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Development and Validation of the Flexibility of Responses to Self-Critical Thoughts Scale (FoReST)

and

Clinical Research Portfolio

Volume II (Volume I bound separately)

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CHAPTER 1: Systematic Review

The Impact of Self-Criticism on the Pursuit of Goals: A Critical Review

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Completed in accordance with the Author Guidelines of 'Behaviour Therapy' Journal (see Appendix A)

1. Abstract

Background: It is theorised that being highly self-critical can impede the capacity to achieve personal goals in a range of life domains (e.g. work, health). Research has investigated a variety of different mechanisms by which self-criticism might impact on pursuing goals. Furthermore, findings of these studies have not always reached consensus. For these reasons, this systematic review sought to clarify and evaluate these findings.

Method: Twelve longitudinal studies and three cross-sectional studies met inclusion criteria and were rated using adapted versions of an existing quality rating tool (Downs & Black, 1998). Quality ratings were used to aid a qualitative synthesis of evidence.

Results and conclusions: Identified studies included 17 independent samples with 3,044 participants. Findings suggest that self-critical individuals make less progress with personal goals and are more likely than others to be motivated by situational demands or internal pressures (e.g. avoiding shame). They may also be more likely to experience stress and loss of motivation when pursuing goals. Evidence that self-critics are less motivated by intrinsic reasons or invest less in their goals is inconclusive. Collectively, identified studies were well powered but limited by a reliance on non-standardised self-report measures and omissions in reporting. Theoretical implications and recommendations for future research are discussed.

2. Introduction

For some decades, research has explored how self-directed hostility affects mental health and wellbeing. Personality theory frames 'self-criticism' as a stable, maladaptive personality trait characterized by frequent negative cognitive appraisals of the self, guilt and fear of losing approval by failing to meet high standards (Blatt et al, 2008; Shahar et al, 2003). Research from this framework has explored how being highly self-critical affects functioning in the general population (Blatt, 2008). It has been shown that levels of self-criticism in childhood can predict adult adjustment (Zuroff et al 1994; Blatt et al, 1982). A range of studies also show that self-critics experience more negative affect and less positive affect (e.g. Dunkley et al, 2003; Mongrain & Zuroff, 1995).

Concurrently, clinical research has explored the role of self-critical thoughts in psychopathology. Theoretical work and empirical evidence has identified high self-criticism as a vulnerability factor or dimension of depressive illness (Gilbert et al, 2001; Kannan & Levitt, 2013). Specifically, experiencing self-attacking phenomena as powerful and dominating has been linked with depression (Gilbert et al, 2001). Self-criticism has also been associated with eating-disorders, the outcome of borderline personality treatments and anxiety disorders (Kannan & Levitt, 2013).

There are various theories about the aetiology and functions of self-attacking phenomena as well as how they can become problematic. Freud (1917) saw self-criticism as a self-preservation strategy whereby anger is internalized to prevent it being directed at 'needed' people. Others hypothesized that by internalising early experiences, people either learn to respond to failure with self-soothing or with punitive self- aggression (Kohut, 1977). This is mirrored by more recent Interpersonal Therapy literature that proposes that self-evaluations are derived from internalized interpersonal schema (Baldwin & Fergusson, 2001).

Compassion Focused Therapy (CFT) offers an emerging theory of self-criticism that draws from attachment, evolutionary and neuroscience research (Gilbert et al, 2009). It suggests that self-attacking cognitions and emotions might arise from imbalance between affective regulation systems and internalised social roles

(Gilbert, 2009). Humans are seen as having evolved innate competencies to learn and enact social roles; used to frame interactions with others (e.g. 'dominating' or 'subordinated'). CFT posits that these social roles can also be adopted in ones relations with ones self, sometimes simultaneously. By reinforcement through life experience, hostile and subordinated roles can be readily adopted simultaneously and "play off" each other internally (Gilbert, 2004). Consequently, CFT argues that social roles originally evolved to protect against external threats can lead to the experience of self-attacking cognitions and emotions.

Clinical research has demonstrated that the effects of self-critical thinking can be changed therapeutically (Leary et al, 2007). In particular, approaches that cultivate self-compassion have been shown to ameliorate the negative self-emotions that characterize high self-criticism and to increase positive emotions (Leary et al, 2007; Neff et al, 2007).

2.1 Goal Pursuit

It is a commonly held belief that self-criticism can help increase self-motivation and behavioural effectiveness. Indeed, some evidence suggests that feelings of self-blame in the wake of failure can increase intended effort for future challenges (Badovick et al, 1992). However, in the case of people that are overly self-critical, prevailing theories paint a very different picture.

In Blatt's (1976, 2008) formulation of self-criticism as a personality trait, the self-critical individual is preoccupied with avoiding failure and preventing potential loss of self-esteem. It has been argued that this preoccupation might hinder self-critics' capacity to pursue meaningful goals (e.g. Powers et al, 2009). It is also argued that a propensity to ruminate on real or perceived failures may serve to distract people from their goals (e.g. Powers et al, 2009). Such hypotheses have been the basis of research into the relationship between self-criticism and the capacity to pursue and achieve goals.

Research from different academic fields has demonstrated that being able to pursue personal goals in various life domains (e.g. academia/work, health, relationships) is important for wellbeing. Developmental research shows that pursuing goals related to age-congruent developmental tasks is linked to high wellbeing (Dietrich et al, 2013; Heckhausen et al, 2010). Making progress towards meaningful goals is also associated with positive affect and decreased negative affect (Koestner et al, 2002). In psychopathology, low motivation is a primary symptom of several mental health problems (e.g. Major Depression, Schizophrenia) and a range of behavioural therapeutic approaches emphasise the importance of increasing goal-directed behaviour to address these problems. In particular, Acceptance and Commitment Therapy (ACT) aims to help patients identify and live by their values by the thoughtful selection and pursuit of value-congruent goals (Hayes et al 1999). With echoes of Blatt's account of Self-critical personality, ACT suggests that when people become caught up with internal experiences (such as self-critical thoughts) and lose sight of what really matters to them, their responses to life's challenges can be less adaptive.

2.2 Self-Criticism and Goal Pursuit

It has been shown that high self-criticism and impaired goal pursuit are independently associated with poorer wellbeing. Also, evidence for therapies such as CFT and ACT suggest that self-criticism and goal directed behaviour are both amenable to change. With these points in mind, if self-criticism does impair goal pursuit, understanding the mechanisms by which this occurs could aid development of more effective clinical interventions.

The theorised relationship between self-criticism and goal pursuit is formalised in a model proposed by Shahar et al (2003). It integrates Blatt's theory of Personality with Self-determination theory, an evidence based theory of motivation orientation (SDT, Deci and Ryan, 2008). SDT frames behaviour as being motivated by goals that are freely chosen and personally meaningful to the individual (autonomous motivation), motivated by internal or external pressures such as guilt or situational demands (controlled motivation) or as lacking any clear motivation (amotivation).

Autonomous motivation is seen as being the most adaptive and is associated with better goal achievement while controlled motivation and amotivation have been associated with maladjustment (Ryan & Deci, 2008, 2000).

Shahar et al (2003) posited that developing a positive sense of self (e.g. high self-efficacy, low self-criticism) is a prerequisite for initiating autonomous goal-directed behaviour. As such, they hypothesised that individuals high in self-criticism would be more motivated by extrinsic factors (preventing negative appraisal, appeasing others) and less by intrinsically meaningful reasons (pleasure, satisfaction). In turn, this less effective motivation orientation will hinder self-critics in their pursuit of goals.

To date, several studies have directly examined whether self-critical individuals differ from others in their success or progress with chosen goals (e.g. Powers et al, 2011; Shahar et al, 2006; Shulman et al, 2009). Drawing from SDT, other studies have examined the underlying motivations which influence the nature and outcome of goal pursuit (e.g. Zuroff, 2012; Powers, et al 2007). Additionally, research has examined how self-criticism affects a range of appraisals about pursuing pertinent personal goals including investment in the goal, perceived support to achieve the goal, and stress about the goal (Shahar et al, 2006; Dietrich et al, 2013). With multiple facets of goal pursuit being addressed (i.e. goal motivation, goal progress, other goal appraisals), a careful synthesis of findings is needed to produce a coherent account of relationships between self-criticism and goal pursuit. Also, there have been some contradictory findings in the research conducted to date. To the knowledge of the researcher, no published systematic review of the impact of self-criticism and goal pursuit exists at the time of writing.

3. Aims

This project had two main aims with two sub-aims:

1. To systematically identify and synthesise research findings relating to relationships between self-criticism and goal-directed behaviour.
    a. To identify which aspects of goal pursuit are predicted by self-criticism.
    b. To identify relevant mediating or moderating factors of these relationships.

2. Evaluate the methodological quality of the existing literature.

4. Method

4.1 Review Strategy

A Systematic Review methodology was adopted in order to identify relevant studies, synthesise findings and evaluate their quality. Given that the review addressed multiple aspects of goal progress, a narrative synthesis of findings was judged to be more appropriate than meta-analyses. The review strategy was structured in line with recommendations of Popay, et al (2005). As such, the review 1) summarised the main findings of included studies 2) explored the relationships between findings, 3) considered explanations for the patterns of findings and 4) assessed the methodological quality of identified studies.

4.2 Search Strategy

In addition to the research literature related to personality and individual differences, other areas of psychology research have investigated self-criticism (e.g. Compassion-focused Therapy; Gilbert, 2001) and goal-directed behaviour (e.g. Acceptance and Commitment Therapy; Hayes et al, 1999). To reduce the risk of relevant studies being missed by database searches, a range of terminology from various approaches was included in the self-criticism and goal pursuit search dimensions.

The following searches terms were used to search PsycINFO (1806-23rd September, 2014), CINAHL (1997- 23rd September, 2014), Psychology and Behavioural Sciences Collection (1974- 23rd September, 2014) and Medline (1948-23rd September 2014) through Ebsco:

1. "self-critic*" OR "self-attack*" OR "self-hat*" OR "self critic*" OR "self attack*" OR "self hat*" OR "self directed hostility" OR “self blam*” OR “self-blam*”
2. “goal pursuit” OR “goal set*” OR “goal orient*” OR “Self direct*” OR “self concord*” OR “self-concord*” OR “goal attainment” OR “goal commitment”

OR motivation OR “valued direct*” OR “valued life” OR “valued action” OR “values based” OR “value based” OR “values-based” OR “value-based” OR “life direction” OR “valued goals”

3. 1. AND 2.

4.3 Inclusion Criteria

Articles were considered for inclusion if they met the following criteria:

- Published in a peer-reviewed journal.
- Directly measure the relationship between 1) self-critical or self-hostile traits or thoughts and 2) motivation/investment in, commitment to, progress towards chosen goals.
- English Language version available

4.4 Exclusion Criteria

Articles were excluded if they met any of the following criteria:

- The self-criticism/hostility dimension did not include the cognitive component of negative thoughts towards self (e.g. studies that focused instead on self-conscious emotions like shame or guilt).
- There was no independent measure of self-criticism or goal pursuit.
- The self-criticism/hostility dimension reflected a stable negative self-appraisal (e.g. negative self-esteem) rather than situation-specific self-appraisals (e.g. self-critical thoughts) or the propensity to experience them (trait ‘high self-criticism’).

4.5 Article Selection

The full article selection process is illustrated in a flow-diagram in Figure 1 below. Initial database searches of PsycINFO, CINAHL, Psychology and Behavioural

Sciences Collection and Medline using the above terms recovered 184 21, 38 and 64 articles respectively. Further assessments of abstracts reduced the number of potentially appropriate studies to 39. Full-text of these studies were obtained for closer assessment. Of these, 29 did not meet inclusion criteria (see Figure 1 below). Reference searches did not identify further papers meeting criteria. In the end, 15 studies were identified.

Figure 1 Flow-Diagram of Article Selection Process

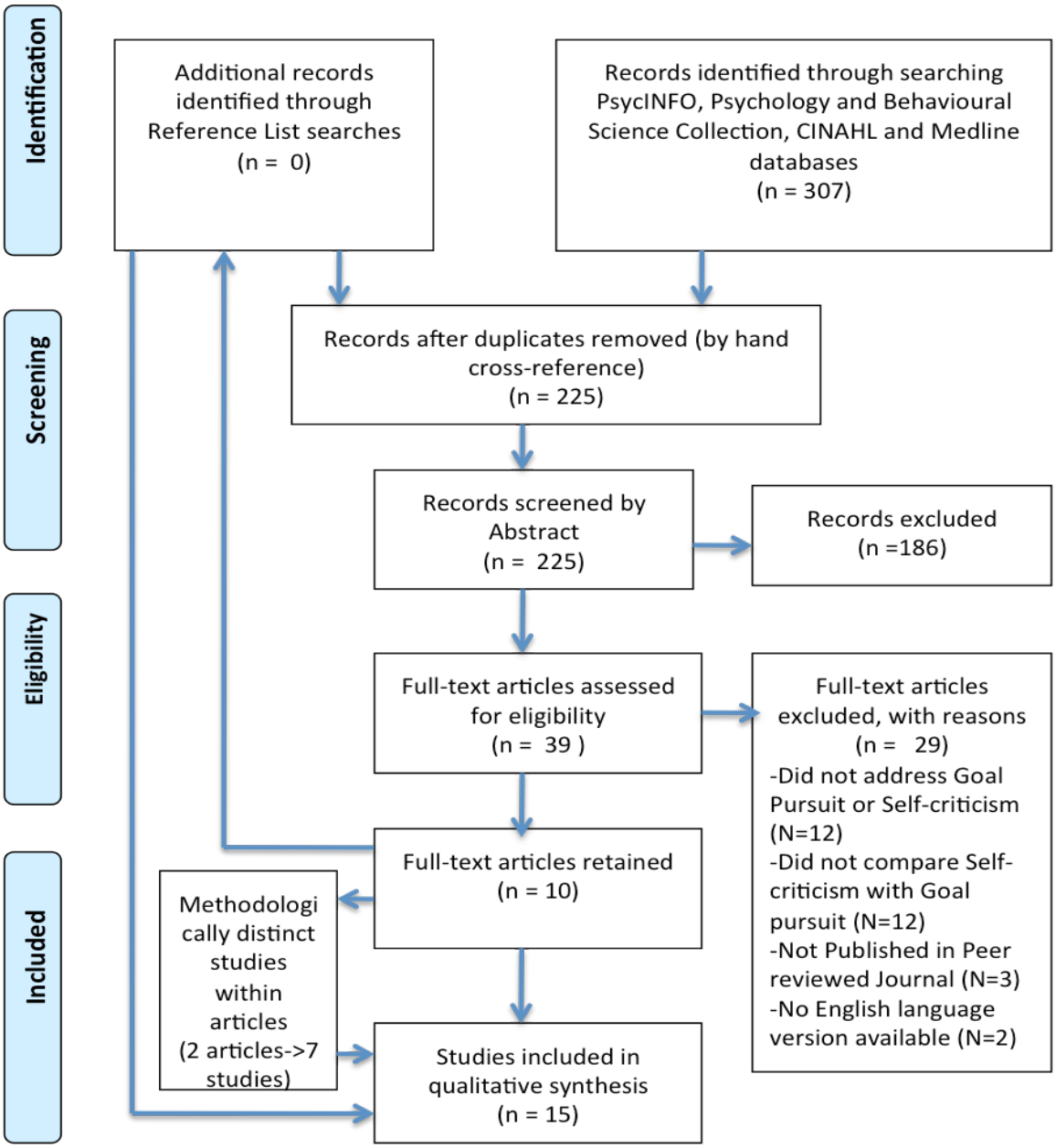

Figure 1 Flow-Diagram of Article Selection Process

5.1 Quality Criteria

A tool was developed to evaluate the quality of identified research studies. Twelve of the identified studies used longitudinal-cohort design while three used cross-sectional design. To identify a valid template for the evaluation tool, the author consulted Jarde et al's (2012) systematic review of quality criteria tools for systematically reviewing observational studies. On the basis of six content dimensions derived from the STROBE statement, the review concluded that no single tool was clearly superior to the others (Jarde et al, 2012). Of 74 reviewed tools, 11 were identified that addressed five of the six dimensions. Of these 11, the author chose Downs and Black's (1998) tool because 1) it was one of four tools that was designed for both cross-sectional and cohort studies and 2) Jarde et al (2012) judged the development process of their tool to be more rigourous than that for the other three candidate tools.

5.1.1 Tool Development

Having assessed the applicability of Downs and Black's tool to the identified literature, several amendments were made (see Appendix J for final tool):

1. Since none of the identified studies used *a priori* between-group comparisons in their analyses of self-criticism and goal pursuit, items pertaining to between-group factors, including randomization, were removed.
2. For the few studies that included interventions, quality of interventions was not directly relevant to analyses of self-criticism and goal pursuit. Items addressing intervention were also removed or adapted (e.g. 'blinding to treatment' became 'blinding to purpose of study').
3. Item 10 of Downs and Black's tool stipulates that full p-values of main findings should be reported. However, APA guidelines for reporting statistics allow p-values to be summarised on the basis of *a priori* alpha values (e.g. p=.02 where α=.05 becomes p<.05). It was decided that this item did not reflect methodological quality and was removed.

4. In addition to adaptation, the scoring instructions of some items have been clarified.

5.1.2 Final Tool

The final tool contained 17 items (see Appendix J). These items address five of six dimensions for research quality evaluation used by Jarde et al (2012) review (Represenatativeness, Selection, Measurement, Data Collection, Statistics and Data Analysis). Items are organized by categories used in Down and Black's (1998) original tool (Reporting, External validity, Internal validity (bias & confounding) & Power).

Scores were given as a proportion of 'yes' responses to items relevant to study design (i.e. 'yes' scores 1, 'no' or 'inadequate information' scores 0). Therefore, cross-sectional and longitudinal studies cannot be directly compared on the basis of their quality scores. For this reason, study design has also been used as a guide to study quality in the evaluation of the studies. On the basis of Guyatt et al's (1997) suggested hierarchy of research designs, evidence from longitudinal studies is considered to have greater weight than evidence from cross-sectional studies.

6. Results

For clarity, findings for different aspects of goal pursuit are synthesised separately. This is followed by a review of the methodological quality of the literature as a whole.

6.1 Sample Characteristics

A Data Extraction Table listing the key characteristics of the studies can be found in Table 1 below*:*

Table 1. Study Characteristics

	First Author	Year of Public.	Design	Follow-up	Sample(s)	Male/ Female	Age Range (Mean)	Measure of Self-Criticism	Country	Goal Pursuit Areas Addressed	Goals
1	Powers	2009	Longitudinal	2-3 weeks; 2-3 months	55 athletes; 72 musicians	24/31 2(3/4)9	(20.49) (21.01)	(DEQ Blatt et al, 1976)	Canada	-Goal Progress -Goal Motivation	Athletic, music
2	Dietrich	2013	Longitudinal	6 years	284 young adults	154/130	All=23	DEQ	Israel	-Goal Investment -Goal momentum -Goal Stress	personal
3	Powers	2012	Longitudinal	12 weeks	179 students	59/120	18-35 (20.16)	DEQ	Canada	-Goal Progress	personal
4	Powers	2011a*	Longitudinal	1 week	117 students	0/117	18-35 (19.12)	DEQ	Canada	-Goal Progress	Weight loss
5	Powers	2011b*	Longitudinal	1 week	75 musicians	28/47	(20.65)	DEQ	Canada	-Goal Progress	Music
6	Powers	2011c*	Longitudinal	1 month	112 students	24/88	18-31 (20.71)	DEQ	Canada	-Goal Progress	Academic
7	Powers	2011d*	Longitudinal	9-12 weeks	210 (105 dyads)	0/210	17-32 (20.19)	DEQ	Canada	-Goal Progress	Weight loss
8	Powers	2011e*	Longitudinal	6 month	402 (201 cohab-iting dyads)	151/251	18-70 (40.38)	DEQ	Canada	-Goal Progress	Weight loss
9	Powers	2007a*	Longitudinal	1 week	87 students	22/65	Unreported	DEQ	USA & Canada	-Goal Progress -Goal Motivation	Academic & social
10	Powers	2007b*	Longitudinal	1 week	117 students	0/117	18-35 (19.12)	DEQ	USA & Canada	-Goal Progress -Goal Motivation	Weight loss
11	Zuroff	2012	Longitudinal	16 sessions	95 adults with depression	29/66	(42)	DEQ	Canada	-Goal Motivation	Therapeut-ic
12	Shulman	2009	Longitudinal	1 year	236 young adults	115/121	(23)	DEQ	Israel	-Goal Progress -Goal Motivation -Goal Investment -Goal Stress	Personal
13	Shahar	2006	Cross-Sect.	N/A	226 young adults	115/111	(23)	DEQ	Israel	-Goal Progress -Goal Motivation -Goal Investment	Personal
14	Shahar	2003	Cross-Sect.	N/A	860 children	"female=51 %"	Grades 7, 8, 9	DEQ	USA	-Goal Motivation	Personal
15	Mongrain	1995	Cross-Sect.	N/A	75 high-SC 78 low-SC	76/76	(20)	DEQ	Unrepo rted	-Goal Motivation	Personal

**Lower case letters differentiate separate studies from the same publication*
LEGEND: Public.=Publication; DEQ= Depression Experiences Questionnaire; Cross-sect.= Cross-Sectional; N/A= Not Applicable

Fifteen studies were found to meet criteria including 17 independent data sets. Of these, twelve studies used a longitudinal design while three were cross-sectional. A total of 3,044 participants were included, of which 1,248 (41%) were male and 1,794 (59%) were female (median N=117). The mean age of samples with available age data was 28.1 years. Please note that Shahar et al (2003) did not report age data for their sample of 860 Elementary school age children so they could not be included in this calculation.

All 15 studies measured Self-Criticism using a subscale of the Depressive Experiences Questionnaire (DEQ; Blatt et al, 1976) to. It assesses Blatt's construct of self-critical personality type including preoccupation with achievement, inferiority and guilt in the face of perceived failure to meet standards. Participants are asked to endorse levels of agreement with 12 self-critical statements on a 7-point scale (e.g. ''I often find that I don't live up to my own standards or ideals'). The subscale is shown to have acceptable internal consistency and good reliability and validity (Blatt et al, 1993).

6.2 Goal Progress

Eleven of the 15 studies examined the relationship between self-criticism and the extent to which progress was made on chosen goals. A list of the main findings of each individual study can be found below in Table 2:

Table 2. Main Findings of Studies Addressing Goal Progress

	1st Author	Year	Measure	Analysis	Main Findings
Longitudinal Studies					
1	Powers	2009	2-item scale (Sheldon and (Kasser, 1998; r=.71)	Multiple Regression	SC significantly predicted poorer goal Progress (beta=-.22, p<.05). Fully mediated by goal motivation (beta=-.11, p<.22)
3	Powers	2012	3-item scale (7-point likert; α=.88)	Partial correlation analyses; Multiple mediation modeliing	SC significantly predicted poorer goal Progress (beta=-.22, SE=.08, p<.01). Fully mediated by self-efficacy, goal flow & goal-implementation planning (beta=-.10, SE=.04, (95% CI=-.195, -.046); beta=-.10, SE=.04, (95% CI=-.174, -.038); beta=-.05, SE=.02, (95% CI=-.112, -.020) respectively)
4	Powers	2011a*	Single question (9-point likert scale)	Multiple Regression	SC significantly predicted poorer goal Progress (beta=-27, p=.01)
5	Powers	2011b*	Single question (9-point likert scale)	Multiple Regression	SC significantly predicted poorer goal Progress (beta=-20, p=.10).
6	Powers	2011c*	Single question (9-point likert, scale)	Multiple Regression	SC significantly predicted poorer goal Progress (beta=-38, p=.001).
7	Powers	2011d*	3-item scale (7-point likert; α=.82)	Multiple Regression	SC significantly predicted self-rated & friend-rated goal Progress (beta=-.32, p<.001; beta=-.17, p<.05).
8	Powers	2011e*	Objective weight loss	Multi-level regression	Significant negative relationship between weight-loss & SC (beta=-094, p<.05).
9	Powers	2007a*	Single question (9-point likert scale)	Multiple Regression	SC significantly predicted poorer goal Progress (beta=-.23, p<.05)
10	Powers	2007b*	3-item scale (7-point likert; α=.93)	Multiple Regression	SC significantly predicted poorer goal Progress (beta =-.32, p<.05). A joint measure of rumination & procrastination was a significant mediator (t(116)=2.17, p<.05).
12	Shulman	2009	PPA (Little, (1983; α=.88-.84)	Hierarchical regression	SC did not to predict goal Progress (beta=.02, p=unreported).
Cross-Sectional Studies					
13	Shahar	2006	PPA Little, (1983; α=.72-.87)	Structural Equation Modelling	SC significantly predicted poorer goal Progress (beta=-.47, p<.001).

**Lower case letters differentiate separate studies from the same publication;*
LEGEND: PPA= Personal Project Analysis; SC=Self-Criticism

6.2.1 Measures of Goal Progress

Four studies measured goal progress using a single-item measure of 'the extent to which they had made progress' with a chosen goal (9-point); Powers et al, 2011a,b,c, 2007a). Three other studies used a 3-item scale where participants were asked to indicate if they were "making progress", "on track", and, at the last time-point, if they had achieved their goals on a 7-point scale (Powers et al, 2012; 2011d, 2007b).

Powers et al, (2009) used a 2-item measure used in several previous studies (e.g. Koestner et al, 2002, 2006; Sheldon and Kasser, 1998). Participants were asked to rate 1) the extent to which they felt they had made progress and 2) the extent to which someone else would say they had made progress.
Shulman et al, (2009) and Shahar et al, (2006) explored goal progress with Personal Projects Analysis (PPA, Little, 1983). Participants are asked to appraise three personal 'projects' (goals) on a range of domains. Principal component analysis of these appraisals was used to generate more general orthogonal factors. In both studies, 'Present Goal Progress' emerged as a composite of 'goal progress' and 'goal support'.

Finally, one study used achievement of weight loss goals as an objective measure of goal progress (Powers et al, 2011e).

6.2.2 Synthesis of Goal Progress Findings

Results of individual studies are reported above in Table 2. Of ten longitudinal studies, nine found that Self-criticism predicted poorer goal progress (Powers et al; 2007a;b; 2009; 2011a;b;c;d;e; 2012). One cross-sectional study also found a positive result (Shahar et al, 2006). While nine studies used self-report measures, this effect also appears to hold when progress is rated by a friend (Powers et al, 2011d) or measured objectively (attainment of weight-loss goals; Powers et al, 2011e). This overall trend suggests that self-critical individuals [as measured by Blatt's (1976) DEQ] make less progress towards chosen personal goals as well as

goals relating to weight loss and past-times.

The only study to find no significant relationship between self-criticism and goal pursuit (Shulman et al, 2009) conducted a 1-year follow-up. This compares with the other longitudinal studies where participants were followed up after one week to three months. Future research may wish to explore whether self-criticism is a better predictor for achieving short-term goals than long-term goals.

Interestingly, one longitudinal study (Powers et al, 2007b) found this relationship to be fully mediated by a joint measure of rumination and procrastination. Another study (Powers et al, 2009) showed that the relationship was fully mediated by goal motivation; another goal pursuit factor addressed in this review. A third study (Powers et al, 2012) found that the predictive power of self-criticism moved out of significance when self-efficacy, goal flow and goal- planning were controlled. These results indicate that while self-criticism appears to be a good predictor of goal progress, the relationship may be indirect via other related factors.

6.3 Goal Motivation

Five longitudinal studies and three cross-sectional studies examined the relationship between self-criticism and motivation to achieve chosen goals. Main findings of studies are shown below in Table 3:

Table 3. Main Findings of Studies Addressing Goal Motivation

	1st Author	Year	Measure	Analysis	Main Findings
Longitudinal Studies					
1	Powers	2009	4-item (9-point scale; Sheldon & Kasser, 1998)	Multiple Regression	Significant relationship between SC & self-concordant goal motivation (beta=-.34, p<.001).
9	Powers	2007a*	Sheldon & Kasser's (1998) scale	Multiple Regression	no significant relationship between SC & autonomous motivation (beta=.18, p=.10) or controlled motivation (beta=.-07, p>.05).
10	Powers	2007b*	7-item scale (Williams et al, 1998; α=.81)	Correlation (not specified)	SC was significantly related to controlled motivation but not autonomous motivation (coefficient=.54, p<.05; coefficient=.15, p>.05).
11	Zuroff	2012	12-item scale (Williams et al, 1998; α=.77)	Multilevel modelling	SC did not predict autonomous motivation (data unreported) but was positively related to controlled motivation (beta=.27, p<.05).
12	Shulman	2009	Motivation for Therapy Scale (MTS; 7-item, 5-point, Pelettier et al, 1985; α=.87)	Hierarchical Regression	SC predicted amotivation (beta=.18, p<.05)
Cross-Sectional Studies					
13	Shahar	2006	MTS (28-item, 5-point; Pelettier et al, 1985; α= -.83)	Mediation model	SC predicted higher levels of autonomous motivation & lower levels of external motivation & amotivation (beta=-.17, p<.01; beta=.21, p<.05; beta=.37, p<.05) & was unrelated to identified motivation (beta=.07, p=unreported).
14	Shahar	2003	48-item Self-Regulation questionnaire (Ryan & Connell, 1989; α=-.93).	Hierarchical Regression	SC predicted autonomous motivation & controlled motivation (beta=-.62, p<.01; beta=.13, p<.01).
15	Mongrain	1995	Researcher categorises P's strivings (Emmons et al 1989)	Hierarchical Regression	SC predicted fewer interpersonal strivings & more self-presentation Strivings (Semi-partial R=.31, p<.001; Semi-partial R=.16, p=.05). SC did not predict achievement strivings or Independence strivings (Semi-partial R=.11, p>.05; semi-partial R=.08, p>.05).

**Lower case letters differentiate separate studies from the same publication; LEGEND: SC=Self-Criticism*

6.3.1 Measures of Goal Motivation

Two studies used adapted versions of the Motivation for Therapy Scale (Pelletier et al, 1997) (Shulman et al 2009; Shahar et al, 2006). Participants rate agreement with 28 statements (5-point scale) representing autonomous, external, identified (perceived importance) and amotivated (no clear) motivation. A standardised version of the MTS found good construct validity and satisfactory internal validity (Pelletier et al, 1997)

All other studies used non-standardised self-report measures. Two studies used a 4-item 9-point scale developed by Sheldon and Kasser (1998), to assess autonomous and controlled motivation (Powers et al, 2007a, 2009). Two studies used a similar measure developed by Williams et al (1998) with six 'autonomous-motivation' and six 'controlled-motivation' items (Powers et al, 2007b; Zuroff et al, 2012). Shahar et al (2003) explored autonomous and controlled motivation using a 48-item version of Self-Regulation questionnaire (Ryan and Connell, 1989).

Mongrain and Zuroff (1995) used Emmons' (1989) 'Personal strivings'. Participants were asked to list several tasks that they typically try to do in everyday behaviour. Authors then categorised these responses according to suggested criteria.

6.3.2 Synthesis of Goal Motivation Findings

Results of individual studies are reported above in Table 3. Three longitudinal studies that looked at autonomous motivation did not find a significant relationship with self-criticism (Powers et al, 2007a; 2007b; Zuroff et al 2012). Two cross-sectional studies did find a significant relationship between self-criticism and autonomous motivation (Shahar et al, 2003, 2006). There is then some evidence that self-critics are less likely to be motivated by intrinsic factors such as personal interest or values but the longitudinal studies did not support this.

Four of five papers to examine controlled motivation found a significant result (Powers et al, 2007b; Zuroff et al 2012; Shahar et al 2003; 2006). These findings broadly suggest that highly self-critical individuals can be more motivated by extrinsic factors such as avoiding shame or external pressure. Indeed, a sixth study (Mongrain and Zuroff, 1995) suggested that highly self-critical individuals may be more likely to be motivated by presenting themselves in a better light and less by interpersonal goals. A seventh study (Powers et al, 2009) also found a significant relationship between self-criticism and self-concordant motivation; a

composite score treating controlled motivation items and autonomous motivation items as opposite poles of the same continuum (Powers et al, 2009).

Two studies (Shulman et al, 2009; Shahar et al, 2006) that explored the influence of self-criticism on amotivation towards personal goals in young adolescents and young adults. Both found significant results suggesting their self-critical traits may contribute to low motivation for personal goals in young adolescents and young adults. However, further research would be required to corroborate these finding. One study (Powers et al, 2009) directly explored the moderating influence of gender did not find it to be a significant moderator.

6.4 Goal Investment

Two longitudinal studies (Dietrich et al, 2013; Shulma et al, 2009) and one cross-sectional study (Shahar et al, 2006) examined the relationship between self-critical traits and goal investment. Main findings for each study are shown below Table 4:

Table 4. Main Findings of Studies Addressing Goal Investment and Other Appraisals

	1st Author	Year	Measure	Analysis	Main Findings
Goal Investment					
Longitudinal Studies					
2	Dietrich	2013	PPA (Little, 1983; α=.89-.93)	Structural Equation Modelling (4 time points)	No association between SC & goal investment (beta=-.106, (credibility interval=-.336, .120)) or between changes in SC & goal investment over 6 years (beta=-036 (credibility interv.=-.322, .226)).
12	Shulman	2009	-PPA; (α=.91-.93)	Hierarchical regression	SC predicted goal investment (beta=-.15, p<.05).
Cross-Sectional Studies					
13	Shahar	2006	PPA; (κ=.94)	Structural Equation Modelling	SC was not a significant predictor of goal investment (beta=.03, p=unreported).
Other Appraisals					
Longitudinal Studies					
2	Dietrich	2013	-Goal Momentum (PPA; α=.83-.88) -Goal stress (PPA; α=.89-.94)	Structural Equation Modelling (4 time points)	-SC did not predict goal momentum (a composite of goal-Progress, perceived support, perceived control & hope about goal attainment) at time point 4 or changes in goal-momentum from time points 1 & 3 (beta=-196 (credibility interval=-.405, .020); beta=-205 (credibility interval=-.089, .527)). -Goal stress (a composite of stress about & perceived interference with goal pursuit) was positively associated with SC (beta=.538 (credibility interval=.333, .716)).
12	Shulman	2009	-Goal stress (PPA; α=.89-.94)	Hierarchical regression	SC predicted goal stress (goal hope & goal control) one-year later (beta= .23, p<.01).
Cross-Sectional Studies					
13	Shahar	2006	-Goal Expectation (PPA; κ=.94)	Structural Equation Modelling	SC significantly predicted goal expectation (Beta=-. 37, p<.001).

**Lower case letters differentiate separate studies from the same publication;*
LEGEND: PPA=Personal projects Analysis SC=Self-Criticism

6.4.1 Measures of Goal Investment

Two longitudinal studies and one cross-sectional study studies explored Goal Investment using Little's (1983) PPA approach (described above on Page 17). In PPA, principal component analysis of specific goal-appraisals generate composite factors. In each study, Goal Investment emerged as a composite of appraisals about the importance of and commitment to a given goal.

6.4.2 Synthesis of Goal Investment Findings

Results of individual studies are reported above in Table 2. One of two longitudinal studies (Shulman et al, 2009) and the cross-sectional study (Shahar et al, 2006) did not find a significant relationship between self-criticism and level of goal investment (importance of and commitment to goals). The longitudinal study looked at goal investment over a 6-year period. A second longitudinal study (Shulman, 2009) followed up at 1-year did find a significant relationship.

All three papers looked at everyday personal goals, used the same measure of goal progress and recruited their samples of young people from Israeli prepatory schools. As such, they are readily comparable with each other but it is difficult to infer generalisability of findings people of other ages in different countries. The lack of consensus means that further research would be required to demonstrate whether highly self-critical people show less investment in chosen goals.

6.5 Other Goal Appraisals

The three studies that used Little's (1983) PPA approach to explore Goal Investment examined three other composite goal appraisals (see Table 4 above).

Two longitudinal studies (Dietrich et al 2013; Shulman et al, 2009) found that self-criticism predicted 'Goal Stress', (a composite of stress about and perceived interference with goal pursuit). Dietrich et al, (2013) also found that self-criticism did not predict 'Goal Momentum' (a composite of goal-progress, perceived support, perceived control and hope about goal attainment). Finally, one cross-sectional study (Shahar et al, 2006) found self-criticism did predict Goal Expectations (goal-progress, perceived support, perceived control and hope about goal attainment).

6.6 Methodological Quality of Identified Studies

The quality rating tool (see Appendix J) developed from Downs and Black (1998) was used to generate an overall quality score for each study. These scores, and scores for specific quality domains, are presented in Table 5 below. Itemised scores for each study are presented in Appendix K. A second rater was asked to rate three of the fifteen papers independently, using the amended quality tool. The three papers were selected using an online random number generator. Inter-rater agreement of 90.2% was achieved (Cohen's κ=.783).

Table 5 Methodological Quality Scores of Included Studies

	1st Author	Year of Public.	Total Score	Reporting	Ext. Validity	Bias	Confounds	Power
Longitudinal Studies								
1	Powers	2009	**76%** (13/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	100% (2/2)	100% (1/1)
2	Dietrich	2013	**82%** (14/17)	100% (8/8)	0% (0/2)	75% (3/4)	100% (2/2)	100% (1/1)
3	Powers	2012	**76%** (13/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	100% (2/2)	0% (0/1)
4	Powers	2011a*	**76%** (13/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	50% (1/1)	100% (1/1)
5	Powers	2011b*	**71%** (12/17)	87.5% (7/8)	0% (0/2)	75% (3/4)	100% (2/2)	0% (0/1)
6	Powers	2011c*	**82%** (14/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	100% (2/2)	100% (1/1)
7	Powers	2011d*	**82%** (14/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	100% (2/2)	100% (1/1)
8	Powers	2011e*	**76%** (13/17)	87.5% (7/8)	0% (0/2)	75% (3/4)	100% (2/2)	100% (1/1)
9	Powers	2007a*	**82%** (14/17)	87.5% (7/8)	0% (0/2)	100% (4/4)	100% (2/2)	100% (1/1)
10	Powers	2007b*	**65%** (11/17)	62.5% (5/8)	0% (0/2)	100% (4/4)	50% (1/1)	100% (1/1)
11	Zuroff	2012	**76%** (13/17)	87.5% (7/8)	0% (0/2)	75% (3/4)	100% (2/2)	100% (1/1)
12	Shulman	2009	**76%** (13/17)	87.5% (7/8)	0% (0/2)	75% (3/4)	100% (2/2)	100% (1/1)
	TOTAL		**77%**	**86.5%**	**0%**	**89.6%**	**91.7%**	**83.3%**
Cross-sectional Studies								
13	Shahar	2006	**67%** (10/15)	71.4% (5/7)	0% (0/2)	75% (3/4)	100% (1/1)	100% (1/1)
14	Shahar	2003	**60%** (9/15)	57.1% (4/7)	0% (0/2)	75% (3/4)	100% (1/1)	100% (1/1)
15	Mongrain	1995	**67%** (10/15)	57.1% (4/7)	0% (0/2)	100% (4/4)	100% (1/1)	100% (1/1)
	TOTAL		**64.4%**	**62%**	**0%**	**83.3%**	**100%**	**100%**

**Lower case letters differentiate separate studies from the same publication*

6.6.1 Longitudinal Studies

The median quality score of the 12 longitudinal studies was 13/17, with studies achieving 77% of the available points. The studies scored 86.5% for the eight items evaluating the quality of reporting. Half of the dropped points resulted from seven studies not reporting potential confounding factors (see Appendix K for scores for individual quality items).

None of the studies scored on either External Validity item. To score on these two items, studies had to demonstrate that 1) approached potential participants, and 2) potentially confounding characteristics of the final sample, were genuinely representative of the underlying population.

Overall, longitudinal studies achieved 89.6% of available points for 'Bias'. All dropped points were by five studies that did not report partially blinding participants to the specific purpose of the study. All studies scored favourably for avoiding data-dredging, appropriate of statistics and adequately described outcome measures.

Only two points were dropped on two items addressing confounding factors (Score=91.7%). Two studies did not demonstrate appropriate steps to account for attrition in analyses (Powers et al, 2011a; Powers et al, 2007b).

Using reported analyses and findings, *post hoc* power calculations were conducted for all studies (Soper, 2014). Of the 12 longitudinal studies, two did not meet recommended power (Powers et al, 2012; 2011b).

6.6.2 Cross-sectional studies

The three cross-sectional studies achieved a somewhat lower overall score of 64.4% of 15 available items (median=10/15). This difference is largely explained by a lower score on Reporting items (Score=62%). Across the studies, two points were dropped on each of four items: adequate participant information, reporting confounding factors, standard error of main findings and adverse events.

As with the longitudinal studies, studies scored 0% for the External Validity items. Studies scored 83.3% for the Bias items, with two studies not reporting steps to partially blind participants to their purpose. All three studies accounted for confounds in their analyses and were found to meet *post hoc* power recommendations.

7. General Discussion

This systematic review found strong evidence that self-critical individuals make less progress with various types of personal goals. Individual studies suggest this effect could be mediated by goal motivation, rumination and procrastination (Powers et al, 2012; 2007b respectively). There is also good evidence that self-critics are particularly motivated by environmental constraints and internal pressures such as avoiding shame. No consensus emerged regarding the relationship between self-criticism and 'autonomous motivation'. A small number of studies indicated that self-critics may be more likely to experience stress and amotivation when pursuing goals (Shulman et al, 2009; Shahar et al, 2006).

By definition, self-critical individuals fear loss of approval by failing to meet high standards (Blatt et al, 2008). Findings of this review suggest that in the context of pursuing goals, this fear may translate to a self-motivational strategy based around avoiding negative outcomes (e.g. shame, appearing incompetent) as opposed to pursuing intrinsically meaningful outcomes (joy, satisfaction). Evidence suggests that, in turn, this internalised 'negative reinforcement' strategy may contribute to self-critics making poorer progress with their goals.

Although evidence is limited, studies exploring possible mediators suggest that self-critical traits may not directly predict goal progress themselves. Instead, the relationship appears to be heavily mediated by other factors such as goal motivation, rumination and procrastination. Experiencing less success and more stress, as well as a fear of future failure, it may be that self-critics ruminate on these past experiences. This could contribute to a sense of learned helplessness and the amotivation found by two studies and to less optimistic expectations found in one other study (Shahar et al, 2006).

7.1 Methodological Strengths and Weaknesses of the Literature

The included literature sought to identify relationships of a latent personality factor (self-criticism) with psychosocial and behavioural factors (goal pursuit). With 12 longitudinal studies, the most methodologically robust design for this form of research is well represented in this literature (Guyatt et al, 1995). Longitudinal studies also explored goal pursuit across a wide range of time-scales. Also, *post hoc* analyses showed that the large majority of studies achieved adequate power (13 of 15 studies; Soper et al 2014). Finally, all studies used the same standardised measure of Self-critical personality, supporting validity of the present synthesis of findings (Blatt, 1976).

All studies neglected to comment on how well their sample represented the underlying population. This particular issue may reflect a convention in reporting amongst researchers in this area rather than a shortcoming in the literature. A less stringent measure of representativeness may have been more meaningful way to evaluate this literature. Beyond representativeness, itemised quality ratings (Appendix K) demonstrate that most points were lost due to omissions of details about the study. Future studies should be careful to report adequate information about their sample characteristics, attrition, confounds and standard error.

A further weakness in the literature was that most studies used non-standardised measures. It would be helpful for future studies in this area to demonstrate the validity and reliability of some of these methods. Also, thirteen studies used purely self-report data. Traits of self-critical personality (e.g. negative self-cognitions and a preoccupation with failure) might lead to more conservative appraisals of goal progress and other aspects of goal pursuit. Such response biases might have skewed results towards significance. This said, a recent meta-analysis of the effects of planning on goal progress showed a high degree of agreement between self-report and more direct measures (Gollwitzer & Sheeran, 2006). Also, reviewed studies found that self-criticism predicted objective weight loss and that peer-rated progress was also related to self-criticism. Nonetheless, it would be useful for future studies to demonstrate relationships between self-criticism and pursuit of different types of goals with more objective measures.

7.2 Implications for Current Theory and Future Research

Overall, the available evidence reviewed in this study support conceptual models of personality and goal pursuit where personality traits such as self-criticism are thought to affect goal motivation and, thereby, adaptive functioning (e.g. effectiveness in progressing with goals) (Shahar, 2003). The possible importance of procrastination and rumination also supports Powers et al (2009) hypotheses that self-critics (as framed by Blatt's 1976 model) will typically be preoccupied with performance and appraisals of others and that this might impact on effective goal pursuit. These mediating effects also support attempts to map multi-factorial models of personality, psychological and motivational factors to better explain a complex research area (e.g. Shahar et al, 2003; Dietrich et al, 2013). However, given that only one paper demonstrated each purported mediation effect, further research of this sort is required. Similarly, further research will be required to verify identified relationships of self-criticism with goal stress, goal expectations and amotivation.

Of the fifteen studies, twelve used samples of young adults or students with mean ages of 24 years or less. It is quite possible that the relationships between Self-criticism and goal pursuit might change over time. Indeed, Dietrich et al (2013) commented that the relationship between self-criticism and goal stress appeared to diminish by the time participants reached their third decade. It would seem appropriate for future research to explore whether the influence of self-critical traits is consistent at different stages of the life-cycle.

Findings of this review suggest that being motivated by aversive internal experiences (e.g. shame) and situational pressures may make it more difficult for self-critical people to achieve important personal goals. This affirms SDT's prediction that people are more successful in pursuing goals if they are motivated by the intrinsic value of a goal, or the pursuit of it, rather than by avoiding the consequences of failing to achieve it. This formulation of ineffective goal pursuit also mirrors the Acceptance and Commitment therapy (ACT) concept of

unworkable behaviour. Here, the propensity to become caught up in thoughts and emotions prevents people from engaging with life in ways in line with their values, leading to less desirable outcomes (Hayes et al, 1999).

Interestingly then, the SDT idea of extrinsic motivation and ACT's unworkable behaviour both describe how more reactive motivation states can reduce the effectiveness of purposive behaviour. Similarly, both ACT and SDT argue that goal-directed behaviour is most adaptive and efficacious when guided by intrinsically meaningful reasons.

There is then considerable overlap between the ACT model and the mechanisms by which self-criticism affects goal pursuit as implied by SDT and the findings of this review. This supports the value of recent work suggesting how ACT might be used to help patients cultivate more compassionate responses to internal experiences, like self-critical thoughts (White et al, in press). As a therapy, ACTs primary goals are to help people engage with life's challenges on the basis of what matters to them (intrinsic motivators) and to reduce the influence of transient pressures from contextual factors (extrinsic motivators). As such, it could be useful for future research to explore how ACT might be used as a treatment for highly self-critical patients.

The self-critical personality trait encompasses multiple factors including associated emotional experiences (e.g. guilt, shame; Blatt et al, 1976). To fully understand how self-criticism affects mental health, clinical research separately examines the phenomenon of self-critical thoughts and associated internal and behavioural responses (e.g. Gilbert et al, 2001). It may be beneficial for future research into the relationship between self-criticism and goal pursuit to differentiate the roles of self-critical cognitions and these associated factors.

7.3 Limitations

The review was limited in certain ways. Inclusion criteria developed to focus the scope of the review meant that literature that could potentially have enriched understanding of self-criticism and goal pursuit was excluded. Only studies with a direct, independent measure of self-criticism were included. While this was an appropriate stance to take, it excluded many studies from the Personality research literature that examined 'self-critical perfectionism' rather than self-criticism. The author had hoped to synthesise evidence from multiple theoretical approaches, including ACT literature regarding values-based action and Compassion Focussed Therapy literature on responses to self-criticism. This might have been achieved if the review had included studies focusing on self-conscious emotions, such as shame, rather than self-critical thoughts themselves. While the impact of these limitations is acknowledged, the present review synthesised findings addressing different factors associated with goal pursuit and the inclusion of further literature would likely have confused this synthesis.

Although a well-evidenced existing tool for evaluating observational studies was adapted for the current study, it is possible that other meaningful factors could have been taken into consideration. For example, many studies that scored positively on the quality tool for outlining their outcome measures used an non-validated or single-item measure. Accounting for such factors may have enhanced the quality assessment tool.

7.4 Conclusion

In conclusion, findings suggest that self-critical individuals make less progress with personal goals. It seems that this effect is mediated by being motivated by external and internal pressures such as avoiding shame. They may also be more likely to experience stress and amotivation when pursuing goals. Evidence that self-critics are less motivated by intrinsic reasons or invest less in their goals is inconclusive. The pattern of findings are largely in line with theoretical conceptions of self-critical personality and goal pursuit. Interestingly, they also mirror the therapeutic

processes of ACT, a clinical approach that helps patients identify and live by their values; aided by the thoughtful selection and pursuit of value-congruent goals (Hayes et al, 1999). Amongst other things, future research may seek to assess the extent to which acceptance based therapies might help highly self-critical patients be more effective at engaging in values-led goal-directed behaviour.

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CHAPTER 2: Major Research Project

Development and Validation of the Flexibility of Responses to Self-Critical Thoughts Scale (FoReST)

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Completed in accordance with the Author Guidelines of 'Behaviour Therapy' Journal (see Appendix A)

FLEXIBILITY OF RESPONSES TO SELF-CRITICISM: A LAY SUMMARY

Background*:* Acceptance and Commitment Therapy (ACT) is a psychological therapy that aims to help people live their life according to their values. This is achieved by developing an ability called 'psychological flexibility' (PF). PF is the ability to notice and accept powerful emotions and thoughts so that these experiences are less likely to prevent you from doing what you think is best. There are some measures the kinds of psychological change ACT seeks to make. However, these may not be the most appropriate measures for particular types of problems. For one, measures do not assess how flexibly someone can respond to self-critical thoughts (e.g. "I'm rubbish", "I'm such an idiot"). Such thoughts play a central role in a range of psychological problems, including depression.

Aims: For this reason, this project aimed to develop and test a new measure (FoReST) that assesses whether people can act according to their values in the presence of self-critical thoughts.

Methods*:* Forty-six possible questions for the FoReST were tested on 253 members of the public. This group was recruited using online advertising, posters and emails to students. Shorter versions of the FoReST were created using Factor analysis statistics which identify which questions are most important for the FoReST to measure what it is supposed to. Participant also completed several other questionnaires about psychological flexibility, self-criticism, mental health and quality of life.

Results: Statistical analysis resulted in two versions of the FoReST. Both versions showed similarity between their questions, meaning that they are measuring the same thing. Also, both showed similarity with related questionnaires, which means that the FoReST measures what it is supposed to. A 12-question version seemed to tap the full meaning of psychological flexibility better but the shorter one (8-items) was more similar to previous questionnaires. Future research will decide which is the more useful.

Applications*:* It is hoped that the FoReST will have a wide range of uses for further research into ACT and in evaluating people's progress during therapy. It is hoped that results will be published in a journal article and shared in conference presentations.

1. Scientific Abstract

Background: Acceptance and Commitment Therapy (ACT) aims to help individuals live a life congruent to their values by cultivating psychological flexibility (PF); the ability to respond to experiences with acceptance and creativity. Concurrently, Compassion Focused Therapy (CFT) addresses the role of self-attacking cognitions on psychological difficulties. Recent work suggests that integrating aspects of CFT into an ACT approach (i.e. developing a person's PF to self-attacking thoughts through self-compassion) may offer additional therapeutic value. There remains no assessment of this specific therapeutic process.

Aims: The project aimed to develop and validate a new scale to assess flexibility of responses to self-critical thoughts (FoReST).

Methods: Factor Analysis was used to explore factor structure of the FoReST in a convenience sample of 253 adults. Construct validity was explored by comparing FoReST with measures of similar constructs (PF, self-compassion, self-criticism) and potentially related outcomes (anxiety, depression, quality of life).

Findings: Alternative 2-factor ('unworkable action' and 'avoidance') and 1-factor ('unworkable action') versions of the FoReST showed high concurrent validity with similar measures, good predictive validity for mental health and wellbeing outcomes and good internal consistency. The relative strengths and weaknesses of both versions are discussed.

Recommendations: Findings indicate that the FoReST may offer a useful clinical and research tool for emerging forms of ACT for people high in self-criticism. Future research will be required to confirm the factor structure of the FoReST, confirm concurrent, predictive validity, test-retest reliability, and validate the scale in relevant clinical populations.

2. Introduction

The term “third wave therapies” has been used to describe a group of emerging cognitive-behavioural approaches to psychopathology including Acceptance and Commitment Therapy (ACT; Hayes et al, 1996) and Compassion Focused Therapy (CFT; Gilbert et al 2009). These etiologically distinct approaches are noted to share common points of departure from more established forms of cognitive and behavioural therapies. One key difference is that third wave therapies generally seek to change the way in which one relates to private experiences (i.e. the internal context in which these are experienced) rather than aiming to alter the experiences themselves (MacBeth and Gumley, 2012).

Steven Hayes, the co-founder of ACT, has described ACT and CFT as ‘fellow-travellers’. Reflecting the closer links that are being forged between the approaches, Paul Gilbert (founder of CFT) recently gave a key-note presentation at the Association of Contextual Science (the ACT governing body) World Conference 2013 in Sydney. Consequently, there is increasing interest in exploring theoretical overlap between these approaches as well as potentially clinically relevant relationships between the processes of change that they seek to affect (White, in press; Gilbert, 2009).

2.1 Acceptance and Commitment Therapy (ACT)

Acceptance and Commitment Therapy (ACT) is an acceptance-based therapy, built on behavioural principles, that aims to help individuals explore their values and live a life congruent to these values. The model posits that human suffering often emerges when a reluctance to accept difficult internal events leads individuals to act in a manner inconsistent with their values or goals (Hayes et al 1996). Clients engaged in ACT therapy are encouraged to respond to their experiences in a more flexible manner rather than over-identifying (or ‘fusing’) with their thoughts or trying to avoid them. This core ability, termed Psychological Flexibility (PF) or Flexibility, has been defined as:

> *The ability to fully contact the present moment and thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persisting in or changing behaviour in the pursuit of goals and values.* (Hayes et al, 2006 as quoted by Bond et al, 2011).

ACT aims to address six overlapping processes that contribute to psychological flexibility (Gillanders et al, 2014). Willingness to experience thoughts and feelings is cultivated as well as the capacity to be present with them. Clients are also helped to defuse or disentangle from these experiences and to take a more objective perspective of themselves. ACT suggests that by thus lessening the 'struggle' with internal experiences, and by clarifying their values, clients become better able to take action in line with these values.

A recent meta-analysis stresses that the efficacy of ACT has not yet been established for any disorder (Ost, 2014). However, there is emerging evidence that ACT could be useful for treating depression, chronic pain, OCD and other anxiety disorders (Smout et al, 2012). Another meta-analysis found that ACT is likely at least as effective as existing therapies for a range of presentations (Powers et al, 2009). ACT has been found to reduce hospitalization and distress associated with symptoms in individuals experiencing psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2005). In addition, ACT has been found to improve depression, anxiety, negative symptoms, mindfulness and crisis contacts in individuals that have experienced psychosis (White et al, 2011; 2012).

2.2 Compassion focused Therapy (CFT)

According to Gilbert (2009, p199), CFT seeks to "help people develop and work with experiences of inner warmth, safeness and soothing, via compassion and self-compassion". It's ideas draw from a wide range of theoretical and empirical literatures including Attachment, Evolution, Buddhist psychology and Neuroscience. CFT views psychological difficulties as a function of imbalance between three proposed affect regulation systems. The first, a specialised 'contentment' regulation system thought to have evolved with attachment systems,

underpins feelings of reassurance, social affiliation, safeness and wellbeing (Gilbert, 2009). CFT argues that this regulation system is less accessible to those with high shame and self-criticism. Instead, there can be a chronic overactivity of a mammalian 'threat-detection' system and a third system responsible for motivating resource-seeking and competitive behaviour. It is theorised that in some cases, this imbalance can lead to defensive responses, originally evolved to protect against external threats, being directed inwardly through self-criticism and consequent feelings of shame (Gilbert, 2009). A recent meta-analysis concluded that self-compassion is likely to be an important factor in mental health and resilience; ameliorating negative emotions towards oneself and elevating 'positive' emotions (MacBeth and Gumley, 2013; Leary et al, 2007; Neff et al, 2007)

2.3 ACT, CFT and Self-Criticism

Proponents of ACT argue that when people respond inflexibly and fuse with their internal experiences, it can prevent them from engaging in value-directed behaviour and lead to psychological difficulties. Concurrently, CFT identifies circumstances and particular neurophysiological systems that can elevate the prominence of internal experiences associated with poor psychological wellbeing (e.g. self-criticism and shame; Gilbert et al, 2004).

White (in press) argues that fusing with internal experiences such as self-criticism and shame can limit willingness to engage in value-consistent and mood elevating behaviour. Noting that self-compassion has been shown to ameliorate negative self-emotions (Leary et al, 2007), he suggested that cultivating self-compassion may be important for improving a person's capacity to live a value-led life. On this basis, White (in press) developed a protocol for depression in people with psychosis that integrates self-compassion techniques into an ACT framework.

With or without the co-occurence of psychotic symptoms, self-attacking thoughts are often a central feature of depressive illnesses (Gilbert et al, 2001; Blatt et al, 1982). Moreover, they are also linked with a range of other mental health difficulties including Social Anxiety and Eating Disorders (Gilbert, 2006). Levels of

self-criticism in childhood can predict poor adult adjustment (Zuroff et al 1994). There is then reason to expect that an approach integrating aspects of ACT and CFT, which aims to help self-critical individuals live by their values, would be useful for people with a range of difficulties associated with self-criticism. It has also been suggested that enhancing individual's capacity to be self-compassionate may help facilitate the person to accept worry thoughts or defeatist beliefs associated with engaging in behaviors consistent with other values (e.g. doubts the person might have about friends not being receptive to their efforts to initiate activities) (White, in press)

2.4 The Present Study

To assess the utility of new ACT approaches that address self-criticism, it will be necessary to measure the therapeutic processes they aim to affect. ACT would conceptualise therapeutic change as occurring by developing acceptance of self-attacking cognitions whilst simultaneously promoting willingness to engage in activity adjudged to be important by the individual (e.g. being more compassionate to ones self). Rather than seeking to reduce the intensity or frequency of self-attacking cognitions, an ACT perspective is interested in exploring how an individual's response to self-critical thoughts may impact on their ability to engage in value-consistent behavior.

Existing measures of self-criticism have tended to focus on identifying the frequency, forms and functions of self-critical thoughts rather than how psychologically flexible individuals are in responding to these thoughts (e.g. FSCS, Gilbert, 2004). The most widely used measure of PF is the Acceptance and Action Questionnaire (AAQ-II; Bond et al, 2011). Items like "I'm afraid of my feelings" combine to give a broad insight into the flexibility of a person's responses to internal experiences. However, as pointed out by Bond et al (2013), the AAQ-II is less sensitive to PF associated with particular kinds of internal or external events. This is important as an individuals' capacity to respond flexibly might depend on their context (Hayes et al, 1999). For this reason, scales are emerging that assess PF in response to more specific aspects of human experience such as social

anxiety and hallucinations (SAAQ, MacKenzie et al, 2008; VAAQ, Shawyer et al., 2007). There remains, however, no measure of PF in response to self-criticism.

In summary, existing measures of self-criticism do not assess PF and measures of PF do not directly address responses to self-attacking phenomena. On this basis, the following project seeks to develop and validate a new process measure that assesses the level of psychological flexibility that people have in relation to self-attacking thoughts. Drawing from previous operationalised definitions of Psychological Flexibility (Bond et al, 2011; Bond et al, 2013), the measure will explore peoples' willingness to experience self-attacking thoughts whilst simultaneously committing to values-directed action in the presence of such thoughts.

3. Aims and Hypotheses

3.1 Aims

This project aims to develop a new assessment tool and provide preliminary assessment of its psychometric properties in a convenience sample.

PRIMARY AIMS

1. To assemble a preliminary list of candidate items assessing psychological flexibility in response to Self-attacking thoughts

2. To produce a measure (Flexibility of Responses to Self-critical Thoughts Scale; FoReST) containing the strongest candidate items on the basis of exploratory factor analysis using an analogue sample.

SECONDARY AIMS

3. 1. To identify one or more latent factors representing psychological flexibility of responses to self-critical thoughts.

4. Assess concurrent validity of FoReST with measures of related constructs i.e. PF (AAQ-II), self-attacking cognitions (FSCSR), self-compassion (SCS).

5. Assess predictive validity with measures of mental health and wellbeing outcomes (depression, anxiety, history of mental health difficulties and quality of life).

6. Assess internal consistency of FoReST

4. Methods

4.1 Design

The study utilized a cross-sectional design using within-group comparisons in a single convenience sample.

4.2 Participants

The battery of measures was completed online by a convenience sample. Socio-demographic characteristics of the sample are outlined below in Table 1:

Table 1 Sample Characteristics

Age	Median= 31 years(SD=9); Range=18-66		
		Frequency	Valid %
Gender	Male	54	21.5
	Female*	197	78.5
	TOTAL**	251	100
Race/ethnicity	White Scottish,	155	62
	White Other British,	59	23.6
	White other	23	9.2
	Other	13	5.2
	TOTAL**	250	100
Employment Status	Employed	188	74.6
	Student	52	20.6
	Not employed/retired	12	5.2
	TOTAL**	252	100
Relationship status	Married	90	36
	LT Relationship	86	34.4
	Single/divorced	74	29.6
	TOTAL**	250	100
Mental Health Assessed/Treated	Currently	18	7.3
	Historically	65	26.2
	Never	165	66.5
	TOTAL**	248	100
Practice	Regularly (daily-weekly)	35	13.9
Mindfulness/meditation?	Monthly or less	65	25.8
	Never	152	60.3
	TOTAL**	252	100

**including 2 participants that identified as transgender*

*** Some participants did not report all demographic data (N for EFA was 253)*

Although there was a wide age range, the Interquartile Range was 7 meaning that 50% of the sample were aged within 3.5 years of the median age (31). Interestingly, about 40% of the sample had some form of mindfulness or meditation practice. This is likely to be a much higher percentage than in the general population and is probably an artifact of the convenience sampling

method. There were 3.6 times as many female participants as males, a statistically significant difference ($\chi(1)_2=81$, $p<.001$).

4.3 Developing the FoReST

4.3.1 Item Generation

Since the FoReST aims to assess individuals' responses to the self-attacking thoughts rather than the content of the self-attacking thoughts themselves, it was decided that one general self-criticism statement stem would be used for all items: "when I have a critical thought about myself…". The items themselves would be responses that completed this statement stem (e.g. "…I try to ignore it").

An initial set of possible items was generated by the researcher and his supervisor; drawing from their own clinical and research experience as well as from themes of items used in other assessments of psychological flexibility (AAQ-II, Bond et al, 2011; WAAQ, Bond et al, 2013).

To maximise the likelihood that the FoReST would demonstrate good content validity, it was considered important to ensure that it captured the richness of PF as a construct. In consideration of the operational definitions of the AAQ-II and the FoReST, care was taken to ensure that the initial item pool included items that addressed aspects of 'Acceptance' (including internal responses such as experiential avoidance, cognitive fusion and mindfulness) and 'Action' (the value congruence or effectiveness of internal responses) (Dahl, 2009).

4.3.3 Focus Group

A structured focus group of four trainee clinical psychologists was asked to evaluate the acceptability, intelligibility and comprehensiveness of the existing items and categories. For information on the instructions for the group members, please see Appendix L. They were also invited to offer new items or other suggestions they might have about the questionnaire. On the basis of their

feedback, several amendments were made. Some items were simplified or abbreviated and more positive mindfulness items were generated. Self-affirming questions were inserted into the end of the study to contain any difficult feelings aroused by the items.

4.3.4 Piloting and Finalising the Items

Formatting of the questionnaire drew from the suggestions of the Focus group and email correspondence with leading experts in the development of ACT and CFT-related measures (Dr. Joda Lloyd, Prof. Paul Gilbert and Prof. Dennis Tirch). A version was piloted with three associates of the researcher. Three poorly worded items were removed. The panel agreed that the remaining items were in keeping with conceptualizations of psychological flexibility.

The final formatted item list and instructions can be found in Appendix D.

4.4 Additional Measures

In order to explore the convergent and predictive validity of the FoReST, participants were also asked to complete existing measures of theoretically related constructs and theoretically expected outcomes:

1. Acceptance and Action Questionnaire [AAQ-II; Bond et al, 2011 (seven items)]. A measure of capacity to accept experiences, difficult or otherwise, and take value-directed action regardless of them (e.g. “I’m afraid of my feelings”). It has demonstrated good internal consistency (r=.84), test-retest reliability (r=.79), and construct validity (Bond et al, 2011).

2. Forms of Self-Criticizing/Attacking & Self-Reassuring Scale [FSCS; Gilbert et al, 2004 (22 items)]. An assessment of participants' level and forms of Self- criticising and self-reassuring thoughts (e.g “when things go wrong for me I am easily disappointed with myself”). Inadequate-Self and Self-Hating subscales were found

to have internal consistency of .90 and .86 respectively in a sample of patients female students (Gilbert et al, 2004).

3. Self-Compassion Scale [SCS; Neff et al, 2003 (26 items)]. A measure exploring self-compassion and self-coldness in individuals (e.g. “I’m kind to myself when I’m experiencing suffering”). It has been shown to have excellent internal consistency in a student sample (α=.92 ; Neff et al, 2003).

4. Hospital Anxiety and Depression Scale [HADS; Snaith and Zigmond, 1994 (seven depression items; seven anxiety items) A measure of current levels of anxiety and depression symptomatology. HADS-A has demonstrated Cronbach's α between .68 to .93 (mean .83) and for HADS-D scored between .67 to .90 (mean .82) (Bjelland et al 2001).

5. Work and Social Adjustment Scale [WSAS; Mundt et al, 2002 (five items)] A measure of relative impairment in work and social domains due to mental illness or stress (e,g. “Because of my problems my ability to work is impaired”). Two studies with people with depressive illness and OCD respectively recovered Cronbach’s α scores between .79 and .94 and an overall test-retest correlation of .73. (Mundt et al, 2002)

4.5 Recruitment Procedures

In accordance with ethical approval, a number of recruitment strategies were utilized. An advert was posted on the personal Facebook pages of the researcher and his supervisor (see Appendix F). In addition, the study advert was placed in student unions and the University Counselling service. Approval was also obtained to approach groups of undergraduate students at the College of Social Sciences about participation via email (see Appendix G).

To maximize the likelihood of achieving an adequately powered sample, “snowballing” sampling was utilized by inviting Facebook contacts to repost the advert on their own social media sites. For the same reason, permissions were

obtained to post the advert on the Facebook sites of mental health organizations (e.g. Action for Happiness, Mind, Rethink Mental Health).

All adverts and emails included information outlining the project's area of interest, what participation would involve and a link to the study's website. Potential participants were also invited to email or text the researcher if they wished to discuss participation further. It was not possible to offer a monetary reward for participation. However, all participants were entered into a random draw for a prize valued at £50.

4.6 Research Procedure

The Participant Information Sheet (PIS; Appendix H) and the questions from all questionnaires were uploaded onto a website designed to host online research data collection and storage (SurveyMonkey). A single page website was developed as the primary orientation point for potential participants. The page listed the main aims of the study, invited potential participants to click on a link to the study information sheet on SurveyMonkey and to email the researcher if they have any questions.

Once on the SurveyMonkey site, potential participants were required to affirm that they had read the PIS and provide informed consent to participate before the website allowed them to complete the questionnaires. The PIS explained that arrangements could be made to complete the study in person or via telephone by emailing the researcher at the provided address. All participants chose to complete the study online. The PIS also assured potential participants that they were free to leave the study at any stage. Based on feedback from three participants, the study took 20-35 minutes to complete. On the final page of the online study, participants were invited to contact the researcher for debriefing or to give feedback.

The online study can be viewed at www.ReSCQ.wikia.com.

4.7 Justification of sample size

Disagreement remains about guidelines for predicting adequate sample size in factor analysis. Of the varying recommendations, few suggest a minimum sample size below 100 or below five times the number of included items (Gorsuch, 1983; Hatcher, 1994).

A sample of 206 participants proved adequate in Bond et al's (2011) exploratory factor analysis of the AAQ-II (which included 49 items). Given this precedent and the fact that this is a doctoral project with limited scope for recruitment, this project followed one of the less stringent recommendation: a subject-to-variables ratio of 5/1 (Gorsuch, 1983; Hatcher, 1994). With a provisional item list of 46 items, the researcher aimed to recruit a minimum of 250 participants.

4.8 Analysis Strategy

This project sought to test the hypothesis that the FoReST reflects a latent construct (psychological flexibility in response to self-criticism). Consequently, factors were extracted using a maximum-likelihood Exploratory Factor Analysis rather than a Principal Components Analysis. All analyses were conducted on the SPSS statistics program. In accordance with Kaiser's (1960) recommendation, factors with Eigenvalues over 1 were included in the initial model.

Existing measures have found unifactorial models of PF (Bond et al, 20012, 2013). However, it was decided that if a multifactorial structure was identified for the FoReST, these meaningful factors would reflect specific aspects of PF (e.g. fusion and avoidance etc.). Constituent factors of a superordinate latent construct of PF would be expected to correlate so an oblique rotation procedure (Direct Oblimin) was preferred to an orthogonal rotation (Field, 2005). Internal consistency was assessed using SPSS's Reliability function items to generate Cronbach's alpha values. As the sample size did not allow confirmatory factor analysis, analyses of validity are only exploratory.

EFA was used to identify possible versions of the FoReST. Concurrent validity of the FoReST was then explored by analyzing relationships with measures of related constructs (PF, self-attacking cognitions, self-compassion). Correlation analyses were conducted to give an indication of the predictive validity of the construct underlying the FoReST for potentially related outcomes (depression, anxiety, quality of life). To further test predictive validity of the FoReST, scores of participants that reported receiving psychological assessment or intervention (previously or currently) were compared with scores of participants that have not had contact with services.

4.9 Ethical Approval

Ethical Approval for all experimental and data management procedures was obtained from the University of Glasgow, College of MVLS Research Ethics Committee (Ref: 200130039; see Appendix C).

5. Results

5.1 Factor Structure

Before undertaking EFA, a preliminary assessment of item inter-correlation was conducted. One item was found to have an Item-total correlation under .04 (Rho=.03) and, on the basis of guidelines for factor analysis, was removed from the item pool (Nunnally & Bernstein, 1994).

5.1.1 Missing Data

On the precedence of other studies, where participants missed fewer than three of the FoReST questions, missing scores were prorated using the mean of responses to the remaining FoReST items (18 participants) (Gillanders et al, 2014). The remaining missing data were dealt with in the EFA by list-wise deletion, resulted in a final sample of 253 for factor analysis. Several participants completed the FoReST items, but did not complete the additional questionnaires. Participants that responded to less than 90% of items on any of the additional questionnaires were excluded from all validation analyses. The remaining missing responses to each questionnaire were prorated based on the mean of participant's completed responses allowing a sample of 233 for validation analyses.

5.1.2 Exploratory Factor Analyses

An initial EFA of the remaining 45 items produced a model with a 6-factor solution (see Appendix E for this initial item list with communalities). Kaiser-Meyer-Olkin measure of sampling adequacy indicated good power and Bartlett's test of sphericity indicated that that the data were suitable for factor analysis (KMO= .95; $\chi 2$= 8481, df= 1035, p<.0001).

The determinant of the R-matrix was significantly smaller than $1x10^{-5}$ ($1x10^{-13}$) indicating an unacceptably high degree of multicolinearity in the data. In an attempt to address this and reduce the number of items and factors, items with a factor loading below .4 on any of the identified factors were eliminated (14 items). Another item correlated moderately with both Factors 5 and 6 and was also eliminated (Ferguson & Cox, 1993).

A second EFA produced a 5-factor model. All retained items loaded onto a single factor with a coefficient .5 or above. Factor 1 explained 39.4% of variance compared to Factor 2 (11.7% of variance), Factor 3 (4.9% of variance), Factor 4 (2.6% of variance), and Factor 5 (2.4% of variance).

Despite the removal of several items and the reduction in factors, multicollinearity remained unacceptably high (determinant= $1x10^{-13}$). The factor correlation matrix was examined to identify highly inter-correlated factors that may be contributing to multicollinearity. Factors 4 and 5 were found to correlate highly with Factor 1 (.62 and -.49 respectively). Given that Factor 1 explained the greatest amount of variance, it was decided that Factors 4 and 5 would be removed from the model.

A third EFA without the items loading onto Factors 4 and 5 produced a 3-factor solution with Internal Consistency of .879 and all 19 items loading onto single factors. The determinant was larger but remained unacceptably low ($2.35x10^{-6}$).

A cursory examination of factor matrices suggested that factors reflected aspects of Unworkable Action (Factor 1), Experiential (cognitive, emotional and behavioural) Avoidance (Factor 2) and Cognitive Fusion (Factor 3). Surprisingly, the third factor, which showed good face-validity for Cognitive Fusion, loaded negatively onto the model while Factor 1 (Unworkable Behaviour) and Factor 2 (Experiential Avoidance) loaded positively. ACT theory and existing evidence predicts that Cognitive Fusion should load in the same direction as these other facets of Psychological Inflexibility (Dahl et al 2009; Gillanders et al, 2014). With concern that Factor 3 did not represent a facet of PF, EFA was rerun twice with the same parameters but forcing 2-factor and 1-factor solutions.

Table 2 below shows Factor Loadings for the remaining items:

Table 2 Factor Loadings of FoReST Items

Item	2-factor solution F1	2-factor solution F2	1-fact.sol. F1
"When I have a critical thought about myself…"			
1. it makes me lose control of my behaviour	**.829**	.028	.827
2. I do things I later regret	**.821**	-.022	.820
3. I feel so disgusted at myself that I don't act the way I should	**.800**	.021	.799
4. I feel so ashamed that I don't act the way I should	**.782**	.011	.790
5. I don't treat others the way I would like	**.780**	-.067	.782
6. I act in a way that makes life more difficult for me	**.763**	.017	.764
7. I don't treat myself the way I would like	**.734**	-.008	.742
8. It gets me so down that I don't act the way I should	**.679**	.013	.677
9. I try to ignore it	-.043	**.866**	-
10. I try not to think about it	-.116	**.810**	-
11. I try to block out any feelings it creates	.166	**.742**	-
12. I try to block it out	-	-	-
13. I pretend it's not there	-.008	**.640**	-
14. I dwell on it	-	-	-
15. I get caught up in the feelings that it creates	-	-	-
16. I wish it would go away	-	-	-
17. it goes round and round in my head	-	-	-
% variance Explained	40.4%	19.8%	60%
TOTAL % Variance Explained	60.2%		60%
Scale *SD*	10.13		9.1
Scale Mean	38.6		24.2
Internal Consistency (α coefficient)	.85		.92

Note: Coefficients in bold load onto corresponding factor

In the 2-factor solution, the five items that had loaded onto Factor 3 in the previous model did not load significantly onto either Factors 1 or 2. An additional Factor 2 item was removed due to similarity to another item with a higher loading. With these items removed, Factors 1 and 2 explained 40.4% and 19.8% of the available variance with acceptable multicollinearity (determinant=.001) with a Cronbach coefficient of .85. EFA was then rerun forcing a 1-Factor solution with the eight Factor 1 items. The single factor explained 60% of the available variance, showed acceptable multicollinearity (.004) and had a Cronbach's coefficient of .92 (see Table 2 above for factor loadings for 1-factor and 2-factor solutions).

It is worth noting that for each EFA, Goodness of Fit was poor, with $\chi 2$ tests consistently producing p-values below .001. Conventionally, this is seen as a sign that the model is not a good fit for the data. However, other statisticians have noted that in practice, an acceptable model may not achieve favourable goodness of fit (Tucker & MacCallum, 1997). For this reason, it was decided that it would be appropriate to proceed with exploratory validation analyses of the FoReST.

5.2 Exploratory Validation Analyses

Without a confirmed version of the FoReST, these analyses were exploratory. As such, convergent validity was explored for the 12-item (FoReST-12) and 8-item (FoReST-8) versions. FoReST scores were generated by summing participants' responses to the included items. To address family-wise error, a Bonferroni corrected significance level of $p \leq .002$ was adopted.

5.2.1 Convergence with Similar Scales

Table 3 shows correlations with measures of potentially related constructs: FSCS (self-criticism), AAQ-II (psychological flexibility) and the SCS (self-compassion). Boxplots indicated possible outliers in several of the datasets indicating that parametric correlations may not be appropriate. For this reason, the more conservative Spearman *rho* analyses were conducted.

Table 3. Correlations Between FoReST and Existing Measures and Potential Confounding Factors

	Statistic	FoReST-8	FoReST-12
Similar Constructs			
AAQII (Psychological Flexibility)	Spearman's *rho*	-.666**	-.687**
	Sig. (2-tailed)	<.001	<.001
SCS (self-compassion) ξ	Spearman's *rho*	-.690**	-.618**
	Sig. (2-tailed)	<.001	<.001
FSCS (Forms of self-criticism and reassurance) ξ			
Self-Reassuring	Spearman's *rho*	-.708**	-.641**
	Sig. (2-tailed)	<.001	<.001
Self-Hating	Spearman's *rho*	.725**	.678**
	Sig. (2-tailed)	<.001	<.001
Inadequate Self	Spearman's *rho*	.704**	.657**
	Sig. (2-tailed)	<.001	<.001
MH and Wellbeing Outcomes			
HADS-Total (Stress) ξ	Spearman's *rho*	.610**	.576**
	Sig. (2-tailed)	.000	.000
Work and Social Adjustment Scale ξ	Spearman's *rho*	.538**	.530**
	Sig. (2-tailed)	.000	.000
HADS-Depression ξ	Spearman's *rho*	.548**	.499**
	Sig. (2-tailed)	.000	.000
HADS-Anxiety ξ	Spearman's *rho*	.551**	.525**
	Sig. (2-tailed)	.000	.000
Potential Confounding Factors			
Age ξξ	Spearman's *rho*	-.050	-.160
	Sig. (2-tailed)	.440	.013
Gender/Sex ξξξ	Mann Whitney U	6,100	5,899
	Sig. (2-tailed)	.098	.219
Mindfulness Experience (Yes/No) ξ	t-value (Mann Whitney U)	N/A (6,691)	.478
	Sig. (2-tailed)	.108	.633

***Sig. at Bonferroni corrected sig. level (.003)*

ξN=250; ξξN=244; ξξξN=248

Table 3 above shows that the 8-item and 12 item versions of the FoReST correlated strongly with all potentially related measures (AAQ-II, SCS, subscales of FSCS). Exploratory Fischer's r-to-z transformations suggested that differences in effect sizes between the two versions were not significant (all p>.05).

5.2.3 Assessment of Potential Confounding Factors

Age, gender and meditation experience were identified as factors that could impact on the generalisability of findings. Table 3 shows that FoReST scores did not vary significantly with age, gender or whether participants have ever tried mindfulness or meditiation.

5.3.2 Relationship with of Outcome Factors

Correlation analyses explored whether the FoReST was predictive of potentially related outcomes (depression, anxiety, Quality of Life). Spearman's *rho*s shown above in Table 3 suggest that the FoReST-8 and FoReST-12 have moderate to strongly significant relationships with HADS-Depression, HADS-Anxiety, HADS combined score ('Stress') and WSAS (quality of life). Exploratory Fischer's r-to-z transformations suggested that differences in effect sizes between the two versions were not significant (all p>.05).

To further explore the predictive value of the FoReST, responses of participants that responded "yes" to the question "have you ever been assessed or treated by NHS or private health care staff for difficulties with your mental health?" (MH) were compared with responses of individuals that indicated "no" (non-MH). Descriptive results are given in Table 4 below.

Table 4 Descriptive Data of Comparisons between People with and without MH Histories

	Reported MH History	N	Mean	Median	Mean Difference	SD	InterQ Range
FoReST-8	Yes	83	27.9	28	5.7	8.95	12
	No	165	22.19	21	5.7	8.59	14
FoReST-12	Yes	83	43.45	43	6	9.43	11
	No	165	37.4	37	6	9.76	11.5

Responses of the Non-MH group to the FoReST-8 and FoReST-12 did not follow a normal distribution (Kolmogorov-Smirnov=.09, p=.001; Kolmogorov-Smirnov=.071, p=.039 respectively). Non-Parametric Mann-Whitney U tests found that participants with a history of mental health input scored significantly higher on the FoReST-8 and FoReST-12 than those that had never received Mental Health input (U=4,338, p<.001; U=4,350 p<.001; respectively).

6. Discussion

This study aimed to develop a scale to measure the capacity to act in a flexible, values-congruent manner in the presence of self-critical thoughts. In doing so, the FoReST emerges as the first measure to assess the core therapeutic process of change in Acceptance and Commitment Therapy with highly self-critical individuals. The study also sought to explore the factor structure and validity of the FoReST through EFA and correlation analyses. The author identified acceptable 1-factor (8-item) and 2-factor (12-item) models of the FoReST. Both explain approximately 60% of available variance, and demonstrate good internal consistency as well as good concurrent and predictive validity.

Factor Analyses for other measures of PF have set out with similar operational definitions to the FoReST and found unifactorial solutions to be the strongest (e.g. AAQ-II, Bond et al, 2011; WAAQ, Bond et al, 2013). In the initial EFA, the Eigenvalue of Factor 1 (Unworkable Action) was 4.8 times greater than that of Factor 2 (Experiential Avoidance). On the precedence of similar measures, this is a strong data-led argument for choosing a unifactorial FoReST (Bond et al, 2011; Bond et al, 2013). Also, the inclusion of a second factor in the FoReST did not statistically increase the predictive or concurrent validity of the FoReST. Interestingly, it only improved correlation with the AAQ-II by a factor of 1.03, indicating that Factor 1 represents an underlying construct of PF (as modelled by the AAQ-II) to practically the same extent as Factors 1 and 2 combined.

On the face of it, these findings suggest that a unifactorial FoReST offers the briefer, more internally consistent and equally valid option. However, a bifactorial solution would have its own advantages. To measure PF, the AAQ-II addresses the impact of internal experiences on value-congruence and effectiveness of behaviour (e.g. “Worries get in the way of my success.”) as well as emotional responses to internal experiences (e.g. “I’m a afraid of my feelings”). To an extent then, the AAQ-II manages to capture internal ('acceptance') and external (workability of 'action') aspects of psychological flexibility within a unifactorial solution. Both are aspects of the operationalised definition of PF in the AAQ-II and

this project. The unifactorial solution for the FoReST, on the other hand, only appears to include items addressing the 'Action' element of PF (see Table 2). The second factor, included in the FoReST-12, shows good face validity for representing 'Experiential Avoidance', commonly framed in ACT as the inverse of Acceptance (Harris, 2009; see Table 2). From this more theoretical perspective, the FoReST-12 could be seen to have greater content validity as a measure of PF than FoReST-8.

Additionally, Factor 2 (Experiential Avoidance) may offer important qualitative information in clinical assessment by forming an Experiential Avoidance subscale. A recent systematic review identified Experiential Avoidance as a particularly pertinent process of change in ACT (Ruiz, 2010). Amongst in addition to being a central process to specific disorders (e.g. OCD), it was identified as a strong mediator of self-critical perfectionism and perceived criticism by family members. Also, procrastination, which has been conceptualised as a form of avoidance, has been identified as a strong mediating factor in the deleterious effects of high self-criticism on pursuing personal goals (Powers et al, 2007). Consequently, a means of assessing avoidant responding to self-critical thoughts could guide interventions aimed at increasing individuals' capacity to respond flexibly to self-critical thoughts.

Beyond ACT, Compassion Focused Therapy seeks to develop a self-compassionate stance in order to help people be more open to experiencing difficult thoughts and feelings. This process of 'leaning into' experiences can be seen as diametrically opposite to experiential avoidance, where people seek to 'get away' from experiences. It could be argued that by including Factor 2 (Experiential Avoidance), the FoReST would be addressing core therapeutic processes of CFT, an approach built on working with problematic self-criticism. In doing so, the FoReST could also contribute to the process of collaboration and integration between proponents of CFT and ACT (Gilbert, 2009; White, in press).

To summarise, the FoReST-8 explains the same amount of variance in fewer items, is more internally consistent and matches the factor structure of existing measures of PF. The FoReST-12, on the other hand, retains good internal consistency, shows content validity by capturing the breadth of Psychological Flexibility as a concept and may offer broader clinical utility.

6.1 Implications for Future Research and Clinical Assessment

The author would recommend that future studies seek to confirm the factor structure of the EFA using both the 8 and 12 item versions. Crucially, exploring the predictive validity of Factor 2 may help assess its clinical and research utility and whether it is worth retaining in the scale. Once a confirmatory factor analysis has been completed, it will also be necessary for future research to demonstrate construct validity, discriminant, predictive validity and test-retest reliability in the confirmed version. Given that the FoReST is being developed as a process tool for a clinical setting, it will also need to be validated in samples of clinical groups (e.g. Clinical Depression, Social Anxiety).

The strongest factor extracted from EFA seemed to reflect the impact that self-critical thoughts have on the effectiveness and value-congruence of behavior. Interestingly, a recent systematic review found that high trait self-criticism can stifle success in pursuing personal goals (Larkin, in submission). This suggests that this emphasis on workable action amongst the FoReST-8 items might reflect an aspect of PF that is particularly pertinent to highly self-critical people. However, no studies have explored the mechanisms by which self-criticism affects goal-directed behavior from an ACT perspective. Findings of the exploratory validity analyses indicated that the PF of responses to self-critical thoughts is a strong predictor of mental health and wellbeing. For this reason, it is hoped that the FoReST may play a useful part in future research in this area.

Also, while it is crucial to comparatively evaluate different interventions on important shared outcomes (e.g. depressive symptomatology), it is equally crucial to examine whether therapies are affecting change in the way that they intend.

The construct Psychological Flexibility represents a model of the key processes of change in ACT. Bond et al (2013) highlighted that PF is context-dependent and that generalised measures of PF, such as the AAQ-II, need to be supplemented by scales measuring PF in specific, clinically pertinent, contexts. Consequently, recent scales target PF in important contexts including social situations, the presence of hallucinations and at the work-place (Bond et al, 2013 SAAQ, Shawyer et al., 2007; MacKenzie et al, 2008). Exploratory psychometric findings suggest the FoReST offers a way for future studies to evaluate the efficacy and effectiveness of ACT interventions for clinical groups with high self-criticism (e.g. clinical depression) that is in line with their core processes of change (White, in press).

It is hoped that a factor-confirmed and appropriately validated FoReST will be a useful tool for therapists with highly critical patients, particularly when using an ACT framework. Measures already exist that seek to identify the forms and functions of self-criticism, which can help to assess the functional impact of self-criticism (Gilbert et al, 2004). However, the key therapeutic process of ACT is to cultivate Psychological Flexibility and the FoReST would be able to track changes in the flexibility of patients' responses to their critical thoughts.

6.2 Limitations

The proposal for this project included a clinical arm to the study. Given the time-limited nature of this doctoral course, it was not possible to recruit a clinical sample or an adequate analogue sample for confirmatory factor analysis. These opportunities would have allowed for clearer conclusions to be drawn about the optimal solution and factor structure of the FoReST and the validity of the FoReST in clinical groups. Also, without a confirmed version of the FoReST, it was not possible to complete conclusive validation analyses against responses to existing questionnaires. Opportunities for confirming the factor structure of the FoReST and validating it with a clinical group are currently being discussed within the research team and with colleagues at other universities.

In the context of existing assessment tools, the additional utility of the FoReST as a predictor of mental health and wellbeing outcomes has not been demonstrated. Future research with a factor confirmed version of the FoReST should use hierarchical regression with established, related tools (e.g. AAQ-II) to establish whether the FoReST could be used to predict previously unexplained variance in mental health and wellbeing.

The initial EFAs generated six factors with Eigenvalues over 1. It was necessary to remove a number of factors to achieve acceptable multicollinearity and improve practicability of the measure by reducing the number of items. However, it should be acknowledged that this may have diminished the scope of the FoReST's clinical utility by eliminating factors with potentially clinical significance. In particular, it appeared that one of the eliminated factors may have represented mindful responses to self-criticism. Such items would have enabled the FoReST to measure adaptive responses to self-criticism in addition.

It is noteworthy that there are no reverse-scored items in any of the factors. While conventionally this could be seen as a weakness of the scale, evidence suggests that items of opposite valences function poorly in an overall scale (Crede et al, 2009). As such, this may in fact be seen as a strength of the scale.

Using a "Snowballing" sampling strategy (i.e. inviting potential participants to invite further potential participants) introduces additional sampling bias and makes it more difficult to ascertain the representativeness of the sample. A likely consequence of this was that there were a disproportionately high number of mental health service users and people with experience with mindfulness exercises. These points suggest that a degree of caution should be taken in interpreting the findings of the study.

It is clear that a large percentage of the sample were recruited via online social media and emails. Unfortunately, the online battery did not include a question about how participants learned about the study. It would have been useful to analyse which methods were most effective to inform future online community recruitment processes. This would also have allowed exploration of possible

demographic differences between individuals recruited by different methods. This would have been particularly useful in evaluating the potential response biasing effects of recruiting via social media sites of mental health organizations and counselling services. Future studies using online recruitment of community samples should ensure that such a question is included.

Service-users were not consulted during the item generation process. People who have difficulties rooted in self-critical thoughts would have given unique insights to develop the content and acceptability of the FoReST.

A final consideration is that while the scale is titled 'Flexibility of Responses to Self-critical Thoughts', the items address Inflexibility rather than Flexibility. It may be necessary to invert scores or to change the title of the scale.

6.3 Conclusion

This project culminated in two viable 8-item and 12-item versions of the Flexibility of Responses to Self-Critical Thoughts Scale, a new questionnaire assessing the flexibility of responses to self-critical thoughts. Both versions explained approximately 60% of available variance, showing good internal consistency and provisional evidence of good construct validity. On the balance of evidence, the FoReST-8 appears to offer the 'cleanest' and most parsimonious solution. This said, the slightly longer FoReST-12 offers a more complete account of PF by adding clinically important information about internal responses to self-criticism while retaining good consistency and validity.

Experiential Avoidance and its antithesis, Acceptance, are defining aspects of psychological flexibility (Harris, 2009). Where value-based action and effectiveness can be seen as outcomes of Psychological Flexibility, Experiential Avoidance and Acceptance capture the intrapsychic capacities and tendencies that preclude or enable Psychological Flexibility. It is likely that the FoReST-12's strength in fully capturing PF outweighs the weakness of being four items longer. At this stage, the author recommends future studies explore how much value is

added by including Factor 2 (Experiential Avoidance) in the FoReST. It is hoped that such research will also be able to confirm the validity and reliability of the FoReST and that it will offer a useful tool to clinicians and researchers alike.

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Appendices

Appendix A. Behaviour Therapy: Instructions for Authors

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Introduction State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

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Major Research Proposal:

Development and validation of an assessment of psychological flexibility in response to self-attacking thoughts

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University Supervisor: Ross White;

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1. Abstract

Background: Acceptance and Commitment Therapy (ACT) aims to help individuals explore their values and live a life congruent to these values by cultivating psychological flexibility (PF); the ability to respond to experiences with acceptance and creativity. Concurrently, Compassion Focused Therapy (CFT), addresses the role of self-attacking cognitions on psychological difficulties such as depression, psychosis and personality disorders. Recent work suggests that integrating this aspect of CFT into an ACT approach (i.e focusing on a person's PF when experiencing self-attacking thoughts) may offer additional therapeutic value. There remains no assessment of this specific therapeutic process.

Aims: This project will develop and validate a new measure that assesses 'the extent to which people can take value-directed actions in the presence of self-attacking thoughts'.

Methods: Using Factor Analysis, a new process tool (ReSCQ) will be developed by testing a larger pool of items on an analogue sample of undergraduate students. The final version will then be validated on a clinical sample.

Applications: As the assessment tool is intended to be a transdiagnostic measure, it is hoped that it may have a wide range of applications for further researching ACT related processes of change.

2. Introduction

The term "third wave therapies" has been used to describe a group of emerging cognitive-behavioural approaches to psychopathology including Acceptance and Commitment Therapy (ACT; Hayes et al, 1996), Compassion Focused Therapy (CFT; Gilbert et al 2009) and Mindfulness Based Cognitive Therapy (MBCT, Segal et al, 2002). These etiologically distinct approaches are noted to share common points of departure from more established forms of cognitive and behavioural therapies. One key difference is that third wave therapies generally seek to change the way in which one relates to private experiences (i.e. the internal context in which these are experienced) rather than aiming to alter the experiences (or symptoms) (MacBeth and Gumley, 2012).

Steven Hayes, the co-founder of ACT, has described ACT and CFT as 'fellow-

travellers'. Reflecting the closer links that are being forged between the approaches, Paul Gilbert (founder of CFT) recently gave a key-note presentation at the Association of Contextual Science (the ACT governing body) World Conference 2013 in Sydney. Consequently, there is increasing interest in potentially synergetic relationships between aspects of these approaches (White et al 2013). In particular, leading researchers in ACT and CFT have been exploring theoretical overlap between their approaches as well as potentially clinically relevant relationships between the processes of change that they seek to affect (White et al, 2013; Gilbert, 2009). As Paul Gilbert, lead proponent of CFT put it:

> *Our understanding of psychological and neurophysiological processes is developing at such a rapid pace that we are now moving beyond 'schools of psychotherapy' towards a more integrated, biopsychosocial science of psychotherapy* – Gilbert (2009)

2.1 Acceptance and Commitment Therapy (ACT)

Acceptance and Commitment Therapy (ACT) is an acceptance-based therapy, built on behavioural principles, that aims to help individuals explore their values and live a life congruent to these values. The model posits that human suffering is often rooted in experiential avoidance, the tendency of individuals to seek to avoid or alter difficult private events even when doing so leads them to act in a manner inconsistent with their values or goals (Hayes et al 1996). To prevent experiential avoidance driving behaviour, ACT advises that, wherever possible, one should try to find ways to accept ones experiences, aversive or otherwise.

Clients engaged in ACT therapy are encouraged to respond to their experiences in a more flexible manner rather than over-identifying or 'fusing' with their thoughts. This core ability, termed Psychological Flexibility (PF) or Flexibility, has been defined as:

> *The ability to fully contact the present moment and thoughts and feelings it contains without needless defense, and, depending upon what the situation*

affords, persisting in or changing behaviour in the pursuit of goals and values. (Hayes et al, 2006 as quoted by Bond et al, 2011).

There is emerging evidence that ACT may be useful for treating depression, anxiety disorders and chronic pain (Forman et al, 2007; McCracken et al, 2004). ACT has been shown to reduce hospitalization and distress associated with symptoms in individuals experiencing psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2005). In addition, ACT has been shown to improve depression, anxiety, negative symptoms, mindfulness and crisis contacts in individuals that have experienced psychosis (White et al, 2011; 2012).

2.2 Compassion focused Therapy (CFT)

According to Gilbert (2009, p199), CFT seeks to "use compassionate mind training to help people develop and work with experiences of inner warmth, safeness and soothing, via compassion and self-compassion". It draws from a wide range of theoretical and empirical literature including attachment, evolution, Buddhist psychology and neuroscience. CFT views psychological difficulties as a function of imbalance between three affect regulation systems. Evidence identifies a specialised 'contentment' regulation system, thought to have evolved with attachment systems, that underpins feelings of reassurance, social affiliation, safeness and well-being (Gilbert, 2009). CFT argues that this regulation system is less accessible to those with high shame and self-criticism. Instead, there can be a chronic overactivity of a mammalian 'threat-detection' system and a third system responsible for motivating resource-seeking and competitive behaviour. In some cases, this imbalance can lead to defensive "threat" responses, originally evolved to protect against external threats, being directed inwardly through self-criticism, self-attacking and consequent feelings of shame (Gilbert, 2009).

These appraisals have in turn been shown to be associated with depression and other mental health problems (Gilbert et al, 2001). Moreover, it has long been demonstrated that levels of self-criticism in childhood can predict adult adjustment (Zuroff et al 1994; Blatt et al, 1982). As with ACT, there is increasing evidence of

the clinical relevance of the processes targeted by CFT of and for the effectiveness of CFT as a therapy. A recent meta-analysis concluded that self-compassion is likely to be an important factor in mental health and resilience (MacBeth and Gumley, 2013). Specifically, self-compassion has been shown to ameliorate negative emotions towards oneself and to elevate 'positive' emotions (Leary et al, 2007; Neff et al, 2007).

Relationship between ACT and CFT

ACT argues that when people respond inflexibly and fuse with their internal experiences, it can prevent them from engaging in value-directed behaviour and lead to psychological difficulties. Concurrently, CFT identifies neurophysiological systems that can elevate the prominence of particular internal experiences associated with poor psychological wellbeing (e.g. self-criticism and shame; Gilbert et al, 2004).

White et al (2013) argue that fusing with internal experiences such as self-criticism and shame can limit ones willingness to engage in value-consistent and mood elevating behaviour. Noting that self-compassion has been shown to ameliorate negative self-emotions, they suggested that cultivating self-compassion may be important for improving a person's capacity to live a value-directed life (Leary et al, 2007). On this basis, White et al (2013) offered a protocol for depression in people with psychosis that integrated self-compassion techniques into an ACT framework. Crucially, 'self-attacking' thoughts are also associated with depressive symptomatology and other mental health difficulties experienced by individuals not diagnosed with psychosis-related disorders (Gilbert et al, 2001, Gilbert, 2006). There is then every reason to expect this integrated approach to be useful for people with a range of presentations.

To assess the utility of new ACT approaches that integrate compassion-focused techniques, it will be necessary to measure the therapeutic processes they aim to affect. ACT would conceptualise therapeutic change as occurring by developing acceptance of self-attacking cognitions whilst simultaneously promoting willingness to engage in valued activity. There are existing measures of self-compassion, self-criticism, as well as psychological flexibility (AAQ-II, Bond et al,

2011; FSCRS, Gilbert et al, 2004; LOSC, Thompson and Zuroff, 2004). However, rather than seeking to reduce the intensity or frequency of self-attacking cognitions, an ACT perspective is interested in the extent to which the person fuses with these cognitions and is consequently unable to engage in value-consistent behavior. Therefore, it will be necessary to find ways to assess changes in a client's psychological flexibility in response to these self-critical thoughts.

On this basis, the following project seeks to develop and validate a new process measure that assesses the following new construct:

> *'The extent to which people can take value-directed actions in the presence of self-attacking thoughts and feelings*. This includes:

1. (un)willingness to experience self-attacking thoughts

2. commitment to flexible values-directed action when experiencing self-attacking thoughts

3. Aims and Hypotheses

3.1 Aims

This project aims to develop a new assessment tool and provide preliminary assessment of its psychometric properties in non-clinical and clinical samples.

PRIMARY AIMS

1. To assemble a preliminary measure of psychological flexibility in response to Self-attacking thoughts (Response to Self-Criticism Questionnaire; ReSCQ)

2. To produce a final measure of the strongest items on the basis of exploratory factor analysis using an analogue sample.

SECONDARY AIMS

3. Assess discriminant validity of ReSCQ with measures of PF (AAQ-II) and self-attacking cognitions (FSCSR).

4. Assess concurrent validity of ReSCQ with measures of depression, anxiety and quality of life.
5. Assess internal consistency of ReSCQ
6. Explore predictive validity of ReSCQ with a clinical sample

3.2 Hypothesis

1. Changes in ReSCQ scores will be associated with changes in theoretically related established measures.

4. Measures

4.1 Item Generation

Each item will be constructed with two components: a self-criticism component (e.g. “When I criticize my performance”) and a flexible/inflexible response component (e.g. “….I just try to ignore it”). A focus group of colleagues specialized in psychological therapies will identify common types of self-criticism as well as flexible and inflexible responses to self-criticism. These types will then be used to generate two sets of categories that will form the axes of a 2x2 matrix (i.e. self-criticism on one axis and responses to self criticism on the other). The Self-criticism and flexibile/inflexible response components will then be generated to reflect the identified categories. Broader item components may also be included (e.g. “when I am self-critical…”).

Given that items will be constructed from two separate components, care will be taken to ensure that the final items are coherent and intelligible in and of themselves. A small group of colleagues will be asked to assess the extent to which they felt able to reflect and generate a meaningful response to each item. On the basis of their feedback, items may be adapted or removed from the pool.

4.2 Item Selection

A provisional list of items will be emailed to selected senior researchers in the field of ACT with a view to receiving feedback regarding 1) fidelity of items to subsections of the operational definition of the construct 2) appropriateness of

operational definition and 3) other recommendations. Items will be amended for or deleted from the initial test stage measure on the basis of this feedback. The assessment will then be piloted on a small convenience sample to assess spelling and intelligibility of individual items as well as overall acceptability of the measure.

4.3 Additional Measures

To assess several aspects of construct validity, the clinical sample's responses to the ReSCQ will be correlated with a number of existing measures. Specifically, we will assess the extent to which ReSCQ is related to:

1) Theoretically similar constructs (convergent validity)
2) Theoretically distinct constructs (discriminant validity)
3) Theoretically expected outcomes (concurrent and predictive validity)

These measures will include:

1. Psychological Flexibility: Acceptance and Action Questionnaire [AAQ-II; Bond et al, 2011 (seven items)].
2. Self-Criticism: Self-Criticizing/Attacking & Self-Reassuring Scale [FSCRS; Gilbert et al, 2004 (14 items)].
3. Self-Compassion: Self-Compassion Scale (Neff et al, 2003)
4. Hospital Anxiety and Depression Scale [Snaith and Zigmond, 1994 (7 depression items; seven anxiety items)]
6. Quality of Life: WHO QOL Bref [WHO, 2004 (26 items)]

5. PHASE 1: Plan of Investigation

5.1 Participants

The battery of measures will be completed by a convenience sample. This sample will consist of undergraduate students studying in the Greater Glasgow area.

5.2 Inclusion and Exclusion Criteria

Inclusion Criteria- students over the age of 16 years attending a higher education course in the greater Glasgow area. There will be no exclusion criteria on the basis of mental health diagnoses.

5.3 Design

Within-Group comparison.

5.4 Recruitment Procedures

Before potential participants are approached, approval will be sought from the appropriate The University of Glasgow, College of MVLS Research Ethics Committee and GGC NHS via the IRAS portal.

A number of separate recruitment strategies will be utilized targeting undergraduate students. Websites and forums of student groups will be identified and may be approached about online advertising. Similarly, adverts will be placed on public advertising websites such as GumTree as well as other online sites including Facebook. Additionally, appropriate approval will be sought to place posters advertising the study in student unions and university libraries. Finally, administration and academic staff at academic departments will be approached with a view to accessing email lists for students.

The adverts and emails will include information outlining the primary aims of the project and what participation would involve. The potential participants will also be invited to email or text the researcher if they wish to discuss participation further.

It will not be possible to offer a monetary reward for participation. However, the researcher will be able to offer undergraduate groups on consultations on beginning careers in research and clinical psychology. Potential participants may also be added to a one-off prize draw at the end of the recruitment process.

5.5 Research Procedure

The researcher will contact each individual that has made their interest in participation known to discuss the study further and answer any question they might have. Potential participants will then be advised to consider participation for

a minimum of 24 hours. If they have not contacted the researcher within one week, one follow up email or call will be made by the researcher. Potential participants will be assured that participation is wholly voluntary and that they are free to leave the study at any stage. They will be reminded that the project is not related to any academic course or ongoing treatment that they are receiving and that participation or nonparticipation would not affect this.

Those that choose to participate will be given the choice between completing the tasks online, over the telephone or face-to-face. Those that opt for online access will be sent a link to access and complete the battery electronically (e.g. via email or Survey Monkey). For those that prefer to complete the assessment over the telephone, appointments will be made to do so. Finally, those that prefer to meet face-to-face will be invited to meet the researcher on a University or NHS site.

The procedure of the study will be outlined in greater depth, verbally or in the text of the email. The voluntary nature of participation will be reiterated and the participants will be invited to ask any questions they might have. If they are happy to participate, participants will sign a consent form and the identified measures will be completed with the participant.

5.7 Data Analysis

There is some debate as to whether factor analysis or principal components analysis is the superior initial analysis when developing a unidimentional measure (Comrey 1988, Cortina 1993). As this project seeks to test the hypothesis that items of the ReSCQ reflect an underlying construct (psychological flexibility in response to self-attacking), factor analysis will be used. Exploratory factor analysis (EFA) will be used rather than confirmatory FA because this project is the first to assess the new measure. EFA will be used to explore the factor structure of ReSCQ and to identify which items explained the greatest amount of variance (these items would then be included in the final version of the measure). In accordance with guidelines (Nunnally and Bernstein, 1994) and the precedent of similar studies in this area (Bond et al, 2011), items with correlation coefficients below 0.3 will be eliminated from the list. Factor analysis will also confirm whether

the best model of the final represents a single domain (i.e. PF of response to self-attacking cognitions).

To assess the discriminant and convergent validity of the ReSCQ, joint factor analysis will be conducted using the data from measures of similar constructs (self-criticism, psychological flexibility, self-compassion).

Once a final item list has been selected, internal consitency will be assessed by comparing responses to odd and even numbered items to generate a Cronebacks' alpha value. Regression analysis will be conducted to explore the predictive validity of the construct underlying the ReSCQ for potentially related outcomes (depression, anxiety, quality of life). If the sample size is insufficient for a regression analysis, individual correlation analyses will be conducted to explore the relationship between ReSCQ and related outcomes.

5.8 Justification of sample size

Disagreement remains about guidelines for predicting adequate sample size for factor analysis. Of the varying recommendations, few recommend a minimum sample size below 100 or below five times the number of included factors (Gorsuch, 1983; Hatcher, 1994). However, other theorists recommend a minimum of 150 or as much as 300 for adequate power (Cattell, 1978; Comrey and Lee, 1992).

A sample of 206 participants proved adequate in Bond et al's (2011) exploratory factor analysis of the AAQ-II (which included 49 items). Given this precedent and the fact that this is a doctoral project with limited scope for recruitment, this project will follow the least stringent recommendations of a subject-to-variables ratio of 5-1. It is not possible to say exactly how many items will be generated until item development has been completed (see section 4.1). However, aiming for a provisional item list of approximately 50 items, the research team will aim to recruit a minimum of 250 participants for the analogue phase of the study.

6.1 PHASE 2: Plan of Investigation

6.1 Participants

As outlined in the introduction section, self-criticism is identified as a clinical feature of depression and is associated with other psychological difficulties including social anxiety and recovery from psychosis (Gilbert et al, 2001; Cox et al, 2004; White et al, 2013). There is then a clear rationale for seeking to validate the final version of the ReSCQ on a sample recruited from a clinical setting. If the ReSCQ is found to have predictive validity for either depression or anxiety in Phase 1, this will give additional support to this rationale.

6.2 Inclusion and Exclusion Criteria

Inclusion Criteria- Participants must confirm that they have been assessed or treated for mental health difficulties by an NHS service or private health care provider in the last month. A post-hoc assessment of caseness for anxiety and depression will conducted using participants' responses to the HADS.

Exclusion Criteria: it may be necessary to consider excluding individuals that are currently experiencing positive symptoms of psychosis.

6.3 Design

Between-Group comparison

6.4 Recruitment Procedures

Approval will be sought separately for the clinical arm of the study from the appropriate GGC NHS Ethics Committee via the IRAS portal. Participants will be recruited from appropriate NHS services. They will be provided with a participant information sheet and informed consent will be sought

Permission will be sought to access the Scottish Mental Health Research Network Research Register which lists service users who have identified themselves as interested in participating in research. Those individuals identified as being potentially suitable for participation will be sent an information pack outlining the aims of the study and what participation would involve. They will be invited to contact the researcher via telephone, post or email to discuss participation further.

Also, Heads of Services at identified services may be approached with a proposal detailing the aims and protocol of the study with a view to advertising the study via posters in waiting room areas. Such posters would briefly explain the primary aims of the project, who would be eligible for participation, what participation would involve and how to contact the researcher for further information. Participants may be offered the chance to be entered into a prize draw.

6.5 Research Procedure

Once potential participants for Phase 2 have contacted the researcher, research procedure will follow the same protocol as Phase 1 (outlined in Section 5.5) with the exception of two points. Firstly, each potential participant for Phase 2 will be asked by the researcher to indicate whether they have been diagnosed or treated for anxiety or depression or other mental health difficulties in the preceding month. Secondly, participants will be asked to complete the final version of the ReSCQ, the HADS.

6.7 Data Analysis

Each participant in the analogue group will be designated as 'high' or 'low' anxiety and 'high' or 'low' depression on the basis of whether they scored above or below the group median scores on the HADS. Two ANOVAs will be conducted, each with three groups (clinical, high non-clinical and low non-clinical), to assesses the extent to which the ReSCQ scores vary between Clinical and non-clinical populations.

If the clinical sample is not large enough to allow ANOVA, the clinical sample will be pooled with the nonclinical sample form Phase 1 and split into three subgroups on the basis of HADS scores for anxiety and depression. If an adequate number of participants from the pooled sample meet caseness, the participants would be designated as: 1. 'Meeting caseness' 2. High non-caseness' or 3. 'Low' for anxiety and for depression. If an insufficient number of participants meet caseness, participants would be designated as 1. 'High 2. 'Medium' 3. 'Low' for anxiety and for depression.

6.8 Justification of sample size

Given that this is a new scale assessing a newly conceptualised construct, there is no clear precedent to predict the effect size. To be sensitive to a moderate effect size (delta=0.5), 80 participants would allow a 3x1 ANOVA with a power of 0.81 (where alpha=0.05). If an N of 40 is not recruited, it may be prudent to collapse the two non-clinical subgroups and conduct a t-test or 2x1 ANOVA between the clinical sample and the analogue sample. In this instance, if 70 people were recruited to the clinical group with an alpha level of 0.05 such a 2x1 ANOVA would have power of 0.835 for a moderate effect size (delta=0.5).

7. Ethical Issues

Ethical Approval for all experimental and data management procedures will be sought from the University of Glasgow, College of MVLS Research Ethics Committee. A simultaneous application will be made to the appropriate NHS Research Ethics Committee for the clinical arm of the study.

All data will be stored in a secure NHS location and only researchers involved in the project will be allowed to access patient data. Data will only be used for those purposes approved by the Ethics committee. All appropriate efforts will be made to ensure that patients are fully informed before giving consent to participate.

Care will be taken to ensure that potential participants are capable of giving informed consent. Information sheets will be in clear, straightforward language. If a potential participant has reading difficulties, the researcher will offer to read out the sheets. All potential participants will be invited to ask any questions they may have about the study. It will be made clear that participation is completely voluntary and that they are free to end participation at any stage of the process. Individuals recruited through a clinical service will be assured that participation will in no way affect their treatment.

8. Financial Issues

No financial issues are anticipated.

9. Practical Applications

The new assessment is intended to be a measure of PF of responses to self-criticism. It will be developed largely from research with people who experience psychosis and depression, a group for whom fusion with self-critical thoughts is a central difficulty. This said, self-criticism is pertinent to a range of clinical presentations and it is hoped that it may have a wide range of practical applications for further research into ACT in several populations and in evaluating progress in clinical settings.

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University of Glasgow | College of Medical, Veterinary & Life Sciences

19th February 2014

Dear Dr White

MVLS College Ethics Committee

Project Title: Development and validation of an assessment of psychological flexibility in response to self-attacking thoughts
Project No: 200130039

The College Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. It is happy therefore to approve the project, subject to the following conditions:

- Project end date: **31 August 2014**
- The research should be carried out only on the sites, and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- If the study does not start within three years of the date of this letter, the project should be resubmitted.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

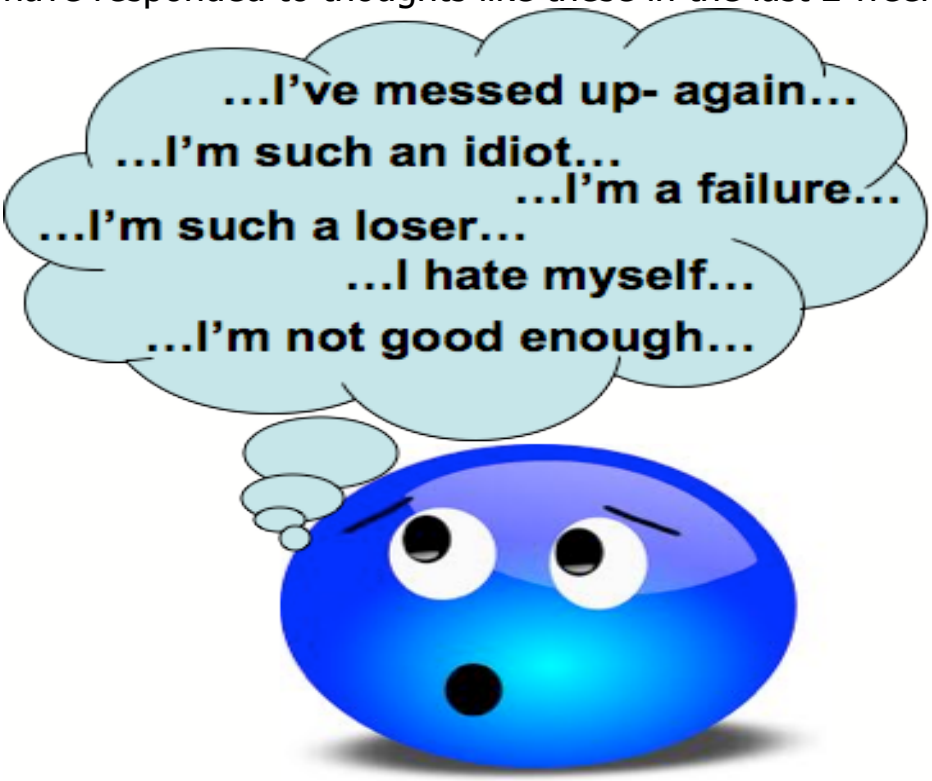
Yours sincerely

Dorothy McKeegan

Dr Dorothy McKeegan
College Ethics Officer

Responses to Self-Criticism Questionnaire (ReSCQ)

At times, we can all get annoyed at ourselves or feel like we could have done better. At these times, we often experience critical thoughts about our selves such as 'I'm such an idiot!', 'I'm worthless' or 'I'll never be good enough'. People can have different responses to these types of experiences. This questionnaire is interested in how you have responded to thoughts like these in the last 2 weeks.



Can you think of a time in the last **2 weeks** when things didn't go as you had hoped and you felt disappointed or annoyed at yourself? What critical thoughts went through your mind at that moment?

.....

.....

.....

.....

When we have these critical thoughts about ourselves, we can react in different ways. Please read each statement carefully and circle the number that describes how true each statement is for you.

Please use the scale below:

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

"When I have a critical thought about myself…"

1 (never true)
2 (very seldom true)
3 (seldom true)
4 (sometimes true)
5 (frequently true)
6 (almost always true)
7 (always true)

1.	When I have a critical thought about myself…it gets me so down that that I don't act the way I should	1 2 3 4 5 6 7	AV
2.	When I have a critical thought about myself …I act in a way that makes life more difficult for me	1 2 3 4 5 6 7	AU
3.	When I have a critical thought about myself …I don't treat myself the way I would like	1 2 3 4 5 6 7	AV
4.	When I have a critical thought about myself …it goes round and round in my head	1 2 3 4 5 6 7	IF
5.	When I have a critical thought about myself …it makes me lose control of my behaviour	1 2 3 4 5 6 7	AU
6.	When I have a critical thought about myself …it does not prevent me doing what's important to me (rev)	1 2 3 4 5 6 7	AV
7.	When I have a critical thought about myself …I feel trapped by it	1 2 3 4 5 6 7	IF
8.	When I have a critical thought about myself …I try to block it out	1 2 3 4 5 6 7	IA
9.	When I have a critical thought about myself …I accept it as no more important than any other thought	1 2 3 4 5 6 7	IM
10.	When I have a critical thought about myself …the way it makes me feel disrupts my everyday life	1 2 3 4 5 6 7	AU
11.	When I have a critical thought about myself …I am just as productive as normal (rev)	1 2 3 4 5 6 7	AU
12.	When I have a critical thought about myself …I feel so disgusted at myself that I don't act the way I should	1 2 3 4 5 6 7	AV
13.	When I have a critical thought about myself …I can notice any feelings it creates and let them pass in their own time	1 2 3 4 5 6 7	IM
14.	When I have a critical thought about myself …I can still express myself to others effectively (rev)	1 2 3 4 5 6 7	AU
15.	When I have a critical thought about myself …I can't think about anything else	1 2 3 4 5 6 7	IF

16.	When I have a critical thought about myself …I do things I later regret	1 2 3 4 5 6 7	AV
17.	When I have a critical thought about myself …I get annoyed by it	1 2 3 4 5 6 7	IF
18.	When I have a critical thought about myself …I accept it without having to evaluate it	1 2 3 4 5 6 7	IM
19.	When I have a critical thought about myself …I don't try as hard	1 2 3 4 5 6 7	AU
20.	When I have a critical thought about myself …I dwell on it	1 2 3 4 5 6 7	IF
21.	When I have a critical thought about myself …I feel I need to control the thought	1 2 3 4 5 6 7	IF
22.	When I have a critical thought about myself …I get caught up in the feelings that it creates	1 2 3 4 5 6 7	IF
23.	When I have a critical thought about myself …I have a strong emotional response to it	1 2 3 4 5 6 7	IE
24.	When I have a critical thought about myself …I lose all motivation to do things that matter to me	1 2 3 4 5 6 7	AV
25.	When I have a critical thought about myself …I lose touch with what matters to me	1 2 3 4 5 6 7	AV
26.	When I have a critical thought about myself …I make poorer decisions	1 2 3 4 5 6 7	AU
27.	When I have a critical thought about myself …I notice it and let the thought pass in its own time	1 2 3 4 5 6 7	IM
28.	When I have a critical thought about myself …I feel so ashamed that I don't act the way I should	1 2 3 4 5 6 7	AV
29.	When I have a critical thought about myself …I notice it without getting too caught up in it	1 2 3 4 5 6 7	IM
30.	When I have a critical thought about myself …I pretend it's not there	1 2 3 4 5 6 7	IA
31.	When I have a critical thought about myself …I still do things that I had intended to do (rev)	1 2 3 4 5 6 7	AU
32.	When I have a critical thought about myself …I still do what I think is right (rev)	1 2 3 4 5 6 7	AV
33.	When I have a critical thought about myself …I think it must be true	1 2 3 4 5 6 7	IF
34.	When I have a critical thought about myself …I try not to think about it.	1 2 3 4 5 6 7	IA
35.	When I have a critical thought about myself …I don't treat others the way I would like	1 2 3 4 5 6 7	AV
36.	When I have a critical thought about myself …I try to block out any feelings it creates	1 2 3 4 5 6 7	IA
37.	When I have a critical thought about myself …the way it makes me feel prevents me from behaving how I would like	1 2 3 4 5 6 7	AV
38.	When I have a critical thought about myself …I try to ignore it	1 2 3 4 5 6 7	IA
39.	When I have a critical thought about myself …I try to notice it with openness.	1 2 3 4 5 6 7	IM
40.	When I have a critical thought about myself …I	1 2 3 4 5 6 7	AU

	waste more of my time		
41.	When I have a critical thought about myself …I wish it would go away	1 2 3 4 5 6 7	IA
42.	When I have a critical thought about myself …I'm too afraid to think about it	1 2 3 4 5 6 7	IA
43.	When I have a critical thought about myself …it causes me emotional pain	1 2 3 4 5 6 7	IE
44.	When I have a critical thought about myself …I try to get rid of it	1 2 3 4 5 6 7	IA
45.	When I have a critical thought about myself …I still do what I really want to do (rev)	1 2 3 4 5 6 7	AV
46.	When I have a critical thought about myself …it takes me longer to do things that are important to me	1 2 3 4 5 6 7	AU

Additional questions

What do you most enjoy doing with your time? ……
……

Name something that makes you happy? ……
……

Name something you feel proud of ……
……

Name something you are pretty good at? ……
……

Is there something other people admire about you?
……

For Assessor

1. INTERNAL REACTION TO THOUGHT

1.1 MINDFUL (all REV) IM
1.2 AVOIDING IA
1.3 FUSED TO THOUGHT IF
1.4 IMPACT OF EMOTIONAL RESP IE

2. IMPACT ON VALUED BASED ACTION

2.1 VALUE (IN)CONSISTENT ACTION AV
(Are responses in line with or contradictory to an individual's values?)

2.2 UNWORKABLE BEHAVIOUR AU
(Are responses effective at making life richer and fuller?)

Appendix E. MRP: Full Items List: Factor Loadings

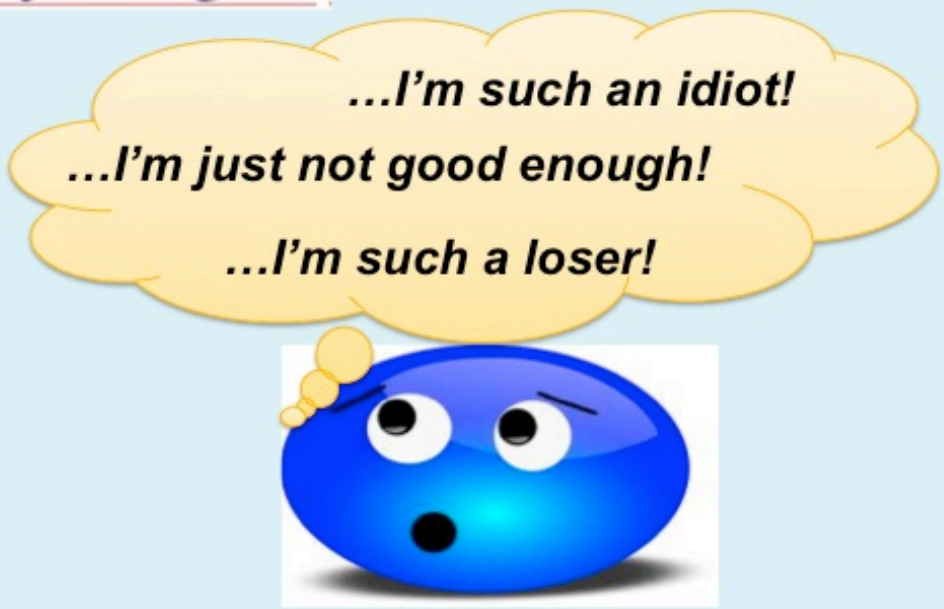
Appendix 1 Initial EFA with Factor loadings and Communalities

	Communalities	*F1*	*F2*	*F3*	*F4*	*F5*	F6
"When I have a critical thought about myself..."							
...I act in a way that makes life more difficult for me	*0.747*	*0.832*					
...it gets me so down that that I don't act the way I should	0.738	0.767					
...I don't treat myself the way I would like	0.652	0.593					
...the way it makes me feel disrupts my everyday life	0.607						
...I try to ignore it	0.768		0.865				
...I try not to think about it	0.203		0.804				
...I try to block out any feelings it creates	0.697		0.76				
...I try to block it out	0.527		0.702				
...I pretend it's not there	0.393		0.643				
...I try to get rid of it	0.7		0.549				
...I wish it would go away	0.515			-0.669			
...I dwell on it	0.676			-0.609			
...I get caught up in the feelings that it creates	0.542			-0.507			
...I have a strong emotional response to it	0.463			-0.466			
...it causes me emotional pain	0.631			-0.458			
...it goes round and round in my head	0.708			-0.438			
...I can't think about anything else	0.26						
...I get annoyed by it	0.47						
...I feel I need to control the thought	0.702						
...I feel trapped by it	0.263						
...I accept it as no more important than any other thought	0.751						
...I think it must be true	0.737						
...I'm too afraid to think about it	0.666						
...I can let it pass from my awareness in its own time	0.719				0.682		
...I can let the feelings it creates pass from my awareness in their own time	0.765				0.661		
...I notice it without getting too caught up in it	0.704				0.491		
...I still do what I think is right	0.67				0.462		
...I try to notice it with openness.	0.684						
...I can still express myself to others effectively	0.425						
...it takes me longer to do things that are important to me	0.705					0.558	
...I waste more of my time	0.607					0.501	
...I don't try as hard	0.375					0.478	
...I lose touch with what matters to me	0.659					0.452	
...I still do things that I had intended to do	0.504					-0.43	
...I still do what I really want to do	0.638						
...I am just as productive as normal	0.676						
...I lose all motivation to do things that matter to me	0.722						
...it does not prevent me doing what's important to me	0.224						
...I do things I later regret	0.502						0.751
...it makes me lose control of my behaviour	0.547						0.698
...I make poorer decisions	0.479					0.403	0.611
...I feel so ashamed that I don't act the way I should	0.632						0.495
...I don't treat others the way I would like	0.519						0.49
...I feel so disgusted at myself that I don't act the way I should	0.579						0.467
...the way it makes me feel prevents me from behaving how I would like	0.636						

Note: Loadings below .4 have been suppressed

University of Glasgow

Online Study: Help Needed!



Ever a bit **harsh** with yourself?

Be part of our groundbreaking study into how self-critical thoughts affect us all.

To help, and for the chance to
WIN a £50 Amazon voucher,
check out our ***brief online survey*** @:

www.rescq.wikia.com

Dear fellow student

Unfortunately, it's only human to experience self-critical thoughts at times (e.g. "I'm an idiot" or "I can't get anything right"). As well as making us feel terrible at the time, being overly self-critical can increase the risk of serious mental health problems like depression.

We need your help with a groundbreaking new study through the University of Glasgow into how self-criticism affects us all. If you might be interested in being part of our brief online survey and the chance to WIN a £50 Amazon voucher, check out our website:

RESCQ.WIKIA.COM

Also, please feel free to spread the word by:

1) REPOSTING the attached poster on social media accounts (e.g. facebook) OR
2) tweeting/texting "Ever too hard on yourself? Join our crucial study into how self-criticism affects us- £50 Amazon voucher to be won! Go to: RESCQ.WIKIA.COM"

If you have any questions, please feel free to email me at p.larkin.1@research.gla.ac.uk

Many thanks and be kind to yourself! :)

Peter Larkin
Trainee Clinical Psychologist

University of Glasgow

NHS Greater Glasgow and Clyde

How we respond to our thoughts: a research project.

Participant Information Sheet

1. What is the purpose of the study?

For some time, research has shown that our thoughts influence how we feel and how we behave. At the same time, we know that different people respond in very different ways to the same kinds of thoughts. For this reason, it is important to find out why certain thoughts lead some people to feel depressed, anxious or confused but have no such effects on others.

Recent research shows that the ways that we typically respond to our thoughts can have a major impact on how we feel afterwards and, crucially, on our mental health. The present study aims to develop a new questionnaire to help researchers and therapists assess how different people respond to different types of thoughts and how this might affect their mental health. It is hoped that the questionnaire will be helpful for therapists working with people with difficulties like depression and anxiety. It would also be of great use to other researchers tha are trying to improve our understanding of mental health difficulties.

2. Do I have to take part?

No, you do not have to take part. Participation is completely voluntary and you are free to decide to stop taking part in the study at any time. This study is not in any way related to your academic course or to any NHS treatment you may be

involved with. Taking part, or not taking part, in the study will have no impact on your academic course or to any health care treatment.

3. What will happen to me if I take part?
If you choose to take part, you will be asked to complete six questionnaires. These will ask you questions about your recent mood, recent anxiety levels, views about your overall quality of life, and how you typically act in different situations. It should take about 20-25 minutes to complete all of the questions.

You can choose to complete the questionnaires:
1. online
2. over the phone (with Peter, the researcher)
3. face-to-face (with Peter)

You will then be offered the opportunity to ask Peter any questions or share any concerns you might have. If you are taking part online, you can do this by contacting Peter at p.larkin@clinmed.gla.ac.uk to ask any questions or to set-up a telephone debriefing session. All participants are invited to contact Peter at this email address at any stage with any queries about the study.

4. What are the advantages and disadvantages of taking part?
Advantages:
-The opportunity to be included in a prize draw for an iPod Shuffle.
-The opportunity to reflect on things about yourself that you might not have reflected on before
-The opportunity to experience being part of a psychology research study
-The opportunity to contribute to research that may be of value to people with mental health difficulties.

Disadvantages
-It will take 20-25 minutes of your time
-You would be asked to answer questions about how you feel.

5. Who will have access to information collected about me during this study?
The answers you give are confidential, like your medical records. The information that you share will be made anonymous so that you cannot be identified from it.

Only the researcher and his supervisor, Dr Ross White, will have access to the information. We will not share your information with anyone else (e.g. lecturers, parents GPs). The only instance where the information you give may be shared is if it suggests that you or someone else is at risk or danger. In such an instance, we would always discuss the issue with you first before deciding whether it will be necessary to pass the information to other professionals such as your GP or the police.

6. What will happen to the results of the research?

The final results will be reported as part of the researcher's thesis for the Doctorate of Clinical Psychology Course at the University of Glasgow. A digital copy of this will be held on the university website with open access to internet users. A bound hard copy will be kept at a University Library. Additionally, research articles will be written and submitted to a peer reviewed journal for consideration. Similarly, findings may be reported through presentations at relevant conferences. You will not be identified in any publication or report.

7. Can I take part if I have no history of mental health difficulties?

Yes you can. Anyone aged 18 years or above will be eligible to take part in the study regardless of whether you have ever been treated for mental health difficulties.

8. Who is organising and funding the research?

The research team consists of Peter Larkin and Dr Ross White. The main researcher is Peter Larkin, a Trainee Clinical Psychologist at the University of Glasgow. Peter is supervised by Dr Ross White of the Mental Health and Wellbeing Section of the University of Glasgow. The research is funded by The University of Glasgow as part of Peter Larkin's Clinical Psychology traineeship.

9. What do I do if I wish to make a complaint?

If you have concerns about any aspect of this study, you should speak to one of the researchers who will be best placed to answer your questions. If you are unable to resolve your concern or wish to make a complaint, you can contact the Mental Health and Wellbeing Section at 0141 211 0690. You can also contact the main researcher:

Peter Larkin, PhD
Mental Health and Wellbeing
The University of Glasgow
Academic Centre, Gartnavel Royal Hospital,
1055 Great Western Road,
Glasgow, G12 0XH.
Telephone: 07501088310

THANK YOU FOR CONSIDERING PARTICIPATION IN THIS STUDY!! ☺

Appendix J. Critical Review: Quality Rating Tool

Quality Criteria Tool

(Key: YES=1 NO/unable to determine=0; adaptations from Downs and Black et al, (1998) and insertions highlighted in italics)

Reporting

1. Are aims clear?
2. Are main outcomes clear?
3. Are participant characteristics clear? *(minimum of gender, age, source and specific factors relevant to sampled population)*
4. *(ADAPTED) Known potential confounders discussed (if none are noted, score as NO)*
5. Are main findings reported clearly? *(appropriate descriptive data (e.g means, effect sizes) clearly described)*
7. Error/intervals reported? (standard error, SD, confidence interval, interquartiles as appropriate. If no mention of normality, presume choice of parametric/non-parametric error was appropriate and score as YES)
8. Adverse events reported? *(mimimum- limitations discussed in discussion)*
9. Attrition characteristics described? *(mimimum- number of Ps lost to attrition. If Longitudinal and this is not addressed, score as NO)*

External validity

11. Approached potential participants representative of population (Only score YES if whole population, consecutive or genuine random sample of population)
12. Participants representative (only YES if demonstrated distribution of main confounders same in sample as population)

Internal validity - bias

14. (ADAPTED) Subjects blind to purpose of study? (Score YES if there is a reported attempt to limit subject awareness to the general purpose of study)
16. No "data dredging"- *(If any unplanned analyses (excluding adjustment for mediating/confounding factors) score NO)*
18. Were statistical analyses appropriate? *(appropriate for data. If normality not discussed, assume appropriate decision made re parametric/nonparametric analysis)*
20. Outcome measures accurate? *(if measure is adequately described, score YES)*

Internal validity - confounding

25. Adjustment for confounds *(or possible mediating factors. If no adjustments made, score as NO)*
26. Attrition accounted for *(If relevant to study type, score as YES unless over 30% and not addressed in analysis (as suggested by Lyles et al, 2007). If longitudinal design and attrition is not discussed, assume no attrition and score YES)*

Power

27. Adequate power? *(post hoc power calculation carried out or guidelines consulted. Score YES or NO)*

Appendix K. Critical Review: Itemised Study Quality Ratings

Table 2. Study Quality Ratings

		1 aim	2 Out	3 P.Inf	4 Conf	5 Find	6 Er	7 Eve	8 Atr*	9 P.Rep	10 S.Rep	11 P.Bli	12 Dre	13 Stat	14 O.M	15 Con2	16 Atr.ac *	17 Pow
1	Powers et al (2009)	1	1	1	1	1	1	1	0u	U0	U0	1	1	1	1	1	1	1
2	Dietrich et al (2013)	1	1	1	1	1	1	1	1	U0	0	U0	1	1	1	1	1	1
3	Powers et al (2012)	1	1	0	1	1	1	1	1	U0	U0	1	1	1	1	1	1	0
4	Powers et al (2011)a	1	1	1	0	1	1	1	1	0	0	1	1	1	1	U0	1	1
5	Powers et al (2011)b	1	1	1	0	1	1	1	1	0	0	0	1	1	1	1	1	0
6	Powers et al (2011)c	1	1	1	0	1	1	1	1	U0	0	1	1	1	1	1	1	1
7	Powers et al (2011)d	1	1	1	0	1	1	1	1	0	U0	1	1	1	1	1	1	1
8	Powers et al (2011)e	1	1	1	0	1	1	1	1	U0	U0	0	1	1	1	1	1	1
9	Powers et al (2007)a	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1
10	Powers et al (2007)b	1	1	1	0	1	0	1	U0	0	0	1	1	1	1	0	1	1
11	Zuroff et al (2012)	1	1	1	1	0	1	1	1	U0	U0	U0	1	1	1	1	1	1
12	Shahar et al (2006)	1	1	1	1	1	0	0	x	U0	U0	U0	1	1	1	1	x	1
13	Shulman et al (2009)	1	1	1	0	1	1	1	1	U0	0	U0	1	1	1	1	1	1
14	Shahar et al (2003)	1	1	0	0	1	0	1	x	U0	U0	U0	1	1	1	1	x	1
15	Mongrain & Zuroff (1995)	1	1	0	0	1	1	0	x	U0	U0	1	1	1	1	1	x	1

**Only applies to Longitudinal data; SCORE KEY: 1=criteria not met, 0=criteria unmet, U0=insufficient info (scored as 0), x=N/A to this study type (cross-sectional studies)*
ITEM KEY: Aim= Clear Aims, Out=clear outcomes, P.Info=Clear Participant Characteristics, Conf=Confounders discussed, Find= Findings correctly reported, Er=errors correctly report
Eve=adverse events/limitations reported, Atr=Attrition described, P.Rep=Approached Ps representative, S.Rep= Ps representative, P.Bli=Ps blind to purpose, Dre=no data dredging,
Stat=appropriate stats, O.M=appropriate outcome measures, Conf2=Adjustments for confounds, Attr.ac=Attrition accounted for, Pow= Adequate power (full quality criteria in Appendix

Focus Group Instructions
As a group:

1. *Thinking about responses to self-criticism*

-1 Discuss different kinds of responses someone might have to a self-critical thought. Where possible, try to phrase your responses to finish this sentence:

'When I have a critical thought, I….'

Write your responses on the small slips of paper provided.

-2 Look at Worksheet 1. Can you place your answers into any of these categories?

2. Evaluate existing responses

Look at Worksheet 2 containing a selection of responses someone might have to self-critical thoughts.

Without having to write anything down, discuss…
-1) Which responses would be most easy/difficult to answer? Why?
-2) Which responses fit their category best/least well?....Why?
-3) Can you think of ways that any items can be improved?... How?
-4) Are there any important responses to self-criticism that have not been included?
-5) Can you think of other aspects about how people respond to self-critical thoughts that don't fit into the categories?"

3. Do you have any other thoughts?

WORKSHEET 1

1. INTERNAL REACTION TO THOUGHT

1.1 MINDFUL - NOTICING AND LETTING GO (REVERSE SCORED)

1.2 AVOIDING

1.3 FUSED TO THOUGHT

1.4 OBJECTIVE EVALUATION OF THOUGHT

2. VALUE-BASED ACTION (REVERSE SCORED)

2.1 VALUE BASED ACTION

2.2 REACTIVE BEHAVIOUR

WORKSHEET 2

"When I have a self-critical thought…"

Responses
1. INTERNAL REACTION TO THOUGHT
1.1 MINDFUL - NOTICING AND LETTING GO (REVERSE SCORED)
..I try to notice it with openess.
…I can step back and pause rather than immediately reacting
…I can notice it as it arises
…I can notice it and let the thought pass in its own time
…I don't feel I have to react to it
…I can notice it without getting lost in it
…I can accept the thought as 'just a thought'
…I can accept it without having to evaluate it
…I can notice the thought without getting too caught up in it
…I don't worry about whether or not I agree with it
…I don't get caught up in wondering if it is true or not
…it's no more important than any other thought
1.2 AVOIDING
…I try to ignore it
…I'm afraid to look at it
…I try not to think about it.
…I try to block it out
…I try to distract myself with something else
…I wish it would go away
…I'd rather just not think about it
…I don't really deal with it
…I try to get rid of it
…I pretend it's not there
…I just get on with it like it didn't happen
I avoid situations that might trigger…
1.3 FUSED TO THOUGHT
…I become preoccupied
…I can't think about anything else
…I feel I need to control the thought
…it goes round and round in my head
…I think the thought must be true
…I dwell on it
…I try to focus on it
…I beat myself up about it
…it must be what I really believe because its my thought
…I feel trapped by it
…I get annoyed
…I get caught up in a narrative around it.
…I take it to be fact
OBJECTIVE EVALUATION
…I see if I can learn from it
…I can normally reflect on it objectively
…I can consider the usefulness of the thought
...I pay close attention to it

…I try to explore what the thought might mean
…I listen to it very closely
…I approach it with curiosity

2. VALUE-BASED ACTION (REVERSE SCORED)
2.1 VALUE BASED ACTION
…it does not affect the way I behave
…I can still do what I think is right
…I rarely act in a way that I would disagree with
…It doesn't affect what I'm doing …I still try to achieve my goals
…it doesn't put me off doing what I intend to do
...I can function just as well
…it doesn't get in the way of my success
…I can still treat myself well
…I can still treat others well
…I can still express myself
…I can still make decisions
… I can still do what is important to me
…I can still be productive

2.2 REACTIVE BEHAVIOUR
…it affects my behaviour
…I sometimes make poorer decisions
…I lose touch with what matters to me
…it prevents me from treating myself the way I would like
…it makes me lose control of my behaviour
…I just stop trying
…I don't try as hard
…I don't treat others the way I would like
…it takes me longer to do things
…I am less able to express myself to others
…I go into 'self-destruct' mode
…It disrupts my everyday life
…I lose my motivation
…it gets in the way of me living the life that I want to lead
…stops me from trying new things.
…makes it difficult to live a life that I would value.
…gets in the way of my success
…it makes me less productive