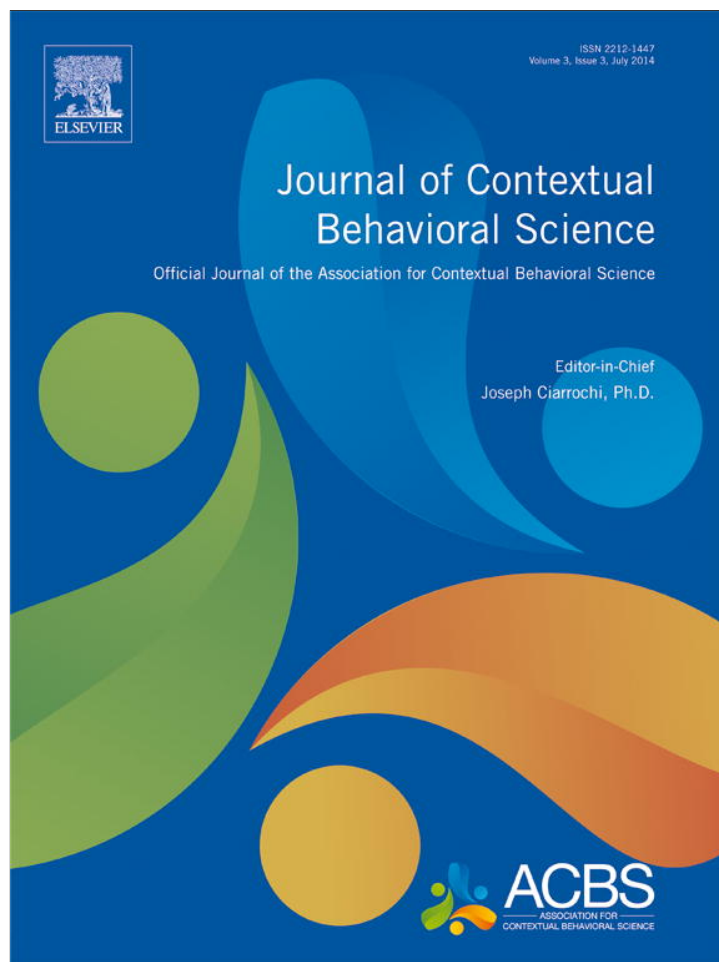




This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/authorsrights>



Contents lists available at ScienceDirect

Journal of Contextual Behavioral Science

journal homepage: www.elsevier.com/locate/jcbs

Empirical Research

Development of the Valuing Questionnaire (VQ)

Matthew Smout^{a,*}, Matthew Davies^b, Nicholas Burns^b, Alison Christie^c^a Centre for Treatment of Anxiety and Depression, 30 Anderson St., Thebarton, SA 5031, Australia^b University of Adelaide, Australia^c University of Canberra, Australia

ARTICLE INFO

Article history:

Received 16 February 2013

Received in revised form

26 May 2014

Accepted 6 June 2014

Keywords:

Values

Questionnaire validation

Acceptance and Commitment Therapy

ABSTRACT

Acceptance and Commitment Therapy (ACT) aims to facilitate valued living; however, there are few well-validated questionnaires to assess this. Valuing Questionnaire (VQ) items were generated from ACT texts and rated as representative and face-valid by ACT authors. Exploratory and confirmatory factor analyses supported a 2-factor solution (Factor 1=Progress (in valued living); Factor 2=Obstruction (to valued living)) in undergraduate university ($N=630$) and clinical adult ($N=285$) samples. Concurrent validity was measured with the Satisfaction With Life Scale (SWLS), Ryff's Psychological Scales of Wellbeing (PSWB), the Valued Living Questionnaire (VLQ), the Acceptance and Action Questionnaire (AAQ-II), the Mindfulness Attention Awareness Scale (MAAS), the Positive and Negative Affect Scales (PANAS) and the Depression Anxiety Stress Scales (DASS). The pattern of relationships with validation measures was predominantly as expected. The VQ should provide ACT researchers and clinicians a convenient, reliable, and valid alternative to symptom measures consistent with ACT theory and useful for evaluating ACT interventions.

© 2014 Association for Contextual Behavioral Science. Published by Elsevier Inc. All rights reserved.

1. Introduction

A largely distinct emphasis of Acceptance Commitment Therapy (ACT) is that increased psychological flexibility, including enactment of personal values, rather than symptom reduction, is the treatment outcome of greatest priority (Eifert & Forsyth, 2005; Wilson, Sandoz, Kitchens, & Roberts, 2010). As Hayes, Strosahl, and Wilson (1999), p. 205 put it, "All ACT techniques are eventually subordinated to helping the client live in accord with his or her chosen values". It is perhaps surprising then that there has yet to emerge a well-validated measure of valued living used consistently by authors across studies. At the time of writing, there were over 60 randomized controlled trials, either published or in-press, available to be viewed online. None of these included a dedicated measure of valued living (although 14 used validated measures of quality of life, or life satisfaction). The availability of a robust, well-validated measure of values is important to evaluate modifications to ACT protocols and indeed to compare the efficacy of ACT with non-ACT interventions.

1.1. Definition of values

Within ACT, 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 behavioural pattern itself" (Wilson & Dufrene, 2009, p. 66). This lengthy definition contains several key components.

Firstly, values are subjectively experienced as principles oneself has chosen to guide one's behaviour, rather than those another person or group expects or encourages one to use (Hayes, Strosahl, & Wilson, 2011). An individual may happen to hold dear values that are also dominant within a culture, but he or she retains a sense of willing ownership rather than simply complying with these to avoid negative evaluation or other social punishment (Hayes et al., 1999). Values are also not deduced from logical reasoning. They are chosen "just because" (Hayes et al., 1999).

Secondly, values are said to be "verbally constructed" to emphasise that values cannot arise from contingency-shaped learning alone and include derived relations, most importantly temporal and if-then relations (Barnes-Holmes et al., 2001). A uniquely human activity, valuing enables adaptive behaviour to be controlled by temporally distant consequences where immediately available consequences would not reinforce it (e.g., valuing "sustaining life" might lead the individual to lobby western governments to reduce carbon emissions). The "verbally constructed" component emphasises the active quality of valuing, distinct from inherent, trait-like constructs such as personality (Hayes et al., 2011).

Thirdly, values are defined as "ongoing, dynamic, evolving patterns of activity" to emphasise that the specific behaviours that would serve one's values will often vary over time and situation. Values-consistent

* Corresponding author.

E-mail address: Matthew.smout@health.sa.gov.au (M. Smout).

behaviour is functionally, rather than topographically, defined. Additionally, the results of an individual's attempts to live out a value will influence his or her construction of that value (Dahl, Plumb, Stewart, & Lundgren, 2009). For example, a supervisor may value “maximising potential in my supervisees”, pursuing enactment of this value via high levels of didactic instruction in the early stage of her career. With practice, feedback and observation of her supervisees, she may later in her career come to see asking evocative questions and giving stewardship as preferable ways to “maximise potential in supervisees”.

Fourthly, “establish predominant reinforcers” means that values function to make some behaviours and their consequences more motivating than others (Dahl et al., 2009). Values guide our decision-making, goal-setting and action initiation. Values transcend these specific actions and events and continue to guide behaviour after any specific decision has been made, goal reached, or action executed. From an infinite array of possible behaviours, values imbue some with higher valence than others.

Fifthly, the reinforcers established by values are “intrinsic in engagement in the valued behavioural pattern itself”, or to put it another way, to enact one's values is inherently reinforcing. Enacting one's values involves performing values-consistent actions with values-consistent qualities. For example, spending time playing with one's son may be consistent with being a loving father, but if it is done to avoid the guilt or criticism that would come from not doing it (i.e., so that it is not freely chosen) it is not being performed in a values-consistent way (Hayes et al., 2011). On the other hand, to freely, wholly choose to spend time playing with one's son to be a loving father will have a quality of being intrinsically reinforcing.

1.2. Valuing measures

The *Valued Living Questionnaire* (VLQ; Wilson et al., 2010) lists 10 life domains (e.g., family relations, physical well-being). Participants rate the importance of each domain and how consistently they have lived according to their values in that domain during the past week (on a scale of 0–10). The authors recommend calculating a VLQ Composite score by multiplying the Importance rating by the Consistency rating for each domain and adding these products. As predicted, VLQ Importance (sum of Importance ratings across domains) showed high test–retest reliability. Furthermore, the VLQ Composite negatively correlated with measures of problematic traits (e.g., depression, relationship difficulties) and positively correlated with measures of psychological strengths (e.g., vitality, mental health).

The *Chronic Pain Values Inventory* (CPVI; McCracken & Yang, 2006) contains six life domains. Each is rated for Importance (0 = not at all important, to 5 = extremely important) and how successfully the client has lived in each domain (Success, 0 = not at all successful, to 5 = extremely successful). The authors recommend calculating a Success score (sum of success ratings across domains) and a Discrepancy score (sum of the differences between Importance and Success scores for each domain). The CPVI has demonstrated incremental validity, accounting for unique variance in pain-related disability, and in general physical and mental well-being measures after controlling for measures of acceptance and mindfulness (McCracken & Yang, 2006; McCracken & Velleman, 2010). Furthermore, changes in CPVI scores achieved during treatment have been shown to prospectively predict further improvements in depression, pain anxiety, and related disability three months post-treatment (Vowles & McCracken, 2008).

The *Values Bull's Eye* (Lundgren, Luoma, Dahl, Strosahl, & Melin, 2012) is presented as a “target” consisting of seven concentric circles, divided into four life domains. The recipient writes a value description for each domain then rates how successfully he or she has lived out the value by placing mark at the appropriate distance from the “Bull's Eye” (7 = mark within Bull's Eye circle, 1 = mark within outermost circle). A Values Attainment score is obtained by

summing ratings across domains. Values Attainment demonstrated test–retest reliability and was moderately positively correlated with satisfaction with life, weakly negatively correlated with depression, stress and anxiety symptoms and only weakly correlated with psychological inflexibility (Lundgren et al., 2012).

The *Personal Values Questionnaire* (PVQ; Ciarrochi, Fisher, & Lane, 2010) requires recipients to write a brief statement describing their values in each of nine life domains. Each value is then rated on (1) the degree to which different motivational consequences (social approval, avoidance of unwanted emotions) are present; (2) its importance; (3) how successfully it has been lived out; (4) how committed the individual is to living the value out; and (5) the extent to which the individual would like to make greater progress in living out the value. Success ratings were positively correlated with higher well-being whereas holding values out of guilt and shame was associated with lower well-being in cancer patients (Ciarrochi et al., 2010). A version of the PVQ focusing only on relationship values (the *Social Values Survey*) demonstrated that commitment to intrinsically motivating social values was positively correlated with greater life satisfaction among adolescents (Ferssizidis et al., 2010).

1.2.1. Rationale for a new measure of valued living

Existing measures all share the division of life into broad domains, rated for consistency. A disadvantage with this approach is that it encourages domains to be appraised out of context with one another. Time is finite and a crucial role of values is directing how time is divided between life domains considered together (i.e., choosing). Quantitative comparisons between people can be complicated when data across domains is aggregated. For example, it is hard to know whether a person who engages most of their time in one area (e.g., parenting) and none in another (e.g., work) is engaging in more or less valued living than someone who is engaging in moderate amounts of activity serving values in two domains.

A complementary strategy may be to assess valued living without specifying specific life domains. We sought to develop a measure that would be: (1) brief enough for clinicians to track their clients' progress from week-to-week; (2) be easy to answer without prior exposure to ACT literature or therapy; and (3) unambiguously reflect an ACT definition of valued living. We sought to achieve brevity by asking recipients to rate the extent to which they lived out their values across their lives, without respect to specific content domains. We checked the comprehensibility of our item pool with volunteers who had never been in therapy and had not heard of ACT. Finally, we sought the opinions of key authors within the ACT literature to establish that the items were representative of the values construct as the ACT community understands it.

2. Study 1: Scale construction and exploratory factor analysis

2.1. Method

2.1.1. Construction of items for Valuing Questionnaire

We searched electronic versions of ACT texts using the word “value”. We endeavoured to convert each sentence into an item without duplicating previous items. ACT text references to values could be roughly categorised into seven key themes: (1) Clarity; (2) Priority; (3) Freely chosen (not compliance); (4) Enactment; (5) Independence from emotions; (6) Engagement/Vitality; (7) Consistency/Stability. We attempted to ensure equal numbers of items for each theme. Eight authors of ACT treatment manuals rated items for representativeness of valued living on a scale of 0 (*not at all*) to 4 (*extremely*) and provided comments regarding item wording. The list was also given to four people with no familiarity with ACT to rate the readability of the items. Removing or rewording unrepresentative or low readability items resulted in a final pool of 70 items.

2.1.2. Participants and procedures

Participants were ($N=630$) undergraduate students enrolled in psychology courses at the University of Adelaide. They were primarily young ($M=20.4$, $SD=4.5$), Caucasian (68%, 21.6% were Asian), and full-time (92%) in the first year of their degree (87%) with English as the language spoken at home (80.8%). Most were also engaged in casual or part-time work (51%) but 45% were not working at all. Participants were recruited via the School of Psychology website and received course credit for their participation. The 70-item pool for the Valuing Questionnaire was administered online. Participants were instructed to rate how true each item had been of them in the past week on a scale from 0 (*not at all*) to 6 (*completely true*). This research was approved by the Human Research Ethics Committee of the University of Adelaide.

2.2. Results and discussion

2.2.1. Data screening

There were no missing responses and the full range of responses was used for all items. We checked for invariant responding by selecting blocks of 10 variables, summing responses and looking for scores of 0 or 70. There was only one score of zero in one block, so no cases were removed. There were no extreme univariate outliers; we did not use maximum likelihood estimation methods in our latent variable models but rather methods robust to nonnormality. Both Bartlett's test of sphericity ($\chi^2(1711)=15,957.17$, $p<.001$) and Kaiser–Meyer–Olkin tests ($KMO=.96$) suggested these data were suitable for exploratory factor analysis (EFA).

2.2.2. Exploratory factor analysis

A sub-sample of $n=338$ (69% female) was generated by random sampling of participants from the full sample for an EFA. First, the dimensionality of the 70 items was explored via parallel roots analysis (Horn, 1965); this analysis was conducted in R (R core Team, 2012) on the polychoric correlation matrix of the 70 items using the function *fa.parallel.poly* in package (*psych*; Revelle, 2012). Examination of the plot of eigenvalues from the 70 items against those from randomly generated data clearly supported a 2-factor solution, although 3- and 4-factor solutions appeared marginally tenable.

We therefore generated and studied EFA solutions with 2-, 3-, and 4-factors in which the questionnaire items were specified as categorical and using mean and variance adjusted weighted least squares estimation and geomin rotation in MPlus v6.11 (Muthén & Muthén, 2010). The 2-factor solution was clearly the most interpretable and parsimonious. In this solution, the two factors were correlated ($r=-.52$, $p<.001$); all items had a statistically significant loading greater than .3 on at least one of the factors and no item had a cross-loading higher than .26. The first factor had 27 items with loadings greater than .7 (e.g., “I lived my life in a manner I would be happy to be remembered for”; “My behavior was a good example of what I stand for in life”) and the second factor had 9 items loading greater than .7 (e.g., “I had unpleasant thoughts and emotions that stopped me from achieving my goals”; “I spent a lot of time trying to please other people”).¹ These findings suggest that the items measure two related constructs and that there are sufficient items defining each factor to proceed with scale refinement.

Our interpretation of the factors is as follows: Factor 1 reflects enactment of values, including clear awareness of what is personally important and perseverance, which we call “Progress”. Factor 2 reflects the disruption of valued living due to avoidance of unwanted experience and distraction from values by inattention to values or attention to other psychological experiences, which we

call “Obstruction”. We next report a confirmatory factor analytic (CFA) study on a refined version of the Valuing Questionnaire.

3. Study 2: Questionnaire refinement and confirmatory factor analysis

3.1. Method

3.1.1. Questionnaire refinement

Our aim was to develop a concise Valuing Questionnaire for use in clinical settings and research. To reduce the item pool we first eliminated items with suboptimal qualities. We conducted a Rasch model item analysis following the recommendations of Wu and Adams (2007). In this context, Rasch models are used to assess the ability of items to function as interval scales by producing expected distributions of response categories for each item according to the participant's level on the trait (in the present case, valued living) to which actual distributions can be compared (see Bond & Fox, 2007 for more detail). Both a Rating Scale Model (RSM) and Partial Credit Model (PCM) was fitted to the 40 items loading $>.3$ on the Progress factor from the EFA using CONQUEST 3.0 (Adams, Wu, & Wilson, 2012). The RSM model assumes that all items possess the same number of response categories whereas the PCM model allows the possibility that different items will have different numbers of response categories. Although the number of possible response categories was fixed to 7 (0–6 scale) in the present study, it may be that some items do not evoke use of the full range of the scale, so both were investigated to see which better fit. The PCM fit the data better ($\chi^2[195]=261.76$, $p<.001$) suggesting not all items warranted measurement on a 7-point scale. We eliminated 31 items with disordered category responses as indicated by a weighted mean square >1.4 (see also Bond & Fox, 2007), or with point-biserial correlation values or average measure values out of ascending sequence. For the final Progress scale we selected the five items that would have had the largest impact on internal consistency of the scale if they were eliminated. In the EFA sample this 5-item scale had Chronbach's $\alpha=.89$ with an average inter-item correlation $r=.62$ (range .51–.76). The same procedure was repeated for the 30 items loading $>.3$ on the Obstruction factor. In the EFA sample, this 5-item scale had Chronbach's $\alpha=.87$ with average inter-item correlation $r=.58$ (range .38–.71). Table 1 shows the polychoric correlation matrix for the 10 items retained in the VQ for our sample of $N=630$ undergraduates; the final questionnaire is provided in Appendix 1.

3.1.2. Participants and procedures

The remainder of the Study 1 sample ($n=292$, 69% female, not part of the EFA sample) served as participants in the confirmatory factor analytic study. The fit of the CFA model was evaluated using (i) the likelihood ratio chi-square, in this case the Satorra–Bentler adjusted version because we used an estimator robust to violation of normality assumptions since our data are item-level Likert scales; (ii) the Comparative Fit Index (CFI) which measures the relative improvement over the null model; (iii) the Root-Mean-Square Error of Approximation (RMSEA) which is a measure of approximate fit where a value of zero indicates best fit; and (iv) the standardised root mean square residual (SRMR) which is a measure of the mean absolute covariance residual, perfect fit is indicated by a value of zero. According to Kline (2011), a range of fit indices should be provided including the test of exact fit and incremental and residual-based indices that are sensitive to model misspecification but are also relatively independent of sample size (see also Jackson, Gillaspay, & Purc-Stephenson, 2009). Acceptable model fit was judged using the following criteria: CFI $>.95$, RMSEA $<.06$, and SRMR $<.05$ (see Hu & Bentler, 1998; Jackson, Gillaspay, & Purc-Stephenson 2009; Kline, 2011).

¹ Factor loadings for all 70 items are available from the authors.

Table 1
Polychoric Correlation Matrix for ten-item VQ based on undergraduate sample (N=630).

	OVQ1	OVQ2	PVQ3	PVQ4	PVQ5	OVQ6	PVQ7	OVQ8	PVQ9
OVQ2		.52							
PVQ3	-.36		-.18						
PVQ4	-.42	-.33		.52					
PVQ5	-.38	-.28	.53		.63				
OVQ6	.68	.52	-.40	-.42	-.32				
PVQ7	-.39	-.31	.54	.67	.78	-.35			
OVQ8	.61	.44	-.47	-.42	-.41	.66	-.40		
PVQ9	-.49	-.40	.55	.70	.69	-.47	.70	-.48	
OVQ10	.75	.66	-.38	-.45	-.43	.70	-.43	.65	-.54

Note: Items prefixed P measure Progress; items prefixed O measure Obstruction; see Appendix 1 for item content.

3.2. Results and discussion

3.2.1. Confirmatory factor analysis

A measurement model was fitted in MPlus v6.11 using the robust MLM estimator (Muthén & Muthén, 2010). First, a model was fit for the VQ where items were constrained to load only on the factor upon which they had their salient loading in the reported EFA solution; the factor intercorrelation was freely estimated. The fit of this model was acceptable: $\chi^2(34)=75.6$, $p<.001$, CFI=.97, RMSEA=.06 with CI₉₀ [.04,.08], and SRMR=.04. Modification indices suggested allowing one pair of items (VQ44 and VQ45) to have correlated residuals. Correlated residuals often suggest non-random shared method variance among items that attenuates the fit of the proposed model (see Cole, Ciesla, & Steiger, 2007). In our case, the items in question were a pair of adjacent items with very similar content, suggesting a recency or order effect that provides a rationale for allowing this correlated residual. The model now had excellent fit: $\chi^2(33)=47.3$, $p=.051$, CFI=.99, RMSEA=.04 with CI₉₀ [.00,.06], and SRMR=.03. This model is shown as Fig. 1. Internal consistency for the Progress scale was $\alpha=.87$ (average inter-item correlation $r=.57$ [.46–.75]) and for Obstruction was also $\alpha=.87$ (average inter-item correlation $r=.58$ [.44–.71]).

4. Study 3: Relationships between VQ and other constructs

4.1. Method

4.1.1. Participants and procedures

The combined samples for Studies 1 and 2 served as participants omitting those cases who provided no questionnaire responses (N=630). Validation questionnaires were completed online after the VQ items.

4.1.2. Measures

Valued Living Questionnaire (VLQ). Given the low magnitude correlations with related measures in Wilson et al. (2010) study, we predicted only moderate magnitude correlations with the VQ scales. We expected positive correlations between the VQ Progress scale and the VLQ's Consistency and Composite scores, and negative correlations between the VQ Obstruction factor and VLQ Consistency scale and composite score.

Satisfaction With Life Scale (SWLS). The SWLS (Diener, Emmons, Larsen, & Griffin, 1985) measures subjective well-being with five statements rated on a 7-point scale (*strongly disagree* to *strongly agree*). The scale correlates positively with other satisfaction of life measures and possesses good internal consistency ($\alpha=.84$; cf. Diener, 1994). Given that several ACT studies have included quality of life measures as proxies for valued living, it was expected that VQ Progress would show large positive correlations with SWLS,

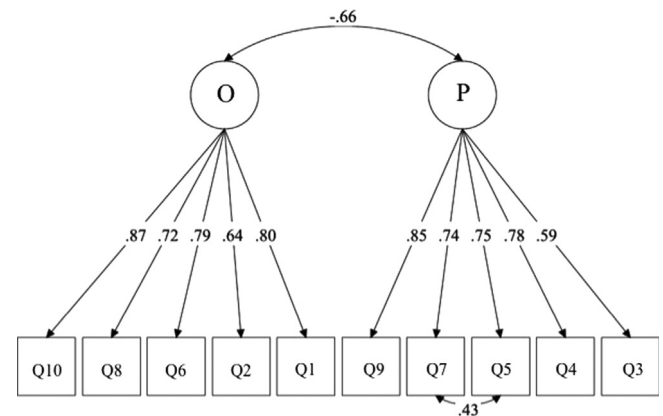


Fig. 1. Measurement model for VQ for Study 1 (N=292). Standardised parameter estimates are shown (all $p<.001$). See Appendix 1 for item content.

and VQ Obstruction would show high negative correlations with SWLS.

Ryff's Scales of Psychological Well-being (SPWB). The SPWB (Ryff, 1989) originally consisted of six 20-item scales measuring Autonomy, Environmental Mastery, Personal Growth, Positive Relations With Others, Purpose In Life and Self-Acceptance, which were all highly inter-correlated. We employed 9-item versions of each scale, which in our sample evidenced high internal consistency (Cronbach's $\alpha=.81-.88$) with the exception of Positive Relations With Others ($\alpha=.66$). Participants rate their agreement with each statement on a 6-point scale (*strongly disagree* to *strongly agree*). We had no basis to predict any differential pattern of correlations between the VQ and specific Ryff's scales. The SPWB is phrased as a trait measure rather than referring to a specific time period, which might lead to attenuated correlations with the VQ which is specific to the previous week. Nevertheless, high scores on any of the SPWB would seem to reflect high valued living and so we tentatively hypothesised all Ryff scales would show large positive correlations with Progress and large negative correlations with Obstruction.

Positive and Negative Affect Scales (PANAS). The PANAS consists of 10 positive and 10 negative affect statements forming two subscales with high internal consistency, stability and convergent and discriminant validity (Watson, Clark, & Tellegen, 1988). Participants were asked to rate the extent to which they had experienced each affect in the last week on a 5-point scale (*very slightly or not at all* to *extremely*). It is difficult to predict from ACT theory an expected relationship between the PANAS and VQ, especially as one of the useful functions of values in ACT is to be orthogonal to emotions; to provide stable life direction in the midst of unstable emotional fluctuations. Nevertheless, it might be expected that all things being equal, more progress in valued living would be associated with more positive affect and conversely more obstruction in valued living be associated with more negative affect, so we predicted moderate magnitude correlations in these directions.

Depression Anxiety Stress Scales (DASS). We used the 21-item version of the DASS (Lovibond & Lovibond, 1995) which contains three scales (Depression, Anxiety and Stress) consisting of 7 items, where participants rate the extent to which they have experienced each symptom during the past week on a scale of 0 (*did not apply to me at all*) to 4 (*applied to me very much, or most of the time*). DASS scales have high internal consistency, maximally distinguish depressive from anxious mood states and show good convergent validity (Crawford & Henry, 2003). We expected large positive correlations between VQ Obstruction scores and DASS symptom scores, especially for the Depression Scale. We also expected large negative correlations between VQ Progress and DASS Depression scale scores because we expected the absence of any sense of

fulfilment of valued living would be characteristic of the state of depression.

The Acceptance and Action Questionnaire II (AAQ-II). The AAQ-II (Bond et al., 2011) is a 7-point measure of psychological inflexibility, the inability to pursue effective behaviour in the face of psychological barriers. It has high internal consistency and convergent validity. We would expect the correlation between the VQ Obstruction and AAQ-II scales to be among the highest, as these would measure the same essential construct, while we would expect negative but lower magnitude correlations between VQ Progress and AAQ-II scores. VQ Progress should reflect a dimension not fully captured by the AAQ-II because it measures the extent to which people are fulfilling their values *irrespective* of psychological distress.

Mindful Attention and Awareness Scale (MAAS). The MAAS (Brown & Ryan, 2003) consists of 15 items rated on a 6-point scale of 1 (*almost always*) to 6 (*almost never*) designed to measure the extent to which people pay attention during tasks, or live on “autopilot” (without paying attention). It was included as a measure that in ACT theory has a facilitative relationship with valued living (Hayes et al., 2011) but is *not* synonymous with it. We would expect high scores on the MAAS (indicating less present-moment attention) to be positively correlated with VQ Obstruction and negatively correlated with VQ Progress, but the magnitude of correlations should be smaller than those between VQ and measures of well-being (i.e., Ryff's scales, SWLS).

4.2. Results and discussion

The pattern of correlations between VQ scales and validation measures was generally in accordance with predictions (see Table 2). Of the SWPB scales, VQ scales were most strongly associated (by strong positive correlations of VQ Progress and strong negative correlations of VQ Obstruction) with Self-Acceptance, Mastery and Purpose. High scores on Self-Acceptance reflect overall positive self-regard and acceptance of personal strengths and weaknesses. ACT theory would predict Self-Acceptance to be highly correlated with psychological flexibility, the integration of acceptance, defusion, values clarity and

committed action. It is plausible both that greater committed action in the service of one's values would facilitate Self-Acceptance and that greater Self-Acceptance would reduce psychological obstruction of values enactment. Environmental Mastery reflects the ability to create and choose opportunities to suit one's needs. In ACT, valuing refers to actions one takes, rather than pleasant outcomes one may chance upon, so the strength of the positive correlation with VQ Progress suggests the VQ is measuring an important aspect of the ACT notion of valuing. This is further reinforced by the strong negative correlation between Environmental Mastery and VQ Obstruction. Perhaps those who perceive themselves as less able to cope with and organise their lives desist from enacting their values, or perhaps those who see more obstacles to enacting their values feel less able to manage their time and tasks.

Unsurprisingly, VQ Progress was strongly positively correlated (and VQ Obstruction strongly negatively correlated) with Purpose In Life, for which high scores indicate the person has a sense of direction and meaning in life. Somewhat surprisingly, the magnitude of correlations with Autonomy was only moderate, where correlations at least the size of those with Mastery were expected. High scores on Autonomy are intended to reflect the tendency to think for oneself, evaluate via one's own standards and resist social pressure, which arguably captures the dimension of values being self-chosen and not to conform to others' expectations. The VQ may be less sensitive to whether the progress individuals have been making is with their own values or in socially approved areas of living. Finally, there is no a priori reason to expect the moderate (rather than strong) positive correlations between VQ Progress and SPWB Personal Growth and Relationships scales. Perhaps because these two areas reflect relatively specific domains of living where the VQ is intended to be domain-independent, these relationships may reflect the specific values of this sample. This, of course, is an empirical question which remains to be investigated.

The VQ Progress scale was moderately correlated with the VLQ Consistency and Composite scales, which is encouraging because both are intended to measure the same theoretical construct. It is worth noting the correlations between the VLQ Composite and SPWB scales ($r=.19-.44$) were consistently lower than those between the VQ scales and SPWB scales, suggesting the VQ may have superior convergent validity to the VLQ.

Of ACT processes related to valued living, as expected, there was a strong positive correlation between psychological flexibility as measured by the AAQ-II and VQ Obstruction. It is worth noting the correlation was not so high that VQ Obstruction would necessarily provide redundant information if administered with the AAQ-II. As predicted, the magnitude of the association of VQ Progress was weaker than that of VQ Obstruction. Even in the absence of strong aversive psychological experiences (or the perception of these as an impediment), there is variability in the extent of progress in valued living. Finally, mindfulness as measured by the MAAS was moderately positively correlated with VQ Progress and moderately negatively correlated with VQ Obstruction, consistent with the ACT model of a facilitative relationship between these processes. As predicted, the magnitude of VQ correlations with the MAAS was smaller than with most measures of life satisfaction and well-being.

There were very strong positive correlations between the VQ scales and emotions in expected directions. Conversely, and consistent with studies of the AAQ-II, there was a strong correlation between depressive symptoms as measured by the DASS and obstruction of valued living. Given the size of these correlations, we ran stepwise regression analyses to check whether relationships between VQ scales and validation measures were not simply due to shared variance with positive and negative affect.

Table 2

Bivariate correlations between VQ scales and validation measures in University sample.

	VQ Progress	VQ Obstruction
SPWB-Autonomy	.36	-.44
SPWB-Mastery	.66	-.71
SPWB-Personal Growth	.43	-.58
SPWB-Relationships With Others	.43	-.50
SPWB-Purpose	.59	-.68
SPWB-Self-Acceptance	.67	-.65
VLQ-Importance	.33	-.19
VLQ-Consistency	.45	-.34
VLQ-Composite	.48	-.33
SWLS	.63	-.53
PANAS-Positive	.70	-.51
PANAS-Negative	-.29	.58
DASS-Stress	-.32	.56
DASS-Anxiety	-.24	.52
DASS-Depression	-.55	.70
AAQ-II	-.40	.65
MAAS	.46	-.49

SPWB=Scales of Personal Wellbeing, VLQ=Valued Living Questionnaire, SWLS=Satisfaction With Life Questionnaire, PANAS=Positive and Negative Affect Scales, DASS=Depression Anxiety Stress Scales, AAQ-II=Acceptance and Action Questionnaire II, MAAS=Mindfulness Attention Awareness Scales.

All correlations significant at $p < .001$. Missing values deleted pairwise.

$n=616$ for SWPB correlations, $n=609$ for SWLS, PANAS, DASS correlations, $n=604$ for VLQ, AAQ-II and DASS correlations.

4.2.1. Incremental validity analyses

Hierarchical regressions for each of the SPWB scales, SWLS and DASS scales were conducted with predictors entered as follows: Steps (1) VLQ Importance, Consistency and Importance $\times$ Consistency; (2) AAQ-II; (3) PANAS Positive and PANAS Negative scales; and (4) VQ Progress and Obstruction (see Tables 3a and 3b). The VQ Scales accounted for statistically significant unique variance in all scales except Autonomy and DASS-Stress.

Interestingly, the total variance explained by all predictors was substantially lower for Autonomy than other SPWB scales so perhaps the Autonomy scale is at least in part capturing a construct orthogonal to valued living and quality of life. For other scales, the additional contribution varied from 1% (Relations With Others, DASS-Anxiety) to 9% (Purpose In Life). These results suggest the VQ is not simply reproducing the AAQ-II or PANAS, and improves on the VLQ in prediction of well-being in most cases.

Table 3a

Hierarchical multiple regression: incremental analyses prediction of quality of life (SPWB) From VLQ, AAQ-II, PANAS and VQ scales.

Predictor	Quality of Life Measure									
	Autonomy		Mastery		Personal Growth		Relations with Others		Purpose	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.05***		.21***		.12***		.16***		.15***	
VLQ-IMP		.17		.02		.46***		.31***		.23**
VLQ-CON		.19		.11		.28**		.09		.06
VLQ-IMP $\times$ CON		-.35*		-.04		-.55***		-.16		-.20
Step 2	.18***		.31***		.19***		.21***		.22***	
AAQ-II		-.22***		-.26***		-.11*		-.33***		-.13**
Step 3	.07***		.13***		.10***		.03***		.14***	
PANAS-Positive		.25***		.22***		.25***		.14**		.22***
PANAS-Negative		-.15**		-.09**		-.14**		-.05		-.05
Step 4	.00		.05***		.04***		.01*		.09***	
VQ-Progress		.04		.22***		-.00		.06		.17***
VQ-Obstruction		-.08		-.23***		-.30***		-.11*		-.37***
Total R^2	.30***		.71***		.45***		.42***		.59***	

SPWB=Scales of Personal Well-Being; VLQ=Valued Living Questionnaire; AAQ-II=Acceptance and Action Questionnaire; PANAS=Positive and Negative Affect Scales; VQ=Valuing Questionnaire; VLQ-IMP=Importance scale of VLQ; VLQ-CON=Consistency scale of VLQ; VLQ-IMP $\times$ CON=Sum of products of Importance and consistency for VLQ.

$n=603$ for all tests.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3b

Hierarchical Multiple Regression: Incremental Analyses Prediction of DASS, SWLS From VLQ, AAQ-II, PANAS and VQ scales.

Predictor	Measure							
	DASS Depression		DASS Anxiety		DASS Stress		SWLS	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.17***		.04***		.09***		.18***	
VLQ-IMP		.12*		-.15*		.11		.09
VLQ-CON		.17*		-.11		.10		.10
VLQ-IMP $\times$ CON		-.31**		.23		-.22		-.06
Step 2	.33***		.31***		.34***		.17***	
AAQ-II		.16***		.19***		.23***		-.24***
Step 3	.16***		.18***		.17***		.13***	
PANAS-Positive		-.21***		-.04		-.09*		.23***
PANAS-Negative		.35***		.53***		.53***		.01
Step 4	.03***		.01**		.00		.04***	
VQ-Progress		-.09*		.07		.04		.29***
VQ-Obstruction		.22***		.13**		.07		-.07
Total R^2	.68***		.54***		.60***		.52***	

DASS=Depression Anxiety Stress Scale; SWLS=Satisfaction With Life Scale; VLQ=Valued Living Questionnaire; AAQ-II=Acceptance and Action Questionnaire; PANAS=Positive and Negative Affect Scales; VQ=Valuing Questionnaire; VLQ-IMP=Importance scale of VLQ; VLQ-CON=Consistency scale of VLQ; VLQ-IMP $\times$ CON=Sum of products of Importance and consistency for VLQ.

$n=603$ for all tests.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

5. Study 4: Confirmatory factor analysis in clinical sample

5.1. Participants and procedures

The final VQ was completed by 285 (65% female) consecutive consumers attending their first assessment session at the Centre for Treatment of Anxiety and Depression (CTAD), an outpatient cognitive-behaviour therapy clinic in Adelaide, South Australia, between September 2011 and October 2013. The sample had a mean age of 38.5 years ($SD=14.7$) and diverse education level ($40.8\% < 12$ years, $23.7\% 12$ years, $35.5\% > 12$ years). Participants completed the Beck Depression Inventory (BDI-II, Beck, Steer, & Brown, 1996) and K-10 (Kessler et al., 2002) at the same time as the VQ as part of routine, pre-assessment questionnaires. The K-10 is a general measure of psychological distress with a range of 10–50, where a score of 30 or more indicates severe distress and a score of less than 20 indicates no significant distress (Avery, Dal Grande, Taylor, & Gill, 2005). Sample means on both of these measures were in the severe range (BDI-II: $M=29.2$, $SD=13.1$, $n=265$; K-10: $M=30.6$, $SD=8.4$, $n=246$). Provisional diagnoses were recorded in case notes after each assessment. The most common primary diagnoses assigned were Major Depressive Disorder or Dysthymia (32.5%), Generalised Anxiety Disorder (9.8%) and Obsessive-Compulsive Disorder (7.9%). Other provisional primary diagnoses include other Anxiety Disorders (23.6%), other Mood Disorders (7.9%), Psychotic Disorders (5.0%), Personality Disorders (4.0%), Hypochondriasis (3.9%), Adjustment Disorders (3.9%) and Substance Use Disorders (2.0%). Procedures for the CFA were as for Study 2 except that there were missing responses in 6.7% cases for at least one Progress scale item and 5.6% cases for at least one Obstruction scale item; however no item had more than 2.8% cases missing. Cases with missing values were deleted listwise.

5.2. Results

5.2.1. Confirmatory factor analysis

As in Study 2, a model was fit for the VQ where items were constrained to load only on the factor they measured; the factor intercorrelation was freely estimated. The fit of this model was acceptable: $\chi^2(34)=66.3$, $p < .001$, CFI=.95, RMSEA=.06, with CI₉₀ [.04,.08], and SRMR=.05. Modification indices again suggested allowing one pair of items (Q5 and Q7, see Appendix 1) to have correlated residuals; these were the same items allowed correlated residuals in Study 2. The model now had improved and good fit: $\chi^2(33)=55.2$, $p=.009$, CFI=.97, RMSEA=.05 with CI₉₀ [.03,.07], and SRMR=.04. This model is shown as Fig. 2. Internal consistency was good for both the Progress scale ($\alpha=.81$) and the Obstruction scale ($\alpha=.79$). Item-total correlations ranged from moderate to strong for the Progress scale (.38–.66) with the average inter-item correlation=.47. The average inter-item correlation for Obstruction was .43 with item-total correlations ranging from weak to moderate (.27–.54). These values compare favourably to recommended ranges for measures of relatively narrow constructs (Clark & Watson, 1995).

5.2.2. Reference values for the VQ and measurement invariance across Study 2 and Study 4

VQ scale means were compared between the clinical sample and the university sample reported in Study 3 ($n=630$). Progress scores were significantly lower ($t[894]=9.06$, $p < .001$, Cohen's $d=.65$) for the clinical sample ($M=12.8$ ($SD=6.91$), $n=266$) than the university sample ($M=17.2$ ($SD=6.44$), $n=630$). Conversely, Obstruction scores were significantly higher ($t[897]=13.84$, $p < .001$, Cohen's $d=1.03$) for the clinical sample ($M=18.9$ ($SD=6.49$), $n=269$) than the university sample ($M=12.1$ ($SD=6.88$), $n=630$).

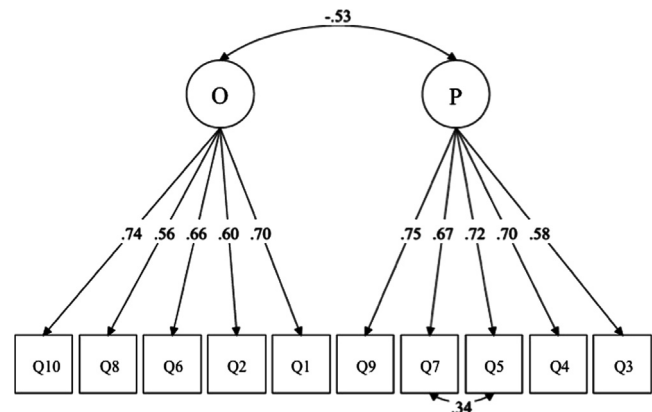


Fig. 2. Measurement model for VQ for Study 4 ($N=285$). Standardised parameter estimates are shown (all $p < .001$). See Appendix 1 for item content.

5.2.3. Measurement invariance

The measurement invariance of the VQ across the university CFA ($n=292$) and clinical samples was compared by testing model parameters in an increasingly restrictive fashion (see Byrne, 2012). If the more constrained model provides fit that is not statistically poorer than the less constrained model, equivalence of model parameters is demonstrated. We found that the factor loadings, the correlated residual, and the factor variances and covariance were invariant across the two groups. We also found five of the intercepts of the observed variables invariant across the two groups. The latent means for the two groups for Progress and Obstruction were, as expected, different; the university group were higher on Progress and lower on Obstruction with effect sizes very similar to those reported above for the scale scores. Thus, the VQ functions equivalently across the two groups studied.

6. Discussion

The Valuing Questionnaire was designed to assess the extent of personal values enactment during the past-week for use in clinical and research evaluations of ACT interventions. The items were intended to capture the quality of valued action as defined in recent ACT texts (Hayes et al., 2011) in everyday language and without reference to specific life domains. The item pool for factor analysis only included items that ACT experts agreed represented values enactment. To our knowledge this is the first time this methodology has been employed to develop a measure of valued living as understood in ACT.

We conducted exploratory and confirmatory factor analyses of the items in a university population and then performed an independent confirmatory factor analysis of a clinical sample. The final 10-item scale displayed a sound two-factor structure, with each 5-item scale possessing good internal consistency. The VQ demonstrated generally good convergent validity and incremental analyses demonstrated this was not merely reducible to shared relationships with positive and negative affect for most measures. High VQ Progress scores were associated with positive affect, Satisfaction With Life, Purpose In Life, Mastery and Self-Acceptance, and high VQ Obstruction scores were associated with depressive symptoms and negative affect. VQ scores were sufficiently different for clinical and non-clinical samples to indicate it should be useful for its intended purpose.

The VQ's two-factor structure is similar to that sometimes found in the original version of the AAQ where "Action" and "Willingness" factors emerged (Bond & Bunce, 2003). However, the VQ does not merely replicate the AAQ. While there was a strong correlation between the VQ Obstruction factor and the AAQ-II it was not so high

as to suggest redundancy, and VQ Progress was only moderately correlated with the AAQ-II. Incremental analyses indicated the VQ scales explained additional variance in quality of life measures beyond the AAQ-II. Moreover, the VQ Progress scale potentially captures variation in valued living in the absence of significant psychological difficulties which is not captured by the AAQ-II. In this way the VQ may have relevance to positive psychology intervention evaluations, where the objective is to help individuals thrive rather than merely survive.

We acknowledge the limitations of the current research. Sensitivity to change data is currently being collected and promising, but are too few to present here yet. The samples used to develop the VQ are of convenience, with restricted age, educational and ethnic diversity. Conceptually, we had intended to develop a multifaceted values measure but were unable to obtain reliable and valid compliance and clarity factors. We were unable to create items that captured the quality of values as chosen irrespective of social expectation without those items “loading away” from the other values items. Such items seemed to be interpreted as disregard for others’ opinions or needs (i.e., having antisocial overtones). We were also unable to adequately capture values clarity. When four or five factors were retained from exploratory factor analyses a factor containing items referring to clarity emerged, but it consisted of highly redundant items so we did not pursue these factor solutions. It could be argued that values clarity is inherently entailed in the wording of remaining Progress scale items such that a separate measurement of a clarity dimension is unnecessary: it would be difficult to report that progress had been made toward one’s values if one was not clear on what one valued. A potential disadvantage is that without enough items devoted to this dimension the VQ may not be sensitive enough to detecting improvements in values clarity that are frequently intended outcomes of ACT interventions. On the other hand, as recent definitions have emphasised values construction rather than clarity (Wilson et al., 2010) perhaps this is not a particularly serious limitation.

While incremental analyses suggested that VQ items were not merely reducible to positive and negative affect in most cases, VQ scales were nevertheless very strongly correlated with affect. It remains to be demonstrated in prospective designs that VQ scores can change at least partly independently of affect. On the other hand, affect and values enactment are only likely to be dissociated in fairly circumscribed conditions. Most of the time, we would expect someone who reports low levels of meaningful activity and high levels of obstruction would also experience high negative affect and depressive symptoms. In the context of depressed mood, individuals will likely both produce less actual valued activity and experience impaired memory of any valued activity undertaken. Both processes would contribute to a strong association between low valued living progress and depressive symptoms.

The VQ should provide researchers and clinicians with a convenient measure for tracking progress through therapy and evaluating treatment packages should its sensitivity to change be established. To date, ACT has predominantly been evaluated on measures of psychiatric symptoms despite its proclaimed de-emphasis on symptom reduction. We hope the VQ will enable developers of ACT interventions as well as competing protocols to test whether ACT is differentially effective in increasing valued living.

Acknowledgements

The authors wish to thank Patricia Bach, Joseph Ciarrochi, Russ Harris, Jennifer Plumb, Kirk Strosahl, Robyn Walser, and Robert Zettle for their assistance with rating the content validity of questionnaire items.

Appendix 1. Valuing Questionnaire (VQ)

Name: _____ Date: _____

Please read each statement carefully and then circle the number which best describes how much the statement was for you DURING THE PAST WEEK, INCLUDING TODAY

	0	1	2	3	4	5	6	
	Not at all true						Completely true	
Q1) I spent a lot of time thinking about the past or future, rather than being engaged in activities that mattered to me	0	1	2	3	4	5	6	–
Q2) I was basically on “auto-pilot” most of the time	0	1	2	3	4	5	6	–
Q3) I worked toward my goals even if I didn’t feel motivated to	0	1	2	3	4	5	6	–
Q4) I was proud about how I lived my life	0	1	2	3	4	5	6	–
Q5) I made progress in the areas of my life I care most about	0	1	2	3	4	5	6	–
Q6) Difficult thoughts, feelings or memories got in the way of what I really wanted to do	0	1	2	3	4	5	6	–
Q7) I continued to get better at being the kind of person I want to be	0	1	2	3	4	5	6	–
Q8) When things didn’t go according to plan, I gave up easily	0	1	2	3	4	5	6	–
Q9) I felt like I had a purpose in life	0	1	2	3	4	5	6	–
Q10) It seemed like I was just “going through the motions” rather than focusing on what was important to me	0	1	2	3	4	5	6	–
Progress:								–
Obstruction:								–

References

- Adams, R. J., Wu, M. L., & Wilson, M. R. (2012). *ACER ConQuest 3.0* [computer program]. Melbourne: ACER.
- Avery, J., Dal Grande, E., Taylor, A., & Gill, T. (2005). *Which South Australians experience psychological distress? Kessler psychological distress 10-item scale July 2002–June 2004*. South Australian Department of Health: Population Research and Outcome Studies.
- Barnes-Holmes, D., O’Hora, D., Roche, B., Hayes, S. C., Bissett, R. T., & Lyddy, F. (2001). Understanding verbal regulation. In: S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational Frame Theory: A post-Skinnerian account of human language and cognition*. New York: Springer.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory – II*. San Antonio, TX: Psychological Corporation.
- Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction and work performance. *Journal of Applied Psychology*, 88, 1057–1067.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42, 676–688.
- Bond, T. G., & Fox, C. M. (2007). *Applying the Rasch model: Fundamental measurement in the human sciences*. New York: Routledge.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus*. NY: Routledge.
- Ciarrochi, J., Fisher, D., & Lane, L. (2010). The link between value motives, value success, and well-being among people diagnosed with cancer. *Psychooncology*, 20, 1184–1192.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309–319.

- Cole, D. A., Ciesla, J. A., & Steiger, J. H. (2007). The insidious effects of failing to include design-driven correlated residuals in latent-variable covariance structure analysis. *Psychological Methods*, 12, 381–398.
- Crawford, J. R., & Henry, J. D. (2003). The Depression Anxiety Stress Scales: Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology*, 42, 111–131.
- Dahl, J. C., Plumb, J. C., Stewart, I., & Lundgren, T. (2009). *The art and science of valuing in psychotherapy: Helping clients discover, explore, and commit to valued action using acceptance and commitment therapy*. Oakland, CA: New Harbinger.
- Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, 31, 103–157.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75.
- Eifert, G. H., & Forsyth, J. P. (2005). *Acceptance & Commitment Therapy for anxiety disorders: A practitioner's treatment guide to using mindfulness, acceptance, and values-based behavior change strategies*. Oakland, CA: New Harbinger Publications.
- Ferssizidis, P., Adams, L., Kashdan, T., Plummer, C., Mishra, A., & Ciarrochi, J. (2010). Motivation for and commitment to social values: The roles of age and gender. *Motivation and Emotion*, 34, 354–362.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2011). *Acceptance and commitment therapy, Second edition: The process and practice of mindful change (2nd ed.)*. New York: Guilford.
- Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, 30, 179–185.
- Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424–453.
- Jackson, D. L., Gillaspay, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychological Methods*, 14, 6–23.
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., et al. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32, 959–976.
- Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). NY: Guilford Press.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck depression and anxiety inventories. *Behavior Research and Therapy*, 33, 335–343.
- Lundgren, T., Luoma, J. B., Dahl, J., Strosahl, K., & Melin, L. (2012). The Bull's Eye Values Survey: A psychometric evaluation. *Cognitive and Behavioral Practice*, 19, 58–526.
- McCracken, L. M., & Velleman, S. C. (2010). Psychological flexibility in adults with chronic pain: A study of acceptance, mindfulness, and values-based action in primary care. *Pain*, 148, 141–147.
- McCracken, L. M., & Yang, S. (2006). The role of values in a contextual cognitive-behavioral approach to chronic pain. *Pain*, 123, 137–145.
- Muthén, L. K., & Muthén, B. O. (2010). *Mplus user's guide* (6th ed.). Los Angeles, CA: Muthén & Muthén.
- R Core Team (2012). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria.
- Revelle, W. (2012). *Psych: Procedures for psychological, psychometric, and personality research*. R package version 1.2.4.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069–1081.
- Vowles, K. E., & McCracken, L. M. (2008). Acceptance and values-based action in chronic pain: A study of treatment effectiveness and process. *Journal of Consulting and Clinical Psychology*, 76, 397–407.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- Wilson, K. G., & DuFrene, T. (2009). *Mindfulness for two: An acceptance and commitment therapy approach to mindfulness in psychotherapy*. Oakland, CA: New Harbinger.
- Wilson, K. G., Sandoz, E. K., Kitchens, J., & Roberts, M. (2010). The valued living questionnaire: Defining and measuring valued action within a behavioral framework. *The Psychological Record*, 60, 249–272.
- Wu, M., & Adams, R. (2007). *Applying the Rasch model to psycho-social measurement: A practical approach*. Melbourne: Educational Measurement Solutions.