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A Brief Acceptance and Commitment Intervention for Work-Related
Stress Amongst Frontline Homelessness Staff: A Single Case
Experimental Design Series

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Doctorate in Clinical Psychology

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Portfolio Abstract

Burnout – a syndrome resulting from chronic exposure to work-related stress – is a particular problem in health and social care contexts where it is understood to adversely impact the quality of care delivered and the health of the workforce. Although there has so far been scant research attention on the levels of, and effects due to burnout amongst frontline homelessness workers, the nature of the demands are equivalent and so this is an important population on which to focus. Additionally, burnout research has previously focussed on the deleterious aspects such as exhaustion rather than positive counter-part constructs such as work-engagement.

A focus on enriching an individual's life – such as through increased work-engagement – is consistent with the therapeutic goal of Acceptance and Commitment Therapy (ACT), a third-wave behavioural intervention. Some research has found ACT to be useful for ameliorating burnout but as yet no research has investigated its role in enhancing work-engagement. A recent systematic literature review summarised these findings but also raised a number of questions, which this research project intended to answer. The literature review found mixed support for the use of ACT for reducing burnout, and a lack of support for intervention effects to operate through Psychological Flexibility (a key ACT construct).

This project used a staggered multiple baseline single case experimental design to test the usefulness of an individual one-to-one ACT intervention for reducing exhaustion, increasing work-engagement, and increasing psychological wellbeing. Furthermore, the relationship between changes in Psychological Flexibility and the outcome variables was assessed. Four participants were recruited from an organisation in the East Midlands which delivers support to those experiencing homelessness. 'Full-form' questionnaire measures

were used to assess changes over the course of the intervention and at follow-up; 'short-form' versions of these were administered daily to provide a temporal measure of any changes relative to the introduction of the ACT-intervention sessions.

Overall, support was found for the effectiveness of the ACT-intervention reducing exhaustion and increasing work-engagement; some effect on overall wellbeing was found but it was not large enough to be considered reliable change. Additionally, the findings are tentatively supportive of the role of Psychological Flexibility in producing these changes. Finally, further support was found for there being interrelated yet distinguishable components of the 'triflex' model of Psychological Flexibility.

The findings are considered in terms of their implications for supporting frontline workers, the limitations of the study, and the relation to the extant research.

Statement of Contribution

Project design: Dr Nima Moghaddam, Dr Anna Tickle, and Andy Reeve

Application for ethical approval: Andy Reeve

Literature review: Andy Reeve

Recruiting Participants: Andy Reeve, Dr Anna Tickle, and Dave Young

Trialling the ACT intervention discussions: Andy Reeve and Stephen Hall

Data collection: Andy Reeve

Scoring Measures: Andy Reeve

Conducting the change interviews: Steff Lane

Treatment fidelity checks: Dr Nima Moghaddam

Data analysis: Andy Reeve (supervised by Dr Nima Moghaddam and Dr Anna Tickle)

Write-up: Andy Reeve (supervised by Dr Nima Moghaddam and Dr Anna Tickle)

Journal Paper

A Brief Acceptance and Commitment Intervention for Work-Related Stress Amongst Frontline Homelessness Staff: A Single Case Experimental Design Series¹

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Author note:

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Highlights

- An ACT intervention for burnout amongst frontline homelessness workers was tested
- Moderate support found for ACT improving exhaustion and work-engagement
- Changes in Psychological Flexibility were temporally related to some other outcomes
- Aspects of the Psychological Flexibility triflex are distinguishable yet interrelated

Abstract

Purpose Recent intervention research for burnout amongst those working in health and social care contexts has found Acceptance and Commitment Therapy (ACT) interventions to be of use but has provided less clarity on the role of Psychological Flexibility (a key ACT

¹ Please note that the Journal Paper has been produced to the submission guidelines for the Journal of Contextual Behavioral Science, the standards for which can be found at https://www.elsevier.com/wps/find/journaldescription.cws_home/727090?generate_pdf=true

construct). This study further evaluated the usefulness of ACT for burnout and work-engagement and assessed the role of Psychological Flexibility (a key ACT construct) in contributing to therapeutic change.

Procedure A staggered multiple-baseline single-case experimental design was used. Four participants were recruited from a homelessness organisation in the East Midlands, England. The ACT-intervention was split into three modules to reflect the three aspects of the ACT triflex, and the sequence of delivery was randomised for each participant in order to test the relationship between these aspects.

Findings Support was found for the ACT intervention reducing exhaustion and increasing work-engagement. Psychological Flexibility increased in all participants and was temporally related to increases in other outcome variables in some instances. Delivery of the intervention focussed on any given aspect of the ACT triflex could increase different domains of Psychological Flexibility.

Implications This study adds to the growing body of research in favour of ACT interventions for burnout and adds to the understanding of Psychological Flexibility as a mediating variable.

Keywords

Burnout, work-related stress, work-engagement, Acceptance and Commitment Therapy, Psychological Flexibility, homelessness.

Introduction

Work-related stress is prevalent among staff working in health and social care settings (Schiff & Lane, 2019) and has deleterious effects

on the quality of care delivered² (Teoh, Hassard, & Cox, 2019). Research has focussed on staff working in statutory mental health services, however frontline workers in homelessness services are likely to face similar demands (Arslan, 2013; Schiff & Lane, 2019). Factors which are common to both roles include working with clients who are likely to be traumatised, have difficulty with emotional regulation, exhibit challenging behaviour, and have low expectations of change (Jenkins, Rose, & Lovell, 1997; Maguire, Grellier, & Clayton, 2017; Schiff & Lane, 2019). Little empirical research has been conducted on frontline homelessness staff, however one study into frontline workers in women's crisis shelters in the USA found that 20% of staff met the threshold for a "high" level of burnout (Baker, O'Brien, & Salahuddin, 2007).

Front line staff working for homelessness organisations deliver a broad range of services; "They are socialmentalhousinglifesupport [sic] workers" (Burley, 2019) for clients who are likely to have suffered a range of traumas (Hopper, Bassuk, & Olivet, 2010). Where such work-stressors are rife in other areas of social care, it is well established that these can lead to burnout, amongst other difficulties^{3,4} (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012). In addition to the personal impact on the well-being of frontline workers, burnout is known to have adverse impacts on the quality of interactions between staff and clients (Holmqvist & Jeanneau, 2006).

Burnout⁵ – a syndrome of features resulting from chronic work-related stress – was originally conceptualised as comprising three

² Please see section 1.1 of the Extended Paper for further information on the impact of burnout on service delivery

³ Please see section 1.2.7 of the Extended Paper for definitions of these states associated with work-related stress.

⁴ Please see section 1.3 of the Extended Paper for a discussion of organisational responsibility for managing work-related stressors.

⁵ Please see section 1.2 for a discussion of the definition and operationalisation of burnout and theory pertaining to its development.

dimensions: emotional exhaustion, depersonalisation of clients, and a reduced sense of self-efficacy (Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986; Maslach & Leiter, 2016). Whether or not this three-dimensional model accurately reflects the constitution of burnout is debated. Although the originators of the concept maintain that burnout has a three-factor structure (Schaufeli, Leiter, & Maslach, 2009), others have argued that emotional exhaustion is the key construct, and that depersonalisation and reduced self-efficacy are both means of disengaging from work to protect one's emotional resources (Ferris et al., 2016; Rogala et al., 2016; Thanacoody, Newman, & Fuchs, 2014; Vaes & Muratore, 2013). Furthermore, others have questioned the underlying theoretical framework of the original conception of burnout (Shirom & Melamed, 2006). Indeed, to add to the confusion, empirical studies have found that workers in healthcare and other industries can feel simultaneously exhausted and yet maintain a high level of *engagement* – a sense of absorption and motivation – with their work (Korunka, Kubicek, Schaufeli, & Hoonakker, 2009; Peterson, Demerouti, Bergström, Asberg, & Nygren, 2008).

Fostering a focus on finding meaningful actions in one's work (such as frontline staff reporting high levels of engagement) in spite of difficult internal experiences (such as staff reporting emotional exhaustion or a reduced sense of self-efficacy), is consistent with the model underlying Acceptance and Commitment Therapy (ACT)⁶. ACT is a third-wave behavioural intervention model, which seeks to enhance an individual's 'Psychological Flexibility' (PF), that is, their ability to undertake activity which is personally-meaningful *in spite of* barriers in the form of troubling or difficult emotional or cognitive experiences (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). It is purported that PF

⁶ Please see section 1.4 of the Extended Paper for further information on ACT, and its underlying theory and application to work-related stress.

can be cultivated using six ACT-processes, which themselves can be paired into three dyads (collectively known as the ACT triflex; Harris, 2009). The aspects of the triflex are commonly called 'being open', 'noticing', and 'being active'.

ACT-based interventions have been used in several studies with the aim of ameliorating burnout amongst direct-care workers⁷. A recent systematic review and meta-analysis found these interventions to be most effective amongst those who reported higher levels of distress (a conceptually distinct construct from burnout) at commencement of the intervention, and the greatest improvement was in psychological distress, rather than for burnout (Reeve, Tickle, & Moghaddam, 2018). The magnitude of the effect for psychological distress was greatest at follow-up time points, rather than immediately post-intervention. Again, this is consistent with the ACT model, which would expect a person's sense of wellbeing to increase over time, as they enact greater numbers of increasingly personally meaningful behaviours. In the context of frontline care delivery, this might include behaviours such as attending to a client's emotional difficulties in spite of the vicarious distress this causes for the worker, so long as this is aligned with the worker's values and is contextually appropriate. As such, a frontline worker plausibly may continue to experience exhaustion yet experience an improvement in their sense of work-engagement.

Curiously, despite the general support for ACT-based interventions found in this review (Reeve et al., 2018), the evidence did not support these improvements being mediated through increases in PF. This is at odds with the ACT-model, which would predict a change in PF acting as a precursor to behavioural change, which would then be reflected in an individual's emotional responses. It was suggested

⁷ Please see section 1.4.4 of the Extended Paper for further detail on the use of ACT for burnout.

that the lack of evidence for this could be explained by the way that PF was measured in the studies captured by the review.

In summary, the extant research suggests that ACT-based interventions may be helpful for reducing distress in direct-care staff working in inpatient settings who are experiencing work-related stress, although the mechanism through which this works remains unclear. Although the nature of work stressors faced by frontline homelessness workers seems likely to be similar, this is an area which is yet to receive the research attention it deserves. This raises several questions which the present research aims to address. These questions are summarised in table 1.

Table 1

Study Aims, Sources of Evidence, and Hypotheses

Question	Sources of evidence	Hypothesis
<p>1. Do the primary outcomes change? Are there changes in burnout or work-engagement?</p>	<p>Pre, post, and follow-up long-form measures. Daily short-form exhaustion and work-engagement measures.</p>	<p>It is expected that following the intervention, exhaustion will reduce and work-engagement will increase. These will be tested for using a Reliable Change Index.</p>
<p>2. Do the secondary outcomes change? Are there in changes in psychological wellbeing?</p>	<p>Pre, post, and follow-up psychological wellbeing measures.</p>	<p>It is expected that psychological wellbeing will increase. This will be tested using a reliable change index.</p>
<p>Are there changes in the idiographic values scores?</p>	<p>Daily idiographic measure scores</p>	<p>It is expected that behavioural alignment with values will increase. This will be assessed visually.</p>

3. Does the process variable change?

Are there changes in PF?

Pre, post, and follow-up long-form measures. Temporally related changes in daily short-form PF measures.

It is expected that PF will increase following the intervention. This will be tested for using a reliable change index.

4. Are outcome changes linked to process variable changes?

Are any changes observed in the process variable linked to any changes observed in any of the three outcomes?

The temporal relationship between changes in the PF measure and changes in the outcome measures

It is expected that increases in PF will precede improvements in the daily outcome measures assessed by visual analysis

5. Do all aspects of PF change following the introduction of one discrete aspect of the intervention?

Differential sequencing of intervention components (i.e. the ACT triflex modules) between participants; daily PF measure with subscales mapping to each aspect of the ACT triflex.

No hypothesis.

Method

Ethical approval was granted by the Faculty of Medicine and Health Sciences Research Ethics Committee at the University of Nottingham⁸ and informed written consent was obtained from each participant.

Measures. The full versions of measures were administered at pre-intervention, post-intervention, and follow-up timepoints. Where a measure was administered daily, a short-form version was developed. Short-form versions were designed to be sufficiently brief to reduce participant burden.

Burnout. The Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003) was chosen as a measure of burnout⁹, as it is made up of two subscales: exhaustion and engagement. This is consistent with the ACT-model, which would predict an increase in work-engagement following the intervention, *in spite* of feelings of exhaustion, although exhaustion may also be expected to reduce secondarily to this.

The OLBI has been translated into English from German, and has been shown to have satisfactory internal reliability, with Cronbach's alpha scores above .70 across a variety of populations and across time (Halbesleben & Demerouti, 2005). It has been demonstrated to have convergent validity with other measures of burnout (Demerouti *et al.*, 2003; Halbesleben & Demerouti, 2005). The OLBI was used to determine eligibility using cut-off scores taken from Peterson *et al.* (2008).

⁸ A copy of the letter confirming ethical approval is in appendix A. For a note regarding this please see the Extended Paper section 2.3.

⁹ Please see the Extended Paper section 2.4.1 for further detail on the choice of the OLBI as a measure of burnout and engagement.

The full version of the OLBI was administered each week, and a short-form version was administered daily. The short-form consisted of one item from each scale (giving a total of two items). The items with the highest factor loading within each scale were chosen to represent their respective subscale (factor loadings taken from Halbesleben & Demerouti, 2005).

Higher scores indicate greater exhaustion and higher disengagement for the respective subscale.

Personal wellbeing. The Personal Wellbeing Index (PWI; International Wellbeing Group, 2013) was chosen to load onto broader domains of life-fulfilment¹⁰. This measure consists of seven Likert-scales pertaining to an individual's satisfaction with different domains of their life and perceived national social milieu. The individual items are known to correlate with social, financial, and health variables, which suggests an appropriate degree of content validity. The internal reliability, as measured by Cronbach's alpha is between .70 and .85 (International Wellbeing Group, 2013).

This measure was administered weekly. As it was not used within the daily measures, no short-form version was developed.

Higher scores indicate greater psychological wellbeing.

¹⁰ Please see section 2.4.2 of the Extended Paper for further detail regarding the choice of the PWI as a measure of wellbeing

Psychological Flexibility. The Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT; Francis, Dawson, & Golijani-Moghaddam, 2016), was chosen to measure PF for this study¹¹. This measure has subscales for each aspect of the ACT triflex (these are named slightly differently in this measure, but the names used in the introduction shall be used for consistency through this paper and because they are conceptually equivalent). The scale as a whole has a Cronbach's alpha of 0.91. It has a moderate overlap with measures of distress, suggestive of an appropriate level of divergent validity (i.e. it is measuring a distinct construct, but one which is thought to relate to distress), and was developed using a Delphi consensus which indicates it has appropriate content validity for its use as a measure of PF (Francis et al., 2016).

The full version of the CompACT was administered each week, and a short-form version was administered daily. The short-form consisted of one item from each scale (giving a total of three items)¹². The item with the highest factor loading within each scale was chosen to represent that scale (Francis et al., 2016).

Higher scores indicate worse PF.

¹¹ Please see section 2.4.3 of the Extended Paper for further information on the choice of the CompACT as a measure of Psychological Flexibility

¹² Please see section 2.4.3.1 of the Extended Paper for further information on the implications of the development of the CompACT short-form.

Idiographic personal values. In addition to the validated measures listed above, two further scales were used to measure how well a participant perceived their own behaviour as matching their personal values¹³. Each participant was asked to identify one personally meaningful value from their home context and one from their work context ('value' is defined here as having the same meaning as it would within the ACT model). The following text was used with a Likert-scale:

These are your two personally meaningful values which you would like to meet in the way that you live your life. Each day, record how close your actions match what these values represent, on a scale of 1 to 5.

This scale (both items) was used in both the weekly and the daily versions of the measures.

¹³ Further information on the development and rationale for an idiographic measure is included in the Extended Paper section 2.4.4.

Design. To effectively answer the research questions, a staggered multiple-baseline single-case experimental design (SCED) was used¹⁴. This was chosen to elicit the chronicity of any changes in the outcome or process variables; and to enable manipulation of the sequence of ACT-dyads between participants. As such, this can be described as an ABCDE design, where A is the baseline period (common to all SCED designs); B, C, and D are the intervention phases; and E signifies the follow-up point. The intervention phases of B, C, and D each represent one ACT-dyad intervention (the sequence of which was randomly varied between participants). Finally, the long-form measures were administered at a follow-up point four weeks after the final intervention stage (phase E).

Recruitment.¹⁵ Participants were recruited from an organisation in the East Midlands in the UK delivering support to people experiencing homelessness, most often alongside multiple complex needs, i.e., substance misuse, mental health problems and / or offending. Some participants worked in temporary accommodation settings (i.e., hostels) and others providing an outreach service. A minimum of three demonstrations (i.e., three participants) is thought to be required for establishing an effect in SCED research (Lane & Gast, 2014), and so a recruitment target of three to six participants was set. The eligibility criteria were as follows¹⁶:

1. Employed as a frontline member of staff for the above organisation;

¹⁴ Please see the Extended Paper section 2.5 for further information on the choice of the design.

¹⁵ Please see section 2.6 of the Extended Paper for further information on how recruitment was undertaken.

¹⁶ Please see section 2.6.3 for the rationale of how the eligibility criteria were arrived at.

2. Aware of and able to meet the time commitment for the intervention and questionnaire measures;
3. Access to the internet to complete the measures;
4. Not on long-term sick leave.
5. A score on the OLBI indicating burnout within either of the subscales (i.e., either exhaustion [requiring a score of ≥ 18] or work-disengagement [requiring a score of ≥ 17] using scores taken from Peterson *et al.* [2008]).

Intervention. The ACT-intervention was delivered in a series of one-to-one 'workshop'-style sessions modelled on a psychological skills training course developed by Flaxman and McIntosh (2018), but organised so that each of the three sessions focussed on a discrete ACT-triflex component¹⁷ (see table 2). Consistent with the ACT-model, the workshops were designed to be experiential rather than didactic (Hayes, 2004), and were delivered by the lead author (AR). The one-to-one sessions were recorded and a stratified sample fidelity checked by the second author (NM) using the ACT-Fidelity Measure¹⁸ (O'Neill, 2018).

¹⁷ For further information on the content of the intervention please see section 2.7 of the Extended Paper.

¹⁸ Please see section 2.7.4 for further information on the fidelity checking of the intervention.

Table 2

Session Plan for Each ACT-Dyad and Corresponding CompACT Subscale

Session name	Targeted ACT-processes; corresponding CompACT subscale	Brief description of session content
Being open	Acceptance and defusion	'Being open' defined as "Relating skilfully to 'unhelpful' thoughts", quicksand metaphor, 'costs of avoidance' worksheet, passengers on the bus metaphor, home practice plan.
Noticing	Present moment awareness and self-as-context	Mindful eating of a raisin exercise, mindfulness psychoeducation, body and breath meditation practice, 'discovering the self' exercise, home practice plan.
Being active	Values identification and committed action	Values defined as "the personal qualities we most want to express in our daily behaviour", values compass worksheet, identifying barriers to action and how to overcome these, passengers on the bus metaphor, home practice plan.

Note. All the metaphors cited above were taken from Stoddard & Afari (2014).

Procedure. Phase A, the baseline period, was planned to last a minimum of 5 data-points in order to be able to judge the presence (or absence) of stability, a necessary condition to be able to draw causal conclusions about the introduction of the intervention. Stability in the daily (short-form) measures of both subscales of the OLBI was deemed necessary to meet this criterion; stability was defined independently of trend (i.e., direction of pre-existing change)¹⁹. The intervention phase was only triggered when stability was observed in the baseline (Lane & Gast, 2014; Wolery & Harris, 1982). Phases B, C, and D were each delineated by the delivery of one ACT-triflex intervention module at their beginning. There were two weeks between the delivery of each intervention (except for participant 3, where one of the interventions was delayed by a week due to personal circumstances). Each participant was randomly allocated to an intervention sequence of the ACT dyads using a stratified set of potential sequences. Table 3 indicates the sequence of the intervention phases for each participant. Table 4 displays the measurement time points for both full-form and short-form measures.

Table 3

Sequence of ACT-Triad Intervention Sessions for Each Participant

Session	Participant 1	Participant 2	Participant 3	Participant 4
1	Being open	Noticing	Being active	Being active
2	Noticing	Being active	Being open	Being open
3	Being active	Being open	Noticing	Noticing

¹⁹ For further information on the judgement of stability during the baseline phase please see section 2.8 of the Extended Paper.

Table 4

Outline of When Outcome Measures Were Administered and the Timing of Intervention

Measure	Pre-intervention	Baseline (phase A) Minimum 5 days	Intervention (workshop took place on first day of each phase)			4-week follow-up
			Phase B (14 days)	Phase C (14 days)	Phase D (7 days)	
OLBI full	✓	-	-	-	At end of phase	✓
OLBI short-form	-	Daily	Daily	Daily	Daily	-
Personal wellbeing index	✓	-	-	-	At end of phase	✓
CompACT full	✓	-	-	-	At end of phase	✓
CompACT short-form	-	Daily	Daily	Daily	Daily	-
Idiographic behaviour measure	✓	Daily	Daily	Daily	Daily	✓

Analysis. Analysis of the data took two approaches.

Firstly, within-participant analyses were conducted on any changes between pre-, post-intervention, and follow-up time points. These were conducted on each full-form measure (i.e. the OLBI subscale for exhaustion, the OLBI subscale for engagement, the PWI, and the CompACT). The analyses used the Reliable Change Index (RCI; Jacobson & Truax, 1991). Clinically Significant Change analyses are often used in intervention research but due to the lack of an appropriate dataset and that burnout is not viewed as a clinical entity

in the UK these were not felt to be suitable in this study²⁰. The RCI method of analysis was intended to provide a robust and quantifiable answer to the question of if the variables of interest underwent change. The RCI is suitable for calculating the magnitude of change (relative to the mean score, standard error, and possible range of a measure) for individual participants, and so was used to establish the presence (or otherwise) of an effect.

Secondly, the daily measures were visually analysed following guidance provided by (Kazdin, 2019)²¹. Visual analysis is the most common method for analysing SCED data (Ledford, Barton, Severini, & Zimmerman, 2019), and utilises data points plotted on a graph and joined by a 'celeration line'. Graphing freeware courtesy of Pustejovsky (n.d.) was used. Four characteristics of the data were assessed to ascertain the presence of an effect: change in the mean score between phases, change in the trend (slope) of the celeration line, shift in the level (an abrupt change in magnitude), and the latency of change (the elapsed period of time between the introduction of any of the interventions and a change in the characteristic being analysed) (Kazdin, 2019). The more of these characteristics present, the more compelling the case that a functional relationship exists between the intervention and the dependent variable, although the consistency of a change in the data was valued over a change in the magnitude of the short-form measures (Ledford et al., 2019). As such, visual analysis of the daily short-form data was used to establish a *causal* relationship; the RCI scores – being based on full-length questionnaires with greater psychometric properties and therefore precision – were used to assess the *presence* of an effect.

²⁰ Please see section 2.10 for further information on the rationale of not using CSC as a means of analysis

²¹ Please see section 2.9 of the Extended Paper for further information on the decision to use visual analysis.

Results

No unusual or adverse events occurred during the study. Fidelity checking of the intervention sessions found a high level of adherence to the ACT therapeutic style and content²².

Participants. Four people volunteered for the study, all of whom met the eligibility criteria. Limited participant characteristics are presented here to maintain the confidentiality of those who took part (Tate et al., 2016). All participants were female and had worked in frontline roles for seven to 20 years. Two were support development workers and two assistant managers.

²² Please see section 2.7.4 of the Extended Paper for the results of the fidelity assessment.

Reliable Change Indices.²³ The full-form measures results are presented in table 5; follow-up scores for Participant 1 are missing²⁴. The reliable change index of the OLBI Exhaustion scale and Disengagement scale, the PWI, and the CompACT are presented in table 6 for all three time spans (i.e., pre-post intervention, post-follow up, and pre-follow up). All participants demonstrated a reliable improvement in Exhaustion over at least one timespan. All participants except Participant 4 demonstrated a reliable improvement in Disengagement over at least one timespan. No participants showed a reliable change in the PWI over any time span. All participants demonstrated a reliable improvement in PF across at least one timespan, although in the case of Participant 3 the improvement which occurred between pre-intervention and post-intervention almost entirely reversed between post-intervention and follow-up.

²³ See section 3.1 of the Extended Paper for further detail regarding the RCI calculations

²⁴ See section 3.3 of the Extended Paper for further discussion of missing data

Table 5

Full-form outcome measure results

		OLBI De	OLBI Ex	PWI	CompACT
Participant 1	Pre-	22	27	45	63
	Post-	17	17	56	27
	Follow-up	-	-	-	-
Participant 2	Pre-	27	26	40	69
	Post-	20	22	49	23
	Follow-up	20	22	53	28
Participant 3	Pre-	30	28	16	100
	Post-	29	26	23	81
	Follow-up	27	24	25	98
Participant 4	Pre-	18	32	28	58
	Post-	18	25	35	52
	Follow-up	17	24	40	45

Note. OLBI De = OLBI disengagement scale, higher scores indicated greater disengagement / lower engagement; OLBI Ex = OLBI exhaustion scale, high scores indicate greater exhaustion; PWI = Personal Wellbeing Index, higher scores indicate greater wellbeing; CompACT = Comprehensive Assessment of Acceptance and Commitment Therapy processes, lower scores indicate greater Psychological Flexibility.

Table 6

Reliable Change Indices for Each Participant for the OLBI Exhaustion and Disengagement Scales, the PWI, and the CompACT

		Measure							
		(RCI score; ✓ indicates reliable change)							
		OLBI De		OLBI Ex		PWI		CompACT	
Participant 1	Pre-post	-2.43	✓	-5.42	✓	1.61		-5.73	✓
	Post-follow up	-		-		-		-	
	Pre-follow up	-		-		-		-	
Participant 2	Pre-post	-3.40	✓	-2.17	✓	1.32		-7.32	✓
	Post-follow up	0.00		0.00		0.59		0.79	
	Pre-follow up	-3.40	✓	-2.17	✓	1.91		-6.53	✓
Participant 3	Pre-post	-4.89	✓	-1.08		1.03		-3.02	✓
	Post-follow up	-0.97		-1.08		0.29		2.71	✓*
	Pre-follow up	-1.46	✓	-2.16	✓	1.32		-0.32	
Participant 4	Pre-post	0.00		-3.79	✓	1.03		-0.96	
	Post-follow up	-0.49		-0.54		0.73		-1.11	
	Pre-follow up	-0.49		-4.33	✓	1.76		-2.07	✓

Note. Change is considered reliable where the RCI score is >1.96. RCI scores are shown to two decimal places; * indicates that although change was reliable, it was in an unfavourable direction; - indicates that missing data prevented the calculation of this score

Q1, 2, and 3. Visual analyses of the daily short-form measures.²⁵ Graphs containing the datapoints for each daily measure are presented below, grouped by participant (Figures 1, 2, 3, and 4). Mean lines are shown for each phase, and phases are delineated by vertical dotted lines. Please note that the graph for the CompACT has been placed at the top of each participant's set of graphs – differing from the previous order of description – in order to aid analysis relating to question 4.

All participants exhibited stability in both OLBI subscales during the baseline phase, thus meeting the criteria for commencing the intervention phases. The baseline phases ranged from 5-12 days.

As can be seen in the graphs, a number of data points are missing. This is particularly true of Participant 1 in phase C (7 missing data points) and at follow-up. Please note that the y-axis of each graph has been scaled to fit each participant's responses, so what appears to be a large variation in scores may represent only one interval. The results of the visual analyses are for each characteristic of assessment are summarised in a table for each participant (tables 7, 8, 9, and 10).

²⁵ Please see section 3.2 of the Extended Paper for a full description of the visual analyses conducted on the data presented in figures 1, 2, 3, and 4.

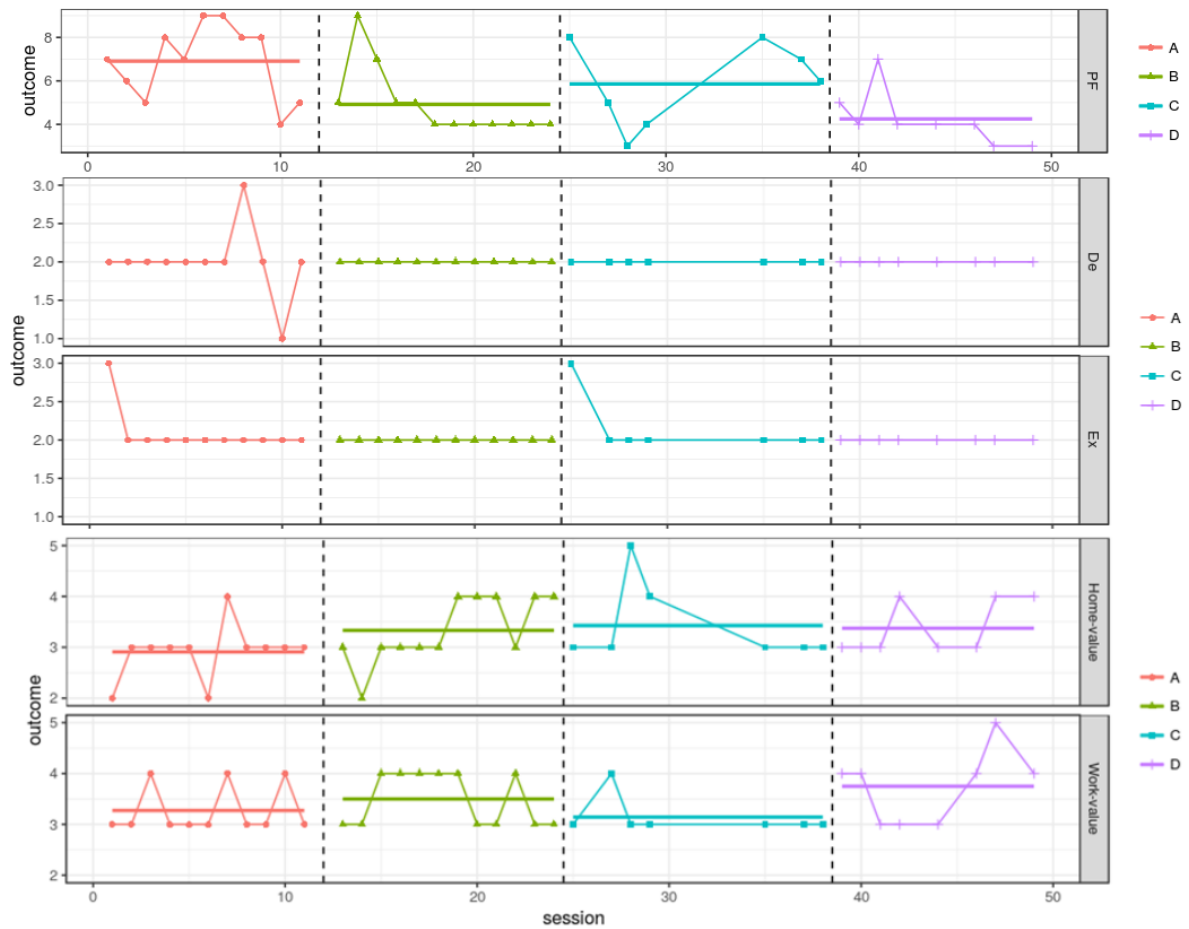


Figure 1. Data points for Participant 1 for each daily measure.

Note. Shaded bars on the right of each graph denote the data being presented: PF is PF, i.e. the CompACT; De is the Disengagement scale of the short-form OLBI; Ex is the Exhaustion scale of the short-form OLBI; Home-value and Work-value are the idiographic values for home and work respectively.

Table 7

Summary of Analysis of Daily Short-Form Data for Participant 1

Measure	Presence of characteristic					Evidence of change
	Lack of variability	Change in mean scores	Change in trend	Change in level	Latency of effect	
OLBI Disengagement	✓	X	X	X	X	X
OLBI Exhaustion	✓	X	X	X	X	X
Home value	~	~	X	X	X	X
Work value	~	X	X	X	X	X
CompACT	X	~	X	~	~	~

Note. X = criteria not met; ~ = criteria possibly or partially met; ✓ = criteria met

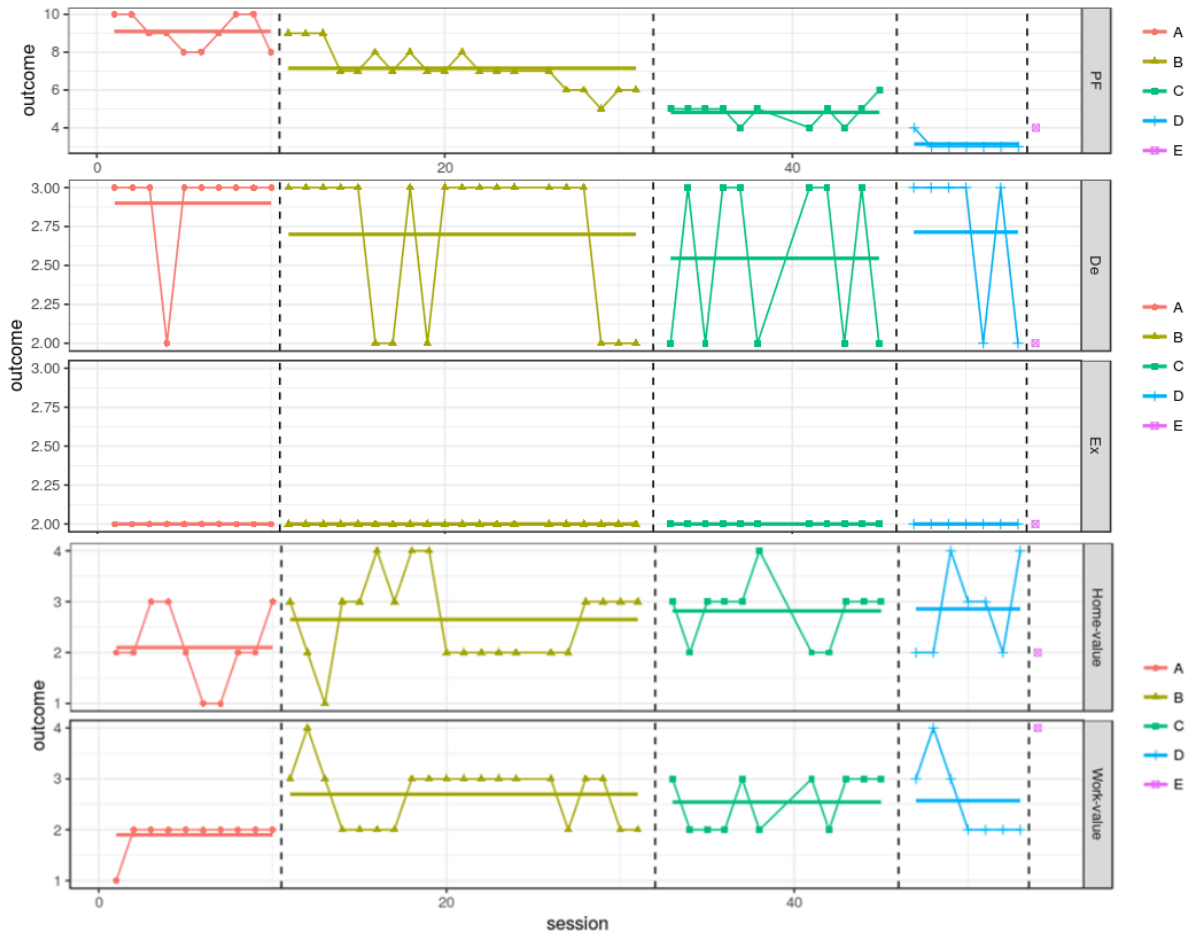


Figure 2. Data points for Participant 2 for each daily measure.

Table 8

Summary of Analysis of Daily Short-Form Data for Participant 2

Measure	Presence of characteristic					Evidence of change
	Lack of variability	Change in mean scores	Change in trend	Change in level	Latency of effect	
OLBI Disengagement	✓	~	X	~	✓	~
OLBI Exhaustion	✓	X	X	X	X	X
Home value	~	✓	X	X	X	~
Work value	✓	✓	X	✓	✓	✓
CompACT	~	✓	X	✓	✓	✓

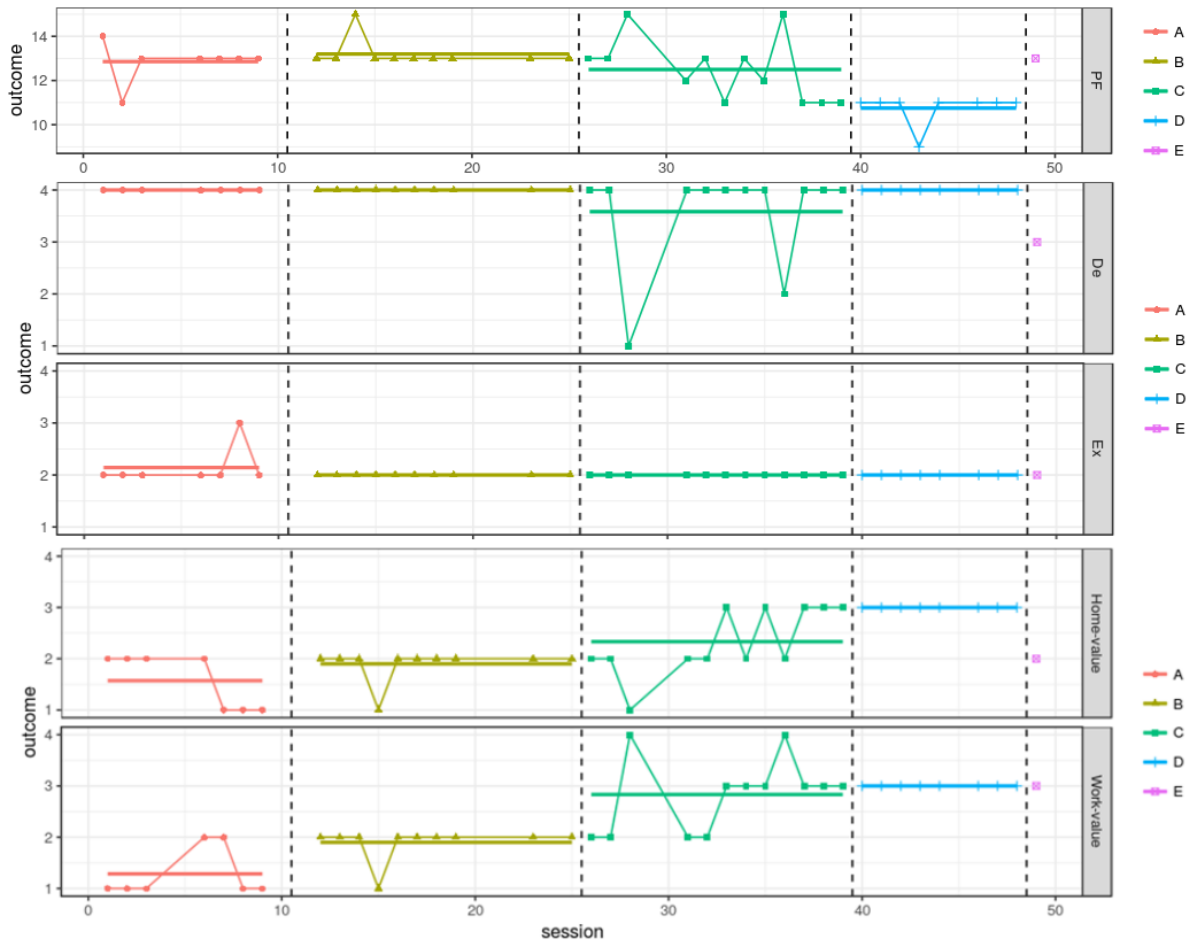


Figure 3. Data points for Participant 3 for each daily measure.

Table 9

Summary of Analysis of Daily Short-Form Data for Participant 3

Measure	Presence of characteristic					Evidence of change
	Lack of variability	Change in mean scores	Change in trend	Change in level	Latency of effect	
OLBI Disengagement	✓	X	X	X	X	X
OLBI Exhaustion	✓	X	X	X	X	X
Home value	✓	✓	X	X	X	~
Work value	✓	✓	X	✓	✓	✓
CompACT	✓	✓	~	✓	~	✓

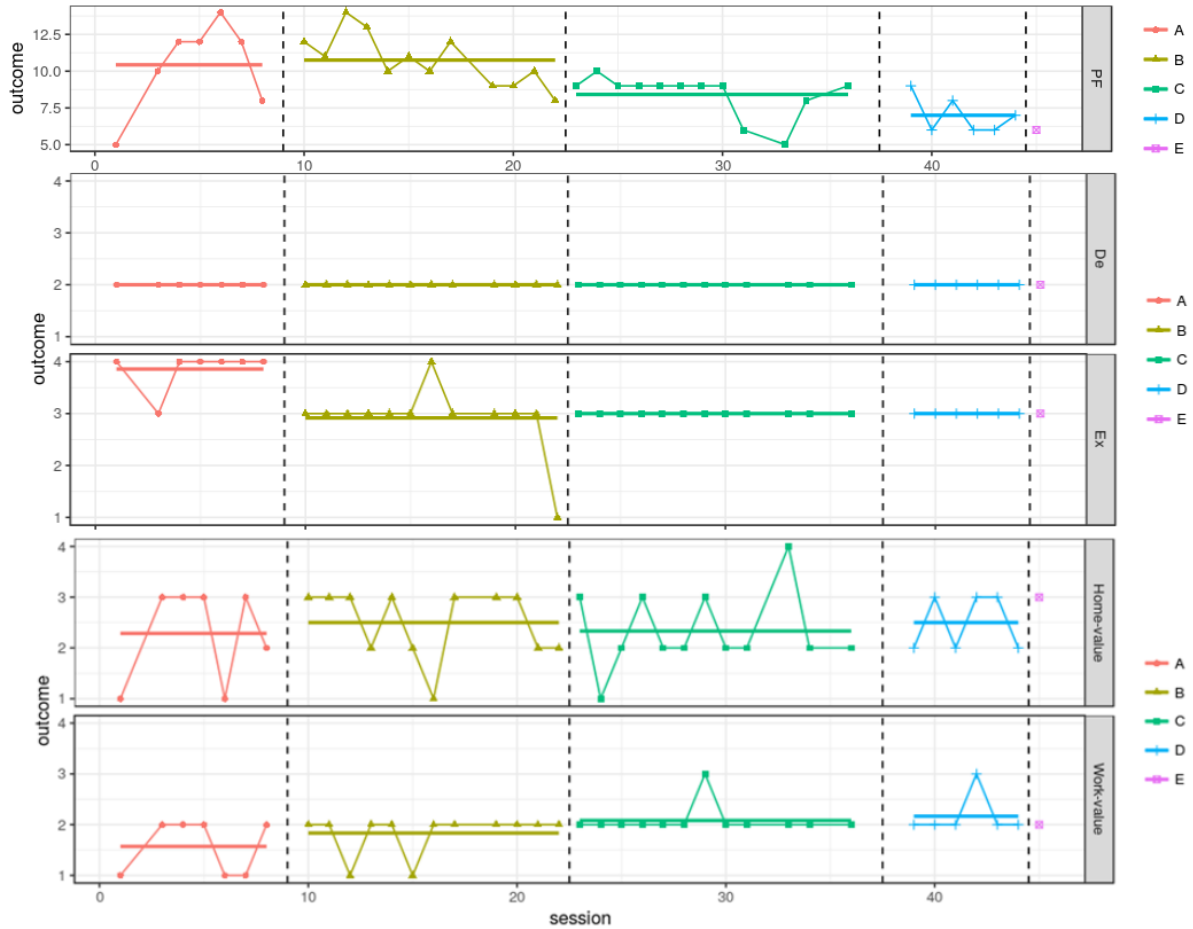


Figure 4. Data points for Participant 4 for each daily measure.

Table 10

Summary of Analysis of Daily Short-Form Data for Participant 4

Measure	Presence of characteristic					Evidence of change
	Lack of variability	Change in mean scores	Change in trend	Change in level	Latency of effect	
OLBI Disengagement	✓	X	X	X	X	X
OLBI Exhaustion	✓	✓	X	✓	✓	✓
Home value	X	X	X	X	X	X
Work value	~	X	X	X	X	X
CompACT	X	✓	~	✓	X	~

Q4. Assessing for any association between the outcome and process variables.²⁶

Participant 1. The variability of data for the CompACT for Participant 1 makes it more difficult to associate changes in this measure with changes in any of the outcome measures. However, the point at which the CompACT scores appear to change level (i.e., improve, at day 16-18) briefly precedes the improvement in the Home Value score. Similarly, the improvement then deterioration in the CompACT score is reflected in the expected direction of both the Home and Work Value scores in phase C and D. Given that both scales of the OLBI short-form are very flat, no relationship between changes in PF and disengagement or exhaustion can be determined despite the changes in the long-form measures of these variables.

Overall, although there is an imperfect relationship, daily changes in the CompACT appear to be reflected to a degree in changes in both Idiographic scales.

Participant 2. Rather than a gradual change in the CompACT scores there appear to three points at which these reduce abruptly, corresponding to the beginning of each phase (i.e. shortly after when the intervention had taken place). These changes seem to be temporally reflected in the improvements in the Work and Home values scales, and to a lesser degree to some improvements in the Disengagement short-form scale, although it is difficult to be confident in the latter due to the data variability.

Participant 3. The CompACT scores for Participant 3 are consistent through both the baseline and the first phase of the intervention, until there is much greater variability in the second intervention phase (phase C) leading to a much lower (i.e., improved

²⁶ Please see section 3.2 of the Extended Paper for further detail on the approach to visual analysis to answer this question.

PF) level in the final phase. This trajectory of change is reflected in both the Home and Work Values scales, although the Work Value scale also shows a small improvement earlier in the intervention, at the start of Phase B. There is little variability in either the Disengagement or Exhaustion short-form scores meaning it is not possible to assess for a causal relationship between PF and these variables.

Participant 4. The only measure besides the CompACT which shows a clear change for Participant 4 is the OLBI-Exhaustion short-form, which shows improvement immediately following the beginning of the first phase of the intervention (Phase B). Due to variability of the CompACT data it is unclear if changes in this are reflected in the temporal change of this data.

Q5. Analysis of the sequence of the intervention on all three CompACT subscales.²⁷ The impact on all three CompACT subscales of the different ACT-intervention modules was visually analysed. These are presented separately for each subscale.

²⁷ Please see section 3.4 of the Extended Paper for further analysis related to this question.

Being open subscale. Visual analysis of scores shown in figure 5 indicate that the Being Open intervention appears to have improved scores on the equivalent CompACT subscale (based on the level of the mean score for the respective phases) for Participant 1 only, although it is unclear if this is attributable to the intervention or due to a downwards trend observed in the baseline phase of this participant. Seemingly the most consistent drop in level (i.e., improvement) in this variable was for Participant 2 temporally related to the 'Noticing' and 'Being Active' interventions, rather than to the 'Being Open' intervention. Additionally, there was almost no change in this variable for Participant 3 across the entire study, despite change in other aspects of their PF. Participant 4 appeared to demonstrate smaller incremental change across each intervention phase, however due to data variability in the baseline phase it is difficult to draw conclusions about this.

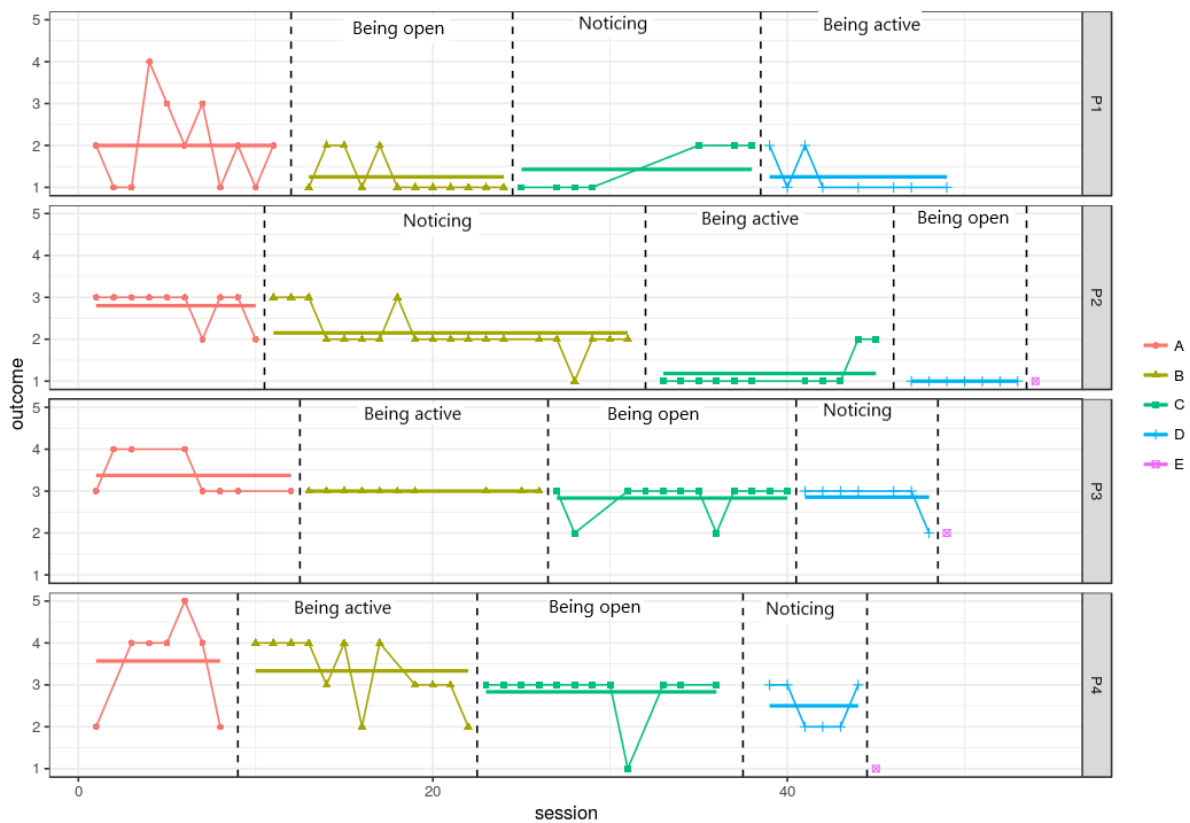


Figure 5. Graph of the CompACT Being Open subscale short-form for each participant, with intervention content labelled for each phase.

Noticing subscale. Visual analysis of figure 6 suggests that for Participants 2, 3, and 4 there are continuous improvements in this subscale across each intervention phase, i.e., the improvement in Noticing occurs across all three intervention stages rather than changes primarily following the Noticing intervention module. That this is the case for Participants 3 and 4 is particularly noteworthy given that 'Noticing' was their final intervention session, and so some of their improvement on this subscale preceded the specific intervention. The data variability during the baseline phase of Participant 1 prevents any firm conclusions being drawn for this participant.

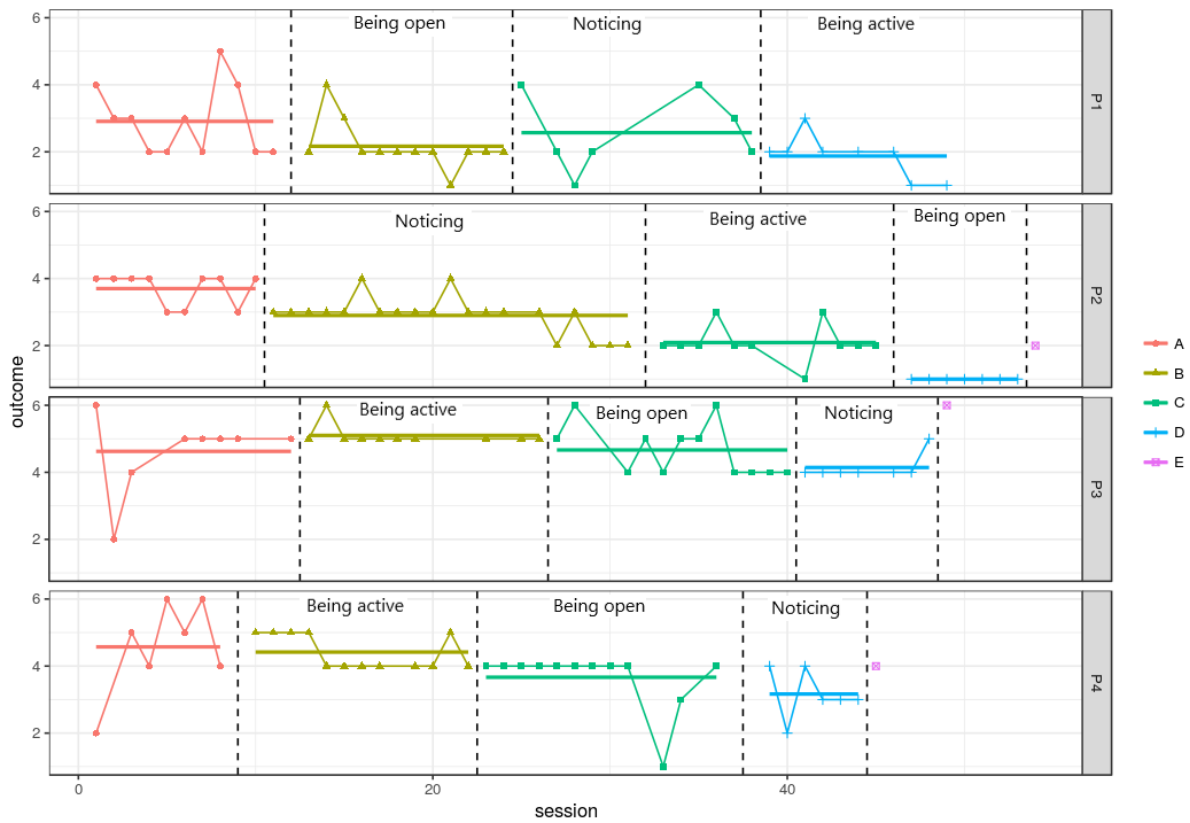


Figure 6. Graph of the CompACT Behavioural Awareness subscale short-form for each participant, with intervention content labelled for each phase.

Being active subscale. Visual analysis of figure 7 for Participant 1 demonstrates a lack of a clear trend. Participant 2 demonstrates a slight improvement throughout each stage, although this appears more prominent during the 'Noticing' and 'Being Open' intervention phases. Participant 3 demonstrates no change in this variable until part-way through the 'Being Open' intervention. Unexpectedly, Participant 4 demonstrates a deterioration between the baseline and the first intervention phase – Being Active – which would be expected to have the greatest positive impact on this measure of all the interventions given its content. Following this however, there is evidence of a continuous improvement through each stage of the intervention.

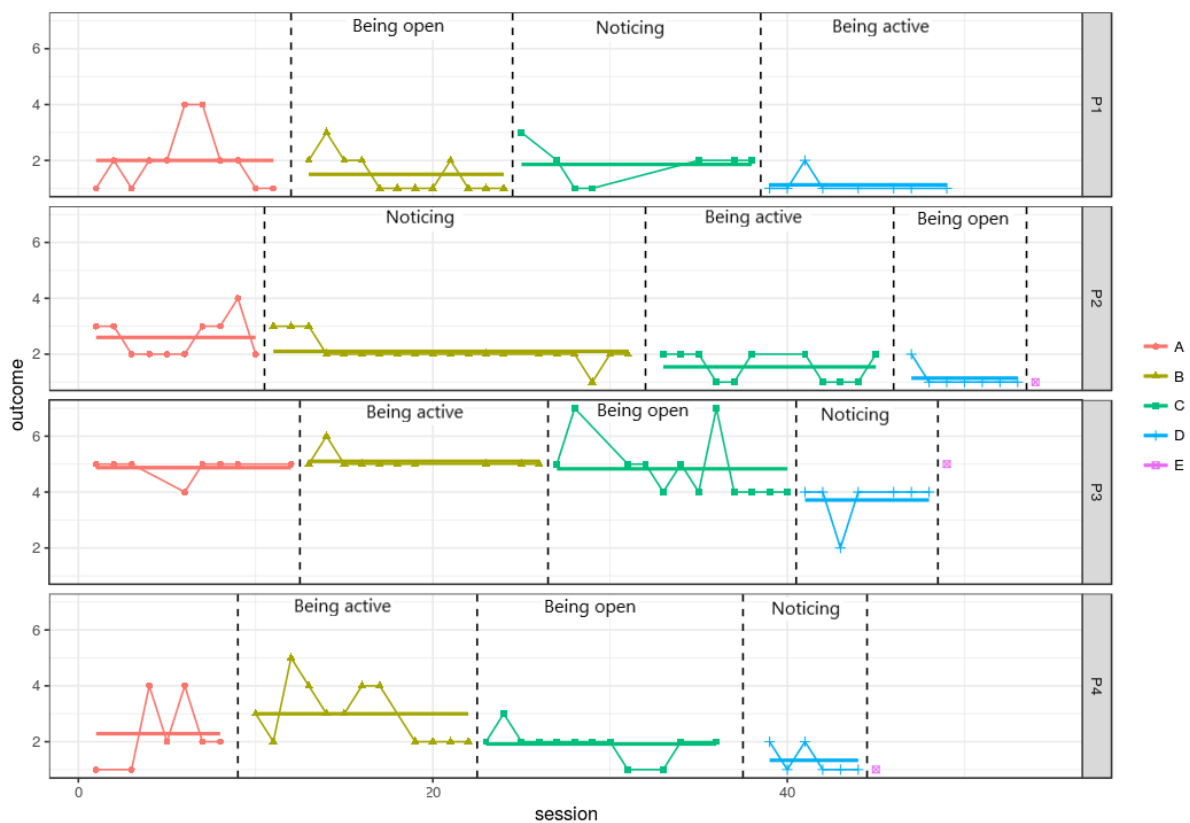


Figure 7. Graph of the CompACT Valued Action subscale short-form for each participant, with intervention content labelled for each phase.

Discussion

Q1 Are there changes in exhaustion or work-engagement? The RCIs indicate that both exhaustion and work-engagement improved over at least one timespan for all participants, except for one participant whose scores did not improve for work engagement (but did for exhaustion). Evidence from the daily measures only found support for exhaustion improving in one participant, for work-engagement in no participants. Given that the RCIs were conducted on data from the full-form measures these analyses are more reliable, and so the lack of variability in the short-form measures for these variables is more likely due to a lack of measurement sensitivity, as discussed in the Limitations.

This finding is consistent with previous research which has found that burnout (when defined as exhaustion) can be reduced by the use of an ACT intervention (i.e., Brinkborg, Michanek, Hesser, & Berglund, 2011; Smith & Gore, 2012), and may help to clarify studies which have reported ambivalent findings for this (i.e., Bethay, Wilson, Schnetzer, Nassar, & Bordieri, 2013; Clarke, Taylor, Lancaster, & Remington, 2015). Furthermore, previous research using ACT has not measured changes in work-engagement, despite this being an ACT-consistent construct (i.e. an aspect of psychological functioning which would be expected to increase following an ACT intervention²⁸). This finding represents a novel contribution to the literature.

²⁸ Please see section 4.1 of the Extended Paper for further discussion of this.

Q2 Are there changes in psychological wellbeing or behavioural alignment with idiographic values? The RCI analyses indicate that there was no reliable change for the PWI for any participant. This indicates that personal wellbeing did not change significantly for any participant, which was contrary to the expectation. This can be understood in several ways. Firstly, the intervention did improve the scores on the PWI for all participants, but not to level which would constitute reliable change. This could be due to the 'dose' of the intervention (i.e. the number of hours contact time) which was smaller than in equivalent studies (such as all of those identified in Reeve et al. [2018], the number of hours intervention time was 1½ days, rather than 4 hours in the present study), which may suggest the presence of a dose-effect relationship²⁹. Secondly, the degree to which participants valued occupational aspects of their lives is unknown, and so an improvement in occupational wellbeing may not necessarily translate into an improvement in overall wellbeing, although both exhaustion and engagement are thought to be predictors of depression and life satisfaction, which makes this explanation seem unlikely (Hakanen & Schaufeli, 2012).

Visual assessment of the daily Idiographic Values measure suggested that the intervention did not increase these scores in either value for two participants but did increase behavioural alignment in one value (and possibly in each participant's second value) for the other two participants. This suggests the intervention caused meaningful behaviour-change in at least one domain for two participants. This finding should be treated more tentatively than others, given the nature of the idiographic measure used to assess this (i.e. an untested non-psychometric single-item measure). Following an ACT

²⁹ See Extended Paper section 4.5 for related qualitative feedback from participants relating to this

intervention, behaviour change in a personally meaningful direction would be expected.

Q3 Are there changes in Psychological Flexibility? The RCIs for the CompACT indicate a significant improvement in PF over at least one timespan for all participants, although in the case of one participant this reverted to their baseline score at the follow-up point³⁰. Aside for the participant whose PF reverted to their baseline, this is an expected result for an ACT intervention, although one which has not consistently been found in ACT burnout research.

The participant who did not maintain their improvements began the study with the highest level of disengagement and second-highest level of exhaustion, which suggests that these improvements are harder to maintain in the face of eroded psychological reserves, although it is not possible to confidently extrapolate from this single example.

The visual analyses suggest that for two participants the improvements in PF were tied to the intervention sessions, and for the remaining two participants they were possibly tied to the intervention sessions. This provides tentative evidence in favour of the ACT intervention enhancing PF as would be expected.

Previous research into ACT for burnout amongst frontline workers typically failed to find an increase in PF, or failed to measure this variable (Reeve et al., 2018) despite it being a key ACT-construct. Studies which have failed to find an increase in PF have often used the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011). Given that the AAQ-II has received criticism for a lack of validity (Wolgast, 2014), and that the current finding in favour of ACT

³⁰ Please see Extended Paper section 4.2 for a possible explanation of this.

interventions for burnout increasing PF is to be expected, it seems that studies which have failed to find an increase in PF may have done so due to the measure employed rather than the absence of an effect.

Q4 Are outcome changes linked to change in PF? Where there was sufficient invariability of the data to make an analysis (three of the participants), there appeared to be at least an 'imperfect' temporal relationship between outcome variables which did exhibit a change and PF. This finding suggests that PF did play a mediating role in improving the outcome variables where improvement was identified by the short-form measures. As stated above, given that some previous studies have failed to find an improvement in PF, there is mixed evidence that this construct makes a *causal* contribution to ameliorating burnout, although studies using ACT in commercial worksite types have found PF to have a mediating role (Lloyd, Bond, & Flaxman, 2013). This finding brings research into the amelioration of burnout of frontline workers into line with the broader ACT research program³¹.

³¹ Please see section 4.3 for further discussion of Psychological Flexibility as the mechanism of change.

Q5 Does varying the sequence of the ACT triflex components affect how PF changed? In this study certain aspects of the ACT triflex were shown to improve following interventions focussed on *different* aspects of the triflex; including improvement in a given aspect of the triflex which appears to result solely from intervention in different aspects of the triflex. For example, improvements were observed in the Being Open aspect of PF prior to the delivery of this aspect of the intervention. Equally, some participants did not demonstrate any change in one aspect of the triflex despite showing considerable change in others.

Taken together, these points suggest that the different aspects of the PF triflex are distinguishable yet inter-related. This finding is consistent with recent studies which have found improvements in given domains of PF from an intervention focussed on a different aspect (Sauer-Zavala et al., 2017). This provides support for the internal coherence of ACT when applied in this population.

Absence of change at the follow-up timepoint. A notable observation in the data is the lack of change in the full-form measures for any variable between the post-intervention and follow-up timepoints, except for one participant whose score changed significantly but in the direction of reversing the improvement seen through the intervention. This finding was unexpected, given that studies in the Reeve et al. (2018) systematic review generally favoured greater (albeit not always significant) changes at follow-up compared with post-intervention, although this was not the case in a study using ACT for burnout amongst a non-frontline sample (Wersebe, Lieb, Meyer, Hofer, & Gloster, 2018). Additionally, the ACT model might expect gains to be made over a longer period of time, as behavioural patterns merge to be more values-led. It is possible that a longer follow-up period would have facilitated the detection of changes.

Limitations.³² The main methodological difficulty stemmed from the imprecision effect of using a single item for the OLBI short-form measures which only allowed four response levels. This created difficulty when assessing the visual analyses, particularly for the short-form exhaustion and work-engagement measures, and may have obscured changes in these variables. Although the rationale for limiting the participant burden by using single items for the daily measures was sound, a better compromise may have been to use two to three items per measure, administered less frequently. The measurement error created by this method of measurement can be seen in the instances where the RCI of the full-form measures identified a change which was not measured by the less-sensitive short-form versions.

Although the measures were chosen to represent a range of aspects of psychological functioning which are thought to determine occupational health and functioning there was no direct measure of effectiveness, such as a measure of the quality of interactions between staff and clients. Such measures have been employed in previous burnout research (Castro, Rehfeldt, & Root, 2016; Chancey et al., 2018) and would have provided a more robust test of the utility of this intervention, but was not used due to ethical and practical barriers.

³² Please see section 4.4 of the Extended Paper for further discussion of limitations.

Implications. Alongside the extant research, the findings here suggest that the routine offer of an ACT intervention for work-related stress could be beneficial to organisations providing direct health and social care work, although a possible dose-response relationship may exist which should be taken into account.

Further research focussed on ACT for occupational wellbeing could focus on the relationship between PF, work-engagement, and direct measures of behaviours associated with these (for example, the frequency of client engagements which was used by Castro et al.). Additionally, further understanding of the relationship between the different aspects of the ACT-triflex would be a valuable contribution to the ACT research paradigm.

Word count: 6093

Word count does not include highlights, tables, figures, or the reference list as per the JCBS journal guidance, nor footnotes which relate to the Extended Paper

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Extended Paper

Extended Introduction

1.0 Overview

This section acts as an extension to the Introduction of the Journal Paper. This will focus on the definition and theory of the construct of burnout, and how this was operationalised for the purpose of this study. There is also consideration of the specific role of frontline homelessness workers, the use of ACT for burnout, and acknowledgement of broader systemic issues which underly burnout prevalence.

1.1 Work-Related Stress in Frontline Work

1.1.1 Impact on the quality of care delivery. Although no studies have investigated the effect of work-related stress on the quality of service provision in the homelessness sector, some research attention has focussed on the relationship between perceived working conditions and the quality of care in mental health and intellectual disability services. Given that the nature of the demands across these services is broadly analogous to the demands placed upon frontline homelessness workers, these research findings are likely to be applicable in this setting.

A positive relationship between perceived working conditions and quality of work is suggested by the 'happy-productive worker hypothesis', however a review of the empirical evidence for this found mixed results (Cropanzano & Wright, 2001). The difficulty in testing this relationship may be due to the different ways that 'happiness' and 'productivity' have been operationalised across different studies (Cropanzano & Wright, 2001; Zelenski, Murphy, & Jenkins, 2008). Nonetheless, research which has attempted to understand the

relationship between worker “happiness” (however that is defined) and “productivity” in care delivery settings has also generally found a relationship. A recent systematic review and meta-analysis found that in the majority of studies doctor’s perceived working conditions were positively related to both patient safety and clinical excellence. However, the same review suggested that there was a lack of theory applied within these studies to understand the relationship, or examine the role of mediating or moderating variables (Teoh, Hassard, & Cox, 2019). Similarly, a systematic review and meta-analysis into patient safety and burnout amongst a broader definition of healthcare staff found that poor psychological wellbeing and moderate to high levels of burnout were associated with increased frequency of errors, although it warned that a lack of prospective studies meant that it was not possible to make any conclusions about the direction of causality (Hall, Johnson, Watt, Tsipa, & O’Connor, 2016).

Looking specifically at burnout amongst direct-care workers in a mental health setting, higher levels of burnout have been found to be associated with more negative and rejecting feelings towards clients (Holmqvist & Jeanneau, 2006) and with poorer worker-reported quality of care delivery (Salyers et al., 2015). Although no direct measure of quality of care was used in either of these studies, in the former study it is inferred that rejecting attitudes amongst staff are likely to reduce their ability to interact effectively and therapeutically with clients and so have an adverse impact on the quality of care delivery.

Although conducting one-to-one psychological work is likely to engender different pressures which may lead to burnout amongst practitioners, the effect of burnout has been shown to have an adverse impact on the recovery of clients as measured by client-report questionnaires (Delgadillo, Saxon, & Barkham, 2018).

1.1.2 Nature of frontline homelessness work and work-related stress in this setting. Compared with staff working in mental health and intellectual disability contexts, there has been relatively little research attention directed to the nature of frontline homelessness work, the level of work-related stress typically experienced by those doing this work, or the factors which mediate or moderate this. It is believed that those working in mental health are likely to face specific stressors due to the nature of their work, such as therapeutic relationship with clients and the nature of the psychological trauma they are working with (Maslach & Leiter, 2016). As such, it is likely that the specific antecedents and processes of burnout within the frontline homelessness worker population is similarly specific to this context.

Staff burnout has been reported as being problematic amongst frontline homelessness workers in the United States (Brown & O'Brien, 1998) and Canada (Schiff & Lane, 2019). It has not been possible to locate figures for the rate of burnout amongst UK workers in this sector. The nature of frontline work homelessness work has recently been written about in the Guardian newspaper (Anonymous, 2016), and been written about on twitter (Burley, 2019).

Given the relative lack of literature focussed on this population, much of the theory and empirical evidence that I shall draw on is taken from the literature on work-related stress and burnout amongst staff working in a frontline capacity with people with an intellectual disability (PWID) or mental health difficulties. This body of literature is relevant given the similarity in the challenges that staff face whilst working in both of these contexts. For example, both frontline homelessness workers and staff working in acute mental health settings frequently work with clients who have been traumatised, and so they are at risk of vicarious traumatisation (Baird & Kracen, 2006).

Other likely stressors for frontline homelessness staff are facing antisocial behaviours, low expectations of change (Maguire, Grellier, & Clayton, 2017), and low availability of professional supervision (McDonagh, 2011). Similar working conditions for frontline staff in an ID and mental health context have been found to predict higher rates of burnout (Devereux, Hastings, & Noone, 2009; Hensel & Laux, 2014; Jenkins, Rose, & Lovell, 1997). Indeed, the original conception of burnout was specifically understood as a response resulting from interpersonal stressors (Maslach & Leiter, 2016), which appears to be a large commonality of both frontline homelessness work and working with PWID and in mental health settings.

1.2 Burnout and Work-Engagement.

This section will elucidate the concepts of burnout and work-engagement. The literature discussed here is primarily from the occupational health literature.

1.2.1 Original definition of burnout. The term 'burnout' was originally introduced in the 1970s by Maslach (1976) and has since been the subject of much research attention. The initial research was primarily undertaken using exploratory qualitative techniques, which was followed by a cross-sectional study using factor analysis to determine the three-factor topography which was originally postulated for the Maslach Burnout Inventory (Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986; Maslach & Leiter, 2016), which has gone on to be thought of as the "gold standard" burnout measure (Eckleberry-Hunt, Kirkpatrick, & Barbera, 2018). The three dimensions were originally labelled emotional exhaustion, depersonalisation, and reduced personal accomplishment (now more commonly referred to as reduced self-efficacy). The latter dimensions are now often referred to as cynicism and inefficiency respectively. The change in terminology reflects the broadening from the original understanding that burnout resulted from inter-personal stressors, and so it was thought to apply purely to those working in human-services contexts. However it has now also been recognised that other aspects of work can contribute to burnout, such as administrative tasks, level of work-load (Schaufeli & Enzmann, 1998), organisational change (Linzer et al., 2017), imbalanced job design, occupational uncertainty, and a lack of value and respect (Harvey et al., 2017). The recognition of the potential breadth of antecedents to burnout led to the development of the MBI-General Services (Schaufeli, Leiter, Maslach, & Jackson, 1996), which is designed for use in work-contexts outside of the human services occupations where interpersonal stressors are a less dominant aspect.

The traditional conception of burnout suggested that a person had to score highly on all three dimensions for burnout to be present. In spite of this, there was some disagreement on the exact course with which burnout developed. Although there seemed to be consensus

that exhaustion was the first dimension that a person would exhibit, some researchers suggested that a reduction in self-efficacy would mediate the presence of depersonalisation (i.e. Rogala et al., 2016), whereas others found that across different time-points exhaustion could lead to depersonalisation, and depersonalisation could lead to both exhaustion and a reduction in self-efficacy (Taris, Le Blanc, Schaufeli, & Schreurs, 2005).

1.2.2 Critique of concept of burnout. The traditional conception of burnout has come under scrutiny for its conceptual integrity, its specificity to work-related stress only, the three-factor approach used by Maslach and colleagues, and its focus on absence of work-related wellbeing. These are dealt with separately here.

1.2.2.1 Criticisms of the theoretical basis of burnout.

Possibly arising from the process with which the MBI was developed (i.e. in an empirical manner, rather than from a theoretic perspective), the construct of burnout has come under criticism for a number of reasons.

The originators of the burnout construct have insisted that all three dimensions must be present for a person to be classed as experiencing burnout. However, this is different from how the MBI measure is applied in research and practice, where often only one (usually the emotional exhaustion subscale) or two (typically the emotional exhaustion and depersonalisation subscales) are used (Bianchi, Schonfeld, & Laurent, 2017; Eckerberry-Hunt et al., 2018). This has led to a situation where the purported conception and how the construct is usually operationalised are at odds (Bianchi et al., 2017). Consequently, this has led to a disparity between how burnout

is defined across different pieces of research, which dilutes the consistency with which the construct is applied.

Having been born out of the same research which developed the MBI, the definition of burnout has become synonymous with the tool which is primarily used to measure it. This creates a circularity of definition between the most frequently used measure and the construct itself (Kristensen, Borritz, Villadsen, & Christensen, 2005). Despite such circularity, the manual for the MBI states that the three subscales should remain separate, and a total score of the three should not be calculated. This creates a lack of clarity as to what 'burnout' is, if it is not a sum of its parts, and in which case on what theoretical basis the three subscales are related to the concept of burnout (Kristensen et al., 2005; Shirom & Melamed, 2006). Again, the fundamental meaning of the term has been brought into question resulting from the change in focus from burnout being a state brought about from interpersonal work stressors, to any work stressors (Kristensen et al., 2005). Some of these criticisms have been addressed (Schaufeli & Taris, 2005), however there is ongoing controversy about the internal integrity of the construct of burnout

Finally, a recent review has questioned the distinction between burnout and depression (Bianchi, Schonfeld, & Laurent, 2015). In this review, the three dimensions of burnout were described in ways which are analogous with established symptoms of depression, and empirical evidence provided which partially supported this thesis.

1.2.2.2 Specificity to the work domain. Doubt has been cast as to how specific burnout is to work-related stressors. This is an extension of the critique explicated in section 1.2.2.1 regarding the similarity of the construct of burnout to the symptoms of depression, in that both of these suggest that burnout could be viewed as a construct which goes beyond the boundaries of work-related stress, to incorporate stressors outside of the work environment.

A broad longitudinal Finish study (Upadyaya, Vartiainen, & Salmela-Aro, 2016) found relationships between a number of extra-occupational and intra-occupational variables, such as life satisfaction, depression, work engagement, and burnout. This is suggestive that work-related variables can influence variables outside of work, and vice versa. This is problematic for the construct of burnout, which is supposedly related only to the occupational domain (Schaufeli & Taris, 2005). Furthermore, burnout is described as being a conceptually different variable than 'wellbeing', although it is often used as a proxy for wellbeing which may further erode the integrity of the extant burnout research (Hall et al., 2016).

1.2.2.3 Multiple dimensions, or ways of coping? Despite the postulated three-factor structure of burnout, a substantial body of research suggests that two of the three factors may represent coping strategies, rather than being core components of burnout. Indeed, the first conceptualisation of burnout suggested that the three dimensions may develop over time in a sequential manner (Maslach, 1982) such that emotional exhaustion would result from elevated work-related demands, which would be followed by attempts to cope through the depersonalisation of clients (thus reducing the emotional burden on a worker). The depersonalisation of clients would make work-tasks less fulfilling and result in the employee being less effective.

There has been equivocal empirical support for the order of sequential development of the different dimensions of burnout, with different sequences proposed (Taris et al., 2005). Contrary to the purported sequential development, it has also been shown (in a study of homelessness workers no less), that recognising and emotionally engaging with a client's distress actually reduces emotional exhaustion (Ferris et al., 2016). This paradoxical finding appears to show a reversal of the purported sequence of development of burnout. This was explained as being a processes where frontline workers are mobilised to work more effectively as a result of recognising a client's distress, which in turn reduced their experience of exhaustion by increasing job-satisfaction, rather than adding to emotional exhaustion. Similar findings elsewhere have termed this effect a positive gain cycle (Llorens-Gumbau & Salanova-Soria, 2014).

The different possible sequences of development, and the possibility that these may interact as mediators or moderators of one another suggests that one or more of the dimensions may actually be strategies for coping, rather than symptoms of burnout. For example,

it has been shown that affective emotional disengagement from work activities can be used as a way of coping with emotional exhaustion (Brown & O'Brien, 1998; Ferris et al., 2016; Thanacoody, Newman, & Fuchs, 2014), which appears analogous to the use of depersonalisation of clients. If this is the case, it is plausible that burnout syndrome is better understood as being principally emotional exhaustion due to work-related stressors. Indeed, the emotional exhaustion subscale has found to be more strongly predictive of stress-related health outcomes than either of the other two subscales (Maslach & Leiter, 2010), which is consistent with the other two subscales representing possible psychological coping strategies.

In response to this criticism, Leiter and Maslach (2016) used a latent profiling method to identify five burnout profiles, which in addition to the two expected profiles of burnout (i.e. high on all subscales) and 'engagement' (i.e. low on all subscales), also demonstrated that some groups of participants scored highly on only one subscale. These alternative profiles were labelled disengaged (i.e. high depersonalisation and emotional exhaustion), over-extended (i.e. high emotional exhaustion only), and ineffective (i.e. low personal accomplishment only). Although this data was used to argue in favour of the importance of the multi-factorial burnout construct (i.e. incorporating all three dimensions as originally purported), it has been argued that this in fact demonstrates the lack of a central syndrome which consists of all three dimensions (Bianchi et al., 2017). Part of Maslach and Leiter's argument to maintain the multi-dimensional conceptualisation of burnout is that to make it simply emotional exhaustion would risk devaluing the term 'burnout', as it would be obsolete if it was simply 'exhaustion' (Leiter & Maslach, 2016). This in itself however is not a robust reason to conceptualise burnout in a way which is not supported by empirical evidence, and which lacks conceptual integrity. Viewing the diminishing personal

accomplishment and increasing depersonalisation as ways of coping that are functional for the individual is consistent with the epistemological position common in ACT (see section 2.1 of the extended paper for discussion of the epistemological position taken)

1.2.3 Concept of work-engagement. Work-engagement has sometimes been formulated as being the antipode of burnout (Bakker & Demerouti, 2008; Costa, Passos, & Bakker, 2016). From this perspective, work engagement would be represented by a low score on each of the scales of the MBI, thus giving descriptors of vigour (the inverse of exhaustion), dedication (the inverse of low personal accomplishment), and absorption (the inverse of depersonalisation) (Bakker & Demerouti, 2008). An alternative conceptualisation has also been postulated, with two dimensions common to both burnout and engagement: an exhaustion-vigour dimension, and a cynicism-dedication dimension (Costa et al., 2016). However, it has also been suggested that work-engagement represents a separate construct altogether (see section 1.2.4 for a fuller discussion of this distinction).

The emergence of work-engagement as a research focus stems from the rise of positive psychology (Korunka, Kubicek, Schaufeli, & Hoonakker, 2009), and calls for a greater focus on the promotion of workplace wellbeing rather than alleviating burnout (Eckleberry-Hunt et al., 2018).

1.2.4 Burnout and engagement: Opposite ends of the same spectrum or distinct constructs. Mirroring some of the conceptual difficulties which have been levelled at the burnout construct, the relationship between burnout and engagement has also been the focus of much debate.

Despite having originally been described as the antipode of burnout (Bakker & Demerouti, 2008), it has also been suggested that engagement may be a distinct construct. This aspect of the relationship has become the focus of the debate. This has been empirically investigated and been the subject of theoretical analysis.

The empirical work into this question has mostly used statistical methods such as factor analysis or latent profile analysis. Of two meta-analyses of such studies, one found that engagement and burnout were distinct (Goering, Shimazu, Zhou, Wada, & Sakai, 2017); and the second – a meta-analysis of longitudinal studies – found that although distinct, engagement and burnout have a reciprocal negative relationship, i.e. over time as one increased the other would decrease (Maricuțoiu, Sulea, & Iancu, 2017). Consistent with these findings, a study which was not included in either of these meta-analyses (due to a different methodology which would have made it unsuitable: latent profile analysis) suggested that although the vast majority of workers are accounted for by groups showing inversely related stable engagement and stable burnout, there were also some atypical profiles, which suggested that engagement and burnout, although negatively related, were not antipodes of the same continuum (Mäkikangas, Hyvönen, & Feldt, 2017). Overall, it has been suggested that work engagement and burnout are distinct yet overlapping constructs, stemming from different antecedents (Taris, Ybema, & van Beek, 2017).

Mirroring the criticisms levelled at burnout research for relying too heavily on a single measure – the MBI – it has been suggested that

the debate about the relationship between burnout and work engagement is constrained to a debate about the relationship between the two most commonly used measures: the Utrecht Work-Engagement Scale (UWES; Schaufeli et al., 2006) and the MBI (Schaufeli & De Witte, 2017). Of the studies included in both of the aforementioned meta-analyses, almost all used both the UWES and MBI. Interestingly, two studies which used an alternative measure, the Oldenburg Burnout Inventory (OLBI; Halbesleben & Demerouti, 2005) found that the two subscales – exhaustion and engagement – were independent (Peterson, Demerouti, Bergström, Asberg, & Nygren, 2008; Reis, Xanthopoulou, & Tsaousis, 2015).

Given the complexity of the relationship shown in the empirical studies, and the differing ways of operationalising both burnout and engagement (as demonstrated in the use of different psychometrics to measure them), a discussion of the theoretical issues underlying them is warranted.

It has been suggested that if there are differences between constructs relating to how a person feels and behaves towards their occupation, these differences should be carefully elucidated, as not doing so risks the way that each construct is related to other aspects of the work environment and employee being misunderstood if they are subsumed under one construct (Schaufeli, Taris, & Van Rhenen, 2008). Given that the empirical evidence cited above is suggestive of engagement and burnout being distinct but related, other writers have discussed how models of burnout and engagement can take account of this. For example, it was shown statistically that the level of 'work challenge' led to an increase in *both* engagement and burnout over time (Maricuțoiu et al., 2017). This suggests that the appraisal of a 'work challenge' would play a role in determining its effect. This was understood from the perspective of the Job Demands-Resources model (see section 1.2.6 for further information

on this). The nature of subjective experience of engagement and burnout have also been contrasted. For example, it has been suggested that engagement is likely to fluctuate on a task-by-task basis, whereas the exhaustion element of burnout is likely to be more stable and affect an employee in a similar fashion throughout each day (Sonnentag, 2017).

For the purpose of this research project, in light of the above criticisms of the original burnout construct, burnout has been conceptualised as emotional exhaustion primarily resulting from work-related stressors as its central feature. The term burnout has been used throughout – including use with participants – for its simplicity and common usage. The way that burnout has been conceptualised in this project is reflected in the choice of burnout measure, please see section 2.4.1.

1.2.5 Resilience. Enhancing psychological resilience has been viewed as an important aspect of building employee's ability to cope with stressors inherent in their work. At the individual level (to distinguish it from 'team-resilience') it has been defined as "a process whereby people bounce back from adversity and go on with their lives" (Dyer & McGuinness, 1996). The importance of building resilience to cope with work-related stressors has been identified by mental health workers where themes of what contributed to resilience included practical coping strategies, communication, and an awareness of personal values (Lamb & Cogan, 2016).

It has been suggested that Psychological Flexibility (a key Acceptance and Commitment Therapy construct – see section 1.4.2) may be a fundamental source of psychological resilience (Kashdan & Rottenberg, 2010; Parsons, Kruijt, & Fox, 2016). For example, it has been shown in a study of social workers that value congruence (the

degree to which one's work allows one to enact personally meaningful ideals – an aspect of Psychological Flexibility) enhances a person's sense of self-efficacy (a dimension of burnout, by the traditional Maslach definition at least) and is inversely associated with emotional exhaustion (McFadden, Mallett, & Leiter, 2018). This is suggestive of the importance of Psychological Flexibility in the wellbeing and functioning of employees (see section 1.4.4 for further information on the link between Psychological Flexibility and burnout).

1.2.6 Models of burnout and engagement. A number of different models have been developed to understand and explain a person's responses to work-related stress. The most relevant are explicated here.

1.2.6.1 Sequence models of burnout. The earliest models of burnout proposed that it developed through a set sequence of phases, incorporating the subsequent addition of each of the three components in its traditional definition (i.e. exhaustion, depersonalisation, and reduced personal accomplishment). For example, it was suggested that unpleasant interactions with clients could mark the onset of emotional exhaustion, which would lead to depersonalisation as a defensive response. Due to the depersonalisation of clients, the person would no longer feel able to function effectively at work which would result in a reduction in their personal accomplishment (Leiter & Maslach, 1988). However, the exact sequence has been shown to operate in more ways than this single pattern (i.e. Rogala et al., 2016; Taris et al., 2005), and this model does not attempt to explain the nature of the antecedents of exhaustion (or any other domain of burnout). Furthermore, each of the aspects of burnout have been shown to have different antecedents themselves, and to interact in more complex patterns than a simple phase-model can account for (see section 1.2.2.3).

1.2.6.2 Transactional models of burnout. The transactional model of stress developed by Lazarus and Folkman (1984) has been applied to work-related stress and burnout. Transactional models of stress provide a greater focus on the interaction between the environment and a person through the process of an individual's appraisal. In the case of this model, there are two stages of appraisal: a primary appraisal of the threat (including psychosocial threats) of a situation; and in the case of a threat being identified, a secondary appraisal of the perceived ability to cope with the threat. From the perspective of a transactional model, 'problem focussed coping – that is, attempts to cope with a perceived challenge at its source – has been shown to predict better emotional adjustment than

'emotion focussed coping', which includes strategies such as wishful thinking or escape (Healy & McKay, 2000). As a side-note, such 'emotional focussed coping' could be re-framed as 'experiential avoidance' in ACT parlance (see section 1.4.2).

Although finding some empirical support in work-related stress contexts (i.e. Mark & Smith, 2012; McCarthy, 2009), as this model does is not specifically work-related, specific models have been developed for this purpose.

1.2.6.3 Developmental models of burnout. A commonly used developmental model is the Job Demands-Resources model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which builds on earlier transactional models by also accounting for work-engagement. This model is based on two schools of thought regarding human responses to stress: theories around the development of fatigue, and theories around health promotion and maintenance.

Job demands refer to aspects of a person's work which require mental or physical effort, and consequently cost the individual in terms of their level of fatigue. It is postulated that in response to increased demands, an individual will exert greater effort to meet this level of demand (such as by working harder, or a subjective sense of increased exertion). The long-term consequence of such a compensatory strategy is exhaustion.

Job resources refer to the characteristics of the individual or of the work-environment which are of utility in completing work tasks, reduce job demands, or promote personal and professional growth. Job resources include characteristics such as social support, knowledge, safety climate, and leadership. It is postulated in the

original theory that job resources would enhance an individual's level of work-engagement.

Contrary to the original theory, a meta-analysis has shown support that job demands (excepting physical demands) are positively associated with burnout but negatively associated with engagement; while resources are negatively associated with burnout, but positively associated with engagement. (Nahrgang, Morgeson, & Hofmann, 2011). Furthermore, a recent study which was not included in this meta-analysis (Robins, Roberts, & Sarris, 2018), included Psychological Flexibility as an aspect of personal resources. This was included on a conceptual basis as it fits within the definition of a personal resource extant in the literature (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Empirically, Psychological Flexibility was found to mediate the relationships between personality factors and both burnout and engagement. This suggests that Psychological Flexibility may be a suitable target for intervention (see section 1.4.2 for further detail on Psychological Flexibility).

1.2.7 Other states of work-related distress. Aside from the terms burnout and engagement, there are a number of other terms relating to psychological states resulting from work pressures which are used in the literature. These are sometimes used synonymously with the term burnout despite being conceptually distinct, resulting in a different presentation, and arising from different circumstances. This is thought to have created difficulty in the study of these terms, where clumsy use of the terminology has led to poorly operationalised terms, and confused the findings of empirical research (Branson, 2019).

1.2.7.1 Vicarious trauma. The term vicarious trauma was coined to describe the effect of repeated indirect exposure to traumatising material, which was observed to be impacting mental health professionals (McCann & Pearlman, 1990). Disclosures containing traumatic content are understood to impact on a clinician's own cognitive schemas, emotional response, or spiritual beliefs (Branson, 2019). For example, through listening to and empathising with a client, a clinician may be indirectly exposed to the same stimuli which has caused the client's change in beliefs about the nature of power, threat, or trust to have been modified. These changes are believed to occur in response to cumulative exposure, rather than a single event, and are a consequence of engaging in an empathic relationship with a client (Sansbury, Graves, & Scott, 2015). Unlike burnout, vicarious trauma is not thought to respond to improvements in the work-environment such as decreased workload (Branson, 2019); and does not share the same antecedents as described in section 1.2.1 and 1.2.6, such as high levels of job demands and low levels of job resources.

1.2.7.2 Compassion fatigue. Figley (1993) introduced the term 'secondary traumatic stress' to describe the impact on a professional of interacting with trauma survivors. The term was later changed to compassion fatigue, although the two appear to be used interchangeably (Sansbury et al., 2015). The impact of interacting with trauma survivors has been conceptualised as being analogous to post-traumatic stress disorder, the criteria for which includes acceptance that the traumatic event may have been experienced second-hand, such as a person witnessing a loved-one in great danger (American Psychiatric Association, 2013). As such, compassion fatigue has been understood as a similar stress-response, where a client's description of a trauma intrudes into the clinician's consciousness, and may result in avoidance of related situations, numbing of emotional responses, and elevated arousal (Figley, 2002).

Compassion fatigue is understood to be a distinct conceptual entity from burnout (or indeed, vicarious trauma). Whereas burnout develops in response to a broad range of work-related demands and impoverished resources, compassion fatigue is a specific response to vicariously witnessing a traumatic event. It does not involve the change in cognitive schemas that is an intrinsic part of the response of vicarious trauma, and its onset (and resolution) is thought to be much more rapid (Branson, 2019).

1.2.7.3 Countertransference. Countertransference refers to the psychodynamic understanding of the therapist's emotional response to the client and the material that they bring to therapy (Tosone, Nuttman-Shwartz, & Stephens, 2012). It is believed that if a clinician has a specific unresolved attachment, they may respond to a client's emotional difficulties in a way which is largely guided by their personal experiences. Figley gives an example of a counsellor whose own personal relationship with their mother interfered with their ability to empathise with a client who was experiencing guilt because of her relationship with her mother (2002, pg. 1434). This resulted in a form of emotional entanglement which both impeded the counsellor's ability to perform their job and caused them distress.

Given that it is an emotional and behavioural response, often as part of a psychodynamic defence, countertransference is understood to have a much more rapid onset than burnout, which is a more gradual erosion of one's energy for work tasks (Figley, 2002). Furthermore, countertransference is specific to the experience a clinician has with a specific client, and oftentimes countertransference may provide clinical information to a therapist which is used to generate a formulation of the client's difficulties (Tosone et al., 2012). Despite this utility, it can clearly also form a specific work-related stress response.

1.2.7.4 Presenteeism. Somewhat distinct from the previous terms, which relate to emotional responses resulting from difficult experiences relating to work, presenteeism is the act of showing up for work when one is ill (Johns, 2010). Despite being superficially attractive for employers, this is now thought to – paradoxically – risk a *reduction* in employee productivity (Collins et al., 2005).

An understanding of presenteeism is pertinent for a study into burnout, as turning up for work whilst experiencing burnout would qualify as presenteeism; equally, turning up for work despite feeling unwell will reduce a person's ability to recover adequately, which will increase the risk of burnout (Demerouti, Le Blanc, Bakker, Schaufeli, & Hox, 2009). Indeed, empirical studies have found a moderately strong positive relationship between levels of presenteeism and burnout (Demerouti et al., 2009). The likelihood of an employee engaging in presenteeism is thought to be increased by factors such as other colleagues being unable to take on extra work-load in their absence, no means to adjusting the workload to account for a person's absence, and a sense of teamwork where others are dependent upon a person to not be absent (Johns, 2010). These factors are likely to be present in the psychosocial environment of frontline working with homelessness (see section 1.1.2).

As a result of this extant relationship between burnout and presenteeism, a conscious effort was made in this study to avoid there being any risk of promoting such attitudes. This could have occurred if, for example, a participant had identified a personal value aligned with being present for work, without any context or consideration of the logical consequences of such a value (for further discussion on values from an ACT-perspective, see section 1.4.2.6). This was mitigated against by discussing how to balance values so that they reflect both a personally meaningful ideal to strive for whilst avoiding ones which may be self-defeating in the application.

1.3 Organisational Responsibilities for Occupational Wellbeing

Although this research focusses on an intervention at the individual level (i.e. aiming to change an individual member of staff's response to their work environment in order to reduce their stress), this should be viewed in the context of the organisational responsibility to provide a psychologically safe environment to work in.

It has been suggested that within healthcare (i.e. in NHS settings) a distinction can be made between stressors which are inherent in the work, such as challenges arising from working directly with those experiencing high levels of distress; and stressors which are created by organisational factors, such as targets, pressures, and staff relationships (Elliot et al., 2018). Viewing an organisation as holding responsibility to – insofar as is possible – reduce both of these sources of potential stressors shares the responsibility for address work-related stress more equally between the organisation and the individual. This is in contrast with an 'individual resilience' perspective, where the locus of responsibility is within each staff member. The latter perspective is thought to lack credibility with staff teams, neglects to address systemic issues such as excessive workloads and under-resourcing, and fails to recognise that resilience should be seen as exceptional, rather than the norm (Elliot et al., 2018). Such critiques of the over-reliance on individual failure in place of organisational responsibility have also been levelled at physician training and employment (Montgomery, 2014). This re-focussing on organisational and systemic functioning – rather than individual resilience – is reflected in the introduction of Psychologically Informed Environments (PIEs; Keats, Maguire, Johnson, & Cockersall, 2012) for services working with homelessness. This guidance suggests that staff support and training should be an integral part of the overall approach at an organisational level, which

incorporates a proactive role for preparing individuals for the stressors inherent in the work but does not exonerate the organisation of its responsibility to minimise the stressors an individual is exposed to.

Some concrete examples of organisational tasks for providing a psychologically safe environment include the provision of adequate control over job design and workload, procedural and relational justice, communication across the organisation, supportive management, and the availability of supervision (Gevaux & Petty, 2018; Gray-Stanley & Muramatsu, 2011; Harvey et al., 2017). The latter of these points may be particularly pertinent for frontline homelessness workers, where the provision of clinical supervision is frequently absent (McDonagh, 2011). Given that there is organisational control (or at least influence) over these contributory factors, there is clearly a large role for organisations to fulfil, rather than burnout being a purely individual problem.

The responsibility of organisations to develop appropriate conditions to mitigate against the risk of stress at work is enshrined in NICE guidance (National Institute for Health and Care Excellence, 2009) and in UK law with the Management of Health and Safety at Work Regulations act 1999.

Providing individual level interventions – such as the intervention described in this study – is consistent with highlighting organisational responsibilities. Given that it is not possible to entirely eliminate the stressors inherent in frontline working, there is a case for prevention and amelioration at both organisational and individual levels (Elliot et al., 2018).

1.4 Acceptance and Commitment Therapy

1.4.1 Relational Frame Theory. Acceptance and Commitment Therapy (ACT) is an intervention which developed from the understanding of human behaviour provided by Relational Frame Theory (RFT). RFT is a behavioural theory of language, with implications for understanding the development and maintenance of psychological distress based on the purported pan-diagnostic processes which cause this.

1.4.1.1 Background to RFT. RFT is a contextual behavioural understanding of language and cognition (Hayes, Barnes-Holmes, & Roche, 2001), the core principle of which is that humans are able to learn to relate different stimuli under arbitrary contextual control. This means that two distinct sensory stimuli can be related based different on attributes, for example, the sound of a word and the appearance of an object. The relation between stimuli occurs within relational frames (see section 1.4.1.3). It is suggested by RFT that these relationships are learnt through operant conditioning which occurs over multiple exemplar training, such as through repeated demonstrations by care givers to a child.

1.4.1.2 Stimulus functions. The function of a stimulus is the behaviour which that stimulus elicits. Stimulus functions can be instinctual, established through operant or classical conditioning, or may be derived from existing stimulus functions (as will be described below). Stimuli can be categorised as holding either non-arbitrary functions or arbitrary functions. Non-arbitrary functions are based on intrinsic characteristics of stimuli, such as the physical properties of an object. Arbitrary functions are language-based functions which we can apply to a stimulus through our learned experiences of it or through derived relational learning. For example, the meaning we give to a word (a word being represented by a specific noise [in speech] or visual marking [in written form] and so it does not *intrinsically* hold the qualities which are applied to it) or the value we apply to coins (such as where the financial value [arbitrary quality] is unrelated to the size [non-arbitrary quality])(Hayes et al., 2001)

1.4.1.3 Types of relational frames. Stimulus functions can be altered through learning a relation between the stimuli and other stimulus functions. These relationships are known as relational frames.

There are a number of relational frames. The term 'relational frame' is used figuratively, that is, RFT does not purport the physical existence of any frames, but they are used to describe of the types of relationships which may exist between stimuli.

The most basic is the relational frame of correspondence. This relational frame is usually stated that once a person learns that 'A' is equivalent to 'B', there is a simultaneous learning that 'B' is equivalent to 'A'. For example, when a child is taught that an identified object is called an 'apple', the child will therefore know that an 'apple' is what the identified object is. Despite its apparent

simplicity, this bidirectionality is thought to underly the basics of human language acquisition. Furthermore, these frames may define a relationship such as relative size, such as where 'X' is more valuable than 'Y', which, once learnt, implicitly directs the understanding that 'Y' is less valuable than 'X'. Additionally, frames may state the nature of such relationships in any kind of modality, including temporal, hierarchical, oppositional, and evaluative.

1.4.1.4 Transformation of stimulus functions: Properties of relational frames

Two important properties of relational frames are referred to as mutual entailment and combinatorial entailment. Mutual entailment describes the bidirectionality of relational learning. If a relationship of correspondence has been demonstrated between 'A' and 'B', the same (or, depending on the type of frame, inverse) relationship will consequently be derived between 'B' and 'A' without this having to be explicitly taught. For example, if a child learns that 'York is North of Sheffield', they will additionally learn that 'Sheffield is South of York' without having to be explicitly taught this; this is mutual entailment.

For combinatorial entailment, if a frame of relational correspondence is demonstrated between 'A' and 'B', then later between 'B' and 'C', the same relationship will have been implicitly learnt between 'A' and 'C', even where this relationship has not been explicitly taught in the individual's learning history. To further expand on the example above, if a child later learns that 'Sheffield is North of Nottingham', the combinatorial entailment of these two frames will produce a larger frame containing 'York is North of Nottingham', even where this relationship has not been explicitly demonstrated (Ruiz, 2010).

The combination of multiple frames and the bidirectionality of the relationship between stimuli contained within them gives humans the ability to derive relationships even where these relationships have not been explicitly learned in the individual's history. However, it also results in the arbitrary applicability of relational frames. That is, the human ability to find a sense of meaning between any two unrelated stimuli, through the application of relational frames. The consequence of this is that stimuli which do not share any formal properties may have a relationship derived. This is pertinent in the RFT model of human distress, described below.

1.4.1.5 RFT and rule governance. Many ACT theorists believe that traditional behaviourism technologies do not provide an adequate explanation of rule-governed behaviour, such as when potential reinforcers are future-bound. However, the RFT understanding of language – particularly relational frames which state a relation between future events and future reinforcers – can explain such rule governed behaviour. For example, a statement about future recompense, such as 'you will pass your thesis in six months if you work every day this month' will not act as a platform for reinforcement of any thesis related behaviour, as there is no immediate reinforcement, and no prior reinforcement to initiate the behaviour. Or stated differently, such rule-governed behaviour cannot be accounted for by an ABC (Antecedent, Behaviour, Consequence) formulation, as the rule cannot act as an antecedent.

From an RFT perspective, frames such as before-after relationships can change the stimulus functions of 'thesis work', and frames containing 'thesis work' and 'typing on one's laptop' can specify the behaviours which the rule depends on. As such, the context of the rule itself can become the antecedent to the behaviour (Barnes-

Holmes, Barnes-Holmes, McHugh, & Hayes, 2004; Törneke, Soriano, & Salas, 2008). This also applies for rules provided by oneself.

1.4.1.6 RFT explanation of human psychopathology: Psychological Flexibility and Inflexibility. From an ACT perspective, human distress is an inevitable and universal consequence of using language (Hayes, 2002). This is because of the relational frames associated with using language cause us to be entangled with the initial experience of an event, even after the event has passed. For example, describing a story of an upsetting event can evoke the same feelings associated with the event. Additionally, relational frames predispose us perceiving our own thoughts (i.e. internal language behaviour) as literal truth. This may become problematic when a person's learning context gave rise to relational frames which incorporated their sense of self with negative evaluative statements which are then perceived as being 'true', rather than perceived as an outcome of a specific arbitrary entanglement of relational frames (Fletcher & Hayes, 2005). Furthermore, the strategies which an individual may use to avoid the discomfort or emotional pain associated with such memories or thoughts (such as avoidance or trying to not think about something) can – paradoxically – increase the frequency and intensity of the very thoughts that they are attempting to avoid (Wenzlaff & Wegner, 2000). From an RFT perspective, this is understood to occur as the mental process of trying to 'not think' about something will inevitably 'activate' relational frames which comprise that thought or memory. Any 'successful' attempts at avoidance (i.e. behaviours that, at least temporarily, reduce the individual's level of distress or discomfort) will reinforce the stimulus function of that behaviour. The effect of this is a reduction in the individual's behavioural repertoire – often including other behavioural manifestations of avoidance in order to exert control over aversive internal states – which over the longer-term will impair the individual's ability to behave flexibly in ways which would aid them to pursue enjoyable or meaningful activity (Barnes-Holmes et al., 2004).

1.4.2 Psychological Flexibility and the six ACT-processes.

In ACT parlance, Psychological Flexibility is the core construct which is understood to mediate an individual's ability to respond effectively to their environment. It comprises six processes which are purported to support and promote a flexible style of responding. This section will first define Psychological Flexibility in more detail, followed by an explanation of each of the six processes of which it is comprised. These descriptions will be complemented by the RFT basis for their inclusion in the therapeutic tool of ACT.

1.4.2.1 Psychological Flexibility. As stated in section 1.4.1, ACT is based on the theory of RFT. As explained above (section 1.3.1.5), RFT provides a theoretical basis for understanding the development and maintenance of psychopathology. Within ACT, the processes which contribute towards such development and maintenance are described as causing a person to be 'Psychologically Inflexible' – a mode of behavioural responding to the environment which traps an individual with their distress despite their attempts to ameliorate it and reduces their behavioural repertoire as a consequence of their attempts to reduce this distress. Conversely, 'Psychological Flexibility' describes the topology of responses which promote the individual's ability to live a meaningful and valued life *in spite of* difficult private experiences. As such, ACT seeks to promote Psychological Flexibility through the six processes, not by reducing the frequency or intensity of difficult internal experiences, but by changing the stimulus function of them (Luoma, Hayes, & Walser, 2007).

The ACT approach to therapy is most commonly shown in the so called 'hexaflex' model of psychological flexibility. This seeks to

visually demonstrate the inter-relation of each ACT-process, which processes are thought of as mindfulness and acceptance promoting and which as change and commitment promoting, and the central position of Psychological Flexibility as the core construct (see figure 8). The aim when conducting ACT is to support a person to either change their behaviour, or persist in their behaviour, dependent upon what the situation dictates in order for them to move towards valued ends. Psychological Flexibility is the purported construct which mediates an individual's ability to do this (Hayes, 2002).

The following sections relate to each of the individual ACT processes, although the distinction between these is often conceptually convenient rather than them being pragmatically distinct. As each process can be viewed as either promoting Psychological Flexibility or Psychological Inflexibility (depending on the direction of travel of how each processes is implemented), the sections are entitled first with the term referring to the construct promoting Psychological Flexibility, followed by the antipodal term relating to that of Psychological Inflexibility.

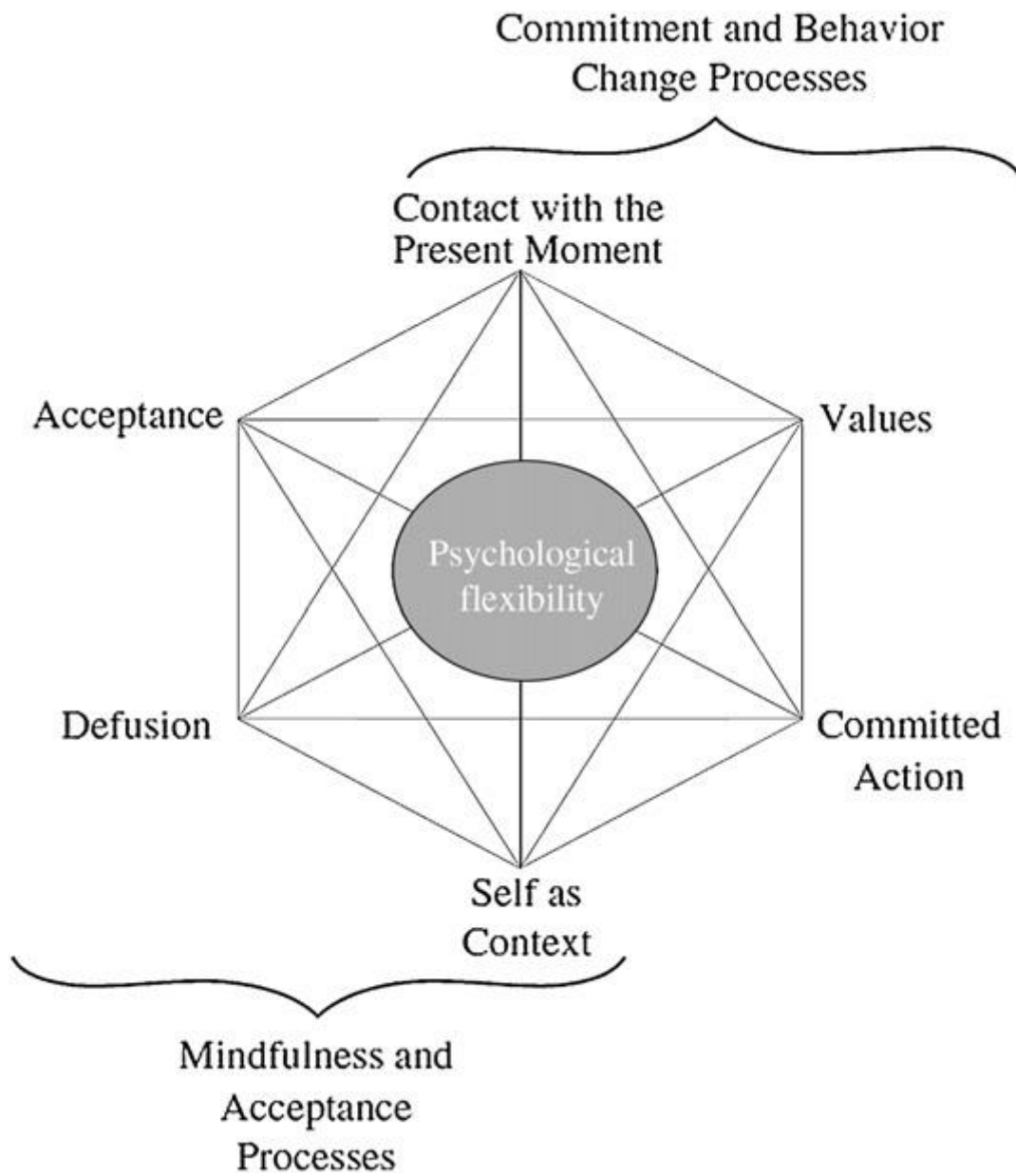


Figure 8. The ACT hexaflex model (Ciarrochi, Bilich, & Godsell, 2010)

1.4.2.2 Acceptance - experiential avoidance. Patterns of behaviour with the purpose of avoiding painful emotions or thoughts is referred to as experiential avoidance. These coping strategies may include thought suppression, avoidant coping, self-deceptive positivity, and dissociation (Hayes, Strosahl, et al., 2004). Such patterns of behaviour are understood to contribute to Psychological Inflexibility by reducing the individual's behavioural repertoire, as the behaviours associated with experiential avoidance are more constrained than appetitive forms of behavioural regulation (Fletcher & Hayes, 2005). From an RFT perspective, this can be formulated as internal events (i.e. 'certain types of thoughts') becoming attached to evaluative relations, and so an individual begins to expend energy regulating their own thoughts to the extent that this process can become harmful.

To foster acceptance – the antipode to experiential avoidance – an individual is encouraged to willingly experience the full range of their internal experiences. As with much of ACT, this process is often targeted using metaphors and experiential activity. Acceptance in the ACT paradigm is distinguished from a sense of being resigned to an experience, as it is described as an active willingness to have the experience, rather than a begrudging acceptance of a situation that the individual may seek to change (Luoma et al., 2007).

Furthermore, given its roots in applied behaviour analysis, from an ACT perspective experiential avoidance is not viewed as inherently undesirable, as there may be situations where it is functional to engage in it. The yardstick against which this is measured is referred to as the 'workability' of a person's behaviour – that is, how well this behaviour works to bring their life to be more aligned with their personal values (Barnes-Holmes, Cochrane, Barnes-Holmes, Stewart, & McHugh, 2004).

1.4.2.3 Cognitive defusion – fusion. An individual may experience their thoughts indirectly and be unaware that what they experience is a thought rather than 'reality'. In this case, the individual may be more aware of the change in the function of an object or an idea, i.e. the transformation of a stimulus function has occurred without the individual being aware that this is purely a result of their language learning context. Or, for a real-world example, a person may have the thought "I am no good at explaining RFT", and this is experienced as the reality, rather than experienced as a thought which may or may not accurately represent reality. This experience is termed Cognitive Fusion (Fletcher & Hayes, 2005).

Cognitive Fusion undermines an individual's Psychological Flexibility as it suggests that there is a literal truth to all thoughts, which must then act as stimuli for behavioural responses. These behavioural responses are problematic when they are at odds with behaviours which would lead the individual to a more valued life. As such, fostering Defusion will also support the process of acceptance, as internal experiences will be less feared if they are recognised for what they are, rather than viewed as a literal reality (Luoma et al., 2007).

When conducting ACT, efforts at promoting Cognitive Fusion include exercises intended to support the individual to view their thoughts as thoughts. For example, asking a client to repeat the sentence "I am aware that I am having the thought that...". This is intended to promote psychological distance between the individual and their thought, and thus promote their ability to behave in ways which accord with Psychological Flexibility (Barnes-Holmes et al., 2004).

1.4.2.4 Self-as-context – self-as-content. The tendency to become attached to one's own self-descriptions, and to then maintain these descriptions and to prove them to be correct is termed 'Self-as-Content'. In this mode, an individual's behaviour may be constrained by investing literal truth into thoughts that they have relating to themselves. For example, the thought "I am very good at explaining RFT" may restrict that individual's receptivity to constructive feedback on their ability at explaining RFT, assuming the stimulus functions of this statement include behavioural attempts to maintain this belief.

Conversely, viewing one's notion of the self as the context – or vessel – through which experience unfolds will undermine the saliency of attempts to maintain beliefs about oneself, and instead provides an experiential perspective from which to view one's own internal experiences. In this way, both defusion and acceptance will support a client's attempts to access this state of mind (by providing psychological distance from internal events yet willingly having such experiences). Likewise, engendering a sense of 'I' which is not dependent on statements about oneself provides support for the processes of acceptance and defusion.

1.4.2.5 Present moment awareness – dominance of the conceptualised past or future. Frequently referred to as mindfulness, which has a broad range of definitions in use (Fletcher & Hayes, 2005) this process is carefully defined from an RFT / ACT perspective. Present moment awareness involves bringing one's attention to both internal (i.e. thoughts) and external (i.e. sensory information) stimuli in the here and now. As such, this promotes a sense of the self as being a *process* rather than an object or structure. As such, this perspective undermines the perspective that thoughts have permanence or literal truth, and supports the individual in recognising cognitive fusion, experiential avoidance, or a dominance of conceptualised-self.

The alternative to present moment awareness – the dominance of a conceptualised past or future – is explained by a focus of attention on thoughts, memories, or imaginings relating to other times. This obstructs an individual's ability to act in a vital, spontaneous, connected, or creative manner (Ciarrochi et al., 2010). As such, a person's ability to adapt their behaviour to best meet their valued ends is disrupted by the entanglement with explanations or justifications for alternative behaviour, which acts to disempower the individual (Fletcher & Hayes, 2005).

1.4.2.6 Values clarity – lack of values clarity. Supporting an individual to identifying what is important to them provides an alternative – more satisfying and vital – aim for behaviours to be integrated around instead of the goal of reducing pain or distress. Rather than being termed as a goal, which is an object or position which can be achieved, values are freely chosen directions in which an individual seeks to travel in their life. For example, identifying that living a lifestyle which is environmentally sustainable would fulfil the criteria for being a value. A goal which is aligned to this value might be to eat only responsibly sourced meat. As such, a value cannot be obtained, but is present whenever an individual is present at any time that an individual behaves in a way which is congruent with it (Ciarrochi et al., 2010).

Having identified one's own values provides the yardstick by which an individual can measure the 'workability' of each decision they take, i.e. they can ask them self 'will this course of action align me with my values'. This provides the individual with options for positive reinforcement even in the face of discomfort or psychological (or indeed physical) pain (Luoma et al., 2007).

Values identification exercises usually take the form of supporting a client to consider what they want their life to stand for. It is crucial that these are chosen freely. This means that they must not be chosen based on what a client thinks others would expect of them. Furthermore, an individual may have difficulty identifying their own values if these evoke a sense of despondency based on how far they are from living a life aligned with them at the present, or other psychological pain resulting from identifying them. In such situations, the use of defusion and acceptance processes may be required to accurately and honestly identify values which are personally meaningful rather than ones which are chosen in response to entanglement with unhelpful relational frames (Luoma et al., 2007).

1.4.2.7 Committed action – Inaction, impulsivity or avoidance. Each time that an individual behaves in a Psychologically Flexible manner by choosing a behaviour based on their values, and in spite of the difficult internal experiences that this will evoke, they are manifesting committed action. Such actions are chosen in a moment-by-moment fashion based on the individual's values, rather than based on the avoidance of pain (Ciarrochi et al., 2010).

The opportunity to take committed action is supported by the other five processes, which reduce the psychological barriers to such action. For example, enhancing the individual's willingness to experience any concomitant pain (acceptance); by eroding the salience of thoughts which would divert a person's behaviour (defusion); by undermining the dominance of existing limits set on one's behaviour (self-as-context); and by having a moment-by-moment awareness of one's own thoughts and how these are changing the person's behavioural responses (present moment awareness).

The inverse of committed action: inaction, impulsivity, procrastination, overt avoidance, and more subtle internal avoidance, are all examples of integrations of behaviours which undermine an individual's Psychological Flexibility. These forms of inaction may be negatively reinforced by the reduction in immediate psychological discomfort or pain, but the longer-term consequences are a reduced vigour and energetic approach to life (Luoma et al., 2007)

1.4.3 Empirical evidence for ACT more broadly.

Behaviourism was originally seen as having two directives: to be empirically validated; and to analyse problems and treatments in terms of basic psychological processes (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Thus, given its grounding in behaviourism, it is understandable that ACT should be the focus of a large empirical program. Studies into both the effectiveness of ACT, and component studies (examining specific aspects of the ACT model to determine *what* is effective) have been undertaken and are reviewed separately.

1.4.3.1 Psychological Flexibility and psychological health.

Although not always explicit, much research has found a strong association between Psychological Inflexibility and psychological health. For example, rumination is well documented to be highly prevalent amongst people who are depressed (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination is characterised by repetitive and cyclical patterns of thinking which reduce an individual's ability to respond flexibly to any given situation and is often understood to reflect an attempt at experiential avoidance of the feared or threatening stimulus. In this way, rumination can be seen as a Psychologically Inflexible pattern of response (Kashdan & Rottenberg, 2010). In this way, a particular form of Psychological Inflexibility can be seen to be implicated with psychological distress.

More explicitly, a number of cross-sectional studies have found a relationship between Psychological Inflexibility and a variety of syndromes, including anxiety disorders, depression, substance misuse, and psychosis (Kashdan & Rottenberg, 2010); chronic pain (McCracken & Vowles, 2007); and post-traumatic stress disorder symptoms (Miron, Sherrill, & Orcutt, 2015). As a note of caution however, as these associations are based on cross-sectional studies, the presence of Psychological Inflexibility in those who are

experiencing psychological difficulties cannot be taken to denote causality. In order to test for causality other study designs must be applied, such as mediational studies (see section 1.4.3.3.1).

1.4.3.2 ACT effectiveness studies. A number of systematic reviews with meta-analyses have been conducted into the utility of ACT. The largest combined 60 studies (4234 participants) investigating the efficacy of ACT across a range of difficulties, including depression psychosis, generalised anxiety disorder, social anxiety, drug abuse, borderline personality disorder, pain, tinnitus, and obesity (Öst, 2014). The author concluded that ACT is probably efficacious when used to treat chronic pain and tinnitus; and is possibly efficacious when used to treat psychotic symptoms, OCD, anxiety, drug abuse, and stress at work; however, it remains experimental for other conditions. This paper conducted the meta analyses to determine the pooled effect size on the variable which was assigned as the primary outcome measure of each study, which varied based on its purported focus. For example, in studies into the use of ACT for chronic pain the primary outcome measure for most studies was a measure of a person's level of functioning. This is in contrast with studies examining the efficacy of ACT on other conditions – such as psychotic symptoms – where the primary outcome variable was positive and negative symptomology. The variance in the foci of ACT interventions is consistent with the pan-diagnostic applicability of ACT.

Further to the findings of the Ost meta-analysis, a second systematic review and meta-analysis of 39 studies (1821 participants; A-Tjak et al., 2015) found that ACT was generally superior to both wait-list control, and to other active comparisons. This meta-analysis also suggested that ACT interventions significantly increased Psychological

Flexibility (see section 1.4.3.2 for further information on the importance of this).

Other systematic reviews (with meta analyses) have been conducted with a focus on specific psychological difficulties. These are summarised in table 11. As is shown in this table, the research evidence is cautiously in favour of ACT for a range of conditions, despite some methodological weaknesses being identified (Öst, 2014).

Table 11

Summary of systematic reviews with meta-analyses into the efficacy of ACT for specific conditions

Study	Target difficulty and summary of findings
Bluett, Homan, Morrison, Levin, & Twohig, 2014	Anxiety and obsessive compulsive disorder. ACT equally as effective as manualised CBT. Quality of studies not reported.
Graham, Gouick, Krahe, & Gillanders, 2016	Chronic disease and long-term conditions. Studies reported generally favourable results for ACT, but with low study quality.
Hann & McCracken, 2014	Chronic pain. ACT superior to wait-list or active comparison interventions for enhancing physical function and reducing distress. Some risk of bias of reporting identified.
Lee, An, Levin, & Twohig, 2015	Substance misuse. ACT found to be slightly superior to treatment comparisons for smoking cessation and drug use. Variable study quality reported.

1.4.3.3 Mediation and component studies. Mediation and component studies attempt to answer questions about the processes and mechanisms of change. As stated above, the purported mechanism of change from an ACT perspective is that an increase in Psychological Flexibility will lead to a more value-led life being lived, with consequences for improved reinforcement. Studies investigating the process through which therapeutic change occurs are seen as important for understanding what the common factors is between “packages” of therapeutic protocols. Due to an increase in the number of such packages which have been empirically tested (i.e. therapies designed for specific conditions, such as Exposure and Response Prevention for OCD, Eye-Movement Desensitisation and Reprocessing for trauma), it has been suggested that examining the underlying mechanism may help to understand the way that evidence-based protocols work, which can inform the further development of treatment programs, and identify components which are inert or iatrogenic (Ciarrochi et al., 2010).

Given that ACT purports to work through enhancing an individual’s Psychological Flexibility, studies focussed on the process and mechanism of ACT interventions use a measure of Psychological Flexibility. Mediation studies use statistical techniques to induce the proportion of an effect which is mediated through Psychological Flexibility; whereas component studies isolate specific intervention components of the ACT model (such as reducing cognitive fusion) and test the effectiveness of these, in order to test the contribution of these to the overall model.

1.4.3.3.1 Mediation studies. In order to assess the extent that one variable (i.e. Psychological Flexibility) makes to the change in another variable (i.e. distress or frequency of a specified behaviour). Given its radical behaviourist underpinnings, from an ACT perspective Psychological (In)Flexibility is not the *cause* of psychological distress, but a pattern of behavioural responses to the environment which results in distress. As a radical behaviourist perspective would state that internal psychological phenomena (such as thoughts) do not cause behaviour, but that behaviour (including patterns of behaviour which may be described as Psychological Flexibility, or inflexibility) is caused by external events. On this basis, mediation studies seek to examine the link of behavioural patterns which represent differing degrees of Psychological Flexibility in the sequence of changing the response to environmental stimuli as a result of ACT-interventions (Ciarrochi et al., 2010).

A review of ACT mediation studies found that most (albeit not all) studies which measured Psychological Flexibility found that it mediated the primary outcome variable in that study (Ciarrochi et al., 2010). However, in some of these studies Psychological Flexibility was only measured at the beginning and end of the treatment phase, which makes it impossible to determine if any increase in Psychological Flexibility is the variable through which change in the primary outcome is mediated, or if both of these variables changed equally but independently of one another (or indeed, if Psychological Flexibility changed as a result of the primary outcome variable changing through another, as yet unidentified, process).

Furthermore, a meta-analysis of the effectiveness of ACT compared with cognitive-behavioural therapy (CBT) found that amongst the studies that measured purported mediators of each approach, the improvements due to ACT interventions were shown to be mediated through changes in Psychological Flexibility to a greater degree than

the improvements in CBT interventions were mediated by the purported mechanism of that approach (Ruiz, 2012). Consistent with this, other studies have shown that improvements resulting from CBT interventions are *also* mediated through Psychological Flexibility, despite this not being the targeted process (for example, Akerblom, Perrin, Fischer, & McCracken, 2015). This suggests that enhancing Psychological Flexibility may be a collateral effect of other approaches such as CBT.

The majority of mediational studies have measured Psychological Flexibility using one of the versions of the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). Criticisms have been levelled at both the original, and the more recent version (version 2, the AAQ-2; (Bond et al., 2011) particularly around its ability to distinguish between the construct of Psychological Flexibility, and the experience of distress (please see section 2.4.3 in the Extended Method for further discussion of this instrument). The dominance of the AAQ-II in the literature has been described as a weakness of the ACT evidence, and it has been suggested that other tools should be used to confirm the findings from studies using this tool (Wolgast, 2014).

1.4.3.3.2 Component studies. Of the component studies, a review of laboratory studies found that acceptance strategies (such as instructions to accept discomfort rather than suppress it) have consistently been found to increase task-performance (Ruiz, 2010). For example, in a study where participants were asked to write about a stressful experience, those who were instructed to be accepting of the emotions which this elicited had their heart-rate return to baseline faster than the group who were told to evaluate their emotional experiences (Low, Stanton, & Bower, 2008). However, due to the artificiality of laboratory conditions with verbal instructions (which is unlike the way that ACT is delivered in a therapeutic context), other component studies have used specific ACT-consistent exercises to test the usefulness of the related ACT-process. For example, a defusion exercise known as the 'milk milk milk' exercise is thought to act to 'de-literalise' the word: a client is asked to repeat an emotionally laden word until it begins to lose its meaning, or stimulus function in RFT parlance (Hayes, Strosahl, & Wilson, 1999). Teaching this exercise has been found to reduce the emotional discomfort and believability of self-critical thoughts in real life settings compared with distraction techniques based on self-report measures (Masuda et al., 2010).

Furthermore, additional support is lent to the ACT-model by a meta-analysis of component studies which as well as confirming the above findings, found that experiential activities are more effective than being offered instructions in ACT-consistent components (Levin, Hildebrandt, Lillis, & Hayes, 2012). Experiential activities are understood to be more effective from an ACT perspective as they offer non-verbal experiences, which help to undermine verbal entanglement.

1.4.4 ACT in the workplace.

1.4.4.1 ACT applied in a general work context. An emerging body of work has investigated the utility of ACT in the workplace, for both the enhancement of performance and the amelioration of burnout. This has been based on cross-sectional studies which demonstrate an association where better acceptance and mindfulness skills are related to improved work-place wellbeing (Puolakanaho, Tolvanen, Kinnunen, & Lappalainen, 2018). Most work-place ACT interventions have taken the form of 'ACTtraining' (Moran, 2015). In this format, the six processes of ACT have been taught, usually using experiential methods, to foster Psychological Flexibility, often in a group setting. This approach has been tested empirically within a governmental organisation in the UK (Lloyd, Bond, & Flaxman, 2013). In this case the intervention was delivered over three sessions (two three-hour sessions, with a follow-up two months later). This was shown to reduce the worker's emotional exhaustion, mediated through changes in Psychological Flexibility.

1.4.4.2 ACT for frontline workers. To determine the utility of ACT for frontline workers, a number of studies have used a cross-sectional design to examine the relationship between Psychological Flexibility and frontline workers' work-related wellbeing. Most of these studies have recruited nurses and healthcare support workers from inpatient and community settings. Using a variety of instruments, these have found a consistent relationship between Psychological Inflexibility correlating with higher levels of burnout, (Bond, Lloyd, & Guenole, 2013; Halsey, 2014; Kurz, Bethay, & Ladner-Graham, 2014; Noone & Hastings, 2011). I am not aware of any studies which have examined the relationship between Psychological Flexibility and work-engagement, except for Bond et al., 2013, however engagement was defined as the antipode of burnout and was measured as the inverse of each of the scales of the MBI, and so this does not contribute to a broader understanding of work engagement as it is defined by others (i.e. Costa et al., 2016; see section 1.2.3 and 1.2.4 for further discussion on this).

The relationship between Psychological Flexibility and burnout is suggestive of the utility of an ACT approach to alleviating burnout amongst frontline workers. A systematic literature review and meta-analysis of studies which tested the effectiveness of ACT for staff on inpatient mental health and intellectual disability wards found the greatest improvement in psychological distress (rather than burnout), although unsurprisingly, this effect was only statistically significant in those who had elevated levels of psychological distress at baseline (Reeve, Tickle, & Moghaddam, 2018). Curiously, no significant change in Psychological Flexibility was identified across the pooled studies, despite the importance of this construct to evidencing an ACT-consistent mechanism of change. This is consistent with difficulties in other areas of ACT-research where identifying changes in Psychological Flexibility has proved difficult, despite an ACT

intervention causing changes in a person's functioning (i.e. Roche, Dawson, Moghaddam, Abey, & Gresswell, 2017). A possible explanation for this is the reliance on the Acceptance and Action Questionnaire (second edition; Bond et al., 2011) to measure Psychological Flexibility. Indeed, the only study which used an alternative measure of Psychological Flexibility *did* demonstrate a favourable change in this variable, further lending support to other criticisms of the AAQ (i.e. Wolgast, 2014; please see section 2.4.3 of the Extended Method for further discussion of the measurement of Psychological Flexibility).

In addition to its use for ameliorating burnout, ACTraining has been tested for improving relational aspects of direct-work in mental healthcare settings. Compared with psychoeducation, ACTraining (or a variant of) has been shown to be helpful in reducing stigmatizing attitudes towards those diagnosed as having a personality disorder (Clarke, Taylor, Lancaster, & Remington, 2015) and those with substance misuse difficulties (Hayes, Bissett, et al., 2004). Similarly, for care staff working with people with intellectual disabilities, ACTraining helped improve the number of observed instances of positive-engagement with clients (Castro, Rehfeldt, & Root, 2016), and a mindfulness intervention (conceptually sharing some features with ACT) improved the quality of interactions between carers and those with developmental disorders (Chancey et al., 2018).

Extended Method

2.0 Overview

This section extends the methodology section of the journal paper. Further information on the rationale for decisions made relating to the design and implementation of the study are explicated. Additionally, a discussion of my epistemological position and previous iterations of the study design are included.

2.1 Epistemological Position

Functional contextualism is the epistemological position of Contextual Behavioural Science, and is the stance taken for this research.

The explicit aims of Functional Contextualism include the precise prediction and influence of events using empirically based concepts (Hayes et al., 2006). *Contextualism* refers to psychological events being behaviours which are embedded in the whole organism (rather than separate or distinct objects) responding in ways which are historically and situationally defined. The *Functional* aspect is reflected in ACT in a number of ways. For example, the truth criterion of 'workability' – if a behaviour is useful or worthwhile – is operationally defined in ACT by the individual's values (Hayes et al., 2006).

Given that language is therefore understood as a human behaviour, the use of language by scientists is also considered to be within the domain of what can be understood within the paradigm of Functional Contextualism. As such, language – being a behaviour – is not viewed as a means to understanding or constructing the world in the way that it may be seen from a constructionist perspective (Hayes, Barnes-Holmes, & Wilson, 2012). Instead, the utility of a verbal rule is defined by the extent to which it produces the required response

from the listener. This has implications for the nature of scientific knowledge from this stance: scientific knowledge is therefore understood to be of value if it aids those who use it to respond effectively when interacting with the world. Given this, the Functional Contextual stance has been termed a-ontological (Herbert & Padovani, 2015):

Given the perspective that an organism's internal experiences cannot be distinguished the organism as a whole (i.e. cognitions, emotions, behaviours etc., except for pragmatic purposes but not ontologically [Hayes et al., 2006]), one logical consequence of this is that thoughts cannot *cause* behaviours, as would be postulated by say traditional cognitive-behavioural theory, except as regulated by context (Biglan, Hayes, & Pistorello, 2008). This is reflected in the RFT (and hence ACT) understanding of behaviour-change whereby defusion and acceptance of internal experiences is utilised as an alternative to attempting to change their content or form.

2.2 Adherence to the SCRIBE Reporting Guidelines

The use of reporting guidelines has been recommended for most common design types (for example, systematic reviews: Moher, Liberati, Tetzlaff, & Altman, 2009). However, guidance for reporting SCED has only been published fairly recently in the form of the Single Case Reporting guideline In BEhavioral interventions (Tate, Perdices, Rosenkoetter, McDonald, et al., 2016; Tate, Perdices, Rosenkoetter, Shadish, et al., 2016). The rationale for adhering to reporting guidelines is to ensure that the journal paper provides sufficient information for the study design to be adequately reviewed and critiqued. This is particularly pertinent given that reviews of SCED studies have shown that information is frequently unreported. For

example, a 2012 review found that 22% of SCED studies did not report baseline data (which is crucial for demonstrating experimental control) and 52% of studies did not report visual or statistical analysis techniques (Smith, 2012). In order to guarantee suitable reporting standards are met in the journal paper, I followed the SCRIBE reporting guidelines. The items contained within this guidance are tabulated in table 12, alongside a further column explicating the status of each criterium in the journal paper.

Table 12

The Single-Case Reporting Guideline In BEhavioural Interventions (SCRIBE) 2016 Checklist (Tate et al., 2016)

Item number	Topic	Description	Addressed in journal paper?
TITLE and ABSTRACT			
1	Title	Identify the research as a single-case experimental design in the title	✓
2	Abstract	Summarize the research question, population, design, methods including intervention/s (independent variable/s) and target behavior/s and any other outcome/s (dependent variable/s), results, and conclusions	✓
INTRODUCTION			
3	Scientific background	Describe the scientific background to identify issue/s under analysis, current scientific knowledge, and gaps in that knowledge base	✓
4	Aims	State the purpose/aims of the study, research question/s, and, if applicable, hypotheses	✓
METHOD			
5	Design	Identify the design (e.g., withdrawal/reversal, multiple-baseline, alternating-treatments, changing-criterion, some combination thereof, or adaptive design) and describe the phases and phase sequence (whether determined a priori or data-driven) and, if applicable, criteria for phase change	✓

6	Procedural changes	Describe any procedural changes that occurred during the course of the investigation after the start of the study	Only changes that occurred following the beginning of successful recruitment were recorded in the Journal Paper
7	Replication	Describe any planned replication	✓
8	Randomization	State whether randomization was used, and if so, describe the randomization method and the elements of the study that were randomized	✓
9	Blinding	State whether blinding/masking was used, and if so, describe who was blinded/masked	Not suitable for this study and not discussed in journal paper

PARTICIPANTS

10	Selection criteria	State the inclusion and exclusion criteria, if applicable, and the method of recruitment	✓
11	Participant characteristics	For each participant, describe the demographic characteristics and clinical (or other) features relevant to the research question, such that anonymity is ensured	Limited details disclosed to maintain anonymity

CONTEXT

12	Setting	Describe characteristics of the setting and location where the study was conducted	✓
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APPROVALS

13	Ethics	State whether ethics approval was obtained and indicate if and how informed consent and/or assent were obtained	✓
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MEASURES AND MATERIALS

14	Measures	Operationally define all target behaviors and outcome measures, describe reliability and validity, state how they were selected, and how and when they were measured	✓
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15	Equipment	Clearly describe any equipment and/or materials (e.g., technological aids, biofeedback, computer programs, intervention manuals or other material resources) used to measure target behavior/s and other outcome/s or deliver the interventions	✓
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INTERVENTIONS

16	Intervention	Describe the intervention and control condition in each phase, including how and when they were actually administered, with as much detail as possible to facilitate attempts at replication	✓
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17	Procedural fidelity	Describe how procedural fidelity was evaluated in each phase	✓
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ANALYSIS

18	Analysis	Describe and justify all methods used to analyze data	✓
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RESULTS

19	Sequence completed	For each participant, report the sequence actually completed, including the number of trials for each session for each case. For participant/s who did not complete, state when they stopped and the reasons	✓
20	Outcomes and estimation	For each participant, report results, including raw data, for each target behavior and other outcome/s	✓
21	Adverse events	State whether or not any adverse events occurred for any participant and the phase in which they occurred	✓
<hr/>			
DISCUSSION			
22	Interpretation	Summarize findings and interpret the results in the context of current evidence	✓
23	Limitations	Discuss limitations, addressing sources of potential bias and imprecision	✓
24	Applicability	Discuss applicability and implications of the study findings	✓
<hr/>			
DOCUMENTATION			
25	Protocol	If available, state where a study protocol can be accessed	The protocol is not published online
26	Funding	Identify source/s of funding and other support; describe the role of funders	✓

Note. This table is adapted from Tate, Perdices, Rosenkoetter, McDonald, et al. (2016)

Although the majority of these items have been satisfactorily addressed in the reporting of the research in the Journal Paper, a small number have not – or require further elaboration. Firstly, item 6 which stipulates that procedural changes which occurred during the study should be reported. This research did change the target recruitment population and the modality of the intervention, however these are not reported as these changes to the protocol were made prior to the recruitment of the first participant, and so do not make a material change to the study as it is reported. The use of methodological blinding was not appropriate for either researchers or participants given the study design, and so this is not reported on in the Journal Paper. The decision was made to report limited details of the study participants. This was decided to balance providing sufficient information against which to judge the applicability and generalisability of the findings against the possibility of the participants being identified if further details were disclosed. As no copy of the protocol is published online, no mention is made in the Journal Paper of where to find one.

2.3 Ethical Issues and Ethical Approval

Ethical approval was sought and granted by the Faculty of Medicine and Health Sciences Research Ethics Committee at the University of Nottingham (please see letter of confirmation in appendix A). As the participant group did not include NHS patients, ethical approval was not required by NHS ethics.

Originally, the research intended to recruit from NHS staff (specifically, mental health nurses and healthcare support workers on inpatient mental health and intellectual disability wards; see section 2.6.1 of the Extended Method for further information on this) and so ethical approval was sought from the relevant NHS trust. Confirmation of this ethical approval was granted (a copy of this can be found in the appendices, see appendix

A). The organisation from which recruitment did ultimately take place provided approval to this taking place, which was pursued by my research supervisor who is also employed there (AT). No forms or official ethical approval procedures were required by this organisation. Agreement was provided by my supervisor's manager and the workplace wellbeing officer, who was later involved in recruitment.

Consideration was given to ethical issues during the design of the study. In particular, issues around participant burden regarding completing daily outcome measures and how the choice of SCED design type could delay a potentially helpful intervention. For example, in a multiple baseline SCED design, all participants are in a baseline period concurrently and have a staggered intervention start-date. Such a design choice may have improved the rigorosity of the study, but at the cost of withholding the intervention from multiple participants whilst they are in an extended baseline period (such ethical dilemmas specific to SCED research are also discussed in Kazdin, 2019).

The likelihood of a harmful outcome occurring as a result of the research was thought to be low. A search of the extant literature did not find any recorded studies using ACT which found iatrogenic effects as a result of the intervention. Despite this, iatrogenic effects were monitored for on each contact, and participants were made aware that they were welcome to contact me if there were any difficulties.

Other core principles of ethically sound research processes were adhered to in order to meet the standards set out in the Good Clinical Practice guidance (National Institute for Health Research, 2016) and the UK Policy Framework for Health and Social Care Research (Health Research Authority, 2017). All appropriate precautions to maintain participant confidentiality were adhered to, including anonymising all data if it was to be shared with my research supervisors (one of whom worked for the organisation from where recruitment was taking place and so there was a chance that she knew potential participants). Data security was managed

by using secure 'cloud' storage provided by the University of Nottingham for participant data, as stated in my research protocol. Data which was collected through the online questionnaire software – Qualtrics – was only accessible to myself, using a license provided via the University of Lincoln which this doctoral program is jointly provided by. In order to adhere to the General Data Protection Regulations (2018) which specify that data should only be processed and stored within the European Union unless specific consent is provided, the option provided by Qualtrics to only use servers based within the EU was selected. Informed consent was invited only after a potential participant had been given time to absorb the participant information leaflet, ask any further questions or clarifications, and given the opportunity to consider their decision for as long as required.

A copy of the Participant Information Sheet and Consent Form can be found in appendix B.

2.4 Measures Used in this Study

This section will expand on the rationale for the choice of each measure used and provide further details regarding the measures themselves. As discussed in the journal paper, a short-form version of each of these measures was developed (except for the Personal Wellbeing Index which was measured weekly, and the idiographic values measure which was used in full on each day). The development of the short-form measures is discussed within the corresponding subsection below. All measures are reproduced in appendix C.

2.4.1 Decision to use the OLBI as a measure of burnout and engagement. Locating a suitable measure of burnout and work-engagement was considered crucial for the study. As discussed in both the Journal Paper Introduction, and in section 1.2.4 of the extended paper, there is evidence which suggests that burnout (or more specifically, emotional exhaustion, see extended paper section 1.2.2 and 1.2.3) are distinct constructs. Measuring these separately is consistent with the aim of ACT being to expand an individual's repertoire of behavioural responses in order to enhance valued-living in spite of difficult internal experiences. For example, a theoretically consistent expectation following an ACT intervention would be for work-engagement to increase (assuming that the worker's freely chosen values correspond with values associated with their work context) but for exhaustion to change secondarily to this, if at all.

There are a plethora of burnout measures available, although the most frequently used is the MBI (third edition; Maslach, Jackson, & Leiter, 1996), which is thought to be used in 90% of burnout research (Schaufeli & Enzmann, 1998). Conceptual criticisms of the MBI's three factor formulation of burnout are covered in section 1.2.2, where it is argued that emotional exhaustion is the central characteristic of burnout. Furthermore, the MBI does not provide any measure of work engagement as a distinct construct from burnout, which is contra to the need to measure positively loaded constructs as well as negatively loaded ones (Winefield, Gill, Taylor, & Pilkington, 2012).

An alternative measure, the Oldenburg Burnout Inventory (OLBI; Demerouti & Bakker, 2008) was identified. This comprises two subscales: exhaustion and disengagement, and as such it better reflects the conceptual understanding embedded in this study. The OLBI has been shown to have satisfactory factor structure of each scale (expressed using omega scores, $\omega = .98$ for disengagement and $\omega = .97$ for exhaustion; Reis et al., 2015); and elsewhere expressed as an alpha coefficient of .83 for

both the disengagement and exhaustion subscales (Peterson et al., 2008).

Further, the only alternative measures of work-engagement that I am aware of are the Professional Quality of Life scale (ProQol; Stamm, 2010) and the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). The former scale is worded to ask respondents to rate how they have felt in the past week, and when permission was sought to adapt this wording it was denied; the latter scale conceptualises work-engagement as the antipode of burnout, and as such is not consistent with the theoretical understanding of engagement in the present study.

Cut-off scores for what constitutes a state of burnout are not explicated for the OLBI, however a means of assessing this was required to determine potential participant's eligibility for the study (see extended paper section 2.6.3 for further information on the rationale of the eligibility criteria). Cut-off scores are usually used in the context of making a 'diagnosis' (although no consensus on diagnostic criteria for burnout exist, and it is not included in the Diagnostic and Statistical Manual [5th edition; American Psychiatric Association, 2013]; Bianchi et al., 2015). It is thought that cut-off scores have seen more use in Scandinavian countries where burnout holds greater recognition as a syndrome for which treatment is available (Maslach & Leiter, 2016). Given that cut-off scores are available for the MBI, Peterson et al have used these to provide equivalent scores for the OLBI having administered both metrics to the same sample and compared the scores. The cut-off scores were defined as a score of ≥ 18 for the exhaustion subscale; and a score of ≥ 16.8 for the disengagement subscale (both subscales run from minimum scores of 8 to maximum of 32).

2.4.1.1 Development of OLBI short-form. As discussed in the journal paper, a short-form version of both the OLBI and the measure of Psychological Flexibility was developed. This was done by identifying the highest factor-loading item on each subscale and using this as a single-item daily measure, for which there is a precedent from previous ACT SCED research (i.e. Roche, Dawson, Moghaddam, Abey, & Gresswell, 2017). As explained in the Journal Paper, the full measures were completed at weekly intervals. Factor loadings of each item in the OLBI are provided by Halbesleben & Demerouti (2005) for two populations: firefighters and working adults. The latter group was chosen as being a population less likely to be facing such specific work stressors and so being more applicable to the population of the current study. The items with the highest factor loadings were “I always find new and interesting aspects in my work” (representing the disengagement subscale and reverse scored) and “I can tolerate the pressure of my work very well” (representing the exhaustion subscale, and also reverse scored). These two items represent the version which was administered daily.

2.4.2 Decision to use the PWI as a measure of wellbeing. The Personal Wellbeing Index (International Wellbeing Group, 2013) was chosen as a measure of overall wellbeing. The PWI has seven subscales which are intended to measure a complete range of domains concerning life-satisfaction. These domains are standard of health, living, achieving in life, relationships, community-connectedness, safety, and future security, which the originators of the scale believe represent a deconstruction of the question “how satisfied are you with your life overall?”. An optional subscale regarding spirituality was omitted given that this is not well-correlated with the other subscales amongst some populations, and how well this would contribute to an understanding of the current population was unknown. It was decided that there was a greater risk of introducing error by including this subscale than the risk of losing data from excluding it. Cronbach’s alpha scores ranging from .7 to .85 have been reported for the sum of the subscales (International Wellbeing Group, 2013).

2.4.3 Decision to use the CompACT as a measure of

Psychological Flexibility. The Acceptance and Action Questionnaire II (AAQ-II; Bond et al., 2011) is thought to be the most commonly used measure of Psychological Flexibility (Wolgast, 2014), however concerns have been raised about its ability to discriminate between psychological *distress* and Psychological *Flexibility* (Ong, Lee, Levin, & Twohig, 2019; Rochefort, Baldwin, & Chmielewski, 2018; Tyndall et al., 2018; Wolgast, 2014). This means that the AAQ-II has been statistically shown to load onto the same factors as measures of distress or personality factors (such as measures of low mood or neuroticism), rather than the construct of Psychological Flexibility. This lack of discriminant validity was highlighted in a systematic review of ACT for burnout amongst frontline workers, where no changes in Psychological Flexibility was found in the studies which used the AAQ-II (Reeve et al., 2018). However, the single study which did use an alternative measure (Clarke et al., 2015) *did* identify a change in Psychological Flexibility. Together, these findings provide strong justification for using an alternative measure of Psychological Flexibility.

Many measures of Psychological Flexibility are domain-specific, i.e. they are worded in such a way as to load onto an individual's level of Psychological Flexibility in a specific context or environment. Alternatives to the AAQ-II which have been used when studying ACT-interventions for burnout amongst frontline workers include the Support Staff Values Questionnaire (SSVQ; Noone & Hastings, 2011) and the Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens, & Roberts, 2010). Neither of these were felt to be appropriate for this study as they are not full measures of Psychological Flexibility, but measures of the Values Identification process (in the case of the former) and the Values Identification and Committed Action processes (in the case of the latter). Given the design of the study having the intervention split into each component of the ACT-triflex and one of the questions relating to differentiating between these components, it was considered important to

use a measure which has separate subscales for each component of the triflex. The Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT; Francis, Dawson, & Golijani-Moghaddam, 2016) is one such measure.

The CompACT is not domain-specific, and as such it is intended to measure Psychological Flexibility across contexts. Whether or not Psychological Flexibility is context-bound is discussed at greater length in the Extended Discussion (see section 4.3 of the Extended Discussion). Given that the present research measured broader aspects of functioning (such as a home-related value and psychological wellbeing) in addition to the work-related focus, a non-domain specific measure is appropriate. The CompACT has been shown to have adequate internal consistency, as measured by the authors using inter-item correlation rather than Cronbach's alpha. This gave an average inter-item correlation of .34, within the range of .15-.50 which is deemed adequate (Francis et al., 2016). A review of context-specific measures of Psychological Flexibility has suggested that the CompACT has a superior convergent validity with distress compared with other available measures (Ong et al., 2019).

2.4.3.1 Development of CompACT short-form. As with the OLBI, a short-form version of the CompACT was developed for administration as part of the daily measures. One item to represent each subscale which was chosen by selecting the one with the highest factor loading. Factor loadings were taken from Francis et al (2016). The selected items were “I work hard to keep out upsetting feelings” (openness to experience subscale); “Even when doing the things that matter to me, I find myself doing them without paying attention” (behavioural awareness subscale) ; and “My values are really reflected in my behaviour” (valued action subscale, reverse scored).

Short-form scale construction can take one of three forms: intuitive, external, and internal (Goldberg, 1972), although short-form scale generation often comprises a combination of these (Gough, 1987). The intuitive method uses a scale developer’s judgement of the relative face validity – possibly rooted in a theoretical understanding – to select one or more items to represent a scale. The external strategy uses statistical techniques (such as a Pearson correlation coefficient) and a large existing dataset to select the items which represent behavioural or other corollaries which are known to be related to the construct at hand. For example, in the development of a brief version of a personality psychometric, the external strategy was used by identifying items on each subscale where were known to correlate most highly with other instruments which purported to measure the same construct. An internal strategy also relies on statistical methods; however, this is done solely within the full-form version of the measure at hand. This is typically done by identifying the items with the highest factor loading on the original scale and selecting the appropriate number of these.

The internal method is the one I chose to use to develop the CompACT short-form (and, indeed, the OLBI short-form as well). This was done separately for each subscale (i.e. the highest factor loading item for each subscale was chosen to represent that subscale). This has the advantage

that it is chosen without recourse to the idiosyncrasies of individual (i.e. my) judgement and is likely to produce a short-form with the highest similarity to the original scale. However, this strategy does risk selecting an item which – although highly intercorrelated with the rest of the subscale – may represent a narrower aspect of that construct or may not be worded in such a way as to load on to similar but distinct constructs. Given that the CompACT has three scales, there is a risk of a chosen item cross-loading onto the other subscales. Additionally, an issue specific to the development of the CompACT short-form is that the original instrument has 23 items, but these are not evenly distributed between the three subscales. Furthermore, although each subscale represents two processes these are not evenly represented by items within their respective subscales. The Openness to Experience subscale contains 10 items (8 acceptance, 2 defusion), the Behavioural Awareness subscale contains 5 items (all 5 pertaining to present moment awareness, 0 for self-as-context), and the Valued Action subscale contains 8 items (which were not distinguished into the individual processes of values identification and committed action by the authors). Because of the methodology I employed when constructing the CompACT short-form (i.e. by summing the three items chosen to represent each of the three subscales) this creates an uneven representation of each scale when the scores are summed. For future research and my own learning, a better solution to this would be to have weighted each of the three items appropriate to their relative weighting towards the total Psychological Flexibility score in the full-form CompACT (for example, by multiplying the single Behavioural Awareness item by $5/23$).

Additionally, as is discussed in the Journal Paper Results particularly with regard to the OLBI short-form, using extra items for the CompACT short-form could have improved both the psychometric properties and the granularity of the short-form. For example, using two items per scale

would have provided more coverage for each construct and doubled the number of intervals with which the measurement took place.

Despite the limitations of the method used to develop the CompACT short-form, there is reason to believe that it was adequate for the purpose of this study (which was to assess the extent that Psychological Flexibility is a mediator of improvement in burnout following the intervention, rather than to develop a robust short-form of the CompACT for more widespread use). Firstly, since the study was initiated (and the short-form version of the CompACT developed), a pilot study has been conducted into the development and use of a brief version of the CompACT (Moghaddam & Dawson, 2018). This pilot used a combination of internal, external, and intuitive methods to identify eight items to represent the original 23. Two of the three items I chose appear in the list of eight used by Moghaddam and Dawson, suggesting at least some level of consistency between my method and theirs. Secondly, as I administered the full-form CompACT weekly, the weekly data can be used to check the correlation between the full-form and my version of the short-form. To do this I have conducted a Pearson correlation test between the full-form data (with the short-form items removed to avoid double-counting the same items in both groups of data which would lead to an overestimation of the correlation) and the short-form questions contained within it. As a pure test of how representative these items are this method is imperfect, as there is a risk of correlating two slightly different constructs given that one is a group of the most highly factor loading items and the other is a group of the least factor loading items, and any effects of the sequencing of items will be removed by the short-form items being 'in place' within the full-form (Smith, McCarthy, & Anderson, 2000). Additionally, there are only 31 separate administrations across four participants. However, the result is reported here as an indication of the relationship between my short-form and the remaining items. The correlation between these two groups of items was $r(29) =$

.94, $p < .01$. Despite the limitations of this method of analysing the short-form, it is suggestive that it was adequate for measuring Psychological Flexibility in this study.

2.4.4 Development and rationale for an idiographic measure of values-action congruence. Given that ACT (and RFT) is embedded in the scientific tradition of functional contextualism (see section 2.1 of the extended paper for further detail on the epistemological position of this research), it is consistent to suggest that a more objective measure of behavioural change is an appropriate way of assessing the outcome of the intervention. Other options for such an outcome measure were explored, such as observation of participant-client interactions which could be rated objectively by an observer. This approach would also fit well within a SCED design methodology, as many studies using this approach use observational data as the dependent variable. For example, a recent case series study into the use of ACT for chronic fatigue syndrome used activity monitors to provide data of this nature (Roche et al., 2017). However, given the high risk of conducting observations in this setting breaking the confidentiality of the participants (by inadvertently making it obvious to other staff that they are participating in some kind of research) and other complications such as whether or not client interactions are relevant to a given participant's freely chosen value (which defines the direction of desirable behavioural change in ACT), such an observational approach was not felt appropriate.

To ensure that at least one measure did load onto any behavioural changes which may occur during the study, the idiographic measure was developed. By asking each participant to identify a personally meaningful value and rating how well their behaviour matched this, it was hoped that this would provide information more specific to the aims of what each

participant hoped to change as a result of their participation in the study, and framed in a way which is consistent with the ACT model (i.e. not aiming to change internal events such as having a goal of “feeling less exhausted”). Doing so was hoped to achieve a passable standard of face validity, although given that participants were supported to identify these values prior to the ACT intervention sessions some of them could still be considered more akin to a ‘goal’ than a ‘value’.

Some caution was exercised when considering the use of the idiographic measure, as there are clearly some methodological considerations for its use. Single-item measures are not able to be tested for reliability in the same way as psychometric tests are, however they also thought to be well suited to assessing variables where there are differences between how individuals describe their difficulty (Haynes, Mumma, & Pinson, 2009).

2.4.5 Familiarisation to measures and autocorrelation. An undesirable consequence of daily repeated measures is that responses to a given question may change over time independently of the factor they are attempting to measure. Although frequent measures are thought to improve accuracy of responses compared with less frequent measures (Bolger, Davis, & Rafaeli, 2003; Shiffman, Stone, & Hufford, 2008), they also introduce the risk of autocorrelation (Smith, 2012). Autocorrelation is the phenomenon where a previous score affects the current score. For example, if a participant had a particularly emotionally tiring day yesterday, their report of an item measuring this the following day may be influenced by the previous days’ score.

Additionally, there is also a risk that participants may change how they understand or respond to specific items across time. This was particularly true of at least one participant, who provided feedback during one of the intervention sessions that she had noticed herself responding differently

to the daily measures as she had become more familiar with them, and as she read into their meaning differently over time.

Furthermore, some observations of the consequences of using repeated measures were made, although these are conjecture. Given that the idiographic measures were administered each day, participants may have experienced these as a reminder of their intention to change their behaviour to match these values. This may have increased the likelihood of therapeutically-favourable change irrespective of the ACT intervention. Although this may have been controlled for (to an extent) by assessing trend during baseline (when the measures were present as reminders, but the intervention was yet to take place). Such a phenomena of the outcome measures improving as a result of being measured could be viewed as a manifestation of Goodhart's law: "When a measure becomes a target, it ceases to be a good measure" (Strathern, 1997).

Some of these risks to experimental bias are inherent in single case experimental designs. However, efforts to mitigate against these insofar as is possible were integrated into the study design. For example, having long-form measures on a weekly basis provides an alternative means of measurement which is less likely to be susceptible to autocorrelation and can be seen as a means of providing oversight to the daily measurements; the baseline period that was actually employed was invariably longer than the minimum suggested length of 5 time-points (Smith, 2012), which will have reduced the risk of response rates changing as a result of participants interpreting the questions differently over time.

2.5 Choice of Study Design

Large-group designs (such as randomised controlled trials) are often thought of as the 'gold-standard' method of drawing scientifically valid inferences as they compare an active treatment group against an inactive

(or treatment as usual group), and through this they are able to minimise threats to their internal validity. Single-case experimental designs (SCED) are an alternative to this, which provide control (i.e. the ability to compare two different conditions – the active and comparison) through establishing a 'case's' baseline (Smith, 2012). A 'case' can be an individual, or a group such as a team or class of individuals, although in this study it solely refers to the former.

Some criteria for what constitutes a SCED have been described by Ledford, Barton, Severini, and Zimmerman (2019), defining typical characteristics as including:

1. Each case serving as its own control (i.e. measurement of change occurring against the baseline period of the same case).
2. The dependent variable being measured repeatedly over time in all phases.
3. Attempted replication of an effect (either within or between cases) is used confirm its existence.
4. Designs can be dynamic, so that aspects can be changed in response to interim results in order to improve interventions latterly within the study.

The current research meets the first three of these. The final point describes research where the nature of the intervention may be purposefully changed in response to feedback that it is proving ineffective. This may be relevant when using a SCED design in, for example, drug trials where feedback is given by a specific participant that a dose is insufficient. In this hypothetical example, the dose could be increased for this participant, and the completion of regular outcome measures could be cross-checked for any therapeutic changes which are temporally related to this change in the intervention. In the present study, not such changes were made as the intervention sequence and timing was decided upon *a priori*. This decision was taken in order to minimise the risk of bias which can result from feedback to the primary

researcher which is known to have a positive effect on the outcome of psychological interventions, irrespective of the way in which the independent variable would be changed (Simon, Lambert, Harris, Busath, & Vazquez, 2012). If the treatment variable had been changed in response to outcome data, it would not have been possible to isolate the effect of the lead researcher (who was also conducting the intervention) having received feedback on the participant's outcome measures from the change that was made to the intervention (Kazdin, 2019). Instead, the decision to maintain consistency between participants increases this study's generalisability, albeit at the cost of reducing dynamic responses which could have been used to tailor the intervention for different participants.

2.5.1 Rationale for using a SCED. The use of a SCED approach is well-suited to the research questions, which include questions about the *mechanism* and *process* of change (Borckardt et al., 2008; Kazdin, 2009). The importance of addressing these questions specifically within the ACT research project has been raised by a number of authors (A-tjak et al., 2015; Gaudiano, 2011; Hofmann & Hayes, 2019). Research designs consisting of large groups risk losing sight of individual differences in the response to an intervention. This can be addressed using statistical techniques to assess for the existence of mediational effects amongst variables which have been studied, however the presence of a mediation effect does not necessarily indicate that the specified variable is the mechanism of change. For example, it is possible that the mediating variable is actually a proxy for the mechanism, or may cooccur with the actual mechanism (Kazdin, 2009). Another way of demonstrating the causality of a purported mechanism of change is by identifying the temporal relationship between the proposed mechanism and the dependent variable. This is most readily accomplished by using a research design where frequent repeated measurements are used – such as a SCED. For this reason, the design used was decided upon as an appropriate way of answering the research questions related to confirming (or otherwise) the role of Psychological Flexibility in any improvements in the outcomes, and identifying any changes that occurred as a result of varying the sequence of the intervention dyads.

Furthermore, given that almost all the studies into ACT for burnout amongst this population have used group comparison methodologies (such as randomised controlled trials) there is an argument for increasing the diversity of approaches given that each methodological approach has its own strengths and weaknesses (Kazdin, 2019).

2.5.2 How the study was designed to minimise risks to internal validity. Other decisions regarding the design of the study were taken to reduce the risk of bias.

The start-date for the intervention phase for any given participant was decided *a priori* to begin at the earliest convenient time when baseline stability had been achieved in either subscale of the primary outcome measure (see extended paper section 2.8 for further information on the assessment of baseline stability). Achieving stability in the baseline phase is a pre-requisite for being able to infer that any change in the dependent variables is due to the intervention, rather than being attributable to measurement 'noise' or other factors which have not been accounted for or are not being measured (Ledford et al., 2019). Having three data points is often cited as the minimum required to be able to judge baseline stability, although other sources suggest that five is preferable (Ledford et al., 2019; Rumen Manolov, 2018; J. D. Smith, 2012). It was decided that a minimum of five data points would be required before stability could be assessed (which would not guarantee that stability was achieved, see section 2.8 of the extended paper for information on how this was judged). As such, the start date of the intervention should not be decided *a priori* as it is dependent on the length of the baseline, although not all studies in the literature adhere to this principle and so suffer a reduction in their methodological robustness (i.e. Sauer-Zavala et al., 2017).

In planning the current research, a decision was made to not use a multiple-baseline design for ethical and practical reasons, although doing so may have increased the robustness of the design. A multiple-baseline design commences all participants on the baseline phase at the same time, and collects data from all participants concurrently (Ledford, 2018). Participants then commence the intervention phase at different times (whilst also adhering to the necessity of judging baseline stability for each participant). This design type is particularly helpful for instances where introducing the intervention for one participant may inadvertently cause

changes in the outcome variables for the other participants, as this can be accounted for by the extended and concurrent baseline period shared by all participants. The risk of intervention contagion between participants was low in the current study (it may have been considered higher in a smaller team for example, where participants were more likely to be working alongside one another and so may have discussed the content of the sessions in conversation). Additionally, inherent in a multiple-baseline design is the need to delay the beginning of the intervention by up to several weeks (for the final participant to commence the intervention), which would be less ethically defensible. There would also be an increased participant burden of completing the daily measures throughout the extended baseline phase. Given that only small improvements in methodological rigour could be gained from this design, yet larger risks of an ethical and burden management nature existed, this design type was decided against.

Ledford et al (2019) present the following risks to internal reliability of SCED designs, which shall be addressed individually below:

1. History – factors extraneous to the study results in change.
2. Maturation – gradual change based on the passage of time.
3. Instrumentation – measurement errors.
4. Infidelity – failure to implement conditions as planned.
5. Testing – changes due to assessment procedures.
6. Sampling and attrition bias – non-random participant selection or bias.

2.5.2.1 Attempts to mitigate against risks of bias related to history. Extraneous factors in this study may have included contextual workplace variables (such as workload or organisational change). Factors such as these may impact the outcome variables independently of the intervention. As such, they present a risk of false conclusions being drawn. Factors such as these were monitored for during contact with participants and asked about during the change interview conducted at the end of the research. This enabled them to be accounted for during the analysis. Given the nature of the organisation, it was not possible to closely control such contextual factors.

2.5.2.2 Attempts to mitigate against risks of bias related to maturation effects. Maturation effects include the tendency to revert to the mean – that is – for participants to experience a spontaneous recovery. Given that burnout is a response to work-place stress, and contextual factors (as discussed in the previous section) were monitored for, it was not considered likely that participants would spontaneously recover. Additionally, burnout is thought to present as a stable condition over time (Mäkikangas et al., 2017), and so spontaneous recovery is unlikely. Nonetheless, attempts to mitigate against this form of bias was manifest in the use of intervention phases being introduced in a stepwise manner (with the inference that improvement should occur in a similar stepwise manner, unless this bias is in action).

2.5.2.3 Attempts to mitigate against risks of bias related to instrumentation artefacts. Ledford et al (2019) write primarily about the use of observational measures, which may lack inter-rater reliability. For the purpose of this study, attempts were made to choose measures which were well suited to the variables of interest and having robust psychometric properties, however it has been acknowledged that there may have been an effect of participants acclimating to the measures (see section 2.4 of the extended paper for further information on the measures used in this study). The risk of this bias could be monitored for by careful assessment of baseline trend.

2.5.2.4 Attempts to mitigate against risks of bias related to infidelity to the intervention. Infidelity to the intervention would include incorporating aspects of other therapies, poor adherence to ACT-principles, and poor adherence to the ACT-dyad associated with that intervention phase. Undesirable levels of fidelity risks reducing the concentration of the effectiveness of the intervention or introducing other factors which the study does not purport to investigate. To guard against this risk, audio recordings of all intervention sessions were checked by a research supervisor for the project (NM). Further information on the fidelity checking is contained in section 2.7.4.

In addition to this, there is a risk to internal validity in this study design through the action of nonspecific factors. Nonspecific factors include aspects of the therapeutic intervention which are not related to the model or approach used. These factors may include the relationship with the person delivering the intervention, a sense of hope or action from doing 'something' (rather than nothing), and sharing a reasonable explanation for the person's difficulties (Kazdin, 1979).

Given that in this research the intervention was delivered solely by myself, there is no way of distinguishing between the intervention as

delivered by me, and the intervention itself. As such, it is not possible to categorically state that the changes observed in the variables are not attributable to a nonspecific factor associated with the way that I delivered the sessions.

Other study designs, such as randomised controlled trials (RCTs), may attempt to control for such nonspecific effects in various ways. For example, an RCT could ensure that the control group and the experimental group both have equal exposure to the person delivering the intervention. This would mean that any differences between the two groups are due to the intervention rather than the person delivering it. One way that this could potentially be achieved in a SCED design is through sequencing the phases so that a non-ACT phase is included. For example, following a baseline phase, the first part of an ACT-intervention would be introduced, followed by the third phase which could have a non-ACT session at its beginning. In this way, if changes in say work engagement are observed following the non-ACT session, it could be inferred that this is a result of nonspecific factors. This type of design would not be without its own difficulties however, as this would not provide a way of statistically accounting for the nonspecific effects, but only identifying their presence. Additionally, it is conceivable that conducting an inert (i.e. devoid of ACT material) session may feel artificial, or the participant may ask questions which refer to previously covered ACT-material.

Despite this risk of bias, there was some protection against this in the design and rationale for this study. Firstly, the Reeve *et al.* (2018) literature review found some evidence in favour of the use of ACT-interventions for the distress associated with burnout, including evidence from controlled study designs. As such, this research project was designed to build on this literature by using a methodology which would complement the extant research. Although this does not eliminate the risk of bias specific to this study design, the previous research which did find

an effect of similar ACT-interventions (beyond nonspecific factors) builds an argument that such an effect does exist. Additionally, despite having met with each participant for around one hour prior to the beginning of the baseline phase (for administrative tasks related to the research, but this time also included more general conversation about the participant's experience of work-related stress), there was no evidence of this having an impact on the level of burnout throughout the baseline. If such an effect was present, one would expect to see this in the trend of the daily data following this session (i.e. through the baseline period). As the data was assessed as being stable and without trend for all participants in this phase, this does not appear to be the case.

2.5.2.5 Attempts to mitigate against risks of bias related to testing procedures. Testing or assessment procedures in some study designs may indirectly affect the outcome which they seek to measure. Ledford et al (2019) advise that checking baseline trend can indicate if there is a risk of bias relating to changing assessment measures. The way that this bias is most likely to manifest in this research is through participants acclimating to the daily measures (please see section 2.5.2 of the Extended Method for further discussion of this).

2.5.2.6 Attempts to mitigate against risks of bias related to sampling and attrition biases. Ledford et al (2019) describe a further risk of bias as a result of poorly controlled sampling in the case of more potential participants meeting the eligibility criteria than are involved in the study. Advice is given that transparency in the reporting of any instances of this and how sampling was then conducted can be used to view the results in the context of the participant characteristics. This improves the scope for making an assessment of how generalisable the results of this study are.

2.5.3 How the study was designed to minimise risks to external validity. External validity of a research design concerns the confidence with which researchers can make claims of the generalisability of their findings to other contexts or individuals (Ledford et al., 2019). Risks to the external validity of this study can be mitigated against by reviewing the findings within the context of the extant literature (i.e. a finding which is theoretically, conceptually, and empirically unlikely, although requiring due attention, may be suggestive of a lack of external validity for whatever reason). The What Works Clearinghouse (2017) suggest that adequate external validity to draw a conclusion relating to a treatment requires positive outcomes in a minimum of five SCED studies conducted by at least three research groups, to include a minimum of 20 participants. Clearly the present research is insufficient alone, and so should be viewed as one contribution towards the broader ACT research project.

2.6 Recruitment of Participants

In the first iteration of the study protocol, the intention was to recruit participants from mental health and intellectual disability wards. This proved unsuccessful and no participants were recruited after several

months. The second recruitment setting is that described in the journal paper. Both of these shall be elaborated on in the following subsections.

2.6.1 Attempt at recruitment from inpatient wards. In the first iteration of the research protocol, four wards were identified from which recruitment of staff was intended to take place. These included staff from two older-adults 'functional' (i.e. non-organic) assessment wards, one intellectual disabilities inpatient assessment ward, and one adult acute inpatient ward, all based in Nottinghamshire Healthcare NHS Foundation Trust. Despite their different patient populations, it was believed that the nature of stressors facing staff across these wards would be sufficiently similar as to count any observed effect across multiple participants as replication of the effect.

Practically, the attempts to recruit from these wards was facilitated by two field supervisors, who were both clinical psychologists who worked on these wards (covering three of the wards); the fourth ward was worked into by my research supervisor (AT). These field supervisors facilitated contact with the ward manager of each ward and promoted the profile of the study on their respective wards. An email was sent to each ward manager (with a carbon copy sent to the relevant Clinical Psychologist to facilitate the perceived legitimacy of the request) requesting their permission to recruit from the ward (as was stipulated by the research protocol). This was granted on three of the four wards (for the ward where permission was not granted, the manager did not respond to any emails nor attempts at telephone contact, despite prompts from the relevant Clinical Psychologist). Subsequently, meetings were arranged at each of the three wards where permission was granted to present the research to the staff based there.

A total of 8 such presentations were conducted, usually following shift-handover meetings in order to maximise the number of staff present.

These informal presentations included a brief overview of the nature of the research, a description of what could be expected from taking part (including the intervention sessions and the frequency and duration of the measures), the possible benefits and risks, and the opportunity was given to ask questions. Attendance of these presentations ranged from three staff members to around 20. Over the 8 presentations, only one potential participant agreed to a meeting for further information and (assuming consent would be given) to undertake the eligibility screening, however this member of staff did not attend the appointment and did not reply to attempts to contact them afterwards. Recruitment from these wards was open for six months.

Given that it has not been possible to explore the reasons for such poor uptake of the intended population to recruit from, it is not possible to say with any certainty as to why uptake was so low, although it seems that there were several barriers which I reflected on alongside my research supervisors. Firstly, I inadvertently misspelled my contact email address on the participant information leaflet. Clearly this was a significant oversight which could have prevented potential participants from contacting me to pursue their involvement in the study. However, other email addresses were also on the information sheet (including for both of my research supervisors), so if a potential participant was sufficiently motivated they could have used an alternative contact had they not received a response from the incorrect email address. Nonetheless this would have provided a further barrier to anyone who was ambivalent towards their participation.

This error notwithstanding, there appeared to be other barriers preventing potential participants from volunteering. Following many of the presentations I did not sense that the audience were very interested in participating in the study. This was evidenced by the audience response to the presentations and by people very rarely requesting a copy of the Patient Information Leaflet. By the nature of this being a group of people

who were not willing to take part in the research, no data is available for why this was. It is largely conjecture however it is possible that other barriers included the time commitment to either the intervention or completing the measures, perceived stigma around experiencing burnout, or the original iteration of the intervention which was in a bibliotherapy format. The development – and subsequent change of format – of the intervention is elaborated on in section 2.7 of the extended paper.

2.6.2 Decision to change recruitment setting. Following one of my research supervisors changing their clinical role to work at the homelessness organisation, we discussed changing the focus of the recruitment setting. A minor amendment to the research protocol (and associated Participant Information Sheet and Consent Forms) was submitted and approved to this end.

It was felt that frontline staff working with a homelessness population was a suitable population for recruitment, as they are likely to face similar stressors as those working on inpatient mental health and intellectual disability wards (see journal paper introduction, and extended paper section 1.1.2). Anecdotally, it was thought that levels of burnout were high in this organisation, which would make it suitable for the present study to attempt to recruit from.

Recruitment at the organisation providing homelessness support was assisted by the staff wellbeing practitioner, who was invited to become a field supervisor in this role (DY). Recruitment was orchestrated by both DY and AT raising the profile of the study through their daily work and interactions with fellow staff. All four participants were recruited by them contacting me by email, having been provided with basic information about the study by DY or AT. Following this initial contact, a meeting was set up individually with each participant for further information to be

given, provide answers to any questions, gain written consent if they were agreeable to participation, and assess for eligibility.

2.6.3 Rationale for the eligibility criteria. The final eligibility criteria (which only differed from the original iteration in the organisation named in point one) are displayed below, with an explanation of the rationale for each.

All individuals who volunteered for the study met the eligibility criteria.

Criterion 1: Employed as a frontline member of staff for the above organisation. For the purpose of adhering to the population for which ethical approval was granted, this was stipulated in the eligibility criteria. Additionally, as the research wished to answer questions related to stressors emerging from the specific type of work that staff were engaged in, it was necessary to specify that only frontline members of staff would be eligible.

Criterion 2: Aware of and able to meet the time commitment for the intervention and questionnaire measures. Given that completing online questionnaire measures every day is an onerous task, it was necessary to ensure that all participants were aware of this and able to meet this requirement. Participants were able to preview the questionnaires when deciding if they wished to consent to participation, in order to make an informed decision about this. Additionally, ensuring that any potential participant was able to commit to the three intervention sessions was integral to successful completion of the study protocol.

Criterion 3: Access to the internet to complete the measures on a daily basis. This criterion was included as an important aspect of the pragmatics of running the study.

Criterion 4: Not on long-term sick leave. Long-term sickness is a possible result of chronic burnout (Health and Safety Executive, 2018). It was felt that if a participant were to go on long-term sick leave during the study, this could disrupt their experience of work-related stressors and thereby introduce a confounding variable into the analysis. This criterion was included to minimise the risk of this type of bias.

Criterion 5: A score on the OLBI indicating burnout within either of the subscales (i.e. above the cut-off for exhaustion or below the cut-off for engagement). This was included to ensure that participants were experiencing a sufficient degree of burnout (either high emotional exhaustion or low work-engagement) for it to be possible to demonstrate an improvement. In Reeve et al.'s (2018) meta-analysis, only those in a 'high distress' subgroup benefitted substantially from the ACT-interventions. Indeed, providing treatment for a problem that participants are not experiencing seems unlikely to be worthwhile. A different question would be whether or not an ACT-intervention can provide protection against the risk burnout developing in the future, but this was not the question addressed by this research.

A score indicative of burnout on either subscale was considered sufficient to meet this criterion. Cut-off scores were taken from Peterson et al (2008) and are the same as used by others using the OLBI for burnout research (i.e. Goldhagen, Kingsolver, Stinnett, & Rosdahl 2015).

2.7 Development and Content of the ACT-Based Intervention

This section details the rationale for choosing an ACT-based intervention, provides information on the original version of the intervention, and expands on the content of the finalised version of the intervention.

2.7.1 Choice of ACT as an intervention. There has been a preponderance of studies into the use of ACT for burnout amongst those experiencing burnout, which in addition to the Reeve et al (2018) systematic review has also prompted a narrative review of the same topic area (Leoni, Corti, Cavagnola, Healy, & Noone, 2016), a systematic review of 'mindfulness and acceptance approaches' (Rudaz, Twohig, Ong, & Levin, 2017), and a narrative review of ACT-based interventions for burnout across all work-related contexts (Moran, 2015). All in all, ACT appears to have become well established as a possible intervention for burnout – particularly for frontline workers in health and social care settings – and a worthy subject for research. Despite the extant research interest, a number of outstanding questions were highlighted by the Reeve et al systematic review and meta-analysis (as discussed in the journal paper Introduction) which suggest that using ACT as an intervention for burnout has yet to be fully understood, making it a valid focus for this study.

Furthermore, research into the effectiveness of coping strategies employed by staff working in sheltered housing settings suggests that strategies in which the individual psychologically removes themselves from difficult situations are associated with emotional exhaustion as measured by the MBI (Brown & O'Brien, 1998). Given the focus of ACT being to reduce such 'experiential avoidance' with a view to increased value-driven behaviour, this research clearly suggests that ACT is a suitable candidate for this population.

A final point regarding the selection of ACT as the intervention, is the implication that burnout is a problem *within* the individual. This is contrary to a report written for the NHS, which critiques an over-reliance on the resilience of individuals, and suggests that broader systemic and organisational change is required to alleviate the source of unnecessary work-related stressors (Elliot et al., 2018). This idea is elaborated on in section 1.3 of the Extended Introduction.

2.7.2 Original intervention format: Bibliotherapy. The ACT-intervention was originally offered to potential participants in a bibliotherapy format. The choice of bibliotherapy was made to provide variety in the literature, where ACT interventions for burnout have predominantly been conducted in workshop style formats. The intention was to deliver the ACT process dyads in self-help book format, allowing participants sufficient time to read the material before the next process dyad material was delivered. The intention was to support this with fortnightly telephone calls to support participants with the material and provide a check of their progress with the material.

The popular ACT self-help book 'Get Out of Your Mind and into Your Life' (Hayes, 2005) was chosen as the self-help material and permission to use this for the purpose of the study was granted by Stephen Hayes (in a personal communication to one of my research supervisors – NM). A digital copy of the text for the book was edited so that chapters were grouped into the three process-dyads. Chapters were not split into smaller parts in order to maintain readability, and where a chapter discussed more than one process-dyad the most appropriate place for it was chosen.

As discussed under section 2.6.2 (Decision to change the recruitment setting) it was hypothesised that the level of participant burden related to the amount of reading that this would entail may have contributed to the

slow uptake of participants for this study. It was consequently decided to broaden the options for how a participant could receive the intervention by developing. Participants were given the option of these two formats, and it is telling that all participants in the study chose to receive the intervention in a one-to-one format, as is described below.

2.7.3 Development and content of the one-to-one

intervention. The one to one intervention was developed in line with a 'workshop' style intervention used elsewhere (i.e. Bethay, Wilson, Schnetzer, Nassar, & Bordieri, 2013; McConachie, McKenzie, Morris, & Walley, 2014; Smith & Gore, 2012), but this would be delivered on an individual basis rather than in a group setting. The decision to not use a group setting was based on the practicalities of arranging a suitable time and venue which could accommodate participants. Given the difficulties with recruitment which the implementation of a different format of intervention was meant to solve, these practical difficulties were deemed too likely to present a barrier to potential participants. The decision to deliver it over three sessions was to maintain consistency with the design of the study intending to deliver each of the three ACT-dyads individually. When designing each intervention session they were expected to last around 1 ½ hours, although in reality were usually around 1 – 1 ¼ hours. Other studies using ACT for work-related stress amongst frontline workers have used interventions lasting a cumulative time of 4 hours to 2 full days, although mostly being 1 ½ days (as summarised in Reeve et al., 2018). This means that the intervention in this study represents the lower end of the dose-equivalence for this type of intervention relative to those that have been previously investigated. Given that I acted as the sole provider of the intervention – which was conducted separately for each participant – the design of the content of the sessions had to take into account the practicalities of the time taken to deliver each one.

Consistent with theoretical underpinnings of ACT, the form of the intervention was intended to facilitate participants 'doing' rather than 'talking about' ACT. As such, experiential exercises and metaphors were used in an attempt to enhance Psychological Flexibility in preference to a reliance on didactic forms of explaining the concepts (Brock, Batten, Walser, & Robb, 2015).

The content of the intervention sessions was informed by the outline of sessions used in other studies into ACT in the workplace (obtained by my research tutor [NM] at the Association for Contextual Behavioral Science World Conference; Flaxman, McIntosh, & Bond, 2018) and other ACT-metaphors and teaching aids. Each session was formulated to be able to work in a stand-alone fashion to allow the sequence of the sessions to be randomised without compromising the integrity of the content of any session (for instance, if one session contained an exercise which was dependent on something delivered in a different session). Each session began with a review of the previous session (which could be omitted on the first session without impacting on the remainder of that session's content) and finished with an invitation to think of situations in the coming fortnight when the content of that session could be applicable. This was with the intent of supporting participants to integrate the information in the sessions into their daily life.

The full outline of the sessions with accompanying supporting material is in appendix D.

2.7.4 Fidelity checking of the intervention. Although a previous study has stated that Trainee Clinical Psychologists are able to conduct ACT effectively (Lappalainen et al., 2007) there are nonetheless good reasons to assess the quality of the sessions delivered. Fidelity checking of the intervention is essential to ensure that any changes in any of the outcome or process variables can be attributed to the processes purported by ACT (Plumb & Vilardaga, 2010). As such, my research supervisor NM agreed to fidelity check a stratified selection of audio recordings of the intervention sessions. It was not possible for my second research supervisor, AT, to corroborate any of these assessments as her position working at the same organisation as the participants would risk her being able to identify a participant and thus breaking confidentiality. A stratified sample was randomly chosen to include a minimum of one each of each intervention session and one each from each participant, giving a total of four audio recordings checked.

The ACT-Fidelity Measure (ACT-FM; O'Neill, 2018) is a recently developed measure which is specific to ACT. The ACT-FM asks the assessor to rate items in terms of both adherence to the theoretical model and the competence with which this is applied, both of which are thought to be essential aspects of treatment integrity (Plumb & Vilgardaga, 2010). It has been found to have high interrater agreement (as measured by the intraclass correlation – ICC = 0.73) which suggests that it is a reliable tool. Subsections of the measure pertain to each of the three ACT dyads, plus a separate scale of overall therapist stance; and total scores are provided for two scales: ACT-consistency and ACT-inconsistency; these scores can be summed to provide an overall rating where a higher score denotes a more ACT-adherent session. Prior to NM rating these, the method of rating was discussed. We agreed that some subjective judgement should be made to account for these sessions being delivered as part of a structured intervention rather than as therapy per se. Furthermore, NM made the decision to triple weight the ACT process dyad

which was the intended focus of that particular session (i.e. in the case of rating the 'Being open' session, the score [both ACT-consistent and ACT-inconsistent] for this dyad would be multiplied by a factor of three). This weighting did not provide any assessment of the adherence to that single ACT-dyad (i.e. it did not rate contamination by other ACT-dyads) but did provide an appropriately weighted assessment of the delivery of the ACT intervention for the aim of that session. Session ratings are shown in table 13. Overall, ACT-consistency was rated as 96% and ACT-inconsistency as 0%.

Table 13

ACT-FM ratings for a stratified random selection of intervention sessions

Participant; session number; session type	Therapist stance		Being open		Noticing		Being active		Total	Percentage
	ACT	ACT	ACT	ACT	ACT	ACT	ACT Consistent	ACT Inconsistent		
	Consistent	Inconsistent	Consistent	Inconsistent	Consistent	Inconsistent	Style	Style		
	Style	Style	Style	Style	Style	Style				
	Max = 9	Max = -9	Max = 3 (9 if focal)	Max = -3 (-9 if focal)	Max = 3 (9 if focal)	Max = -3 (-9 if focal)	Max = 3 (9 if focal)	Max = -3 (-9 if focal)	Max = 24	
P1;S3;Active	9	0	3	0	3	0	8	0	23	96%
P2;S1;Noticing	9	0	3	0	9	0	2	0	23	96%
P3;S1;Active	9	0	3	0	3	0	9	0	24	100%
P4;S2;Open	9	0	8	0	3	0	2	0	22	92%

Note. Overall ACT-consistency was 96%. Overall ACT-inconsistency was 0%.

2.8 Judgement of Stability During the Baseline Phase

The purpose of the baseline period in a SCED is to ascertain that the variable of interest is adequately stable and lacking in trend to be able to assess any changes due to the intervention (Kratochwill et al., 2010). As such, establishing stability of the data during the baseline phase is essential prior to the intervention phase being implemented. Kratochwill et al. recommend that in the case of more variable data, a greater number of data points will be required to assess the stability. As a rule of thumb, Smith (2012) suggests that although a minimum of three has previously been used, five data points now appears to be the accepted requisite amount. Kratochwill et al. suggest that baseline periods should not be ended on an outlying data point as this may obscure the change in level of a variable between phases.

Given that the primary outcome variable in this study was the OLBI burnout measure, stability in both of the OLBI subscales was deemed necessary to achieve stability and progress to the intervention phase. If only one subscale had been chosen as being adequate to progress to the intervention this would have compromised the ability to assess the effect of the intervention on the subscale which did not show stability due to the 'noise' this would introduce.

Kratochwill et al. suggest that visual analysis can be used to assess for stability. This was conducted for both subscales variables for all participants. As can be seen in figures 1, 2, ,3 and 4 in the Journal Paper, there was little variance in either scale of the OLBI for any participant, and so stability was judged to have been achieved.

Some issues of pragmatism also influenced the judgement of when to commence the intervention. Although such practical issues would ideally not influence a well-controlled study, it was not possible to overcome these otherwise. For example, I was only available to conduct the intervention sessions on a Friday due to the availability of study days. Clearly this had an impact on the flexibility with which

the intervention could be commenced. Similarly, although participants were made aware that a condition had to be achieved to commence (the nature of the stability which was required was described in an opaque manner, in order to reduce the possibility of a participant aiming for consistency in their answers in a form of participant bias) there was still a pragmatic need to arrange an appointment ahead of time to fit with their other work commitments. This difficulty was managed by commencing data collection on either a Monday or Friday, and explaining to the participant that the intervention will begin either the next Friday, or the one following. This was a compromise to create sufficient flexibility for when to begin the intervention but also providing participants with sufficient notice to add both possible sessions to their diary.

Furthermore, the fact that the short-form (i.e. single item version) of this subscale has a range of four possible answers reduced the precision that this variable could be measured with. In retrospect, a measure with greater potential variability would have enabled more precision in the measurement of this variable.

2.9 Analysis of Quantitative Data

Although visual analysis is the most frequently used approach for SCED data, alternatives do exist. For example, the split-middle technique (Lane & Gast, 2014) and piecewise regression (Manolov, Moeyaert, & Evans, 2016) are techniques to quantify the level and trend of the baseline in order to permit a comparison against the following phase.

The split-middle technique can be performed manually. It requires the data-points for each phase to be split into two halves (i.e. chronologically the first half and the latter half). The mean of each of these separate halves is calculated, and a line plotted to dissect the

mid-point of each half to represent the trend across the whole phase (Lane & Gast, 2014). Similarly, piecewise regression is an approach to visually demonstrating a correlation split into phases, online software for which is provided by Manolov (as detailed in Manolov, Moeyaert, & Evans, 2016).

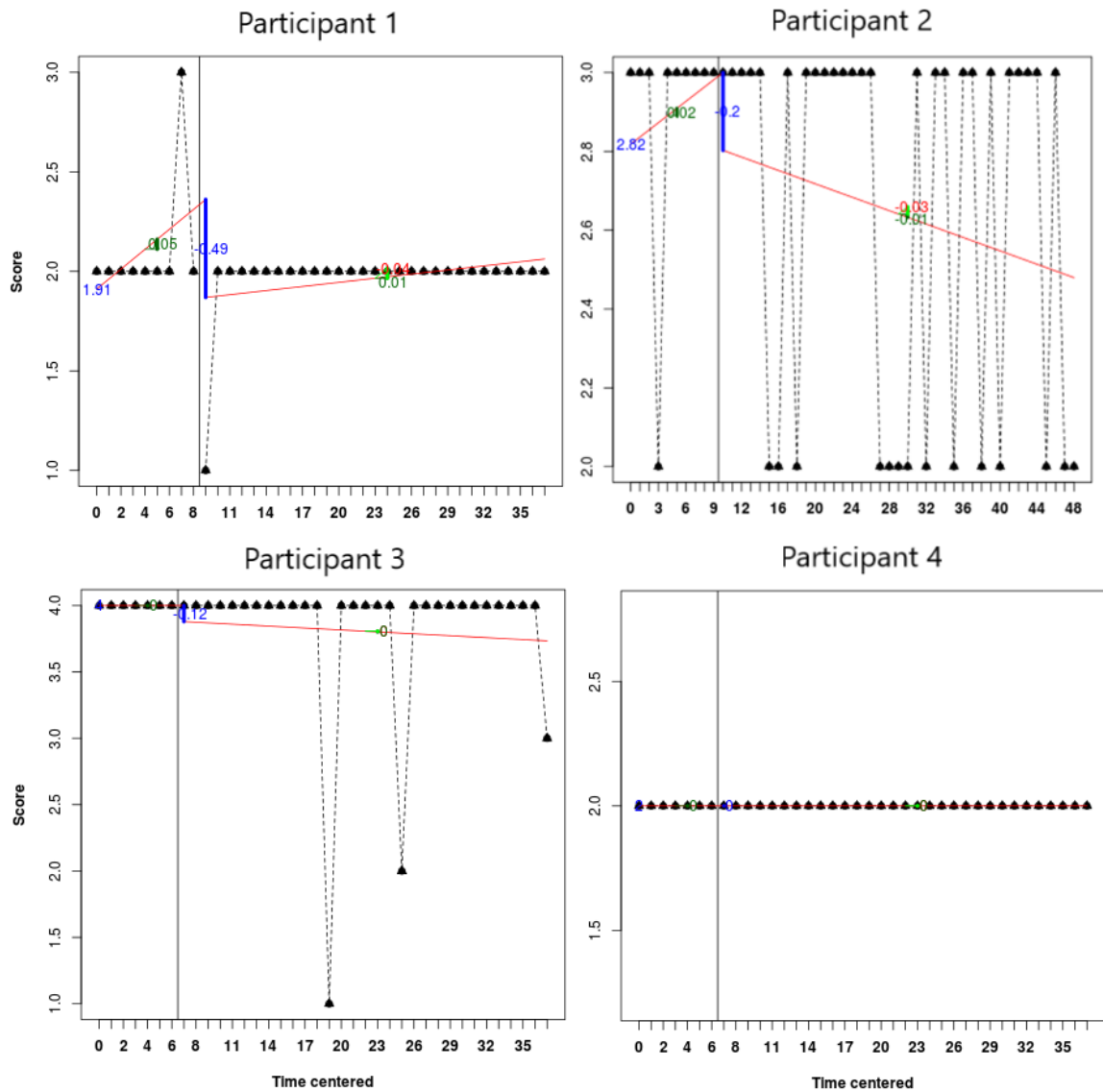


Figure 9. Piecewise regression analyses of the OLBI Disengagement short-form for all participants. Small triangles denote data points, regression lines are in red, blue lines show the change in level between phases. Green text denotes the rate of change in the DV per day

An attempt to use the Manolov technique of piecewise regression was made, however this did not prove suitable for analysing the dataset. Please see figure 9 for graphical outputs of the Manolov regression analyses.

As can be seen in figure 9, Participant 1 demonstrates a very flat and consistent set of responses throughout the data collection period, with only two data-points which vary from the modal response, each of which is different from the mode by one point (i.e. the minimum possible difference). However, as each of these data-points are in different phases (i.e. one in the baseline, and one in the amalgamated intervention phase) they each have a different effect on the trend – or regression – line for their respective phases. Because the baseline has fewer datapoints in total, the relative effect of the different data-point here is greater, and creates a regression line which suggests that the participant was becoming more disengaged. Furthermore, the 'straight-line' nature of the regression analysis means that by around day 41 this participant would have become disengaged to the point of reaching the highest score available on the OLBI short-form of 4 (this can be calculated from the green text on the graphs, which denotes the rate of change of the dependent variable per time unit, or day in this case). An alternative explanation is that something occurred in the environment at work or home which caused the Participant to rate their level of disengagement slightly higher on one day – an anomaly rather than a trend – seems much more plausible.

As can be seen in this example, the piecewise regression analysis appears to be overly sensitive to small one-off changes in Participant's responses. This is likely due to the small range of responses available within each outcome measure, and the relatively small numbers. Because of this sensitivity, there was clearly a risk of erroneous judgements being made based on this technique. It was

expected that similar difficulties with sensitivity would occur with the split-middle technique.

Furthermore, there are a number of difficulties with other statistical approaches to analysing SCED data. For example, due to the risk of autocorrelation of data (see section 2.4.5 of the Extended Paper for further information on this) there is a higher chance that common statistical tests may over- or under-estimate the likelihood that any change was not due to chance. Specialist statistical tests which do exist are thought to require many more datapoints than are typically in any given phase of a SCED (Kazdin, 2019).

A number of alternative methods of visual analyses also exist, such as percentage nonoverlap of data (PND) and stability envelopes. Although classed as methods of visual analyses, both of these rely on some level of calculation in order to inform visual analysis, much like the split-middle technique described above. PND involves the calculation of the proportion of data-points in a given phase which overlap with the data-points in the previous phase (Parker, Vannest, Davis, & Sauber, 2011). Because all data-points are examined, this method is prone to being distorted by the presence of outlying data-points. Analysis using stability envelopes aims to produce a similar feature to aid visual analysis, but rather than basing the analysis on all data-points it calculates confidence intervals around the median to produce an extension to the celeration line for visual analysis (Lane & Gast, 2014). Such alternative methods provide an adjunct to the characteristics on which the visual assessment was based. For example, the characteristic of there being a lack of variability – although formalised by methods such as PND and stability envelopes – can be assessed without these methods. Furthermore, some aspects of the data, such as the latency of change, are poorly assessed by these methods. Overall, there remains a lack of consensus on the best option of these, as the underlying features

(i.e. the characteristics suggested by Kazdin, or the attempt at visually portraying a stability envelope as suggested by Lane and Gast) share the same targets for comparison but with the emphasis on different features depending on which strategy is chosen (Morley, 2017). For these reasons, visual analysis with regard to particular characteristics (variability, mean, level, trend) was chosen for the analysis of the daily short-form data.

2.10 Rationale for Not Conducting Clinically Significant Change Analyses

A quantitative assessment of Clinically Significant Change (CSC) uses existing data from either a 'normal' population (i.e. those who are not suffering with a particular difficulty) or a population with the condition of interest, or a combination of both, to assess if an individual has moved from one group to another (Kendall & Grove, 1988). For an individual to be assessed as having made CSC (i.e. if they have 'recovered'), they should be undistinguishable from an individual belonging to the 'normal' population group based on the values of the measures being employed.

There are three reasons that the presence (or otherwise) of CSC was not assessed in the current study: the lack of large dataset from a relevant population, burnout is not viewed as a diagnostic entity in UK, and such an approach is not conceptually aligned with ACT. These are discussed in greater length individually below.

Firstly, an acceptable assessment of CSC requires an existing dataset. An ideal dataset for this purpose would be taken from a population with similar characteristics as those in the research project, in this case, those working in frontline homelessness services, or at least in some form of care context, where levels of the two subscales of burnout are likely to be influenced by similar factors. This similarity is required to be able to make statements about the characteristics of

what constitutes a group of those who are experiencing, in this case, 'burnout'. As far as I am aware, no dataset using the OLBI exists for such a population.

Next, making any statement about the degree of CSC holds an implicit assumption that a change occurs from 'pathological' or 'illness' to 'normality'. Although burnout is viewed as a diagnosable disability in some countries, such as Sweden and the Netherlands (Maslach & Leiter, 2016), this is not the case in the UK. Even where it is agreed that burnout does have a place in a diagnostic system, there remain conceptual disagreements about how a diagnosis should be made. For example, the controversy over the uni- or multi-dimensionality (as described in section 1.2.4 of the Extended Paper Introduction) becomes pertinent to how any such diagnostic criteria would be organised. This would have implications for conducting analyses of CSC, where decisions would need to be made regarding the number of subscales on the OLBI which would require CSC to be observed for this to be considered clinically relevant. As far as I am aware, there are no established precedents for such decisions to be based on. As such, it is conceptually incompatible to test for CSC.

Finally, following on from the previous point, a view of clinical change consisting of discrete populations of 'ill' and 'well' is inconsistent with the therapeutic aim of ACT, which is to "grow the person" as opposed to "shrink the problem" (Hart, 2015). Correspondingly, if a participant's level of work-engagement improved yet their level of exhaustion did not, this would be consistent with the broader goal of ACT. However, depending on how CSC was defined it would not necessarily be viewed as clinical recovery.

The implication of the decision to use RCI rather than CSC analyses is that it is only possible to state that *a* change did occur in the variables where this was found (to the degree of statistical significance tolerated by the calculation method, i.e. 95%

confidence). It is not possible to state that this change is meaningful to the participant, however such data was sought in the form of the change interviews conducted (see section 4.5 of the Extended Paper for the results of these).

2.11 Use of a Participant Change Interview

In addition to the primary quantitative data, a change interview was conducted subsequent to the follow-up. The intention was to elicit qualitative data around each participant's experience of the intervention and what if they identified aspects outwith the research which may have made a substantial change which could have biased the results. This interview followed the Client Change Interview schedule (Elliott & Rodgers, 2008).

The change interview followed a semi-structured format as described by Elliott & Rodgers (2008). The intention of conducting this was to gain an insight into any processes or outcomes which may not have been identified by the quantitative aspects of the study. A copy of the change interview schedule can be found in appendix E.

The change interviews were conducted by a fellow trainee also on the Trent doctoral programme (SL), for which ethical consent was also sought. This was chosen to reduce the risk of bias if a participant felt compelled to answer in a favourable way when describing their experience of the research process. These were audio recorded for analysis.

A content analysis of the audio recordings was conducted to gather themes on the answers.

Finally, a note on the position and utility of the data which can be obtained from the change interview from the perspective of the epistemological position. From the perspective of functional contextualism, personal introspection into speculative mechanisms

which may have brought about change (such as reference to internal constructs such as 'core beliefs') are not a valid focus. Although the change interview did invite participants to consider what they attributed any changes to, this was analysed in terms of identifying any situational factors (such as changes in work circumstances) which may have been beyond the measurement of the instruments used by the study. As such, the change interview was used to provide supplementary situational information rather than insight into psychological processes of change.

Extended Results

3.0 Overview

This part of the extended paper will provide further detail of aspects of the analysis and include an analysis of alternative data which was also explored.

3.1 Further Detail Regarding the Calculation of the Reliable Change Indices

The RCIs were calculated using the formula provided by Jacobson and Truax (1991). This is a commonly used method of assessing the degree of change for scores within a single participant. Given the very small sample size inferential statistical testing would not be appropriate (and given the design of the study, the data were never intended to be suitable for such testing). The RCI uses the reliability and standard deviation of a measure to calculate the 'standard error measurement' for each psychometric being used. Given that the reliability of a measure is the consistency of results across a number of administrations, the greater the reliability of a measure, the smaller a change in scores is required for reliable change. Similarly, as the standard deviation is a representation of the typical distance of scores from the mean, the smaller the standard deviation the smaller a change in scores is required for reliable change to be observed.

The RCI of each measure being used (aside from the idiographic measure, for which no standard deviation or reliability exists since clearly it is not an existing psychometrically studied measure) was calculated using MS Excel. The data (i.e. standard deviation and reliability [as expressed as Cronbach's alpha]) was obtained from Cummins et al. (2003) for the PWI, Francis et al. (2016) for the CompACT, and Reis et al. (2015) for the OLBI.

3.2 Narrative Explanation of Visual Analyses of Short-Form Measures

For reasons for economy of words, the below descriptive analysis of the short-form measures was tabulated in the Journal Paper. It is reproduced here in longer-form format.

3.2.1 OLBI short-form – Disengagement. All participants demonstrated a flat trend through the baseline, with no more than two data-points (Participant 1) deviating from the modal level for that participant, indicating that any changes in trend or level can be attributed to the intervention. Through the intervention phase there was little change in this variable for Participants 1, 3, or 4, suggesting that the intervention did not cause any change on Disengagement as measured by the short-form item. Participant 2 on the other hand demonstrated a gradual drop (i.e. improvement) in the mean score for each phase, except the final phase where there was a slight increase); this change was maintained at follow-up. This suggests that Participant 3 found the intervention helpful for reducing disengagement.

3.2.2 OLBI short-form – Exhaustion. All participants demonstrated a flat baseline phase, with no more than one data-point per participant deviating from the modal level for that participant, indicating that any changes in trend or level can be attributed to the intervention. Through the intervention phase there was little change in this variable for Participants 1, 2, or 3, suggesting that the intervention did not cause any change on Disengagement as measured by the short-form item for these participants. Participant 4 on the other hand demonstrated an abrupt and immediate drop (i.e. improvement) in the mean level of their scores at the beginning of phase D; this change was maintained at follow-up. This suggests that Participant 4 found the intervention helpful for reducing exhaustion.

3.2.3 Idiographic value measure – home value. All participants demonstrated much greater variability in their responses to this item, making baseline trend harder to assess. As such, any conclusions drawn from this analysis will be treated with less confidence as they could be attributed to 'noise' rather than effect. As has been highlighted in previous SCED analyses (Ruiz et al., 2018) variability is not ideal but is common amongst clinical data. Ruiz et al. suggest that this is not necessarily problematic unless the degree of variability impedes the ability to observe a treatment effect. Nonetheless, there was no obvious baseline trend for any participants. Participants 1 and 4 demonstrated a slight increase in the mean-level of intervention phases compared with the baseline, however given the variability of the data and the magnitude of this improvement (less than one point) no firm conclusion can be drawn from this. Similarly, Participant 2 demonstrated an increase in the mean-level between baseline and intervention phases which again was of a relatively small magnitude (i.e. less than one point), however this occurred more abruptly at 5 days after the intervention, after which the highest scores were achieved (4 of 4) and no more low scores (1 out of 4) were reported. Although this kind of abruptness of change is thought important in attributing causality (Kazdin, 2019), given the variability of the data and the return to baseline level at follow-up, no firm conclusion can be drawn for Participant 2. The variability of data in the baseline for Participant 3 can be interpreted as either due to extraneous factors (such as events occurring at home outside of the control of the study) or as a downward trend in the baseline data. Given that the mean level increases at each intervention phase, either interpretation of the meaning of the data-variability during baseline can be compared with the intervention phases to suggest that the intervention did lead to an improvement in this measure.

3.2.4 Idiographic value measure – work value. Again, this measure showed larger amounts of variability through the baseline, which again makes it more difficult to make accurate inferences regarding changes in the measure. Despite this, there was no clear evidence of there being a trend in the baseline for any participant. There were small increases in the mean level between the baseline and the intervention phases for Participants 1, 2, and 4, although this could be attributable to the variability of the data; Participant 2 appeared to have maintained an improved level at follow-up, but given the single-item nature of this measure and the variability of the data no firm conclusion can be drawn regarding this. Participant 3 on the other hand demonstrated clear improvement in the mean level of each phase, suggesting that the intervention was helpful for this participant on this measure.

3.2.5 CompACT. The baseline data for Participants 1 and 4 showed greater variability, making trend difficult to assess. There was less variability for Participants 2 and 3, and there did not appear to be any trend for these participants. The data variability of Participant 1 continued through each intervention stage, so although the mean-level decreases it is not possible to be confident that this is not due to a continuation of baseline trend. Although the data for Participant 4 begins with greater variability this becomes less through the intervention phases. There is also a decrease in mean level through each intervention phase. As such, it appears that the intervention was helpful for increasing Psychological Flexibility for Participant 4. Participants 2 and 3 both show clear reductions (i.e. improvements) in this measure through the intervention phases, although interestingly for Participant 3 this only begins to occur at the 33-day point (i.e. 21 days into the intervention) and is not sustained at follow-up. Overall, the intervention appeared to be helpful for increasing Psychological Flexibility for Participant 2 and partially so for Participant 3.

3.3 Discussion of missing data points

A total of 11 data-points are missing for Participant 1 in addition to the follow-up scores, with five missing datapoints being the longest continuous run. The unavailability of the follow-up scores precludes calculation of the RCIs for timespans which include this point. Missing data in SCED designs has been described as being problematic if it impairs visual analysis of the data (Ledford, 2019). Given both the variability of Participant 1's data in phase C and the missing data through this phase, this could be said to be problematic in this instance. This is discussed at greater length in the Limitations of the Extended Discussion (please see section 4.4).

3.4 Further Analysis Related to the Sequence of Delivery of the ACT-Triflex Interventions

The Journal Paper includes only graphs of the individual triflex-level subscales of the CompACT. A graph of the combined CompACT scores is shown in figure 10.

These graphs were visually analysed, but no clear relationship exists between Psychological Flexibility and the order of delivery or the effect of particular intervention content.

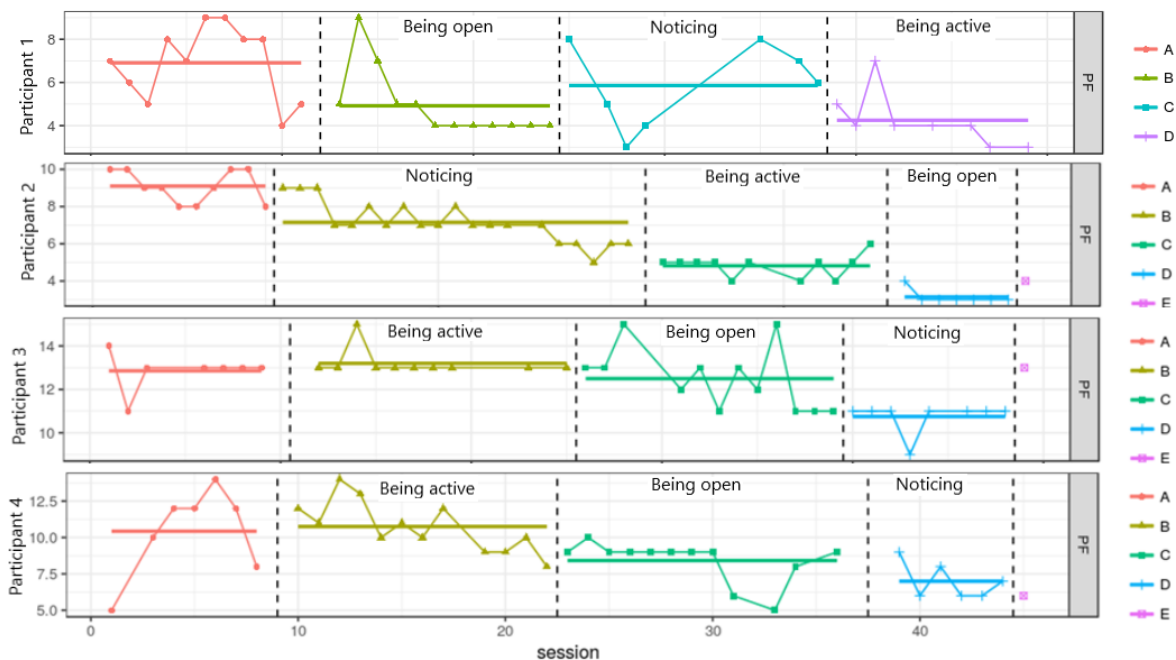


Figure 10. CompACT scores for all participants, with the content of the intervention labelled.

3.5 Change Interview Results

Thematic results of the change interview are presented for each question here. Participants 1, 2, and 3 all agreed to conducting a change interview as planned. Participant 3 did not respond to emails inviting them to complete this. This is formatted as the subheading consisting of the question presented to the participant, followed by a

description of the theme(s) which were identified, and a quote where this helps to illustrate said theme.

A discussion of these results takes place in section 4.5 of the extended paper.

Qu. 1 How are you doing now in general? How has it been for you since the training ended? Themes included:

- Things are generally improved
- Life has continued to be stressful although that is not related to the ACT training

An illustrative quotation from Participant 1 is “in general, life is alright; life has thrown stuff [at me] in the last few weeks, but it’s alright”.

Qu. 2 Changes following the ACT training. This incorporated sub-questions of ‘what changes, if any, have you noticed in yourself since training started?’, ‘has anything changed for the worse for you since training started?’, and ‘is there anything that you wanted to change that hasn’t since training ended?’. However, participants’ responses were generally combined, and so themes for the answers are presented for the combined responses also. Where Themes included:

- Things have improved generally
- Some improvements have been slower than hoped for
- It was helpful to have the time to speak about difficulties

Changes which were specific to each client are included in the responses under Qu. 3 Change ratings.

Qu. 3 Change ratings. For each *specific* change identified in the previous question, participants were asked to rate the change in terms of how expected it was, the likelihood of the change occurring without the intervention, and its personal importance. The responses to these questions are displayed in table 14.

Table 14

Changes for each participant and their ratings on expectedness, likelihood, and importance

	Participant 1	Participant 2		Participant 4	
	Return to own sense of self	More aware of own values	Better at mindful noticing	More confident of own values	Feeling more positive
How expected was the change*	5	4	2	4	2
How likely would the change have been without the intervention**	2	1	3	2	3
How important is the change to you***	4	5	5	5	5

Note. * 1=very expected; 5=very unexpected; ** 1=very unlikely without the intervention; 5=very likely without the intervention; *** 1=very unimportant; 5=very important

Qu. 4 Attributions. This question asked participants to consider why they believed any changes had occurred.

Themes:

- The Values session [being active] was particularly helpful
- The ACT interventions helped me make changes
- Reassurance and support from other people was helpful

Participant 4 stated that “Looking at the values gave me a sense of perspective, it made me look at not just how things aren’t going well but look wider”.

Participant 1 stated “I needed to be told by multiple people that it wasn’t my fault to be able to believe that”.

Qu. 5 Resources. This question inquired about the personal and social resources respondents felt had helped them.

Themes:

- My ability to reflect and think about things
- Reassurance and support from others
- The seasons changing to summer helped me feel better
- I started trying to make changes to my behaviour before the ACT intervention.

This is illustrated by Participant 4, who stated: “– I have gone away after the sessions and thought about things, like with values I went away and had quite a think about those”.

Qu. 6 Limitations. This question focussed on the personal and social challenges which respondents felt had made it more difficult to make use of the intervention.

Theme:

- External pressures (both work and family) made it more difficult to make changes

Qu. 7 Helpful aspects of the intervention. This question asked respondents to identify the most helpful elements of the intervention.

Themes:

- The daily questionnaires were helpful to keep checking in on myself were nice
- Values exercises were helpful
- Having time set aside to focus on how I felt about work.

For example, Participant 1 stated: "The daily questionnaires were really good to check in, reflect on the day and check on whether I'm acting on my values which is an interesting way of viewing the world."

Qu. 8 Problematic aspects of the intervention. The aim of this question was to identify elements of the intervention which were unhelpful.

Themes:

- There were no problematic aspects with the material
- Because it was short it felt like an introduction to the material.

This was illustrated by Participant 4: "Because it was only 3 sessions it didn't feel that it went into depth enough... all of it could have done with a few more sessions on each part, and if it had been offered earlier when I was beginning to feel stressed"

Qu. 9 The research aspects. This question aimed to elicit the participants' views of being part of the research process.

Themes:

- The questionnaires were interesting and helpful to do daily as my own response to them changed
- Research was fine, questionnaires were quick
- Further resources on ACT would be really helpful

This is illustrated by Participant 2's response: "It was a pleasant experience, being part of the research process".

3.6 Analysis of the weekly measures

The long-form version of all measures were administered at weekly intervals, in addition to pre-, post-, and follow-up time points. Although the long-form measures – by their nature – offer greater precision and sensitivity than their short-form counterparts they were not included in the Journal Paper analysis as they offer far less frequent measurement which is not aligned with the usual SCED format. Additionally, as the long-form measures for pre-, post-intervention, and follow-up were analysed using the RCIs, a more robust analysis of these scores was still undertaken at the most significant time-points. However, they are shown in table 15 for the sake of completeness.

Table 15

Full-form outcome measure results for all timepoints completed

	Day of collection	OLBI De	OLBI Ex	PWI	CompACT
Participant 1	1	22	27	45	63
	8	21	20	45	63
	15	19	22	49	55
	22	17	18	49	48
	44	17	20	50	34
	49	17	17	56	27
Participant 2	1	27	26	40	69
	7	26	25	43	68
	14	21	24	46	57
	21	23	23	51	52
	28	23	26	51	50
	35	21	27	46	42
	42	23	25	50	38
	49	22	24	51	24
	53	20	22	49	23
81	20	22	53	28	
Participant 3	1	30	28	16	100
	7	31	28	23	98
	14	30	29	20	96
	28	13	17	18	87
	36	19	17	15	85
	42	30	26	20	82
	48	29	26	23	81
	76	27	24	25	98
Participant 4	1	18	32	28	58
	8	18	31	29	59
	16	19	30	34	60
	22	19	27	32	63
	31	18	26	35	49
	41	18	25	35	52
	72	17	24	40	45

Extended Discussion

4.0 Overview

This section extends the Journal Paper discussion by elaborating on theoretical and conceptual areas, and further discussion of the limitations of the study. The change interview results are incorporated into a discussion of the extant literature here (section 4.5) as the results of this are only included in the Extended Paper Results section rather than the Journal Paper.

4.1 What this Research Contributes to the Literature on Work-Engagement

The lack of research attention on the effect of ACT interventions for work-engagement is surprising, given how consistent this concept (when defined as being a distinct construct rather than the antipode of burnout, see Extended Paper section 1.2.3 and 1.2.4) is with the therapeutic aim of ACT. Given that ACT hopes to 'grow the person' rather than 'shrink the problem' (Hart, 2015) a focus on work-engagement rather than emotional exhaustion is conceptually warranted. Indeed, a critique of the field of burnout research has asked "[is] the end goal to reduce burnout or to promote wellness?" (Eckleberry-Hunt et al., 2018). As discussed in the Extended Paper Introduction, previous conceptualisations of work-engagement as constituting the opposite pole to the burnout spectrum may be responsible for this, however more recent empirical work as discussed in that section suggests that these constructs are distinct. As discussion in the Journal Paper, three of the four participants did demonstrate an improvement in work-engagement as measured by the OLBI. The participant who did not demonstrate an improvement (Participant 4) began with a low level of disengagement (i.e. high

engagement), which may have created a floor-effect in making any further progress difficult in this domain.

I believe that this is an important contribution to the literature around ACT for work wellbeing.

4.2 Discussion of Why One Participant's Psychological Flexibility Score Reverted to Baseline at Follow-Up Measurement

As discussed in the Journal Paper Results, the CompACT score for Participant 3 showed reliable improvement through the intervention phases, but then reverted to almost the baseline score at follow-up. This finding is worthy of greater exploration than is possible in the Journal Paper.

At baseline Participant 3 shows the highest level of disengagement of all participants, and the second highest level of emotional-exhaustion. Previous research has found that once a person becomes emotionally exhausted, increases in Psychological Flexibility become less useful at fostering change to emotional exhaustion (Onwezen, van Veldhoven, & Biron, 2014). Furthermore, previous ACT SCED research has found that some participants Psychological Flexibility increases, for others it decreased (Graham, O'Hara, & Kemp, 2018).

During the intervention sessions Participant 3's responses (both explicit and implicit) to many of the exercises suggested that they no longer valued working in a frontline homelessness role. The importance of personal values with work-related values has been found to predict wellbeing and burnout amongst mental health practitioners (Veage et al., 2014). Given that Participant 3 did not have personal values consistent with the nature of their work, it may be that an increase in Psychological Flexibility would be unlikely to

lead to an increase in opportunities for rewarding activity within the context of their work environment. The domain-specificity of Psychological Flexibility is discussed further in section 4.3 of the Extended Paper.

Incongruence between personal values and organisational aspirations creates a potential ethical dilemma. For example, it may create a conflict between a researcher (or clinician's) responsibility towards the organisation where research is taking place and responsibility towards the respecting the participant (or staff member's) right to be supported to freely choose their own values. I discussed this potential dilemma with my research supervisors (whilst maintaining the anonymity of Participant 3). We discussed this in the context of presenteeism being a problematic response to work-related stress, for example if a participant's values lie outside of the organisation's aims then this could lead to the participant attending work without wishing to be there, which is likely to result in lower quality output (see section 1.2.7.4 of the Extended Paper for an explanation of presenteeism). Ethical dilemmas in ACT therapy caused by an incompatibility between the therapist's ethical stance and a client's identified values are discussed by Luoma et al. (2007, pg. 140), who suggest that common ground should be sought which can provide a useful therapeutic contract. As applied to the context of providing a burnout intervention to an organisation, this is consistent with supporting participants to live a valued-life – guided by their own freely chosen values – even where this may lead to them looking for alternative employment. In the longer term this is more likely to prove beneficial for an organisation than holding onto staff who themselves would prefer to work elsewhere.

The lack of change in Participant 3's scores on the OLBI Disengagement or Exhaustion scales – in spite of therapeutic changes in Psychological Flexibility during the intervention phases – may be

explained by the relationship between exhaustion and engagement. In the longitudinal study into the relationship between work-engagement and emotional-exhaustion described in the Extended Introduction (section 1.2.4; Maricuțoiu et al., 2017), it was found that the route from exhaustion to disengagement was stronger than the route from engagement to reduced-exhaustion. This finding has also been found in the context of educational burnout (Salmela-Aro & Upadaya, 2014). A consequence of this uneven reciprocal relationship may be that for those who are already experiencing a high level of exhaustion, an increase in work-engagement may be less effective at alleviating exhaustion. This provides a possible explanation for Participant 3 making the smallest improvement in emotional exhaustion of all participants (as evidenced by the smallest lowest RCI score), as they also exhibited the highest emotional exhaustion score in the long-form measures pre-intervention.

Being able to understand this participant's experience in an individualised yet theory-consistent way is a strength of the SCED methodology. This is consistent with the 'person-centred' approach to burnout research championed by Mäkikangas and Kinnunen (2016), and of 'process-based' ACT research more generally (Hayes et al., 2019).

4.3 Further Discussion of Psychological Flexibility as the Mechanism of Change and its Domain-Specificity

A number of further issues around the nature of Psychological Flexibility and its relationship with the outcome variables are raised by the results of this study.

Firstly, in this research I took the stance that Psychological Flexibility and Psychological *In*flexibility are antipodal. This appears to be the most common conceptualisation, however some recent empirical

work has conceptualised them as two distinct constructs, where it is possible to be both Psychologically Flexible and Psychologically Inflexible in different contexts (Stabbe, Rolffs, & Rogge, 2019). Stabbe et al. identified different profiles of Psychological Flexibility and Inflexibility which suggest that some of their participants identified as being both highly Flexible and highly Inflexible concurrently. One explanation for this is that Psychological Flexibility may be domain specific (Rolffs, Rogge, & Wilson, 2018). For example, an individual may exhibit high levels of experiential avoidance of difficult emotions associated with mundane tasks, but high levels of acceptance associated with the challenges of writing their thesis (or indeed – quite the opposite may be true!). Consistent with this view of Psychological Flexibility, measurement of Psychological Flexibility using questionnaires has found to correlate more strongly with changes in symptoms which the questionnaires are worded in a way which corresponds to the respondent's difficulties (Ong et al., 2019). For example, the Psychological Inflexibility in Pain Scale (Wicksell, Renöfält, Olsson, Bond, & Melin, 2008) is a context-specific measure of Psychological (in)flexibility, which is understood to load specifically onto this construct within the stated domain.

In addition to the wording of the measurement instrument, the target of an ACT intervention may change the contexts in which Psychologically Flexible ways of responding are fostered. For example, a study which aimed to reduce stigmatising thoughts held by staff towards their clients in a personality disorder service found an improvement in client-staff relationships following an ACT intervention. However, burnout (which was a secondary measure) did not improve (Clarke et al., 2015). The ACT intervention in this study was explicitly focussed on using ACT to reduce the behavioural consequences of thoughts and feelings associated with challenging encounters with clients. However, the lack of change in burnout

(which has, clearly, improved in response to improvements in Psychological Flexibility secondary to an ACT intervention in other studies beyond the present research) suggests that participants were unable to generalise their use of ACT to other difficult feelings even within the same context of location.

From the perspective of frontline homelessness working, previous research has found that the ability to recognise and confront client distress is associated with higher job-satisfaction and lower burnout (Ferris et al., 2016). The mechanism of this association was attributed to increased organisational identification, however from an ACT perspective this would be better explained as a reduction in experiential avoidance of client distress in the service of personal values (of the staff member) around delivering support or care to those less fortunate than themselves, and consequently experiencing a greater sense of reward (at the cost of temporary vicarious or empathic distress).

This view of Psychological Flexibility as the mechanism for change is consistent with qualitative research into the use of values for resilience amongst third-sector workers and NHS psychologists (Lamb & Cogan, 2016). Participants in this study identified that values can be both protective of emotional resources by creating meaningfulness in their work; or contribute to feelings of exhaustion where they do not feel able to meet their values due to organisational pressures. This again is consistent with an ACT / Psychological Flexibility perspective on burnout and work-engagement, although Lamb and Cogan did not formulate. Judging by the values chosen by participants for the idiographic measure in the present research, an analogous process appears to have taken place.

4.4 Further Limitations

In addition to those identified in the Journal Paper, some further limitations have been identified.

Firstly, the relatively short follow-up period of one month may have limited the opportunity for any increases in Psychological Flexibility to manifest in behavioural changes, or for any behavioural changes to be reflected in changes in exhaustion or engagement. Previous research into the relationship between work-engagement and emotional exhaustion has found that one year of measures is the required length of time to observe reciprocal changes in these variables (i.e. Maricuțoiu et al., 2017). As such, any changes that the ACT intervention caused in, for example, work engagement, would not be expected to be reflected in the participant's level of emotional exhaustion for a period of time far beyond the follow-up period in which measurements were taken. The original protocol for this project intended to use a 3-month follow-up period. Although this would still have been far shorter than that recommended by Maricuțoiu et al., it would clearly have been an improvement. The reason the length of follow-up period was reduced for the final iteration of the protocol for this project was due to the reduced time available, after recruitment attempts had failed in the original target population (as discussed in section 2.6.1 and 2.6.2 of the Extended Paper).

Secondly, there were a number of missing data-points, particularly for Participant 1's daily measures in phase C, and their long-form measures at follow-up. Clearly, had these data-points been collected as intended it would have improved the quality of the data, and in the case of the daily measures, possibly reduced the observed variability of data in phase C. As soon as the missing data during phase C was identified (after routine weekly checks on the data during data collection), attempts were made to contact the participant to prompt

them and enquire if there were any difficulties. Similarly, a number of requests for completing the follow-up data set were made by email and telephone, but no response was made to emails and the participant was not available when I telephoned.

4.5 Change Interview Results in the Context of the Extant Literature

Due to insufficient space in the Journal Paper, a synthesis of the results of the change interviews is provided here.

The theme of 'it was helpful to have to speak about difficulties' identified amongst responses to question 2 has also been identified in previous research. For example, in teams which use psychological consultancy for working with populations who exhibit emotionally demanding care dynamics it has been found that the opportunity to share and analyse emotional responses is helpful for staff (Kellett et al., 2019). This may be particularly true amongst frontline homelessness staff, for whom access to clinical supervision is often limited (McDonagh, 2011). Clearly, this raises a question as to how much the ACT intervention was responsible for any changes in the outcome variables and how much of this could be attributed to non-ACT related variables such as having the opportunity to explore difficult experiences in a non-judgemental fashion. The increased scores on the CompACT are strongly suggestive that ACT-specific factors were a large contributor to this, although non-specific variables are not accounted for (as they are not in the vast majority of burnout research) in this study.

In questions 3 (change ratings), 4 (attributions), and 7 (helpful aspects) the importance of values work (i.e. the Being Active intervention) was highlighted by all respondents. This is consistent with qualitative research into the resources that nurses and third-

sector workers identify as contributing towards their sense of resilience (Lamb & Cogan, 2016). That this component of the intervention received the most attention in the narrative feedback is of interest in terms of tailoring future ACT interventions, although it is not possible to judge from this if this aspect was indeed more therapeutically potent than the mother modules or if this is an artefact of participant bias or recollection.

The theme of 'external pressures' identified in question 6 (limitations) appears to be analogous to previous work which has identified frustration at systemic issues amongst frontline homelessness workers as (Arslan, 2013). The presence of such external pressures, such as limited time and high demands, also points to the organisational responsibility to reduce the demands of staff, as well as increase their resources (see section 1.3 of the Extended Paper Introduction for further discussion of organisational responsibility).

A second theme from question 7 (helpful aspects) that was identified was the effect of engaging with daily questionnaires. One participant believed that this helped them to remain focussed on making behavioural changes. Although daily recording of measures was not a part of the intervention per se, this could conceivably function as a prompt to behaviour change. It is difficult to account for the amount of change that this may have contributed towards, and is perhaps best seen as an aspect of the research process which can lead to differences between observed results in research and clinically.

Critical Reflection

5.0 Overview

In this section I shall consider my personal reflections on both the process of conducting this research, what I have learnt from the experience, and how this experience has shaped me as both a researcher and a practitioner. I shall address three topics: why I chose to focus my research on this subject, the challenges presented by changing target population and modality of the intervention in response to a lack of recruitment, and how this project has prepared me for the transition between trainee and qualified practice.

5.1 Why ACT for Frontline Staff Burnout?

Prior to commencing Clinical Psychology training I worked as a mental health nurse for about 6 years which gave me experience of working into a number of different teams. This provided me with plenty of opportunity to reflect on the extent of work-related stress amongst colleagues, the effect of this on team dynamics, and become aware of my own responses when faced with challenging clinical work. For these reasons, a project focussed on ameliorating burnout amongst frontline staff has a personal resonance.

Additionally, one of my primary motivations for pursuing a change in clinical role from mental health nurse to clinical psychologist has been for the broader team-level perspective which is a part of this role in contemporary mental health services, as is reflected in the BPS guidance on New Ways of Working for Applied Psychologists (Onyett, 2007). Since I see this type of work as core to the role of a clinical psychologist, I was keen to ensure that this would be reflected in my choice of a research project.

Regarding my interest in Acceptance and Commitment Therapy and the choice of this as the intervention in this project, this interest predated my enrolment on the program due to the interests of the Clinical Psychologist at my previous job. One of the aspects of writing this thesis for which I am most grateful has been the necessity of reading and really thinking about the inter-relation of the processes of ACT, Psychological Flexibility, and their functional relation with different behaviours. Despite having read about ACT previously, the need to think far more deeply about one model of psychological functioning has been far more enlightening than I had expected. Indeed, when reflecting now I am somewhat surprised at my previous preconception that enhanced knowledge of Relational Frame Theory would not transmute into a more nuanced conceptual understanding and a greater ability to formulate and intervene from an ACT perspective in clinical practice. In retrospect, I wonder if my initial difficulties getting to grips with the theory (particularly RFT) created some experiential avoidance in myself which reduced my ability to engage with the material in a dispassionate manner and instead led to me being fused to the idea that it was (which I exhibited by being somewhat dismissive of the – admittedly sometimes overly complex – language of Relational Frame Theory. Having become far better acquainted with the theory underlying ACT I have noticed a change in my clinical work on placement as well as its applicability in a research context. For example, being able to hypothesise about the functional relations which a client may be exhibiting (and having a vocabulary to describe these) has enabled me to have greater insights into clinical difficulties.

Having now (almost!) completed this project I am at a stage where I can reflect on my original reasons for choosing this topic and contrast these with my present perspective. Although my original hope was to produce research which contributed to a greater understanding of

ways to help direct-care staff, my present view has altered somewhat. In addition to this, I believe that the time spent developing this piece of work has helped to develop my knowledge, clinical and research skills, as well as (hopefully) producing research of some value. This encapsulates a much broader project than that which I had originally envisaged.

5.3 Responding to the Challenges of Conducting the Research

Conducting this research project was not without its challenges, in particular the difficulty with recruitment which led to me changing the modality of the intervention from self-help bibliotherapy to an individual workshop-style intervention, and changing the recruitment population from inpatient mental health staff to frontline homelessness work (as discussed in sections 2.6.1 and 2.6.2).

As stated above, given my background as a mental health nurse and my desire to investigate an intervention for use in this population, the frustration at the lack of recruitment from the target wards was highly frustrating. Indeed, the time spent unsuccessfully attempting to recruit from here significantly impacted on the timeline of data-collection and consequently writing-up this project.

An admission on my own part of something which may have contributed to this is that I incorrectly spelt my name on the original iteration of the Participant Information Sheets which were given out to staff on the target wards. Although it is clearly quite possible that this may have created a barrier for some individuals who may have wished to take part but could not get in contact with me, the general atmosphere in team meetings when I was advertising the research and inviting people to take part did not provide me with an indication that any staff who were present were interested in taking part.

It is interesting to reflect on the challenges that this created and the way that this experience would shape my approach to future research. I find it difficult to get away from the fact that the whole research process would have felt significantly less stressful if the study had reached the recruitment target earlier as this would have provided more time for both completing the research and writing it up. Given the reported levels of work-related stress amongst staff in the target wards it was unexpected that recruitment from these wards failed. However, despite the travails caused by this, in terms of future research which I may be involved in this is a valuable lesson about the unpredictable and uncontrollable aspect of recruitment.

Similarly, changing the mode of the intervention from self-help bibliotherapy to the one-to-one work-shop style which was used doubled the workload of preparation and delivery of the intervention. Again however, this also enriched my learning experience from conducting the research as this provided an opportunity to further familiarise myself with ACT interventions. Additionally the feedback received from my research supervisor, Nima, who conducted the fidelity checks can be seen as a real advantage in terms of what I gained from conducting the research. Clearly the feedback I received (quantitative as reported in the Journal Paper, and additional narrative feedback) is of great value to me in clinical contexts and will help inform the ongoing development of my practice as I transition to a qualified role.

5.2 Application of Research Knowledge to Clinical Practice

An unforeseen learning outcome of conducting this research project is my knowledge about designing and conducting single case experimental designs. It seems to me that this design methodology is very well suited to the study of difficulties within the realm of clinical psychologists, as it provides a more idiographic and detailed

perspective which is lacking in large scale nomothetic research. Given that the clinical interest of clinical psychology is with understanding the factors that shaped a given individual, this is consistent with SCED methodology in a way which is lost with nomothetic designs. This is in contrast with previous cultural norms where “doing anything other than an RCT is an original sin that St Augustine unwittingly omitted” (Kazdin, 2019).

Although when selecting this design methodology my intention was solely to choose the most appropriate method to answer the questions I had on the use of ACT for burnout, a pleasing result of this has been my understanding of this methodology which I hope to be able to apply to clinical practice. As I begin to consider the transition to qualified clinical practice I hope to be able to integrate this with a continued contribution to research. Given the small number of participants required, SCED designs are clearly a suitable way of doing so. Additionally, I hope to use some aspects of this method, such as recognising risks of bias in measurement, in routine clinical practice where I wish to bring a scientist-practitioner approach.

Extended Paper word count: 30,160

This does not include the Journal Paper which has a separate word count, tables, figures, references, nor appendices.

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Appendices

Contents:

- A. Ethics confirmation letter (both Notts HC and UoN)
- B. Participant Information Sheet and Consent Form
- C. Copies of all measures used
- D. Intervention session outlines
- E. Change interview schedule

Appendix A – Confirmation of Ethical Consent Letters



**University of
Nottingham**
UK | CHINA | MALAYSIA

Email: FMHS-ResearchEthics@nottingham.ac.uk

**Faculty of Medicine & Health Sciences
Research Ethics Committee**
c/o Faculty PVC Office
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham, NG7 2UH

19 April 2018

Mr Andrew Reeve
Trainee Clinical Psychologist
c/o Dr Thomas Schröder
Associate Professor in Clinical Psychology
c/o Room B12 YANG Fujia, B Floor
Division of Psychiatry and Applied Psychology
School of Medicine
Jubilee Campus
Wollaton Road
Nottingham, NG8 1BB

Dear Mr Reeve

Ethics Reference No: 267-1802 – please always quote Sponsor Ref 18001	
Study Title: Guided acceptance and commitment self-help working in challenging behaviour contexts.	
Short Title: Guided	
Chief Investigator/Supervisor: Dr Thomas Schröder, Associate Professor in Clinical Psychology, Division of Psychiatry and Applied Psychology, School of Medicine.	
Lead Investigators/student: Andrew Reeve, Trainee Clinical Psychologist, Trent Psychology Doctoral Programme – University of Nottingham and University of Lincoln.	
Other Key Investigators: Dr Anna Tickle, Academic/Research Tutor, University of Nottingham, Dr Nima Moghaddam, Research Clinical Psychologist/Senior Lecturer, University of Lincoln, Trent Clinical Psychology Doctorate Programme.	
Type of Study: PhD mixed quantitative/qualitative	
Proposed Start Date: 01/02/2018	Proposed End Date: 31/03/2019 13mths
No of Subjects: 6	Age: 18+years

Thank you for submitting the above application and the following documents were received:

- FMHS REC Application form and Protocol documents version 2.0: 21/02/2018
- Supporting documents version 1.0: 09/02/2018

These have been reviewed and are satisfactory and the study has been given a favourable opinion.

A favourable opinion has been given on the understanding that:

1. The protocol agreed is followed and the Committee is informed of any changes using a notice of amendment form (please request a form).
2. The Chair is informed of any serious or unexpected event.
3. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely

Professor Ravi Mahajan
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

positive

E-mail: shirley.mitchell@nottshc.nhs.uk

Date of NHS Permission: 15/05/2018

Andy Reeve
Trainee Clinical Psychologist
Yang Fujia Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

Dear Andrew,

Study Title: Guided Acceptance and Commitment Self-Help for Staff Working In Challenging Behaviour Contexts
Chief Investigator: Thomas Schröder
Student Researcher: Andy Reeve
Sponsor: University of Nottingham
Research Sites: Cherry (Highbury), Kingsley (Millbrook), Orion (Highbury)

Thank you for submitting your project to the Nottinghamshire Healthcare NHS Foundation Trust's R&D Department. The project has now been given NHS permission by:

Dr Julie Hankin: R & D Director, on behalf of Nottinghamshire Healthcare NHS Foundation Trust

NHS permission for the above research has been granted on the basis described in the application form, study protocol and supporting documentation. As this project is a single site, student project involving NHS staff only, Health Research Authority approval is not required (as per HRA guidance).

The following documents were reviewed:

Document	Version	Date
Ethical Approval	N/A	19/04/2018
Information Sheet	1	09/02/2018
Participant Consent Form	1	09/02/2018
Protocol	2	21/02/2018

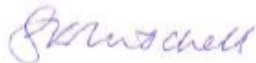
Permission is granted on the understanding that the study is conducted in accordance with the Research Governance Framework, ICH GCP [ONLY if applicable], and NHS Trust policies and

procedures available <http://www.nottinghamshirehealthcare.nhs.uk/contact-us/freedom-of-information/policies-and-procedures/>

The research sponsor or the Chief Investigator, or the local Principal Investigator at a research site, may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety. The R&D office should be notified that such measures have been taken. The notification should also include the reasons why the measures were taken and the plan for further action. The R&D Office should be notified within the same time frame of notifying the REC and any other regulatory bodies. All amendments (including changes to the local research team) need to be submitted in accordance with guidance in IRAS.

Please note that the NHS organisation is required to monitor research to ensure compliance with the Research Governance Framework and other legal and regulatory requirements. This is achieved by random audit of research.

Yours Sincerely



Shirley Mitchell
Head of Research and Innovation

cc.

Chief Investigator - Thomas Schröder

Sponsor – University of Nottingham

Appendix B – Participant Information Sheet and Consent Form



Faculty of Medicine & Health Sciences
School of Medicine
B Floor, Yang Fuja building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

Participant Information Sheet
(Final version 3.0: 20/10/2018)

Title of Study: **Guided ACT Self-Help for Staff**

Name of Researcher(s): Andy Reeve
Dr. Anna Tickle
Dr. Nima Moghaddam

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. One of our team will go through the information sheet with you and answer any questions you have. Talk to others about the study if you wish. Ask us if there is anything that is not clear.

What is the purpose of the study?

Workplace stress and emotional exhaustion is reported by 21-48% of staff working in mental health and intellectual disability environments in the UK (Oddie & Ousley, 2007). This research is aimed at testing how helpful a self-help book-based intervention is for helping with work-related stress. The research is being conducted as part of a Doctoral Program in Clinical Psychology which is being undertaken by one of the researchers.

Why have I been invited?

You are being invited to take part because you are a qualified nurse or a nursing assistant, or a frontline worker with the homeless, who may be experiencing work-related stress. We are inviting six participants like you to take part

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. This would not affect your legal rights.

What will happen to me if I take part?

Firstly, you will be asked to complete a questionnaire to explore your current work-related stress. The outcome for this will help to decide what happens next. If your score indicates that you are experiencing a high level of work-related stress you will be eligible for the next part of the study. Of course, even if you do not show a high level of work-related stress in this one questionnaire it does not necessarily mean that you would not benefit from the intervention, but you will not be eligible for this study. If this is the case we will discuss with you the option of you using the self-help intervention outside of the research study.

You will have a choice of two options for the main part of the study: a book-based self-help intervention, or similar material delivered on a 1-1 basis as 'Psychological Resilience Training'. If you choose the book option this will be delivered in four parts at fortnightly intervals. Each of these parts are 35-50 pages in length. As well as reading this independently, you will be given a short phone call to support this reading every fortnight. This will last 15-30 minutes, depending on how much support you require. During this part of the study, you will be asked to complete a daily questionnaire measure. This will take 3-5 minutes to record, and can be done online. This stage will last around 9 weeks. If you choose the 'Psychological Resilience Training' option this will be delivered over four sessions with fortnightly spacing, each lasting around two hours.

Finally, after the book-based self-help stage is completed, we will meet once more and you will be asked to complete the full questionnaires. These questionnaires will be repeated again one month after the end of the intervention. Additionally, on this last meeting a colleague of the research team will meet with you to discuss how you found the experience of completing the self-help resource. This final meeting will be audio-recorded and transcribed by

an external agency. The audio and written recording will be kept on a secure server only accessible by the research team.

Please note that if you go on sick leave lasting more than two weeks, then you will not be able to continue with the study.

Expenses and payments

Participants will not be paid to participate in the study.

What are the possible disadvantages and risks of taking part?

You will be asked to complete self-report questionnaire style measures every day during the study (that is, for around 9-10 weeks). These will take around 3-5 minutes each day.

What are the possible benefits of taking part?

We cannot promise the study will help you, although we hope that it will. The information we get from this study may help to devise further interventions for work-related stress in the future.

What happens when the research study stops?

The intervention will cease once the research study stops. If you are continuing to have difficulties related to work-related stress, the research team will be able to sign-post you to further sources of help.

If you wish to know the outcome of this study, the researchers can contact you after it is completed. Your information will remain anonymous and confidential.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. The researchers contact details are given at the end of this information sheet. If you remain unhappy and wish to complain formally, you should then contact the FMHS Research Ethics Committee Administrator, c/o The University of Nottingham, Faculty PVC Office, B Floor, Medical School, Queen's Medical Centre Campus, Nottingham University Hospitals, Nottingham, NG7 2UH or via E-mail: FMHS-ResearchEthics@nottingham.ac.uk. Please quote ref no: FMHS 267-1802.

Will my taking part in the study be kept confidential?

We will follow ethical and legal practice and all information about you will be handled in confidence.

If you join the study, we will use information collected from you during the course of the research. This information will be kept **strictly confidential**, stored in a secure and locked office, and on a password protected database at the University of Nottingham. Under UK Data Protection laws the University is the Data Controller (legally responsible for the data security) and the Chief Investigator of this study (named above) is the Data Custodian (manages access to the data). This means we are responsible for looking after your information and using it properly. Your rights to access, change or move your information are limited as we need to manage your information in specific ways to comply with certain laws and for the research to be reliable and accurate. To safeguard your rights we will use the minimum personally – identifiable information possible.

You can find out more about how we use your information and to read our privacy notice at:

<https://www.nottingham.ac.uk/utilities/privacy.aspx>

The data collected for the study will be looked at and stored by authorised persons from the University of Nottingham who are organising the research. They may also be looked at by authorised people from regulatory organisations to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

Where possible information about you which leaves the site will have your name and address removed and a unique code will be used so that you cannot be recognised from it.

Your contact information will be kept by the University of Nottingham for 2 years after the end of the study so that we are able to contact you about the findings of the study and possible follow-up studies (unless you advise us that you do not wish to be contacted). This information will be kept separately from the research data collected and only those who need to will have access to it. All other data (research data) will be kept securely for 7 years. After this time your

data will be disposed of securely. During this time all precautions will be taken by all those involved to maintain your confidentiality, only members of the research team given permission by the data custodian will have access to your personal data.

In accordance with the University of Nottingham's, the Government's and our funders' policies we may share our research data with researchers in other Universities and organisations, including those in other countries, for research in health and social care. Sharing research data is important to allow peer scrutiny, re-use (and therefore avoiding duplication of research) and to understand the bigger picture in particular areas of research. Data sharing in this way is usually anonymised (so that you could not be identified) but if we need to share identifiable information we will seek your consent for this and ensure it is secure. You will be made aware then if the data is to be shared with countries whose data protection laws differ to those of the UK and how we will protect your confidentiality.

Although what you say to us is confidential, should you disclose anything to us which we feel puts you or anyone else at any risk, we may feel it necessary to report this to the appropriate persons.

What will happen if I don't want to carry on with the study?

Your participation is voluntary and you are free to withdraw at any time without giving any reason, and without your legal rights being affected. If you withdraw we will no longer collect any information about you or from you but we will keep the information about you that we have already obtained as we are not allowed to tamper with study records and this information may have already been used in some analyses and may still be used in the final study analyses. To safeguard your rights, we will use the minimum personally-identifiable information possible.

Involvement of the General Practitioner/Family doctor (GP)

Your GP will not be involved nor notified of your involvement in this study.

What will happen to the results of the research study?

This research will be written up as part of the requirements for the Trent Doctorate in Clinical Psychology course at the University of Nottingham. A version of this will also be submitted for publication in an academic journal. You will not be identified in any of the reports, although some anonymised quotations from the telephone support or from the final meeting may be reproduced. If you wish to have a copy of the report this will be sent to you when it is complete

Who is organising and funding the research?

This research is being organised by the University of Nottingham and is being funded as part of the Trent Doctorate in Clinical Psychology Programme.

Who has reviewed the study?

All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the University of Nottingham Research Ethics Committee, and been approved by Nottinghamshire Healthcare NHS Foundation Trust Research and Development department.

Further information and contact details

If you have any queries about this research, in the first instance please contact Andy Reeve using the email address below.

Lead investigator: Andy Reeve

Andrew.Reeve@nottingham.ac.uk

Supervised by:

Dr. Nima Moghaddam:

NMoghaddam@lincoln.ac.uk

Dr. Anna Tickle:

lwaat@exmail.nottingham.ac.uk

Chief investigator: Dr. Thomas Schröder

lwzts@exmail.nottingham.ac.uk

Appendix C – Copies of All Measures Used

Full Form measures

Oldenburg Burnout Inventory (OLBI)

Instructions: Below you find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with each statement

1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree

1. I always find new and interesting aspects in my work.
2. Usually, I can manage the amount of my work well. [R]
3. It happens more and more often that I talk about my work in a negative way. [R]
4. After work, I tend to need more time than in the past in order to relax and feel better.
5. I can tolerate the pressure of my work very well. [R]
6. Lately, I tend to think less at work and do my job almost mechanically. [R]
7. I find my work to be a positive challenge.
8. During my work, I often feel emotionally drained. [R]
9. Over time, one can become disconnected from this type of work. [R]
10. After working, I have enough energy for my leisure activities.
11. When I work, I usually feel energized. [R]
12. Sometimes I feel sickened by my work tasks. [R]
13. This is the only type of work that I can imagine myself doing.
14. After my work, I usually feel worn out and weary.

15. I feel more and more engaged in my work. [R]

16. There are days when I feel tired before I arrive at work. [R]

Individual Values Daily Record (idiographic measure)

In the left-most column, write two personally meaningful values which you would like to meet in the way that you live your life. Each day, record how close your actions match what these values represent, on a scale of 1 (did not match) to 5 (actions did match).

Value 1:

- Actions hardly ever matched my values 1 (1)
 - My values rarely matched my values 2 (2)
 - My actions matched my values a fair amount 3 (3)
 - My actions often matched my values 4 (4)
 - My actions almost always matched my values 5 (5)
-

Q1.3

Value 2:

- Actions hardly ever matched my values 1 (1)
- My values rarely matched my values 2 (2)
- My actions matched my values a fair amount 3 (3)
- My actions often matched my values 4 (4)
- My actions almost always matched my values 5 (5)

Personal Well-Being Index

The following questions ask how satisfied you feel, on a scale from zero to 10. **Zero** means you feel no satisfaction at all and **10** means you feel completely satisfied.

1. How satisfied are you with your standard of living?

No satisfaction at all											Completely satisfied
0	1	2	3	4	5	6	7	8	9	10	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How satisfied are you with your health?

No satisfaction at all											Completely satisfied
0	1	2	3	4	5	6	7	8	9	10	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. How satisfied are you with what you are achieving in life?

No satisfaction at all											Completely satisfied
0	1	2	3	4	5	6	7	8	9	10	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How satisfied are you with your personal relationships?

No satisfaction at all											Completely satisfied
0	1	2	3	4	5	6	7	8	9	10	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. How satisfied are you with how safe you feel?

No satisfaction at all										Completely satisfied
0	1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How satisfied are you with feeling part of your community?

No satisfaction at all										Completely satisfied
0	1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. How satisfied are you with your future security?

No satisfaction at all										Completely satisfied
0	1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CompACT

Please rate the following 23 statements using the scale below:

0	1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

1. I can identify the things that really matter to me in life and pursue them	0	1	2	3	4	5	6
2. One of my big goals is to be free from painful emotions	0	1	2	3	4	5	6
3. I rush through meaningful activities without being really attentive to them	0	1	2	3	4	5	6
4. I try to stay busy to keep thoughts or feelings from coming	0	1	2	3	4	5	6
5. I act in ways that are consistent with how I wish to live my life	0	1	2	3	4	5	6
6. I get so caught up in my thoughts that I am unable to do the things that I most want to do	0	1	2	3	4	5	6
7. I make choices based on what is important to me, even if it is stressful	0	1	2	3	4	5	6
8. I tell myself that I shouldn't have certain thoughts	0	1	2	3	4	5	6
9. I find it difficult to stay focused on what's happening in the present	0	1	2	3	4	5	6
10. I behave in line with my personal values	0	1	2	3	4	5	6
11. I go out of my way to avoid situations that might bring difficult thoughts, feelings, or sensations	0	1	2	3	4	5	6

12. Even when doing the things that matter to me, I find myself doing them without paying attention	0	1	2	3	4	5	6
13. I am willing to fully experience whatever thoughts, feelings and sensations come up for me, without trying to change or defend against them	0	1	2	3	4	5	6
14. I undertake things that are meaningful to me, even when I find it hard to do so	0	1	2	3	4	5	6
15. I work hard to keep out upsetting feelings	0	1	2	3	4	5	6
16. I do jobs or tasks automatically, without being aware of what I'm doing	0	1	2	3	4	5	6
17. I am able to follow my long terms plans including times when progress is slow	0	1	2	3	4	5	6
18. Even when something is important to me, I'll rarely do it if there is a chance it will upset me	0	1	2	3	4	5	6
19. It seems I am "running on automatic" without much awareness of what I'm doing	0	1	2	3	4	5	6
20. Thoughts are just thoughts – they don't control what I do	0	1	2	3	4	5	6
21. My values are really reflected in my behaviour	0	1	2	3	4	5	6
22. I can take thoughts and feelings as they come, without attempting to control or avoid them	0	1	2	3	4	5	6
23. I can keep going with something when it's important to me	0	1	2	3	4	5	6

Short-form measures

Daily measures - template

Values

Q1.1 These are your two personally meaningful values which you would like to meet in the way that you live your life. Each day, record how close your actions match what these values represent, on a scale of 1 to 5.

Q1.2

Value 1:

- Actions hardly ever matched my values 1 (1)
- My values rarely matched my values 2 (2)
- My actions matched my values a fair amount 3 (3)
- My actions often matched my values 4 (4)
- My actions almost always matched my values 5 (5)

Q1.3

Value 2:

- Actions hardly ever matched my values 1 (1)
- My values rarely matched my values 2 (2)
- My actions matched my values a fair amount 3 (3)
- My actions often matched my values 4 (4)
- My actions almost always matched my values 5 (5)

Oldenburg Burnout Inventory

Q2.1 Below you will find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with each statement

I always find new and interesting aspects in my work

- Strongly Agree 1 (1)
- Agree 2 (2)
- Disagree 3 (3)
- Strongly Disagree 4 (4)

Q2.5 I can tolerate the pressure of my work very well

- Strongly Agree 1 (1)
- Agree 2 (2)
- Disagree 3 (3)
- Strongly Disagree 4 (4)

CompACT

Q4.12 Please rate the following 3 statements using the scale below:
Even when doing the things that matter to me, I find myself doing them without paying attention

- Strongly disagree 0 (1)
- Moderately disagree 1 (2)
- Slightly disagree 2 (3)
- Neither agree not disagree 3 (4)

- Slightly agree 4 (5)
- Moderately agree 5 (6)
- Strongly agree 6 (7)

Q4.15 I work hard to keep out upsetting feelings

- Strongly disagree 0 (1)
- Moderately disagree 1 (2)
- Slightly disagree 2 (3)
- Neither agree not disagree 3 (4)
- Slightly agree 4 (5)
- Moderately agree 5 (6)
- Strongly agree 6 (7)

Q4.21 My values are really reflected in my behaviour

- Strongly disagree 0 (1)
- Moderately disagree 1 (2)
- Slightly disagree 2 (3)
- Neither agree not disagree 3 (4)
- Slightly agree 4 (5)
- Moderately agree 5 (6)
- Strongly agree 6 (7)

Appendix D - Intervention Session Outlines

Introduction – do at start of session 1 for all participants, regardless of sequence of sessions

Introduction, confidentiality, explain structure of sessions and experiential nature of content, expectation of home-practice / integration

Introduce 3 'pillars' of psychological flexibility / resilience, to cover each in separate session.

Being Open Session

Define as: "Relating skilfully to 'unhelpful' thoughts"

Defusion psycho-education 'what the mind is designed to do'
(normalising negative thought content)

- *Judgement machine, exercise of what thoughts come up for 2 minutes*

Having thoughts is not the problem, the issue is how we relate to them – quicksand metaphor

List everyday thoughts that can have unhelpful influence on ability to act

- *Costs of avoidance worksheet*

Passengers on the bus cartoon with speech bubbles to complete – trainer to do first (include feelings, habits, scripts, thoughts)

- *POTB physicalizing exercise & enquiry (can take some of the thoughts from previous exercise)*

Three steps:

1. Becoming aware of it
2. Giving mind a way to label or nickname the script
3. Cultivating distance

Rumi – guesthouse poem

Summary: Link session content to other pillars

Home practice: Choose a context or type of thought to willingly have over the next week.

Noticing Session

Raisin exercise and enquiry

Mindfulness message: form of mental training, waking from autopilot, gathering 'scattered mind', 3 ways to practice (specific activity practice, quiet practice, integrate into each moment), persistence and practice required, not to reduce stress or to relax

Gentle selling - recent evidence:

► Mindfulness refers to attending to experience on purpose and non-judgmentally. ► Trait mindfulness and meditation practice correlate with psychological well-being. ► Mindfulness intervention programs reduce psychological symptoms and distress. ► Mindfulness instructions reduce emotional reactivity in laboratory studies. ► Mechanisms of mindfulness' effects need to be a focus of future studies (Ken, Smoski & Evans, 2011)

Body and breath meditation and enquiry. Compare with physical fitness training for the body

'Discovering the self' exercise (self-as-context)

Distinction between thinking and sensing ('third person')

Summary: Link session content to previous sessions if completed yet

Home practice: Noticing exercises – being aware of internal experiences during specific activity practice or quiet practice, with long-term view of integrating into each moment

Being Active Session

Introduction to values-based action

Values in words “the personal qualities we most want to express in our daily behaviour”

Benefits of valuing – increase sense of meaning, purpose, and life direction

Values example sheet and values compass worksheet

Turning abstract personal value into concrete action: towards moves (versus avoidance of suffering) – identify what these values might look like in real terms / how they might manifest in their life

“The size of the action is unimportant” - GOOYMaIYL

Barriers to values-based action: can get hooked or hijacked by own internal experiences, passengers on the bus metaphor

Identify some ‘towards’ moves. Consider a challenging situation in the near future and what personal qualities you most want to express then

Summary: Link session content to previous sessions if completed yet

Home practice: Identify some ‘towards moves’ to make during the following period

Appendix E – Change Interview Schedule

At follow-up, clients are asked to come in for a semi-structured interview. The major topics of this interview are any changes you have noticed since the Acceptance and Commitment Training began, what you believe may have brought about these changes, and helpful and unhelpful aspects of the training. The main purpose of this interview is to allow you to tell us about the training and the research in your own words. This information will help us to understand better how the training works; it will also help us to improve the training. This interview is recorded for later analysis. Please provide as much detail as possible.

1. General Questions: [about 5 min]

- 1a. How are you doing now in general?
- 1b. How has it been for you since the training ended?

2. Changes: [about 10 min]

- 2a. What changes, if any, have you noticed in yourself since training started?

Interviewer: Reflect back change to client and write down brief versions of the changes for later.

If it is helpful, you can use some of these follow-up questions: For example, are you doing, feeling, or thinking differently from the way you did before? What specific ideas, if any, have you gotten from training?

- 2b. Has anything changed for the worse for you since training started?
- 2c. Is there anything that you wanted to change that hasn't since training ended?

3. Change Ratings: [about 10 min] *(Go through each change and rate it on the following three scales:)*

- 3a. For each change noted above (in question 2a), please rate how much you expected it vs. were surprised by it? (Use this rating scale:)

- (1) Very much expected it
- (2) Somewhat expected it
- (3) Neither expected nor surprised by the change
- (4) Somewhat surprised by it
- (5) Very much surprised by it

3b. For each change noted above (in question 2a), please rate how likely you think it would have been if you hadn't had the training? (Use this rating scale:)

- (1) Very unlikely without training (clearly would not have happened)
- (2) Somewhat unlikely without training (probably would not have happened)
- (3) Neither likely nor unlikely (no way of telling)
- (4) Somewhat likely without training (probably would have happened)
- (5) Very likely without training (clearly would have happened anyway)

3c. How important or significant to you personally do you consider this change to be? (Use this rating scale:)

- (1) Not at all important
- (2) Slightly important
- (3) Moderately important
- (4) Very important
- (5) Extremely important

4. Attributions: [about 5 min]

In general, what do you think has caused the various changes you described? In other words, what do you think might have brought them about?

Including things both outside and in the training

5. Resources [about 5 min]

5a. What personal strengths do you think have helped you deal with your problems since the training ended?

Prompts: what you're good at, personal qualities

5b. What things in your current life situation have helped you deal with your problems since the training ended?

Prompts: family, job, relationships, living arrangements

6. Limitations: [about 5 min]

6a. What things about you do you think have made it harder for you to deal with your problems since training ended?

Prompts: things about you as a person

6b. What things in your life situation have made it harder for you to deal with your problems since training ended?

Prompts: family, job, relationships, living arrangements

7. Helpful Aspects: [about 10 min]

Looking back on the training now, what would you say was helpful about it? Please give examples

Prompts: For example, general aspects, specific events

8. Problematic Aspects: [about 5 min]

8a. Looking back on the training now, is there anything about it that you would say was hindering, unhelpful, negative or disappointing for you? *Prompts: For example, general aspects. specific events*

8b. Were there things in the training that were difficult or painful but are now OK or perhaps helpful? What were they?

8c. Was anything been missing from you're the training?

What would have made the training more effective or helpful?

9. The Research: [about 10 min]

9a. What has it been like to be involved in this research?

Initial screening, research interviews, completing questionnaires etc

9b. Can you sum up what has been helpful about the research so far? Please give examples.

9c. What kinds of things about the research have been hindering, unhelpful, negative or have got in the way of the training? Please give examples.

10. Suggestions: [about 5 min]

Do you have any suggestions for us, regarding the research or the training? Do you have anything else that you want to tell me?

Thesis Project Poster

Please see the following page for the conference-ready poster

Acceptance and Commitment Therapy for Burnout in Frontline Homelessness Work



Andy Reeve*, Nima Moghaddam, & Anna Tickle
Trent Doctorate in Clinical Psychology

Background

Burnout is characterised by emotional exhaustion and reduced work-engagement in response to chronic work stress. Amongst direct-care workers it can lead to poorer care delivery¹ and worse health outcomes for employees².

Acceptance and Commitment Therapy (ACT) interventions have shown promise at alleviating burnout in this population but this has been inconsistent and the mechanism of change has not been confirmed³.

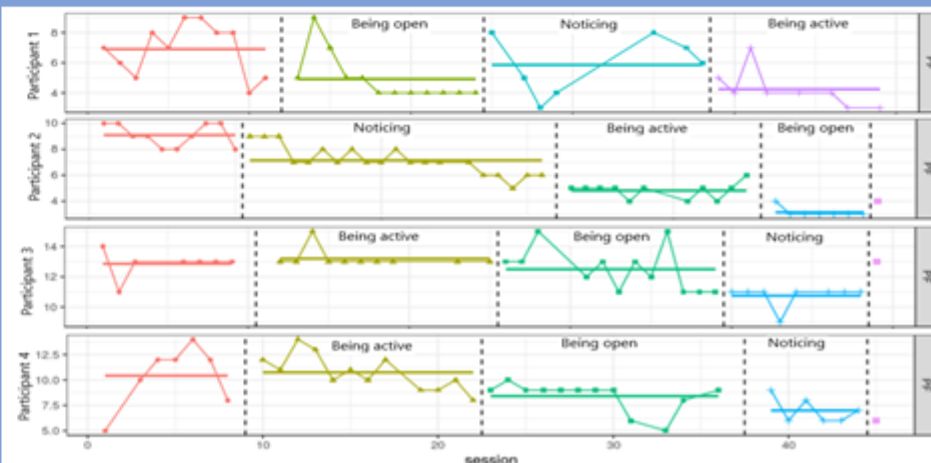
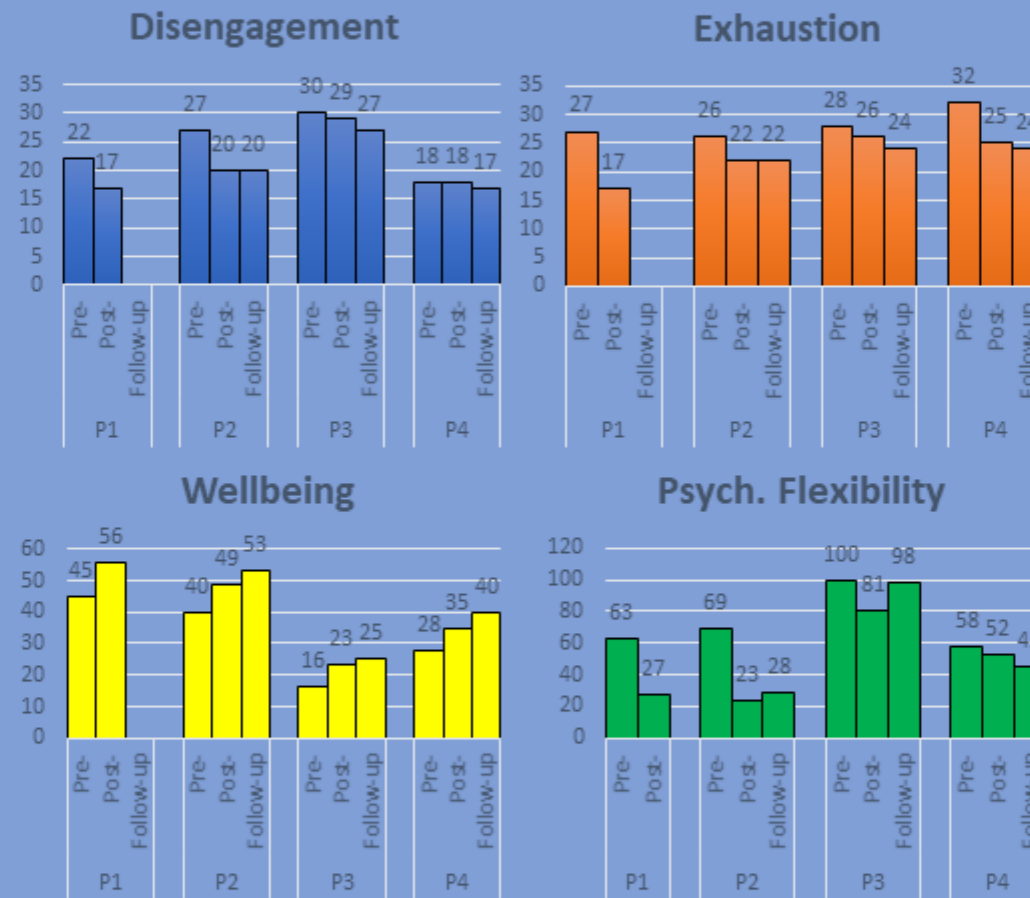
The purported mechanism of action in ACT is Psychological Flexibility (PF): the extent a person can pursue valued ends in spite of difficult or interfering emotions and thoughts. ACT aims to enhance Psychological Flexibility by developing three aspects of the 'ACT-triflex': being open, noticing, and being active.

Research Questions

1. Does a brief ACT-intervention reduce emotional-exhaustion, increase work-engagement, and increase psychological wellbeing?
2. Is Psychological Flexibility the mechanism of action?
3. Does the order of the ACT components make a difference to the development of Psychological Flexibility?

Results

Bar charts show scores for all 4 participants in the main outcome measures. Lower scores indicate better outcomes for disengagement, exhaustion, and PF; higher scores indicate better outcome for wellbeing.



Line graphs show daily measures for Psychological Flexibility (lower scores = better PF), with each phase of the intervention labelled and separated by vertical dotted lines.

Method

- Staggered multiple-baseline single case experimental design
- 1-1 ACT-intervention
- Split into three sessions (60-90 minutes) to represent each component of the triflex
- Order of sessions varied between participants
- Full version of the measures administered pre-intervention, post-intervention, and 1-month follow-up
- Condensed version administered daily
- Disengagement and emotional exhaustion were measured by the OLBI⁴; Wellbeing by the PWI⁵; and PF by the CompACT⁶

Discussion

- Brief ACT-interventions are helpful for reducing emotional-exhaustion, this is consistent with previous research. It can also increase work-engagement, which has yet to be studied but is consistent with the therapeutic aims of ACT. Psychological wellbeing did not significantly change.
- Psychological Flexibility improved and was possible linked to improvements in emotional exhaustion and work-engagement. The improvement was maintained at follow-up in 3 of the 4 participants.
- All three aspects of the Psychological Flexibility triflex improve in response to the intervention in any single aspect. This finding provide support for the coherence of the ACT model
- Previous ACT for burnout research has used a higher 'dose' (i.e. more or longer sessions) of intervention. Therefore even very brief ACT interventions can be helpful