The Role of Values-Consistent Behavior in Generalized Anxiety Disorder

Susan E. Michelson,
Suffolk University

Jonathan K. Lee,
Suffolk University

Susan M. Orsillo, and
Suffolk University

Lizabeth Roemer
University of Massachusetts Boston

Abstract

Background—Theory and research suggest that generalized anxiety disorder (GAD) is associated with diminished quality of life and restriction in valued action. The purpose of this study was to examine the relevance of values-consistent behavior (valued action) in understanding the impairment in quality of life in GAD.

Method—Treatment-seeking clients with a principal diagnosis of GAD (*n*=30) were compared with demographically matched non-anxious controls (*n*=30) using self-report measures.

Results—Participants with GAD reported significantly less valued action compared with controls, and within the GAD group, diminished valued action was not fully explained by depression comorbidity. Valued action was significantly correlated with measures of experiential avoidance, distress about emotions, and quality of life. Further, consistent with a theoretical model of GAD, restrictions in valued action contributed unique variance to diminished quality of life over and above the contributions of gender, GAD severity, experiential avoidance, distress about emotions, and depression comorbidity. Finally, an acceptance-based behavioral therapy significantly improved self-reports of valued action for GAD clients with 40% achieving clinically significant change in this domain.

Conclusion—The findings provide preliminary support for the relevance of valued action in understanding the functional impairment associated with GAD, and the beneficial effects of an acceptance-based behavior therapy in increasing valued action.

Keywords

Generalized Anxiety Disorder; Worry; Acceptance-based Behavior Therapy; Values; Valued action

Generalized Anxiety Disorder (GAD) is defined by chronic, excessive, and uncontrollable worry (DSM-IV-TR[1]). It affects approximately 4–7% of the population,[2] although significantly higher rates (up to 40%) are found in primary care settings.[3] GAD has a chronic course,[4] and is frequently comorbid with other mood and anxiety disorders.[5,6] Several studies demonstrate the economic burden of GAD by noting its association with

decreased work productivity, increased work absences and health care utilization.[7,8] Further, GAD is associated with significant human cost in terms of quality of life.

A review of 34 studies[9] found GAD to be more impairing than other anxiety disorders (agoraphobia, social phobia, simple phobia, obsessive-compulsive disorder, and simple phobia), and substance-use disorders as measured by the quality of life assessment on the Medical Outcomes Study.[10] Individuals with GAD report significantly less satisfaction with their quality of life relative to non-anxious controls[11] particularly in the domains of self-esteem, goals and values, money, work, play, learning, creativity, friends and relatives. Pollack and colleagues[12] found that 95% of a treatment-seeking sample of individuals with GAD scored below community-based norms on the Quality of Life Enjoyment and Satisfaction Questionnaire Short Form (Q-LES-Q-SF[13]). Finally, a significant association was found between anxiety severity and health related quality of life in a primary care sample of GAD patients.[14]

Roemer and Orsillo[15,16] propose a three-part model of GAD that may explain the life dissatisfaction and impairment associated with this disorder. The first part of the theory (drawing from a larger theory of psychopathology proposed by Hayes and colleagues [17]) asserts that individuals with GAD have a particular *relationship with their internal experiences* that is characterized as "fused, critical, and judgmental".[18] Individuals with GAD over-identify with their thoughts, feelings, images and sensations, experiencing them as real, accurate, defining, and all encompassing rather than as transient events that are separate from themselves. When internal experiences are viewed from this perspective, they are perceived as overwhelming and threatening. In order to manage these experiences, individuals often engage in *experiential escape or avoidance*, which includes attempts to change or suppress internal experiences.[17] Unfortunately, experiential avoidance paradoxically increases the intensity and frequency of distressing experiences.[17] Further, experiential avoidance may lead to a *restriction in behavior* as individuals become focused on avoiding events and situations that elicit uncomfortable internal sensations rather than pursuing activities consistent with personal values. Based on this model, Roemer and Orsillo[15,16] developed an acceptance-based behavioral therapy (ABBT) for GAD that aims to cultivate a decentered, compassionate, and curious stance towards internal experiences, to decrease efforts at experiential avoidance, and to enhance values consistent behavior.

Values are defined as "freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself"[19]p. 64. In other words, values are personally chosen life directions that guide behavior in a number of domains (e.g., family, career, physical health and well-being, spirituality). In contrast to goals (i.e., find a partner, lose ten pounds), which are future focused and defined by an obtainable end-point, values (e.g., be open and honest in relationships, engage in physical activity) represent an ongoing process that can guide behavioral choice on a moment-to-moment basis. Values can be viewed more as directions on a compass than destinations,[20] or the "glue" between goals.[18] For example, if an individual values learning, he or she may have the goal of obtaining a college degree. Once the person graduates, the goal has been attained. In contrast, the value of learning motivates and reinforces studying throughout college, directs the person's behavior in his or her career and broadly influences how the person approaches all new situations and experiences, with interest and curiosity. Even after the goal of achieving the degree is reached, there is always more to learn, as learning is a continuous process.

Although the constructs of valued action and quality of life are similar, there are some conceptual differences. Quality of life is theorized to represent one's subjective sense of personal satisfaction with life[21] or the degree of "goodness" or "excellence" in aspects of life that exist beyond the level of basic needs.[22] In contrast, valued living represents the degree to which one engages in behaviors that are consistent with personally held values. Thus, there is an emphasis on behavior and action, engagement rather than satisfaction.

In ABBT, clients are encouraged to articulate their personally held values and explore the ways in which anxiety and avoidance have interfered with values consistent behavior. A number of clinical methods, such as mindfulness practice, are used with the goal of decreasing experiential avoidance of painful internal states and increasing willingness to engage in valued actions. Values articulation and the intrinsically reinforcing properties of valued action are assumed to motivate clients to engage in often painful and difficult work of therapy.

Although preliminary studies support the potential efficacy of ABBT,[23,24] research aimed at investigating each component of the model is needed to inform future treatment development and refinement. Basic research supports the notion that worry may serve as a strategy of experiential avoidance.[25] For example, worrying prior to imagining a feared event attenuates short-term physiological reactivity.[26] Further, the use of worry to distract oneself from more distressing topics distinguishes those with GAD from sub-clinical cases. [27,28] Additionally, recent studies demonstrate that individuals with GAD struggle with their internal experiences (thoughts, emotions, physical sensations). For example, distress about emotions, particularly anxiety and depression,[29,30] difficulties with emotion regulation,[29] and experiential avoidance[30] have been shown to contribute unique variance to GAD severity. Further, treatment-seeking patients with GAD report significantly more distress about emotions,[29,31] difficulties with emotion regulation,[16,29] and experiential avoidance,[31] as well as diminished levels of mindfulness[16] than do individuals without GAD.

Although the theory that individuals with GAD have a difficult relationship with their internal experiences and engage in experiential avoidance seems strongly supported, research is needed to explore the concept of valued action in this population. Thus, the purpose of this study was to address this aspect of the model. We hypothesized that individuals with GAD would report living less consistently with their values compared with demographically matched non-anxious participants, and that valued action would demonstrate a positive relationship with quality of life and negative correlations with measures of distress about emotions, experiential avoidance, and worry severity. Second, to examine the contribution of valued action to diminished quality of life among individuals with GAD, we hypothesized that a restriction in valued action would contribute unique variance over and above distress about emotions and experiential avoidance, while controlling for the distress and impairment associated with GAD severity. Finally, an ABBT for GAD was predicted to improve the extent to which individuals with GAD report living consistently with their values.

Method

Participants

The clinical group was selected from 50 treatment-seeking clients who presented for treatment at the Center for Anxiety and Related Disorders at Boston University and participated in one of two treatment studies examining the efficacy of an ABBT for GAD. [23,24] Inclusion criteria for the clinical group included (a) receiving a principal diagnosis of GAD; (b) receiving a clinician determined Anxiety Disorders Interview Schedule for

DSM-IV-Lifetime Version (ADIS-IV-L[32]) severity rating of at least 4 (on an 8 point scale)[1]; (c) absence of current suicidal intent; (d) not meeting criteria for current bipolar disorder, substance dependence disorder, or psychotic disorder, (e) being at least 18 years of age; and (f) agreeing to participate in an efficacy study of an acceptance-based behavioral treatment for GAD. Three participants met criteria for GAD subsumed within Major Depressive Disorder (*n*=2) and Anxiety Disorder Not Otherwise Specified (*n*=1), and 17 participants did not complete the full packet of study measures from pre-to posttreatment and thus were excluded from data analysis. This left a sample of 30 clinical participants. Slightly more than half of the participants in the clinical group were women (53%), 90% self-identified as White, and ages ranged from 19–58 (*M*=35.20, *SD*=11.06).

The non-clinical group was selected from a sample of 41 non-anxious participants from the Metropolitan Boston area recruited to serve as a gender, age, and race/ethnicity-matched comparison group to the original treatment sample. Recruitment was conducted through Internet advertisements, email, and flyer postings advertising paid research participation. Participants were screened for anxiety and mood disorders by phone and interviewed using the Mini ADIS-IV,[32] an abbreviated version of the ADIS-IV-L. Exclusion criteria included currently taking psychiatric medication, receiving psychological services, or meeting criteria for an anxiety (with the exception of specific phobia) or mood disorder at any point during the previous 12 months. Using a hierarchical stratification method to match on demographic criteria with the clinical group on gender, age, and race/ethnicity (in that order), 30 participants (53% women, 90% White) with ages ranging from 19–57 (*M*=32.03, *SD*=10.41) were selected for inclusion in the non-GAD group.

Measures

Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV[32])—The ADIS-IV evaluates DSM-IV anxiety, mood, substance use, and somatoform disorders and elicits information for differential diagnoses. The ADIS-IV also includes a clinician severity rating (CSR) for each diagnosis received ranging from 0 (none) to 8 (very severely disturbing/disabling). A CSR of 4 (definitely disturbing/disabling) or higher indicates meeting formal DSM-IV diagnostic criteria for a disorder. Interrater reliability of GAD diagnostic category over a two-week period yielded a kappa coefficient of .67 at the same site the current study was conducted and using the same training procedures.[5] The abbreviated version used in recruiting the non-anxious participants differs from the lifetime version in that information regarding diagnostic history is omitted.[32] This abbreviated version of the ADIS is often used in research settings when diagnostic history does not influence the decision for participant inclusion (e.g., [33]).

Penn State Worry Questionnaire (PSWQ[34])—The PSWQ is a widely used 16-item self-report questionnaire that assesses an individual's general tendency to worry excessively. It specifically assesses the intensity and excessiveness of worry without reference to specific worry content. Each item presents a statement followed by a 5-point Likert-type scale ranging from 1 (*Not at all typical of me*) to 5 (*Very typical of me*). In the validation study, the measure showed excellent internal consistency (α range=.93–.97) and test-retest reliability of *r*=.93 at one month.

Affective Control Scale (ACS[35])—The ACS is a 42-item self-report measure that assesses distress about and fear of losing control while experiencing strong affective states

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[1]One participant met criteria for GAD in partial remission following a waitlist period during the treatment study; however, the remaining symptoms were rated at above the clinical cutoff, so the participant received treatment and was retained for the present analyses.

such as anxiety, depression, anger, and positive affective states. Responses are scored on a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The total score is computed by calculating the mean score of all 42 responses; higher scores indicate greater distress of emotional response. Internal consistency for the total scale as well as for subscales indicate moderate to excellent reliability.[35]

Acceptance and Action Questionnaire, 9-item version (AAQ[36])—The AAQ is a self-report measure that assesses experiential avoidance. Sample items include "I rarely worry about getting my anxieties, worries, and feelings under control" (reverse scored) and "In order for me to do something important, I have to have all my doubts worked out." Using a 7-point Likert-type scale ranging from 1 (*never true*) to 7 (*always true*) participants are asked to mark the degree to which each statement applies to their lives. Scores range from 7 to 63 with higher scores corresponding to greater levels of experiential avoidance, or an unwillingness to experience painful feelings and thoughts, and lower scores reflecting acceptance and action. A total score is calculated by summing all 9 responses.

Valued-Living Questionnaire (VLQ[37])—The VLQ consists of a two-part questionnaire that measures aspects of valued living including (1) importance of valued areas, and (2) the extent to which one is living consistently with one's values. The VLQ 1 taps into 10 areas that have been identified as valued domains of living. Respondents rate, on a scale of 1–10, the importance of 10 different domains, including (1) family (other than parenting and intimate relations), (2) marriage/couples/intimate relations, (3) parenting, (4) friendship, (5) work, (6) education, (7) recreation, (8) spirituality, (9) citizenship, and (10) physical self-care. The VLQ 2 asks respondents to estimate, using the same 1–10 rating scale, how consistently they have lived in accord with each value over the past month. Responses from both importance and consistency are used to derive a weighted value composite by multiplying the two responses and computing the mean of the products. Calculating a weighted composite score takes into account the relative importance a respondent assigns to a given value in the context of how consistently he or she is living with that value. The composite scores for each value are then summed to provide a total value living composite score. Preliminary studies of the VLQ demonstrate adequate reliability (Cronbach's α=.74).[37]

Quality of Life Inventory (QOLI[38])[2]—The QOLI is a 32-item self-report measure based on an empirically validated model of life satisfaction that posits satisfaction as the sum of satisfactions in areas of life that are important to an individual. Respondents are first asked how importantly they would rate 16 areas of life, and then asked to indicate their level of satisfaction within each area. The QOLI demonstrates excellent total score internal reliability (Cronbach's α=.98) and adequate test-retest reliability (*r*s ranging from .80 to .91).[38]

Procedure

Measures were administered to the clinical sample at pre-and post-treatment. The acceptance-based behavioral therapy[39] consisted of 16 individual sessions. The goals were to cultivate expanded, compassionate awareness of internal experiences, decrease experiential avoidance, and increase engagement in values-consistent activities. Methods included formal and informal mindfulness practice, psychoeducation about the model of anxiety guiding the treatment, the function of worry and emotions, and limits of control, as

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[2]Due to a clerical error, the clinical group did not complete five domains of the QOLI. The children, relatives, home, neighborhood, and community domains were omitted, leaving health, self-esteem, goals-and-values, money, work, play, learning, creativity, helping, love, and friends domains available for analysis.

well as experiential exercises and behavioral activities aimed at increasing valued activities. Towards the end of treatment, clinicians designed individualized plans with clients to increase the maintenance of skills learned in therapy.

Controls were interviewed using the Mini-ADIS-IV to ensure they met inclusion criteria for the study and then completed the measures packet. Participants were compensated $30.

Results

Preliminary Analyses and Data Analytic Plan

A series of ANOVAs were conducted separately for the GAD and non-GAD groups to explore baseline difference on pre-treatment study variables using gender and ethnicity (White versus non-White grouping strategy was used to prevent cell sizes with zero cases) as grouping variables. In the GAD group, men reported more impairment in valued action and quality of life, and greater distress about emotions and worry severity compared with women (see Table 1). Therefore, gender was controlled in subsequent analyses.

The Relevance of Valued Action in GAD

Table 2 presents the mean importance and consistency scores for each item on the pre-treatment VLQ by group. In order to compare individuals with and without GAD on self-reported importance of valued domains, we took the mean importance ratings and conducted an Analysis of Covariance (ANCOVA), covarying for gender. As would be expected, there was no significant main effect of group on differences in importance ratings of value domains [$F(1,34)$=.10, p=.76, η^2_p=.003], nor group × gender interaction.

To test the hypothesis that individuals with GAD will be less likely to report living consistently with their values compared to non-anxious participants, an ANCOVA was conducted comparing the groups on the VLQ total composite covarying for gender. As predicted, there was a significant main effect of group [$F(1, 56)$=12.32, p=.001, η^2_p = .18]. Individuals diagnosed with GAD (M=43.39, SD=14.31) reported living significantly less consistently with their values compared to individuals in the non-anxious group (M =61.89, SD=15.35). No main effect for gender emerged. Further, the main effect for group was qualified by a significant Group × Gender interaction [$F(1, 56)$=4.21, p =.05, η^2_p=.07]. In the clinical group, women had a higher mean VLQ score than men [$t(28)$ = −3.0, p=.006]. However, there were no significant differences in valued action in the non-GAD group [$t(28)$ = .21, p=.84].

Given the high comorbidity between GAD and mood disorders, and the possibility that values inaction in GAD could be accounted for by this association, we performed an ANCOVA examining differences in the VLQ Composite score for individuals in the GAD group who had a comorbid mood disorder (i.e., MDD, Dysthymia, or MDD in partial remission, n=11) versus those with other comorbid disorders (i.e., another anxiety disorder, n=17) or no comorbidity (n=2), with gender entered as a covariate. As expected given our previous findings, significant main effects emerged for gender [$F(1, 26)$=10.52, p=.003, η^2_p = .29] with a very large effect, but not for comorbid mood disorder [$F(1, 26)$=1.68, p=.21, η^2_p = .06], although the effect size was moderate in range. Overall, individuals in the GAD group with comorbid depression (M=37.64, SD=14.56) reported less engagement with values compared to individuals without comorbid depression (M=46.72, SD=13.43). The Gender × Comorbidity Group interaction was not significant.

Zero-order and partial correlations controlling for gender were performed to test the hypothesis that among clients diagnosed with GAD, living consistently with one's values (i.e., valued action) would be positively associated with quality of life, and negatively

associated with experiential avoidance, distress about emotions, and worry severity. A modified Bonferonni correction procedure [40] was used to correct for multiple comparisons. Valued action was significantly positively correlated with quality of life and significantly negatively correlated with experiential avoidance and distress about emotions. However, the relationship between valued action and distress about emotions was attenuated when controlling for gender (see Table 3).

Examining the Contribution of Valued Action in a Theoretical Model of GAD

To examine the contribution of valued action in explaining diminished quality of life among individuals with GAD, we performed a hierarchical linear regression predicting quality of life. Gender and GAD severity was entered into the first step. In order to account for the distress and severity of GAD status, we performed *z*-score transformations of PSWQ and ADIS severity ratings and summated them into a single index of GAD severity to prevent multicollinearity between predictor variables. In the second step, we entered distress about emotions and experiential avoidance (ACS and AAQ, respectively), and valued action (VLQ) was entered in the final step to examine its unique contribution. Each step significantly improved the model with valued action contributing 5.1% of the variance over and above the shared variance of gender, GAD severity, distress about emotions, and experiential avoidance (see Table 4).

Given the high rates of comorbidity in GAD with depression,[5] we replicated the regression controlling for depression comorbidity in the second step to examine whether valued action accounted for unique variance in quality of life beyond depression comorbidity as well. Interestingly, comorbidity status was not a significant predictor ($\beta = -.16$, $r^2 = -.14$); however, the other predictors maintained their relationships as in the previous regression. In this equation, valued action contributed 7% of the variance over and above the shared variance of gender, GAD severity, depression comorbidity, distress about emotions, and experiential avoidance.

Pre- to Post- ABBT Treatment Changes in Valued Action

To test the hypothesis that an ABBT would increase the extent to which those with GAD live consistently with their values, we performed a repeated measures ANOVA using gender as a between subjects factor, given the gender differences noted above. The Time × Gender interaction was not significant [Wilks' $\wedge$=.99, F (1,28)=.32, p=.58, η^2_p=.01]. As predicted, there was a significant main effect of time on the VLQ composite score [Wilks' $\wedge$=.65, F(1,28)=14.77, p=.001] from pre-(M= 43.39, SD=14.31) to post-treatment(M=53.75, SD=14.98), with a large effect (η^2_p=.35).

To further examine whether the treatment gains in valued action for the GAD group represented a statistically significant difference compared with the non-GAD group, we performed an ANCOVA using the post-treatment VLQ composite score for the GAD group and the VLQ composite score for the non-GAD group with gender entered as a covariate. There was a significant main effect of group [F (1,56)=4.55, p=.04, η^2_p=.07] with a moderate effect suggesting that although engagement in valued action improved within the GAD group as a result of treatment, clients continued to report less valued action than those without GAD. No main effects for gender or interaction effects were significant.

In order to assess the clinical significance of change in valued action among the GAD group, the clinical significant change cut-off was calculated using the following guidelines proposed by Jacobson and Truax[41], using the following $c = s_\sigma M_1 + s_1 M_\sigma / s_\sigma + s_1$, where s_σ and s_1 represents the standard deviation of the GAD and non-GAD groups, and M_1 and M_σ represent the VLQ mean scores of the GAD and non-GAD groups, respectively. Using this

criterion, a cutoff score of 57.26 was established to represent the clinically significant change criterion, so that individuals having VLQ scores above the cut-off could be determined to demonstrate clinically significant change as a result of treatment. Using this criterion, 40 percent of the participants ($n = 12$) achieved clinically significant change, or can be considered recovered and within the distribution of the non-GAD group.

Discussion

The findings from the present study provide further insight into the degree of impairment in quality of live and valued action among individuals with generalized anxiety disorder. Although individuals with and without GAD did not differ in their self-report of the importance of valued domains, individuals with GAD were less likely to describe themselves as living consistently with their values compared with demographically matched non-anxious participants. Within the GAD group, individuals with a comorbid mood disorder reported less engagement in valued action compared to individuals without a comorbid mood disorder (although this difference was not statistically significant), suggesting that comorbid depression may further impair valued action. Further, as predicted, living consistently with one's values was positively associated with self-reported quality of life. These findings contribute to the literature demonstrating the significant impairments in quality of life reported by those with GAD.[9,11,12,14,42]

Consistent with our predictions, we found that living consistently with one's values was negatively associated with measures of experiential avoidance, distress about emotions, and worry severity; however, only its relationship to experiential avoidance and quality of life reached statistical significance when controlling for gender.

Further, as predicted, restriction in valued action contributed unique variance in diminished quality of life over and above the variance accounted for by gender, GAD severity, distress about emotions, and experiential avoidance. These findings directly lend support to the theoretical model of GAD proposed by Roemer and Orsillo,[15,39] which suggests that the life impairment in GAD may be partially explained by individuals seeing their internal experiences as distressing, leading to experiential avoidance and a restriction in pursuing activities consistent with personal values. Further, when we replicated the regression controlling for depression comorbidity, engagement in valued action still demonstrated a unique relationship with quality of life, suggesting that the relationship between valued action and quality of life is not solely due to their shared variance with comorbid depression.

Finally, our results provide further support for the efficacy of an ABBT for GAD. Specifically, after ABBT treatment participants with GAD reported a significant increase in values consistent behavior. However, it is important to note that only 40% of the sample met the criteria for clinically significant change on the VLQ. Thus, some treatment refinement may be needed to help a larger proportion of clients with GAD more fully engage in a values-consistent life. Although our findings indicate that valued action is significantly correlated with quality of life, the study design precludes any assumptions regarding the sequencing and temporal ordering of pre- to post-treatment improvements in quality of life and may be explained, for example, by symptom reduction leading to improvements in quality of life, thereby leading to increased engagement in valued-living.

The significance of valued-living and its impact on quality of life is gaining importance and increased attention. Acceptance-based treatments such as acceptance and commitment therapy ask clients to identify values to both direct and dignify their individualized treatment goals.[43] Allowing clients to self-determine their treatment goals based on what matters most in their lives likely increases self-efficacy and motivation. This is consistent with

emerging findings that valued action may represent mechanisms of change in ABBT. For example, recently Hayes, Orsillo and Roemer[44] examined mediators of change in their acceptance-based behavior therapy for generalized anxiety disorder. Specifically, acceptance of internal experiences and engagement in meaningful activities were examined as hypothesized mechanisms of action. Results provide preliminary support for valued living and acceptance as mediators for treatment response in GAD. Change in valued action scores on the VLQ significantly predicted post-treatment responder status. Moreover, improvements in acceptance and valued living predicted outcome above and beyond change in worry.

The significant gender differences that were noted in our treatment seeking sample warrant further consideration. Research has demonstrated that men are less likely to seek mental health treatment than women regardless of symptom severity (e.g., [45]). Rates of treatment seeking are particularly low in men with GAD according to a national epidemiologic survey. [46] It may be that men who do seek treatment for their GAD are those who have experienced more intense symptoms and greater life interference. This is consistent with the pattern of findings in the present study on the gender differences in measures of worry and distress about their emotions.

Despite the contributions of these findings to our understanding of GAD, a number of limitations warrant attention. Reliance on self-report methodology to assess values-consistent behavior, experiential avoidance, distress about emotions, worry severity, and quality of life potentially limits the validity of the measures and raises concerns about response bias. Participants are only capable of reporting experiences that are within their awareness, an important consideration in this area of research given that individuals with GAD often struggle with recognizing and describing their internal experiences.[29] Further, the small sample size and correlational design of the study precludes drawing causal implications from the findings, although it is worth noting that our effect sizes suggest that the magnitude of our findings was relatively large. The absence of a clinical comparison group also limits the implications of the findings. There is no evidence that deficits in valued living are specific to GAD; they have been proposed to be associated with a number of clinical presentations.[18] Similarly, although the ABBT offered to clients in the present study specifically targeted barriers to values-consistent action (i.e., experiential avoidance), other traditional cognitive-behavioral treatments may also indirectly increase valued living. Finally, the limited racial/ethnic diversity in the sample restricts the generalizability of the findings. Research on the nature and role of values in psychological health and well-being with participants from more ethnically diverse backgrounds is needed to determine the cultural relevance of this construct. Although ABBT allows for individually-derived values, it is important to understand the ways in which cultural factors may affect a specific client's ability to articulate a set of values.[47]

In summary, the current study provides preliminary partial support for the theory that the impaired quality of life characteristic of GAD is at least in part a product of diminished valued activity that may be driven by a judgmental stance towards internal events and experiential avoidance and that an acceptance-based behavioral therapy can increase values-consistent behavior. Additional research is needed to further assess the validity of the model that underlies a potentially efficacious treatment for GAD.

Acknowledgments

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Table 1

Means, standard deviations, and reliabilities for pre-treatment study measures for GAD and non-GAD groups by gender.

| | GAD-group ($n = 30$) | | | | | Non-GAD group ($n = 30$) | | | | | |
| | Men | | Women | | | Men | | Women | | | |
Measure	M	SD	M	SD	F(1,28)	M	SD	M	SD	F(1,28)	α
VLQ	35.98	14.71	49.87	10.59	8.98**	62.53	15.67	61.33	15.53	.04	.82
QOLI	−1.14	1.69	1.44	1.45	20.27***	2.91	1.14	3.02	1.38	.06	.86
AAQ	45.21	7.02	40.87	6.68	3.01	23.64	6.93	24.31	4.59	.10	.90
ACS	4.19	.66	3.66	.73	4.15*	2.28	.70	2.30	.50	.003	.97
PSWQ	69.28	4.86	63.45	7.03	6.78**	28.21	7.20	35.94	12.08	4.35*	.97

Note. VLQ = Valued Living Questionnaire; QOLI = Quality of Life Inventory; AAQ = Acceptance and Action Questionnaire 9-item version; ACS = Affective Control Scale; PSWQ = Penn State Worry Questionnaire. Cronbach's α reported for the entire sample. F-test represents gender differences within groups.

*
$p \le .05$.

**
$p \le .01$.

***
$p \le .001$.

Table 2

VLQ pre-treatment means for GAD (n = 30) and non-GAD (n = 30) groups by Value Living Questionnaire Domains

	Importance		Consistency	
	GAD Group	**Non-GAD Group**	**GAD Group**	**Non-GAD Group**
VLQ Domain	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Couples	8.44 (2.18)	8.67 (1.33)	6.06 (3.19)	7.61 (2.62)
Parenting	7.50 (3.20)	7.06 (3.32)	6.82 (2.79)	8.44 (2.26)
Family	8.11 (1.91)	7.44 (2.55)	6.33 (2.20)	8.61 (1.15)
Friends	8.28 (1.45)	7.94 (1.73)	5.41 (2.32)	8.89 (1.13)
Work	8.00 (1.41)	7.89 (1.57)	5.78 (2.92)	8.06 (1.96)
Education/Training	7.44 (2.12)	8.22 (1.59)	5.89 (2.91)	7.72 (2.52)
Recreation/Fun	7.89 (1.75)	8.83 (1.10)	5.00 (2.50)	8.44 (2.33)
Spirituality	6.39 (2.55)	6.44 (3.19)	4.33 (2.99)	8.39 (2.75)
Citizenship/Community	5.00 (1.61)	5.61 (1.88)	3.89 (2.74)	7.72 (2.78)
Physical Self-Care	8.44 (1.19)	8.22 (1.59)	5.61 (2.81)	7.72 (1.97)

Note. VLQ = Valued Living Questionnaire

Table 3

Zero-order and partial correlations controlling for gender for study measures for the GAD group (n = 30).

Measures	VLQ	
	r	**Partial *r***
QOLI	.65[a]	.49[a]
AAQ	−.46[b]	−.38[b]
ACS	−.41[c]	−.29
PSWQ	−.35	−.16

Note: VLQ = Valued Living Questionnaire; QOLI = Quality of Life Inventory; AAQ = Acceptance and Action Questionnaire 9-item version; ACS = Affective Control Scale; PSWQ = Penn State Worry Questionnaire. Modified Bonferonni procedure was used to correct for multiple analyses.

[a] $p \leq .0125$.

[b] $p \leq .017$.

[c] $p \leq .025$.

[d] $p \leq .05$.

Table 4

Summary of hierarchical regression for restriction in valued action predicting diminished quality of live over and above gender, GAD severity, distress about emotions, and experiential avoidance (n = 30)

Predictor	$R^2\Delta$	β (in each step)	r^2 (in each step)
Step 1			
Gender	.56***	.52***	.49
GAD severity		−.40**	−.38
Step 2			
Gender	.12*	.46***	.42
GAD severity		−.31*	−.27
ACS		.13	.10
AAQ		−.43**	−.33
Step 3			
Gender	.05*	.36**	.30
GAD severity		−.30*	−.26
ACS		.15	.11
AAQ		−.35*	−.26
VLQ		.28*	.23
Total R^2	.73*		

Note. ACS = Affective Control Scale; AAQ = Acceptance and Action Questionnaire; VLQ = Valued Living Questionnaire. GAD Severity is a composite score that was derived by summating z-score transformed scores from the Anxiety Disorders Interview Schedule for DSM-IV and the Penn State Worry Questionnaire. Beta values are from each step; r^2 refers to semi-partial correlations from each step.

*
p ≤ .05,

**
p ≤ .01,

***
p ≤ .001.