Psychological Flexibility: Positive Implications for Mental Health and Life Satisfaction

James J. Lucas [1] and Kathleen A. Moore [2,3]

1. Deakin University, Geelong 3220 Australia
2. Federation University, Churchill 3842 Australia
3. Charles Sturt University, Bathurst 2795 Australia

Corresponding Author: James J. Lucas; Email: james.lucas@deakin.edu.au; Phone: +61 3 5227 8814; Address: Deakin University, Locked Bag 20001, Geelong, Victoria 3220, AUSTRALIA.

Abstract

New wave therapies such as Acceptance and Commitment Therapy aim to cultivate people's psychological flexibility in order for them to live a satisfying life. Psychological flexibility also has a role in promoting mental health, which may mediate the relationship with life satisfaction. The aim of this study is to determine whether mental health mediates the effect of psychological flexibility on life satisfaction. A convenience sample of 140 adults (32 males, M = 36.50 years, SD = 12.22; 107 females, M = 38.46 years, SD = 12.81; and a 45-year-old person of unknown gender) completed an online questionnaire assessing psychological flexibility, mental health, and life satisfaction. Three of the four hypothesised components of psychological flexibility (experiential acceptance, cognitive alternatives, and cognitive control) contributed to the latent construct of psychological flexibility, but cognitive defusion failed to contribute. Psychological flexibility had a direct, positive effect on life satisfaction and the hypothesis that mental health would mediate this relationship was supported. The results suggest that psychological flexibility is important for one's mental health and that both are integral to life satisfaction. The results also support a continued focus on third-wave therapies in cultivating psychological flexibility.

Keywords: cognitive defusion; experiential acceptance; life satisfaction; mental health; psychological flexibility.

Psychological Flexibility: Positive Implications for Mental Health and Life Satisfaction

Psychological flexibility is "the ability to fully contact the present moment and the thoughts and feelings it contains without needless defence … [and] persisting or changing behaviour in the pursuit of goals and values" (Hayes, Luoma et al., 2006, *p.* 9). Third-wave therapies such as Acceptance and Commitment Therapy (ACT) (Hayes, 2005; Hayes, Luoma et al., 2006) foster people's psychological flexibility to enable them to live a life close to their valued ideals which, according to Diener (1984; Diener, Emmons et al., 1985), is synonymous with life satisfaction. In addition to its association with life satisfaction (Fergusson, McLeod et al., 2015; Seow, Vaingankar et al., 2016) psychological flexibility has also predicted improvements in people's mental health (Bach and Hayes, 2002; Vowles and McCracken, 2008). We suggest that good mental health status is a precursor to feeling satisfied with life and therefore mental health status may mediate the relationship between psychological flexibility and life satisfaction. The aims of this study are therefore to ascertain the direct effect of psychological flexibility on life satisfaction and determine whether mental health mediates this relationship.

Although research into psychological flexibility has burgeoned, the operationalisation of it has typically been confined primarily to the assessment of experiential acceptance/avoidance (Hayes, Luoma et al., 2006, Bond, Hayes et al., 2011), which limits the attribution of findings. In order to test our aims, we will utilise a more comprehensive assessment of psychological flexibility derived from the work of Hayes, Luoma et al. (2006) and Dennis and Vander Wal (2010).

Psychological Flexibility: Its Conceptualisation and Positive Effects

Theoretical frameworks such as ACT focus not on controlling and challenging cognitive distortions and rigidity as emphasised in traditional cognitive therapies (Ellis, 1962; Ellis, 1970; Beck, 1976; Beck and Weishaar, 1989; Ellis, 1993), but rather they focus on cultivating psychological flexibility. According to Hayes, Luoma et al. (2006), psychological

flexibility is comprised of six core processes: experiential acceptance; cognitive defusion; self-as-context; contact with the present moment; values; and committed action to achieve one's passions. Later definitions included some but not all of these concepts. For instance: "the ability to adapt to a situation with awareness, openness, and focus, and taking effective action guided by your values" (Harris, 2008, *p*. 41) and "the ability to act effectively in accordance with a valued life in the presence of unpleasant thoughts, emotions, or bodily symptoms" (Wicksell, Lekander et al., 2010, *p*. 771). In contrast, Ciarrochi, Bilich et al. (2010) investigated psychological inflexibility, that is "being excessively entangled in experiential avoidance [not accepting or allowing distressing thoughts in] and cognitive fusion [not defusion which allows a separation of distressing thoughts from content], and difficulties connecting with the present moment and in choosing behaviours in line with identified values and goals" (*p*. 53).

A growing body of research indicates that psychological flexibility is associated with health benefits such as reduced pain and depressed mood in patients suffering chronic pain (Vowles and McCracken, 2008). While in patients with schizophrenia, the rate of rehospitalisation for those randomised to an ACT treatment group (in which psychological flexibility is fostered) was half that of those receiving treatment as usual (TAU) (Bach and Hayes, 2002). Studies using non-clinical samples have produced similar results. For instance, Bond and Bunce (2003) found that an ACT-based stress management program in a large media organisation resulted in improved mental health of employees overall, as well as lower levels of depression in particular. While in a longitudinal study with call centre operators, Bond and Bunce (2003) demonstrated higher levels of psychological flexibility predicted better mental health one year later. The extant literature can be summarised by Kashdan and Rottenberg's (2010) argument that psychological flexibility is a key ingredient to mental health. The World Health Organisation (WHO, 2005) defined mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work

productively and fruitfully, and is able to make a contribution to his or her community" (*p*. 2). Mental health is associated with being able to utilize adaptively basic cognitive and emotional skills, such as regulating one's emotions, and functioning in everyday social roles (Galderisi, Heinz, Kastrup, Beezhold, and Sartourius, 2015).

In addition to mental health benefits, the literature also highlights a link between people's psychological flexibility and their satisfaction with life. Life satisfaction refers to one's evaluation or appraisal of current life situations and health alongside self-imposed standards or values of what one considers the "ideal" life (Diener, 1984; Diener, et al., 1985; Diener and Ryan, 2009). In the case of people with muscle-related disorders, Graham, Gouick et al. (2016) found psychological flexibility was associated with greater levels of life satisfaction. Graham and Rose (2017), in a sample of men living with Duchenne's Muscular Dystrophy, found greater psychological flexibility among participants who reported higher levels of satisfaction with their lives. In a 10-week randomised control program to promote psychological flexibility, Wicksell, Ahlgvist et al. (2008) found that participants in the intervention group demonstrated a significant increase in the primary outcome variable, life satisfaction, compared to the wait-list control group. Among their secondary outcome variables, anxiety levels did not change but depression levels decreased. This change is depression supports research from Chawla and Ostafin (2007). It is not clear from Wicksell et al.'s design however, whether better health, in this case improved mood state, mediated the effect of psychological flexibility on life satisfaction. This proposition warrants investigation.

Measurement of Psychological Flexibility

The most commonly utilised measure of psychological flexibility is the Acceptance and Action Questionnaire (AAQ) (Bond and Bunce, 2003) designed to measure experiential acceptance (Willingness/Acceptance factor) and value-guided action (Action factor). Hayes, Strosahl et al. (2004) found that the length and lack of item comprehensibility on the AAQ had

a significant negative impact on both its readability and reliability. They amended several items, shortened the scale to nine items which increased internal reliability from α = .67 to .77, but the two-factor solution was lost leaving a unidimensional Experiential Acceptance scale.

Bond, Hayes et al. (2011) attempted to improve the psychometric properties of both the original and shortened versions of the AAQ resulting in the AAQ-II. The AAQ-II has seven items and, like Hayes et al.'s (2004) version, it is also unidimensional but with alpha increased to .87. The items reflect experiential avoidance, the conceptual opposite of experiential acceptance. Despite its one factor, and in contradiction to theoretical definitions, researchers such as Mauda, Anderson et al. (2011) have argued the AAQ-II is the primary measure of psychological flexibility.

In a separate approach, Gillanders, Bolderston et al. (2013) developed the seven-item Cognitive Fusion Questionnaire (CFQ). The CFQ was convergent with the AAQ-II (r = .72 to .87 across multiple samples) indicating that the two scales are indicative of the same construct rather than elements of a higher order construct. Items on the AAQ-II for example: "My thoughts cause me emotional distress or pain", and on the CFQ "My thoughts cause me distress or emotional pain" provide support for this proposition. In order to better differentiate between these two constructs, cognitive fusion or defusion might be assessed better with the Decentering subscale of Lau, Bishop et al.'s (2006) Toronto Mindfulness Scale (TMS). Items in their scale, for example "I was receptive to observing unpleasant thoughts and feelings without interfering with them", appear to reflect better the ACT-based definitions of cognitive defusion.

Dennis and Vander Wal's (2010) scale, the Cognitive Flexibility Inventory (CFI), based on a theoretically similar concept cognitive [not psychological] flexibility has two factors: (1) cognitive alternatives, that is, the ability to perceive difficult situations as controllable; and (2) cognitive control, that the ability to perceive multiple alternatives or solutions to difficult situations. These factors have strong internal reliability and small to moderate correlations with

the Beck Depression Inventory (r = -.19 to - .50) providing support for their divergent validity. While not directly aligned with Hayes et al.'s (2006) definition of psychological flexibility, Hayes et al. did argue that psychological flexibility is associated with a greater sense of control over and the ability to find multiple alternatives and solutions to difficult life situations. Therefore, we propose that these cognitive flexibility factors warrant investigation as potential indicators of psychological flexibility.

Based on the literature, the aims of this study are to: (1) determine the contribution of multiple factors to the latent construct of psychological flexibility, namely, experiential acceptance, cognitive defusion, cognitive control, and cognitive alternatives, and (2) evaluate the impact of this composite measure of psychological flexibility on people's life satisfaction directly and indirectly through mental health (Figure 1).

[insert – Figure 1. Hypothesised mediation model of psychological flexibility, mental health, and life satisfaction. – here]

Method

Design

A cross-sectional design was used to obtain a profile of participants' levels of psychological flexibility (as assessed by four components), its direct contribution to life satisfaction, and to assess mental health as a mediator of this relationship.

Participants

A convenience sample of 140 adults (32 males, M = 36.50 years, SD = 12.22; 107 females, M = 38.46 years, SD = 12.81; and a 45 year old person gender not specified) from the general community participated in the study. There was no age difference by gender (t_{137} = .766, p = .44).

Procedure

The University's Human Research Ethics Committee provided approval for the conduct of the study. A notice advertising the study was posted on the online social networking site, Facebook. The advertisement invited readers to participate in an online study on the impact of psychological flexibility on life satisfaction as influenced by mental health. Interested parties were directed to follow a link to the online survey and, if willing, to share this link with their Facebook friends. No incentives were provided to participants and they were free to exit the survey at any time by closing their web browser.

Materials

Participants provided demographic data on their age and gender and completed the following psychometrically sound questionnaires.

The Acceptance and Action Questionnaire, Version II (AAQ-II) (Bond, Hayes et al., 2011) contains seven items (e.g., My painful memories prevent me from having a fulfilling life) answered on a 7-point Likert scale from 1 = *never true* to 7 = *always true,* which are reverse coded to yield one factor: experiential acceptance. Bond, Hayes et al. reported strong internal reliability for the AAQ-II, $\alpha = .87$.

The Decentering subscale of the Toronto Mindfulness Scale, Trait Version (TMS-TV) (Davis, Lau et al., 2009) assesses people's ability to de-identify or defuse from their thoughts and feelings. It contains seven items (e.g., I was aware of my thoughts and feelings without over identifying with them) answered on a 7-point Likert scale from 1 = *not at all true* to 7 = *always true*. Davis et al. reported strong internal reliability for this subscale, $\alpha = .85$.

The Cognitive Control and Cognitive Alternatives subscales of the Cognitive Flexibility Inventory (CFI) (Dennis and Vander Wal, 2010) contain 10 items each (e.g., I consider multiple options before making a decision) answered on a 7-point Likert scale from 1 = *never true* to 7 = *always true.* In the current study, the five items from each subscale with the highest factor loadings reported by Dennis and Vander Wal were used in order to reduce the overall

number of items in the survey. The items in the Cognitive Control subscale are reverse coded to yield greater levels of cognitive control. Dennis and Vander Wal reported excellent internal reliability for both subscales, $\alpha = .91$.

The General Health Questionnaire-8 (GHQ-8) (Kalliath, O'Driscoll et al., 2004) contains eight items (e.g., How often have you been feeling unhappy or depressed?) derived from the GHQ-12 answered on a 7-point Likert scale from 1 = *not at all* to 7 = *all of the time*. No internal reliability was reported by Kalliath, O'Driscoll et al. although test-re-retest was satisfactory.

The Satisfaction with Life Scale (SWLS) (Diener, Emmons et al., 1985) contains five items (e.g., In most ways my life is close to my ideal) answered on a 5-point Likert scale from 1 = *never or very seldom true* to 5 = *almost always or always true*. Diener, Emmons et al. reported strong internal reliability for the SWLS, $\alpha = .87$.

Results

The data were analysed using the Statistical Package for Social Sciences (SPSS, Version 25). Principal Components Analysis (PCA) with Oblimin rotation was used to determine the independence of the four proposed manifest factors of Psychological Flexibility: Experiential Acceptance (AAQ-II), Cognitive Alternatives and Control (CFI subscales), and Cognitive defusion (TMS-TV Decentering subscale).

The initial PCA revealed five factors with an eigenvalue greater than unity, four of which accounted for at least 5% of the total variance, while the scree plot indicated the presence of four factors. Following a series of iterations, which included the removal of items 6 and 7 of the TMS-TV Decentering subscale, simple solution was extracted with a four-factor solution where all items loaded independently $\geq .50$. The four factors were named Experiential Acceptance, Cognitive Alternatives, Cognitive Defusion, and Cognitive Control, which together accounted for 66.82% of the total variance. Cronbach's Alpha, revealed moderate to

strong internal reliability (α = .71 to .93). Table 1 contains the factor loadings and weighted inter-correlations for each factor.

[insert – Table 1. Factor Loadings and Correlations for the Principal Components Analysis with Oblimin Rotation of the Four Manifest Indicators of Psychological Flexibility. – here]

The correlation matrix reveals support for the convergent validity of three of the proposed indicators of psychological flexibility: experiential acceptance, cognitive alternatives and cognitive control (Table 2). Cognitive defusion significantly correlated only with Cognitive Alternatives. The relationship between experiential acceptance and cognitive control was the strongest at r = .63. The two components of mental health: anxiety/depression and social functioning significantly correlated and these, together with each of the proposed components of psychological flexibility, except for cognitive defusion, significantly correlated with life satisfaction.

[insert – Table 2. Factor Loadings and Correlations for the Principal Components Analysis with Oblimin Rotation of the Four Manifest Indicators of Psychological Flexibility. – here]

Direct Effects

The structural equation modelling software AMOS (Version 25) was used to test the direct effect of psychological flexibility on life satisfaction. Prior to running this analysis, the error variance of each manifest variable was constrained according to Bollen's (1989) recommendation[1].

[1] Bollen (1989) recommended such error variances be constrained to: $(1-\alpha)s^2$, where α = Cronbach's alpha coefficient of the relevant manifest variable, and s^2 = variance of the relevant manifest variable.

The direct effect of psychological flexibility on life satisfaction was significant (β = .65, $p < .001$) with psychological flexibility explaining 42% of the variance in life satisfaction. Three of the proposed components of psychological flexibility contributed to the latent variable, but cognitive defusion failed to contribute.

Model Testing

The hypothesised model with mental health as a mediator of the relationship between psychological flexibility and life satisfaction was tested next. With mental health entered into the model, the direct pathway between psychological flexibility and life satisfaction was no longer significant, β = .12, $p = .61$ (Figure 2) as mental health mediated this previously demonstrated effect.

Psychological flexibility explained 79% of the variance in mental health, and together psychology flexibility and health explained 59% of the variance in life satisfaction. The direct effect of mental health on life satisfaction was strong (β = .87), the indirect effect of psychological flexibility on life satisfaction through mental health (β = .77) and directly (β = .12) combined for a total effect of psychological flexibility on life satisfaction of β =.89**.** The goodness of fit indices support this mediation model, $\chi^2(12) = 20.14$, $p = .06$, $\chi^2/df = 1.68$, GFI = .96, NFI = .95, IFI = .98, CFI = .98, RMSEA = .07, *p*/close = .24.

[insert – Figure 2. Mental health as a mediator of psychological flexibility on life satisfaction. The direct effect of psychological flexibility on life satisfaction, in brackets, was β = .65***. Percentages indicate explained variance. ***p* < .01; *** *p* < .001; ns = not significant. – here]

Discussion

The aims of this study were to: (1) determine the contribution of multiple factors to the latent construct of psychological flexibility, namely, experiential acceptance, cognitive defusion, cognitive control, and cognitive alternatives, and (2) using a community sample,

evaluate the impact of this composite measure of psychological flexibility on people's life satisfaction directly and indirectly through increased mental health.

Structure of Psychological Flexibility

The definition of psychological flexibility is multifaceted yet most research has focused on one, or at best two, components. In an attempt to measure psychological flexibility more comprehensively, we selected four validated scales from past research that are indicative of its definitional components. The construct validity and independence of these four hypothesised components of psychological flexibility drawn from the work of Hayes, Luoma et al. (2006) and Dennis and Vander Wal (2010): experiential acceptance, cognitive defusion, cognitive control, and cognitive alternatives was supported via PCA, and the internal reliability of each factor was satisfactory.

The correlation matrix, and the subsequent modelling, revealed that cognitive defusion did not contribute to the latent construct of psychological flexibility. Experiential acceptance, followed by cognitive control had the highest loadings suggesting that these components are the dominant features of psychological flexibility as measured in this community sample. Even though cognitive alternatives did not explain as much variance, it was still statistically significant and its retention as a component of psychological flexibility reflects theoretical definitions (Ciarrochi, Bilich et al., 2010; Dennis and Vander Wal, 2010; Wicksell, Lekander et al., 2010).

It is unclear why cognitive defusion did not load significantly onto psychological flexibility despite Hayes, Luoma et al.'s (2006) argument that the ability to cognitively defuse, such as being more open to experiences rather than controlling them, contributes to people's overall psychological flexibility. The items in the Decentering subscale of Davis, Lau et al. (2009) used in this study (e.g., "I was receptive to observing unpleasant thoughts and feelings without interfering with them"), are indicative of Hayes, Luoma et al.'s (2006) description of

cognitive defusion. It may be that cognitive defusion is a pre-condition to, rather than a direct factor of, psychological flexibility. This preposition warrants investigation in future research.

The hypothesis that psychological flexibility would have a direct effect on life satisfaction was supported and is consistent with past research (Wicksell, Renofalt et al., 2008; Graham, Gouick et al., 2016; Graham and Rose, 2017). Given Diener (1984) and Diener, Emmons et al.'s (1985) assertion that living a valued life is synonymous with life satisfaction, the current findings although cross-sectional support the basic tenets of ACT, wherein fostering people's psychological flexibility increases their ability to live a life that they value (Hayes 2005; Hayes, Luoma et al., 2006).

Our data support the hypothesis that mental health mediates the effect of psychological flexibility on life satisfaction. While previous research has not examined the mediating effect of mental health on life satisfaction, several studies have found that psychological flexibility, especially its component experiential acceptance, or inversely experiential avoidance, is associated with better mental health (Marx and Sloan, 2005; Roemer, Salters et al., 2005) across a range of conditions. The current results extend past findings by identifying mental health as a mediator of psychological flexibility on life satisfaction.

The central implication of these findings lies in the nature of psychological flexibility that implies mental health is associated with a state of acceptance, as opposed to the traditional emphasis on trying to achieve health through challenging and changing unhelpful or rigid cognitions (Beck and Weishaar, 1989; Ellis, 1993). The findings are relevant to clinical practice in that a rigid preoccupation with past events or an excessive worry over future events is primarily characteristic of depression and anxiety respectively (Barlow and Durand, 2008), and it may be that a lack of psychological flexibility is perpetuating these disorders (Soriano, Valverde et al., 2004; Hayes, Luoma et al., 2006).

While the current findings present a novel approach to the assessment and application of psychological flexibility, the findings need to be confirmed in future longitudinal studies.

Future authors should consider using our multidimensional approach to assessing psychological flexibility to provide greater insight into the relative efficacy of its domains. Given the consistent focus of this study and past research on the positive effects of psychological flexibility, future research on how and under what conditions (e.g., in the pursuit of socially harmful behaviours) psychological flexibility might not have such a positive influence is also needed.

Conclusion

The focus of psychological flexibility, a recent redirection in the area of cognitive psychology, reflects a positive approach towards understanding the interactions between health and wellbeing (Hayes, 2005; Hayes, Luoma et al., 2006; Bond, Hayes et al., 2011) in line with the tenets of positive psychology (Seligman and Csikszentmihalyi, 2000). In this study, we used a more inclusive assessment of psychological flexibility than in many past studies. The results indicate that three of the four components of psychological flexibility (experiential acceptance, cognitive control, and cognitive alternatives) we measured predicted people's level of life satisfaction. As hypothesised, this relationship was mediated by mental health. These results highlight the positive influence of psychological flexibility in enhancing mental health directly and, through mental health, people's overall life satisfaction. A central implication of these findings for clinical practice involves a focus on cultivating psychological flexibility as opposed to the traditional approach of challenging and changing distorted and rigid cognitions. Improved mental health leads to greater life satisfaction and thus achievement of one's valued ideal in life.

References

Bach, P. and Hayes, S. C. (2002). The use of Acceptance and Commitment Therapy to prevent the rehospitalisation of psychiatric patients: A randomised controlled trial. *Journal of Consulting and Clinical Psychology*, **70**, 1129-1139.

Barlow, D. H. and Durand, V. M. (2008). *Abnormal Psychology: An integrative approach*. Wadsworth Cengage Learning, Belmont.

Beck, A. T. (1976). *Cognitive Therapy and the Emotional Disorders.*, Penguin Books, London.

Beck, A. T. and Weishaar, M. (1989). Cognitive therapy. In A. Freeman, K. M. Simon, L. E. Beutler and H. Arkowitz. (eds), *Comprehensive Handbook of Cognitive Therapy*, Chapter 2. Springer, New York, pp. 21-36.

Bond, F. W. and 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. and Zettle, R. D. (2011). Preliminary psychometric properties of the acceptance and action questionnaire - II: A revised measure of psychological flexibility and acceptance. *Behaviour Therapy*, **42**(4), 1-38.

Chawla, N. and Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology*, **63**(9), 871-890.

Ciarrochi, J., Bilich, L. and Godsell, C. (2010). Psychological flexibility as a mechanism of change in acceptance and commitment therapy. In Baer. R. (eds), *Assessing Mindfulness and Acceptance: Illuminating the Processes of Change*, Chapter 2. New Harbinger Publications, Inc., Oakland, CA, pp. 51-76.

Davis, K. M., Lau, M. A. and Cairns, D. R. (2009). Development and preliminary validation of a trait version of the Toronto mindfulness scale. *Journal of Cognitive Psychotherapy: An International Quarterly*, **23**(3), 185-197.

Dennis, J. P. and Vander Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive Therapy Resources*, **34**, 241-253.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, **95**, 542-575.

Diener, E., Emmons, R. A., Larsen, R. J. and Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, **49**, 71-75.

Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York, Lyle Stuart.

Ellis, A. (1970). *The essence of rational psychotherapy: A comprehensive approach in treatment*. Institute for Rational Living, New York.

Ellis, A. (1993). Changing rational-emotive therapy (RET) to rational emotive behaviour therapy (REBT). *The Behaviour Therapist*, **16**, 257-258.

Fergusson, D. M., McLeod, G. F. H., Horwood, L. J., Swain, N. R., Chapple, S. and Poulton, R. (2015). Life Satisfaction and Mental Health Problems (18 to 35 years). *Psychological Medicine*, **45**, 2427-2436.

Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J. and Sartorius, N. (2015). Toward a new definition of mental health. *World Psychiatry*, **14**(2), 231-233.

Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., Kerr, S., Tansey, L., Noel, P., Ferenbach, C., Masley, S., Roach, L., Lloyd, J., May, L., Clarke, S. and Remington, B. (2013). The development and initial validation of the cognitive fusion questionnaire. *Behavior Therapy*, **45**(1), 83-101.

Graham, C. D., Gouick, J., Ferreira, N. and Gillanders, D. (2016). The influence of psychological flexibility on life satisfaction and mood in muscle disorders. *Rehabilitation Psychology*, **61**(2), 210-217.

Graham, C. D. and Rose, M. R. (2017). What explains high life satisfaction in men living with Duchenne muscular dystrophy? A preliminary study to inform psychological intervention. *Muscle and Nerve*, **56**(1), 163-166.

Harris, R. (2008). *The Happiness Trap*. Robinson, London.

Hayes, S. C. (2005). Stability and change in cognitive behaviour therapy: Considering the implications of ACT and RFT. *Journal of Rational-Emotive and Cognitive-Behaviour Therapy*, **23**(2), 131-151.

Hayes, S. C., Luoma, J. B., Bond, F. W., Mauda, A. and Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, **44**, 1-25.

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., Dykstra, T. A., Batten, S. V., Bergan, J., Stewart, S. H., Zvolensky, M. J., Eifert, G. H., Bond, F. W., Forsyth, J. P., Karekla, M. and McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, **54**, 553-578.

Kalliath, T. J., O'Driscoll, M. P. and Brough, P. (2004). A confirmatory factor analysis of the general health questionnaire -12. *Stress and Health*, **20**, 11-20.

Kashdan, T. B. and Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, **30**, 865-878.

Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., Shapiro, S. and Carmody, J. (2006). The Toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology*, **62**(12), 1445-1467.

Marx, B. P. and Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy*, **43**, 569-583.

Mauda, A., Anderson, P. L., Wendell, J. W., Chou, Y. Y., Price, M. and Feinstein, A. B. (2011). Psychological flexibility mediates the relations between self-concealment and negative psychological outcomes. *Personality and Individual Differences*, **50**, 243-247.

Roemer, L., Salters, K., Raffa, S. D. and Orsillo, S. M. (2005). Fear and avoidance of internal experiences in GAD: Preliminary tests of a conceptual model. *Cognitive Therapy and Research*, **29**, 71-88.

Seligman, M. E. P. and Csikszentmihalyi, M. (2000). Positive Psychology: An introduction. *American Psychologist*, **55**, 5-14.

Seow, L. S. E., Vaingankar, J. A., Abdin, E., Sambasivam, R., Jeyagurunathan, A., Pang, S., Chong, S. A. and Subramaniam, M. (2016). Positive Mental Health in Outpatients with Affective Disorders: Assocations with life satisfaction and general functioning. *Journal of Affective Disorders*, **190**, 499-507.

Soriano, C. L., Valverde, M. R. and Martinez, O. G. (2004). A proposal for synthesizing verbal contexts in experiential avoidance disorder and acceptance and commitment therapy. *International Journal of Psychology and Psychological Therapy*, **4**(1), 377-394.

Vowles, E. and 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.

Wicksell, R. K., Ahlgvist, J., Bring, A., Melin, L. and Olsson, G. L. (2008). Can exposure and acceptance strategies improve functioning and life satisfaction in people with chronic pain and whiplash-associated disorders (WAD)? A randomized controlled trial. *Cognitive Behavioral Therapy*, **37**(3), 169-182.

Wicksell, R. K., Lekander, M., Sorjonen, K. and Olsson, G. L. (2010). The psychological inflexibility in pain scale (PIPS) - Statistical properties and model fit of an instrument to assess change processes in pain related disability. *European Journal of Pain*, **14**, 771.e771-771.e714.

Wicksell, R. K., Renofalt, J., Olsson, G. L., Bond, F. W. and Melin, L. (2008). Avoidance and cognitive fusion - Central components in pain related disability? Development and

preliminary validation of the psychological inflexibility in pain scale (PIPS). *European Journal of Pain*, **12**, 491-500.

World Health Organization (2005). *Promoting mental health: concepts, emerging evidence, practice*: *A report of the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne.* Herrman, H., Saxena, S. and Moodie, R. (eds). WHO Press, Geneva.

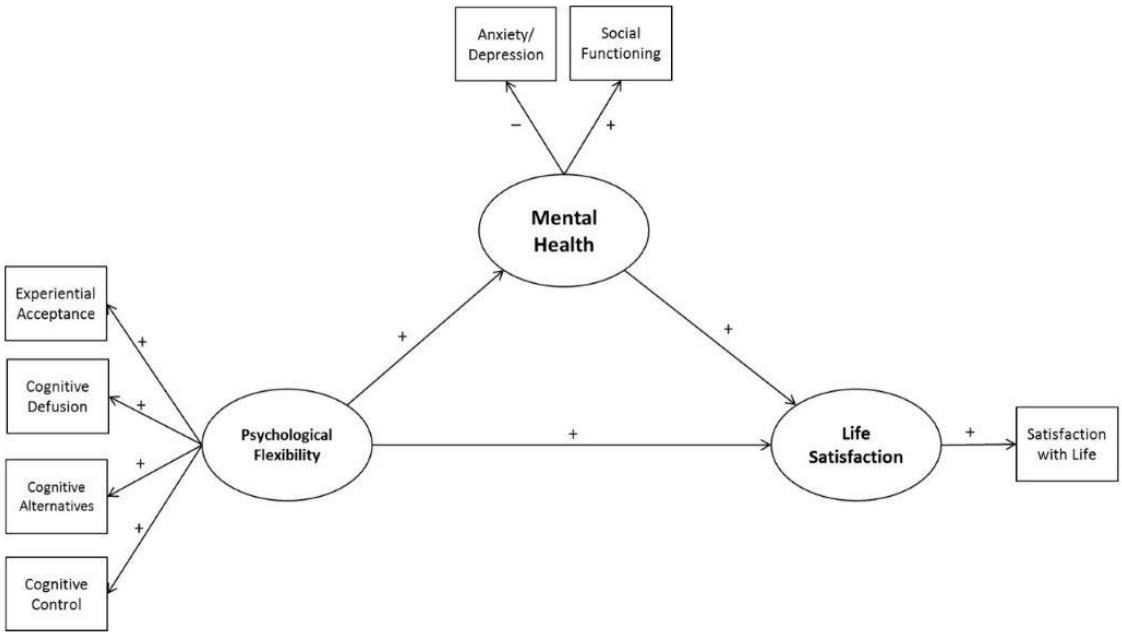

Figure 1. Hypothesised mediation model of psychological flexibility, mental health, and life satisfaction.

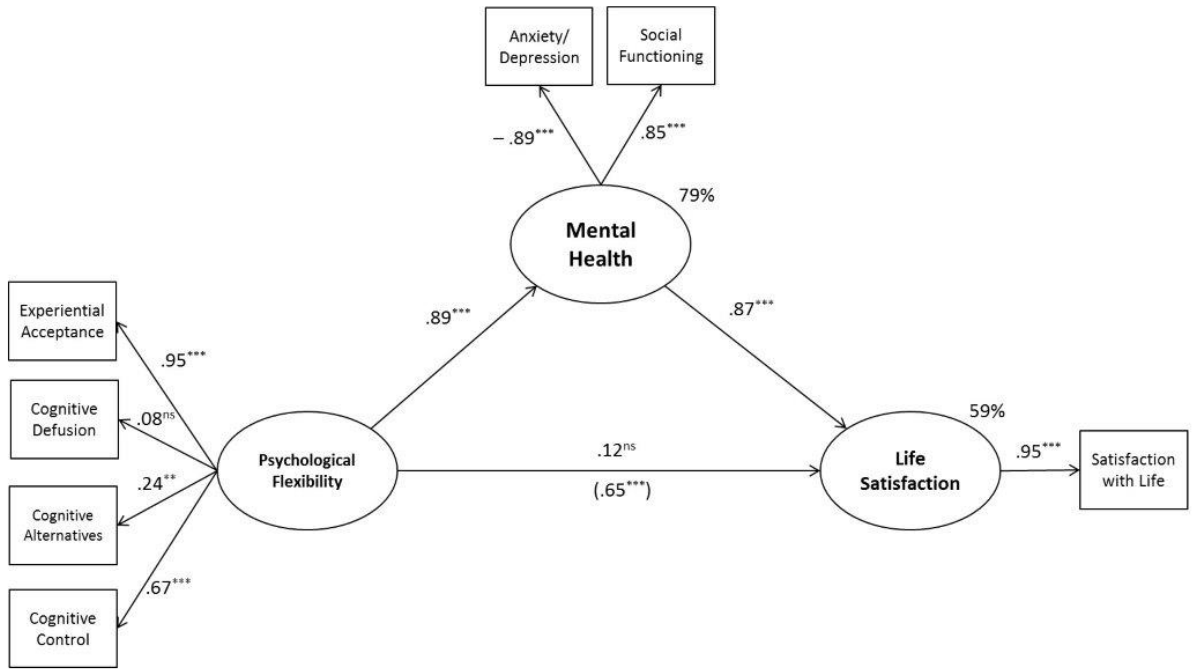

Figure 2. Mental health as a mediator of psychological flexibility on life satisfaction. The direct effect of psychological flexibility on life satisfaction, in brackets, was $\beta = .65^{***}$. Percentages indicate explained variance.
$^{**}p < .01$; *** $p < .001$; ns = not significant.

Table 1

Factor Loadings and Correlations for the Principal Components Analysis with Oblimin Rotation of the Four Manifest Indicators of Psychological Flexibility

	Factor			
	1	2	3	4
My painful memories prevent me from having a fulfilling life	.87			
My painful experiences and memories make it difficult for me to live a life that I would value	.87			
I'm afraid of my feelings	.72			
I worry about not being able to control my worries and feelings	.68			
Emotions cause problems in my life	.67			
It seems like most people are handling their lives better than I am	.60			
Worries get in the way of my success	.53			
I consider multiple options before making a decision		.93		
When in difficult situations, I consider multiple options before deciding how to behave		.89		
I often look at a situation from different viewpoints		.87		
When I encounter difficult situations, I stop and try to think of several ways to resolve it		.85		
I like to look at difficult situations from many different angles		.78		
I am more concerned with being open to my experiences than controlling or changing them			.74	
I experience myself as separate from my changing thoughts and feelings			.67	
I am more invested in just watching my experiences as they arise, than in figuring out what they could mean			.67	
I experience my thoughts more as events in my mind than as a necessarily accurate reflection of the way things "really" are			.65	
I am receptive to observing unpleasant thoughts and feelings without interfering with them			.62	
When I encounter difficult situations, I just don't know what to do *				.84
When encountering difficult situations, I become so stressed that I cannot think of a way to resolve the situation *				.84
I find it troublesome that there are so many different ways to deal with difficult situations *				.80
I feel I have no power to change things in difficult situations *				.76
When I encounter difficult situations, I feel like I am losing control *				.72

Note. Factor Labels: 1 = Experiential Acceptance; 2 = Cognitive Alternatives; 3 = Cognitive Defusion; 4 = Cognitive Control.

* Items recoded

Table 1 (Continued)

Factor Loadings and Correlations for the Principal Components Analysis with Oblimin Rotation of the Four Manifest Indicators of Psychological Flexibility

	Factor			
	1	2	3	4
Eigenvalue	7.20	3.70	2.17	1.62
% Variance Explained	32.74	16.82	9.87	7.39
Cronbach's α	.90	.93	.71	.89
Weighted Factor Correlations				
1. Experiential Acceptance	1			
2. Cognitive Alternatives	.12	1		
3. Cognitive Defusion	.01	.14	1	
4. Cognitive Control	.45	.21	.10	1

Note. Factor Labels: 1 = Experiential Acceptance; 2 = Cognitive Alternatives; 3 = Cognitive Defusion; 4 = Cognitive Control.

* Items recoded

Table 2

Internal Reliability Analyses (Cronbach's α), Pearson's Correlations, Means, and Standard Deviations for each Variable.

	Variable						
	1	2	3	4	5	6	7
1. Experiential Acceptance	1						
2. Cognitive Defusion	.051	1					
3. Cognitive Alternatives	.200*	.257**	1				
4. Cognitive Control	.629***	.114	.318***	1			
5. Anxiety/ Depression	-.763***	-.108	-.209*	- 507***	1		
6. Social Functioning	.691***	.067	.184*	.507***	- 754***	1	
7. Life Satisfaction	.582***	.163	.283**	.392***	-.623***	.641***	1
M	35.70	18.56	24.99	25.65	11.21	21.98	16.67
SD	8.47	4.78	5.46	5.22	5.20	3.94	4.44
α	.90	.71	.93	.89	.90	.88	.90

* $p < .05$; ** $p < .01$, *** $p < .001$