psychiatric Association, 1987). The subjects met DSM-III-R criteria for the following diagnoses: panic disorder without agoraphobia or with minimal avoidance (n = 73); panic disorder with moderate to severe avoidance (n = 58); generalized anxiety disorder (n = 34); social phobia (n = 45); simple phobia (n = 13); obsessive-compulsive disorder (n = 14); other anxiety (n = 13).

Subjects ranged in age from 18 to 65 years with a mean of 35.2 years (SD = 10.6). One hundred and fifty-six (62.4%) were female.

Procedure

Subjects completed the ACQ as part of an overall questionnaire package prior to treatment. Data collected from these subjects were used to develop the final version of the scale based on internally consistent items.

Results

A large number of items was initially selected for testing. With our final subject numbers, we were very close to the minimum 5 subjects per item ratio often recommended for factor analysis. In addition, large scales often place severe limitations on clinical utility. Therefore, we decided to examine the scale to determine whether any items appeared to be redundant. Redundancy was defined in two ways: (1) a high inter-item correlation ($rs > .45$); and (2) highly similar wording. Where a pair of items met both of the above criteria, one item (generally with the longer wording) was excluded. This procedure excluded 7 items, reducing the measure to 46 items.

Item-Total Correlations

Item-total correlations were calculated for all items. In order to produce a scale measuring a relatively specific construct, items with the lowest item-total correlations were excluded and item-total correlations recalculated. This process was repeated until the internal consistency of the scale could not be increased further by additional item reduction. Based on this process, eight additional items were excluded.

Factor Structure

To determine the factor structure of the scale, a principal components factor analysis was conducted on the remaining 38 items. Eleven factors with eigenvalues greater than one were identified. However, scree plot criteria to determine the number of meaningful factors (Cattell, 1966) indicated that the factor structure was best described as having either one, two, or three factors (eigenvalues 8.8, 2.3, 1.8, 1.7, 1.6). Thus, a variety of solutions (two to four factors) were attempted and subjected to varimax rotation to determine the most meaningful factor structure. The three- and four-factor solutions did not produce factors that were easily interpretable. However, the two-factor solution identified items that broadly related to control over external events (e.g., "There is little I can do to change frightening events") and control over internal emotional reactions (e.g., "I can usually relax when I want").

Given that some items did not clearly fall into either factor, further items were excluded based on two criteria: 1) they did not load sufficiently on either factor (factor loadings $< .3$); or 2) they loaded too evenly on both factors (factor loading $< .1$ difference). Eight additional items were excluded on this basis.

Thus, the final scale consisted of 30 items, 16 falling clearly into the external

events factor (labelled events) and 14 falling clearly into the internal emotional reactions factor (labelled reactions).

Factor loadings for the final set of items are presented in Table 1, and a copy of the scale is presented in Appendix A.

Cronbach's alpha was calculated for the overall scale and was found to be high (alpha = .87). The reactions subscale had an alpha of .80 and the events subscale had an alpha of .83.

Discussion

The results of Study 1 identified a set of items with strong internal consistency. The factor structure was consistent with either one or two factors.

TABLE 1
ROTATED FACTOR LOADINGS FOR A 2-FACTOR SOLUTION ON THE ACQ

Item	Anxious Sample		Student sample	
	Factor I	Factor II	Factor I	Factor II
22. Cope with symptoms	−.01	.68	.30	.61
17. Relax when want	.25	.58	.12	.67
18. Not sure reaction	.21	.58	.24	.44
27. Unexpected anxiety	.04	.55	.25	.44
13. Control anxiety	.17	.55	.18	.58
3. Under stress	.29	.54	.19	.57
10. Out of mind	.12	.50	.12	.60
11. Breathing hard	.18	.49	.16	.57
4. Stop anxiety showing	.07	.47	.16	.38
6. Life of their own	.33	.46	.10	.64
26. Difficult to focus	.04	.45	.25	.60
21. Know reaction	.03	.42	.01	.47
9. Shake uncontrollably	.20	.38	.07	.47
28. Why bother	.22	.35	.26	.58
23. What people think	.68	−.19	.53	.10
14. Little I can do	.65	.26	.57	.14
7. People's judgments	.63	−.08	.64	.08
16. Hurt me	.61	.05	.59	.20
5. Nothing I can do	.60	.30	.58	.29
24. Difficult problems	.59	.39	.50	.49
15. Resolved situation	.57	.15	.59	.22
30. Avoid conflict	.54	.16	.41	.17
8. Successfully escape	.50	.28	.64	.29
2. Outside help	.48	.17	.35	.29
12. Potential threat	.46	.28	.33	.24
1. Avoid threat	.38	.28	.17	.32
20. Anxious events	.38	.20	.39	.20
19. People like me	.36	.04	.46	−.03
29. Difficult people	.36	.12	.41	.07
25. Serious illness	.32	.05	.42	.15

Given the strong internal consistency and the relatively small amount of variance explained by the second factor, it may be best to generally conceptualize the ACQ as being a unitary measure. However, there may be certain situations in which the two identified factors will produce differential effects. It is also possible that the a priori deletion of items with low item-total correlations increased the likelihood of unidimensionality. Thus, final conclusions about the factor structure will require replication with an independent sample.

STUDY 2

Given that item development and cohesion were tested on a single, anxiety-disordered population, we felt it important to replicate the internal consistency and factor structure with an additional, nonclinical population.

Method

Subjects

Subjects for Study 2 were 236 undergraduate psychology students who completed the ACQ as part of a variety of studies, for course credit. Subjects were undiagnosed and unselected, thus approximating a normal sample. The mean age for the sample was 19.7 years (SD = 4.9), and there were 161 females (68.2%).

Results

Internal Consistency

Item-total correlations were calculated for the 30 items in the final scale. All items except one had item-total correlations greater than .3 and no items were identified that would have increased the alpha had they been excluded. Cronbach's alpha on the total scale was .89; for the reactions and events subscales it was .84 and .82, respectively.

Factor Analysis

A principal components factor analysis was conducted on the 30 items of the ACQ, and a two-factor solution was sought. The factors accounted for 25.3% and 6.3% of the variance, respectively. Following varimax rotation, factor loadings closely resembled that found in Study 1. Data are presented in Table 1.

STUDY 3

To provide clinical utility, the next stage in questionnaire construction involves determination of the stability of the measure. In the present case, it is assumed that the ACQ should assess a relatively consistent construct (trait).

Thus, it would be expected that scores on the scale should remain consistent over time.

Method

Subjects

Subjects for Study 3 were 69 volunteers from a first year psychology subject pool (different from those used in Study 2) who received course credit for their participation. The ages ranged from 16 to 42 years (M = 20.3 years, SD = 5.4), and there were 55 females (79.7%).

Procedure

Subjects were asked to complete the ACQ as part of a larger questionnaire package, in groups of around 30 subjects. They were asked to return 1 week and 1 month later to repeat the questionnaire.

Results

Stability

In order to examine the stability of the measures over time, mean scores for the population were calculated at each time point. A repeated measures analysis of variance (ANOVA) was computed across the three times. Total scores on the ACQ did not differ significantly across time, $F(2,67) = 0.69$, n.s. Mean scores at the three time points were: Time 1 (M = 95.1, SD = 16.0), Time 2 (M = 94.7, SD = 17.6), Time 3 (M = 96.1, SD = 17.7). Similar effects were noted on each subscale.

Test-Retest Reliability

Correlations were calculated between each pair of time points, to examine reliability of the measures over time. All correlation coefficients were significant ($ps < .001$). For the total scale the following correlations were obtained: Time 1 - Time 2 (r = .88); Time 1 - Time 3 (r = .82); Time 2 - Time 3 (r = .84). Very similar correlations were noted for each subscale.

Discussion

The data indicate strong test-retest reliability of the ACQ and each of its subscales for up to one month. Thus, the ACQ possesses satisfactory consistency over time.

STUDY 4

A vital question in scale development refers to the validity of the measures in question. Validity is best demonstrated through a close relationship with

objectively defined exemplars of a construct. However, objective measurement of the hypothesized traits being assessed with the current scale is difficult to determine given that it is a subjective phenomenon. Thus, we focused on convergent validity by demonstrating that the ACQ correlated appropriately with related measures and on discriminant validity by demonstrating that the ACQ discriminated appropriately between diagnostic groups. Specifically, we hypothesized that scores on the ACQ would correlate positively with measures of anxiety, depression, and perceived control and that the ACQ would correlate more strongly with measures of anxiety than would more global measures of control, specifically the Rotter Locus of Control Scale. Similarly, it was expected that individuals with diagnosed anxiety disorders would score higher on the ACQ than individuals without emotional disorders.

Method

Subjects

Study 3 involved the 250 anxious subjects from Study 1 plus an additional 32 subjects with male erectile disorder, and an additional 71 subjects from a first year psychology subject pool.

As described in Study 1, anxious subjects were recruited from a specialty anxiety disorders clinic. Subjects recruited from the first year undergraduate pool were undiagnosed and thus provide norms for the measure. Finally, subjects with DSM-III-R male erectile disorder were recruited from a specialty sexual disorder assessment clinic and were diagnosed by a clinical psychology graduate student and a medical practitioner.

Procedure

Subjects completed the ACQ as part of a variety of questionnaire packages. In addition to the ACQ, the 71 undergraduate subjects completed the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1994), the Rotter Internal/External Locus of Control Scale (LOC; Rotter, 1966), and the Locus of Control of Behaviour Scale (LCB; Craig et al., 1984). The DASS is a 42-item questionnaire that provides separate measures of anxiety, depression, and stress, and has excellent psychometric properties. Both the stress and anxiety subscales are closely related to aspects of clinical anxiety. The LCB was developed to measure control over a variety of behaviors and is less general than the LOC, but presumably not as specific as the ACQ.

Results

Differences Between Groups

Mean scores on the ACQ were compared across the groups using a one-way ANOVA, followed by Duncan's Multiple Range test. Anxious subjects scored significantly lower on the measure (M = 73.8, SD = 21.2) than did the undergraduate subjects (M = 96.1, SD = 18.9) and subjects with Male Erectile

Disorder (M = 98.3, SD = 24.6) who did not differ significantly from each other, $F(2,323) = 41.80$, $p < .001$.

Relationships Between Measures

Pearson correlations were computed between the ACQ and each of the other measures used for the 71 undergraduates. Data are presented in Table 2. For comparison purposes, the correlations with other measures of control are also included in the table. Differences between the correlations were computed for ACQ total scores (Steiger, 1980) using one-tailed tests of significance. The ACQ correlated significantly more with the DASS-A than did the Rotter LOC $t(68) = 1.92$, $p < .05$, but not the LCB, $t(68) = 0.41$, n.s. The ACQ correlated significantly more with the DASS-S than did the Rotter LOC, $t(68) = 3.42$, $p < .001$, and the LCB, $t(68) = 2.56$, $p < .01$. Finally, the ACQ did not correlate significantly differently with the DASS-D than did either the LOC, $t(68) = 0.69$, n.s., or the LCB, $t(68) = 0.0$, n.s.

Sex Differences and Age Effects

Because sex and age are confounded with diagnosis, the effects of these variables on the ACQ scores were examined separately for the normal subjects and the anxious subjects. Mean scores for males and females were compared on the ACQ total scores using independent groups t-tests. For the anxious group, males scored a mean of 76.3 (SD = 20.3) and females scored 72.7 (SD = 21.7). This difference was not significant, $t(248) = -1.30$, n.s. For the normal group, the mean was 101.8 (SD = 15.3) for males and 95.3 (SD = 19.4) for females. This difference was also not significant, $t(68) = -1.05$, n.s.

Pearson correlations were also calculated between the ACQ total score and age for both groups. For the anxious group the correlation was $r = .02$, n.s., and for the normal group it was $r = .32$, $p < .01$.

TABLE 2
CORRELATIONS BETWEEN THE ACQ AND OTHER MEASURES

Measure	ACQ-t	ACQ-r	ACQ-e	LOC	LCB
ACQ-total	–				
ACQ-reactions	.87	–			
ACQ-events	.91	.60	–		
LOC	−.54	−.41	−.55	–	
LCB	.77	.75	.64	−.64	–
DASS-A	−.46	−.46	−.37	.26	−.43
DASS-S	−.51	−.53	−.40	.17	−.33
DASS-D	−.47	−.41	−.43	.40	−.47

Note. ACQ–Anxiety Control Questionnaire; DASS-A–Depression Anxiety Stress Scales, Anxiety Subscale; DASS-S–stress subscale; DASS-D–depression subscale; LOC–Internal-External Locus of Control Scale; LCB–Locus of Control of Behavior Scale.

Discussion

The ACQ showed good convergent and discriminant validity. As expected, it correlated strongly with measures of anxiety as well as with other measures of control. Importantly, while there was a significant correlation between the ACQ and the LOC, these relationships were far from unity. In addition, the ACQ correlated more strongly with measures of anxiety/stress than did more global measures of control. These data support the use of the ACQ as a measure of perceived control that is more specifically related to use with the anxiety disorders than previous more global control measures. It should be noted however, that the amount of variance shared between the ACQ and measures of anxiety was only around 25%. Thus, while the ACQ appears to be measuring a construct that is related to anxiety, there remain fundamental differences between these phenomena.

These data were supported by the group comparisons, which indicated that broadly anxious subjects scored significantly lower on the measure than did a normal population. Importantly, subjects with a sexual dysfunction scored higher than anxious subjects, suggesting that the ACQ is not simply assessing aspects of general psychopathology.

Surprisingly, there seemed to be little gender differences on the ACQ. Age effects are more complex, with no apparent relationship to age for the anxious population but a significant correlation between age and the ACQ for the normal (student) population.

STUDY 5

The final requirement for a clinically useful measure is to demonstrate that the measure is sensitive to changes in psychopathology status through treatment.

Method

Subjects for this study were 19 people meeting DSM-III-R criteria for panic disorder with agoraphobia who underwent a standard cognitive behavioral treatment program for their disorder. Treatment lasted 12 weeks and has been described elsewhere (Barlow, Craske, Cerny, & Klosko, 1989). The mean age for the group was 32.9 years (SD = 8.0); there were nine females (47%).

Results

There was a marked increase in total scores on the ACQ from pre- to posttreatment (pretreatment, M = 63.7; posttreatment, M = 93.3), $t(18) = -6.73$, $p < .001$. Further, the degree of change on the ACQ correlated significantly with the change from pretreatment to posttreatment on the Hamilton Anxiety Rating Scale (Hamilton, 1959; $r = -.62$; $p < .05$, one-tailed).

General Discussion

The preceding studies described the development of a questionnaire of potential benefit for research and clinical practice with anxiety disorders. The measure, the ACQ, appears to assess perceived control over anxiety-related symptoms, reactions, and external problems and threats. Internal consistency for the measure was high and there was good evidence to argue for a single factor. However, there was also some evidence to suggest the existence of two meaningful factors in the scale: perceived control over internal emotional reactions and perceived control over external events. Because the evidence for the clear existence of a second factor is not strong, we would suggest the use of the scale in most situations as a single measure. However, there may be some occasions when examination of the independent effects of the two subscales may be theoretically warranted. Further, independent examination of the factor structure of the ACQ would be of value.

Importantly, the internal consistency of the ACQ is higher than that generally found for Rotter's (1966) LOC (Harper et al, 1990; Lange & Tiggemann, 1981), suggesting that the current measure contains more homogeneous items than Rotter's scale. Similarly, the 25% of variance accounted for by the main factor of the ACQ is somewhat better than the approximately 15% of variance accounted for by the first factor of the Rotter LOC (Harper et al; Lange & Tiggemann; Levenson, 1973). The current measure also predicts anxiety more strongly than does Rotter's scale. In light of these comparisons, the limitations of excessive breadth and generality often levelled at Rotter's (1966) scale (Coan et al., 1973; Klockars & Varnum, 1975) seem to be reduced with the present measure.

The ACQ is likely to be of value to clinical practice and research. The measure demonstrated good test-retest reliability over one month indicating utility for treatment outcome studies. Consistent with this suggestion, the measure also showed changes following a cognitive behavioral program for panic disorder. Future research should examine the relationship between changes on the ACQ and maintenance of treatment gains. Following Barlow's (1988) suggestion that a low perception of control is a predisposing factor to anxiety disorders, it would be predicted that treatment responders scoring low on the ACQ following treatment will be more likely to relapse than high scorers.

The ACQ correlated moderately with measures of anxiety and depression. The fact that this was not a perfect correlation implies that the ACQ and measures of these emotions assess separate constructs. However, these constructs are certainly related, which is consistent with a number of theories of the emotion disorders (Alloy et al., 1990; Barlow, 1988, 1991; Lang, 1985; Teasdale, 1983). Indeed, it may be the sharing of low perceptions of control that is responsible for the tremendous overlap between the syndromes of anxiety and depression (Barlow, 1991; Barlow & Di Nardo, 1991).

It should be noted that the present data are somewhat preliminary. Confidence in the ACQ would be strengthened by replication of the present findings in

independent samples, especially with respect to the factor structure. In addition, the present data on test-retest reliability and convergent validity were obtained only on a normal population so that replication in clinical populations would be of value. Finally, research into the construct validity of the ACQ would also be of value.

In summary, the present study has reported on the development of a scale to assess a specific sphere of perceived control which is theoretically, highly relevant to the anxiety disorders. The psychometrics of the scale appear to be promising, as good reliability and validity were demonstrated. What remains is to examine the value of the scale in theoretical prediction. To this end, one study has demonstrated that an earlier version of this scale was the only significant predictor of the experience of relaxation-induced anxiety (Elliot, 1988), a phenomenon which is hypothesized to be primarily mediated by feelings of loss of control.

References

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49–74.

Alloy, L. B., Kelly, K. A., Mineka, S., & Clements, C. M. (1990). Comorbidity of anxiety and depressive disorders: A helplessness-hopelessness perspective. In J. D. Maser and C. R. Cloninger (Eds.), *Comorbidity of mood and anxiety disorders.* Washington, DC: American Psychiatric Association Press.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders.* (3rd ed. rev.). Washington, DC: Author.

Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic.* New York: Guilford Press.

Barlow, D. H. (1991). The nature of anxiety: Anxiety, depression, and emotional disorders. In R. M. Rapee & D. H. Barlow (Eds.), *Chronic anxiety: Generalized anxiety disorder and mixed anxiety depression* (pp. 1–28). New York: Guilford Press.

Barlow, D. H., Craske, M. G., Cerny, J. A., & Klosko, J. S. (1989). Behavioral treatment of panic disorder. *Behavior Therapy, 20*, 261–282.

Barlow, D. H., & Di Nardo, P. A. (1991). The diagnosis of generalized anxiety disorder: Development, current status, and future directions. In R. M. Rapee & D. H. Barlow (Eds.), *Chronic anxiety, generalized anxiety disorder, and mixed anxiety depression* (pp. 95–118). New York: Guilford Press.

Berrenberg, J. L. (1987). The belief in personal control scale: A measure of God-mediated and exaggerated control. *Journal of Personality Assessment, 51*, 194–206.

Cattell, R. B. (1966). *Handbook of multivariate experimental psychology.* Chicago: Rand McNally.

Coan, R. W., Fairchild, M. T., & Dobyns, Z. P. (1973). Dimensions of experienced control. *The Journal of Social Psychology, 91*, 53–60.

Craig, A., Franklin, J., & Andrews, J. G. (1984). A scale to measure locus of control of behavior. *British Journal of Medical Psychology, 57*, 173–180.

Elliot, T. K. (1988). *The importance of a sense of control in the occurrence of relaxation-induced anxiety.* Unpublished masters thesis, The Pennsylvania State University.

Geer, J. H., Davison, G. C., & Gatchel, R. J. (1970). Reduction of stress in humans through nonveridical perceived control of aversive stimulation. *Journal of Personality and Social Psychology, 16*, 731–738.

Glass, D. C., & Singer, J. E. (1970). *Urban stress.* New York: Academic Press.

Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology, 32*, 50–55.

Harper, H., Oei, T. P. S., Mendalgio, S., & Evans, L. (1990). Dimensionality, validity, and utility of the I-E scale with anxiety disorders. *Journal of Anxiety Disorders, 4*, 89–98.

Klockars, A. J., & Varnum, S. W. (1975). A test of the dimensionality assumptions of Rotter's Internal-External scale. *Journal of Personality Assessment, 39*, 397–404.

Lang, P. J. (1985). The cognitive psychophysiology of emotion: Fear and anxiety. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders.* Hillsdale, NJ: Erlbaum.

Lange, R. V., & Tiggemann, M. (1981). Dimensionality and reliability of the Rotter I-E locus of control scale. *Journal of Personality Assessment, 45*, 398–406.

Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology, 41*, 397–404.

Lovibond, S. H., & Lovibond, P. F. (1994). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*, 335–344.

Miller, S. M. (1979). Controllability and human stress: Method, evidence and theory. *Behaviour Research and Therapy, 17*, 287–304.

Mineka, S. (1985). Animal models of anxiety based disorders: Their usefulness and limitations. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders.* Hillsdale, NJ: Erlbaum.

Paulhus, D. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology, 44*, 1253–1265.

Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy, 11*, 109–121.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1–28.

Rotter, J. B. (1975). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *Journal of Consulting and Clinical Psychology, 43*, 56–67.

Sanderson, W. C., Rapee, R. M., & Barlow, D. H. (1989). The influence of perceived control on panic attacks induced via inhalation of 5.5% CO_2-enriched air. *Archives of General Psychiatry, 46*, 157–162.

Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin, 87*, 245–251.

Teasdale, J. D. (1983). Negative thinking in depression: Cause, effect, or reciprocal relationship. *Advances in Behavior Research and Therapy, 5*, 3–25.

Weiss, J. M. (1972). Psychological factors in stress and disease. *Scientific American, 226*, 104–113.

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Appendix A

ACQ

Listed below are a number of statements describing a set of beliefs. Please read each statement carefully and, on the 0–5 scale given, indicate how much you think *each* statement is typical of *you.*

0	1	2	3	4	5
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

e___ 1. I am usually able to avoid threat quite easily.

eR___ 2. How well I cope with difficult situations depends on whether I have outside help.

rR___ 3. When I am put under stress, I am likely to lose control.

r___ 4. I can usually stop my anxiety from showing.

eR___ 5. When I am frightened by something, there is generally nothing I can do.

rR___ 6. My emotions seem to have a life of their own.

eR___ 7. There is little I can do to influence people's judgements of me.

eR___ 8. Whether I can successfully escape a frightening situation is always a matter of chance with me.

rR___ 9. I often shake uncontrollably.

r___ 10. I can usually put worrisome thoughts out of my mind easily.

r___ 11. When I am in a stressful situation, I am able to stop myself from breathing too hard.

e___ 12. I can usually influence the degree to which a situation is potentially threatening to me.

r___ 13. I am able to control my level of anxiety.

eR___ 14. There is little I can do to change frightening events.

eR___ 15. The extent to which a difficult situation resolves itself has nothing to do with my actions.

eR___ 16. If something is going to hurt me, it will happen no matter what I do.

r___ 17. I can usually relax when I want.

rR___ 18. When I am under stress, I am not always sure how I will react.

e___ 19. I can usually make sure people like me if I work at it.

eR___ 20. Most events that make me anxious are outside my control.

r___ 21. I always how exactly how I will react to difficult situations.

r___ 22. I am unconcerned if I become anxious in a difficult situation, because I am confident in my ability to cope with my symptoms.

eR___ 23. What people think of me is largely outside my control.

eR___ 24. I usually find it hard to deal with difficult problems.

eR___ 25. When I hear that someone has a serious illness, I worry that I am next.

rR___ 26. When I am anxious, I find it difficult to focus on anything other than my anxiety.

r___ 27. I am able to cope as effectively with unexpected anxiety as I am with anxiety that I expect to occur.

rR___ 28. I sometimes think, "Why even bother to try to cope with my anxiety when nothing I do seems to affect how frequently or intensely I experience it?"

e___ 29. I often have the ability to get along with "difficult" people.

eR___ 30. I will avoid conflict due to my inability to successfully resolve it.

Note. r = reactions subscale, e = events subscale; R = reverse item for scoring