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Acceptance and Commitment Therapy Training and Psychological Flexibility for Helping Professionals

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Doctorate in Clinical Psychology

The University of Edinburgh

2017

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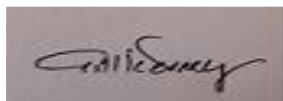
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Full Thesis Abstract

This thesis is an exploration of two interconnected areas: Acceptance and Commitment Therapy (ACT) training for helping professionals (HPs) and psychological flexibility in helping professionals. The ACT model holds that HPs need to be psychologically flexible (or, herein, flexible) in order to be effective ACT practitioners, and thus a primary goal of ACT training is to enhance participant flexibility.

The first chapter is a systematic review of studies that have evaluated the effectiveness of ACT training. It focused on ACT training practices and outcomes related to knowledge, skills, and psychological flexibility in HPs. The results of this review suggested that ACT training can be effective in providing HPs from a range of occupational background with the necessary knowledge and competency to deliver ACT interventions. Furthermore, ACT training can increase HP flexibility. However, confidence in these findings is limited due to methodological weaknesses, particularly variability in ACT training practices, inconsistent use of available measures, a lack of psychometrically robust measures to assess ACT knowledge, and the absence of a flexibility measure designed for use with HP populations. Recommendations were made regarding future research needs in this area, including the development of a HP-specific measure of flexibility.

The second chapter reports on the development and initial validation of a measure designed to assess flexibility in the specific context of professional helping, called the Mindful Healthcare Scale (MHS). The results of two studies employing two separate samples of HPs provided good preliminary evidence of the MHS's factor structure and internal validity. The MHS was also found to converge in theoretically-consistent ways with other measures of flexibility and constructs related to the occupational functioning of HPs including burnout syndrome, self-compassion, and empathy. These findings suggest that the MHS may have considerable utility in relation to ACT

training for HPs and may also advance our understanding of flexibility's role in HP occupational well-being and functioning.

Lay Summary

This thesis is about a type of psychological therapy called Acceptance and Commitment Therapy (ACT). ACT is modern type of cognitive behaviour therapy (CBT) that can be used to treat people experiencing mental health problems. The goal of ACT is to help people be more flexible in how they relate to their thoughts and feelings so they can more easily do the things that are important to them. This thesis has two chapters.

The first chapter reviewed research that has already been done on training helping professionals to use ACT with service users. We wanted to know more about out how people are trained in ACT and if the training worked. In the studies we looked at, ACT training was usually given in the form of a workshop. What was included in the training varied a lot, but most did include some experiential exercises. Experiential exercises, where professionals practice therapy techniques on themselves, is an important part of ACT training. ACT says that professionals need to be flexible with their own thoughts and feelings in order to be good at helping others to be flexible. Most of the studies found that ACT training worked well in increasing professional's knowledge, skills, and flexibility. However, the review found that more research is needed to be sure these findings are correct. We also found that it would be helpful to develop a questionnaire that measures professional's flexibility more accurately.

The second chapter describes a new study to develop a questionnaire to measure how flexible helping professionals are. We designed the questionnaire and tested how good it was by asking 676 professionals to complete it and then examining their responses. We found that the questionnaire measured professional's flexibility well and could be useful for future research on ACT training. It could also help us understand more about why being flexible is good for helping professionals. However, the questionnaire will need to be tested more to make sure it is accurate.

Chapter 1

Training People to Deliver Acceptance and Commitment Therapy (ACT): A Systematic Review.

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Abstract

Background: The last fifteen years have seen a rapid accumulation of evidence in support of Acceptance and Commitment Therapy's (ACT) efficacy for a wide variety of problems. Despite increased uptake of ACT by helping professionals (HPs), relatively little attention has been paid to the training needed to be effective. Professional training is a key component of dissemination efforts, without which research findings can have limited real-world impact. This study systematically reviewed empirical studies that have evaluated the effectiveness of ACT training. It focused on ACT training practices and outcomes related to knowledge, skills, and psychological flexibility in HPs. **Method:** This review considered peer-reviewed English-language journal articles that evaluated ACT training for HPs to deliver ACT interventions and included at least one quantitative measure of training outcomes. Randomised and non-randomised study designs were included. The search strategy involved searching multiple electronic sources, manual searches of reference lists and RCTs related to ACT, and contacting relevant authors to ensure no published papers had been missed. Methodological quality of included studies was assessed using criteria developed by the authors. **Results:** A total of 12 studies were identified. ACT training practices were inconsistent across studies. Most studies found positive effects in terms of the effectiveness of ACT training in providing HPs from a range of occupational background with the necessary knowledge and skills to deliver ACT interventions. The impact of ACT training on HP psychological flexibility was mainly positive. The quality of studies was highly variable, with particular concerns regarding inconsistent use of available measures, a lack of psychometrically robust measures to assess ACT knowledge, and the absence of a flexibility measure designed for use with HP populations. **Discussion:** Overall, the results of included studies suggested ACT training can be effective in increasing the knowledge, skills, and psychological flexibility of HPs.

However, these results can only be considered preliminary in nature due to the significant methodological weaknesses identified. Recommendations were made regarding future research needs in this area, including the development of a HP-specific measure of flexibility.

Key words: acceptance and commitment therapy, training, systematic review, psychological flexibility, professional competency.

1. Introduction

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2012) is a contemporary form of cognitive behavioural therapy (CBT) that assumes the ways in which people relate to their thoughts and feelings, rather than the content or form of these inner experiences, are the root cause of psychological suffering (Hayes et al., 2006). The primary goal of ACT is to change how individuals respond to their thoughts and feelings by enhancing psychological flexibility (or, herein, flexibility). Flexibility refers to the capacity to contact the present moment and all the thoughts and feelings it contains, without being controlled by these private experiences and, depending on what the situation affords, persisting with or changing one's behaviour in the service of chosen values (Bond et al., 2011, p. 678). ACT uses mindfulness and behaviour change strategies to target flexibilities six core processes including: present moment awareness, cognitive defusion, willingness, self-as-context, clarity of personal values, and committed action in service of those values (Hayes, Strosahl, & Wilson, 2012).

The last fifteen years have seen a rapid accumulation of evidence in support of ACT's efficacy for a wide variety of problems including depression, anxiety, substance abuse, psychosis, diabetic self-management, and chronic pain, among others (see reviews by A-tjak et al., 2015; Hann & McCracken, 2014; Öst, 2014, 2008; Ruiz, 2012). Despite increased uptake of ACT by helping professionals from a diverse range of backgrounds, relatively little attention has been paid to the training needed to be effective (Stafford-Brown & Pakenham, 2012; Lappalainen et al., 2007). Professional training is a key component of dissemination efforts, without which research findings can have limited real-world impact (Rakovshik & McManus, 2010; Aarons, Hurlbert, & Horwitz, 2011).

Most ACT training is delivered in workshop format for qualified professionals; though its strong evidence-base and broad applicability in terms of problem areas has seen the model increasingly incorporated into clinical teaching programmes for applied psychologists (Stafford-Brown & Pakenham, 2012). ACT training typically aims to provide conceptual knowledge of the model, skills in assessment, formulation, and ACT techniques, and experiential contact with flexibility's six core processes (Luoma, Hayes, & Walser, 2007; Strosahl & Robinson, 2009). Applying ACT principles to one's own life is considered a key part of ACT training. The model holds that HPs need to be flexible in order to be effective ACT practitioners and thus, training often actively seeks to increase participant flexibility (Luoma, Hayes, & Walser, 2007). This usually involves experiential exercises such as imagery and metaphors, sharing of difficult experiences, self-reflection, role-plays and modelling, and direct feedback from trainers (Flaxman, Blackledge, & Bond, 2011; Strosahl & Robinson, 2009). This emphasis on personal practice is supported by the wider training literature, where experiential teaching has been found to facilitate a deeper understanding of therapeutic processes (Herschell et al., 2010; Bennett-Levy et al., 2001). Importantly, enhanced flexibility in HPs has been associated with greater occupational well-being and pan-theoretical positive therapist attributes, such as reduced burnout symptoms (Kurz et al., 2014; Noone & Hastings, 2011), greater self-compassion, and a stronger bond with clients (Stafford-Brown & Pakenham, 2012).

ACT training can also include supplemental contact in the form of ongoing consultations, coaching, or clinical supervision (Luoma & Vilaradaga, 2013; Walser et al., 2013). This is particularly the case when training forms part of a wider service implementation or clinical teaching programme (e.g. Moyer et al., 2016; Trompetter et al., 2014). The ACT model's divergence from more traditional CBT approaches may make it more challenging to learn and even

counter-intuitive, particularly for HPs more practiced in strategies such as thought monitoring and cognitive restructuring (Strosahl & Robinson, 2009). It is possible that, in adopting the model, it may be difficult to suppress prior therapy habits and competence may take longer to achieve. The wider literature suggests that post-training support increases the acquisition and consolidation of new skills (Herschell et al., 2010; Rakovshik & McManus, 2010) and it may be that HPs require more intense or extended training input in order to modify their clinical practice.

This study sought to systematically review studies that have evaluated the effectiveness of ACT training for HPs. It focused on trainings that aimed to provide knowledge and skills in the delivery of ACT-informed interventions, rather than ACT trainings that targeted other occupational outcomes such as work-place well-being. To the authors' knowledge, it is the first review of ACT training practices within the published literature. Its primary objective is to investigate the methods, content, and outcomes of ACT training in order to identify future research needs in this area.

2. Method

Details of the protocol for this systematic review were registered on PROSPERO and can be accessed at https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=47187. The review protocol is also available in *Appendix A*.

2.1. Inclusion Criteria

This review considered English-language, peer-reviewed journal articles that included:

- a) The objective to train helping professionals (HPs) to deliver ACT-informed interventions.
- b) At least one quantitative measure of training outcomes.

2.2. Search Strategy

The following four electronic databases were searched for relevant papers: MEDLINE (1946-January 2017, OVID Interface), EMBASE (1974-January 2017, OVID Interface), AMED (1985-January 2017, OVID Interface), and PsycINFO (1806-January 2017, EBSCO Interface). Although exact search terms used varied depending on database thesauri, the search strategy remained the same. Each database was searched for index terms related to “acceptance and commitment therapy” and “training”. These two search areas were then combined using ‘AND’ commands. The same free-text terms were used in each database. Free-text terms related to “ACT” included: “(ACT or Acceptance) and Commitment Therapy”; “(ACT or Acceptance) and Commitment Training”. Free-text terms related to “training” were truncated to allow for differing word endings and spelling: train*, educat*, supervis*, disseminat*, implement*, competenc*, teach*, taught, adopt*, skill*, develop*, provision*, provid*, course, workshop, program*, inservice, profession*, and graduate. Free-text terms related to these two search areas were then combined using ‘AND’ commands. The full search strategy used in one of the databases is detailed in *Appendix B* and all four are available on request from the author. The search was augmented by: manually searching reference lists of included studies; searching the website for the Association for Contextual Behavioral Science (ACBS) (<http://contextualscience.org>), as it is considered an international community for the dissemination of ACT knowledge and research; and by contacting prominent authors in the field to ensure no recently published papers had been missed. Finally, all published randomised controlled trials (RCTs) related to ACT were searched for evidence of training evaluations.

2.3. Selection of Studies

Figure A.1 provides an overview of the study selection process. Electronic database searches identified 723 citations. A further 18 citations were identified from reference lists, the ACBS

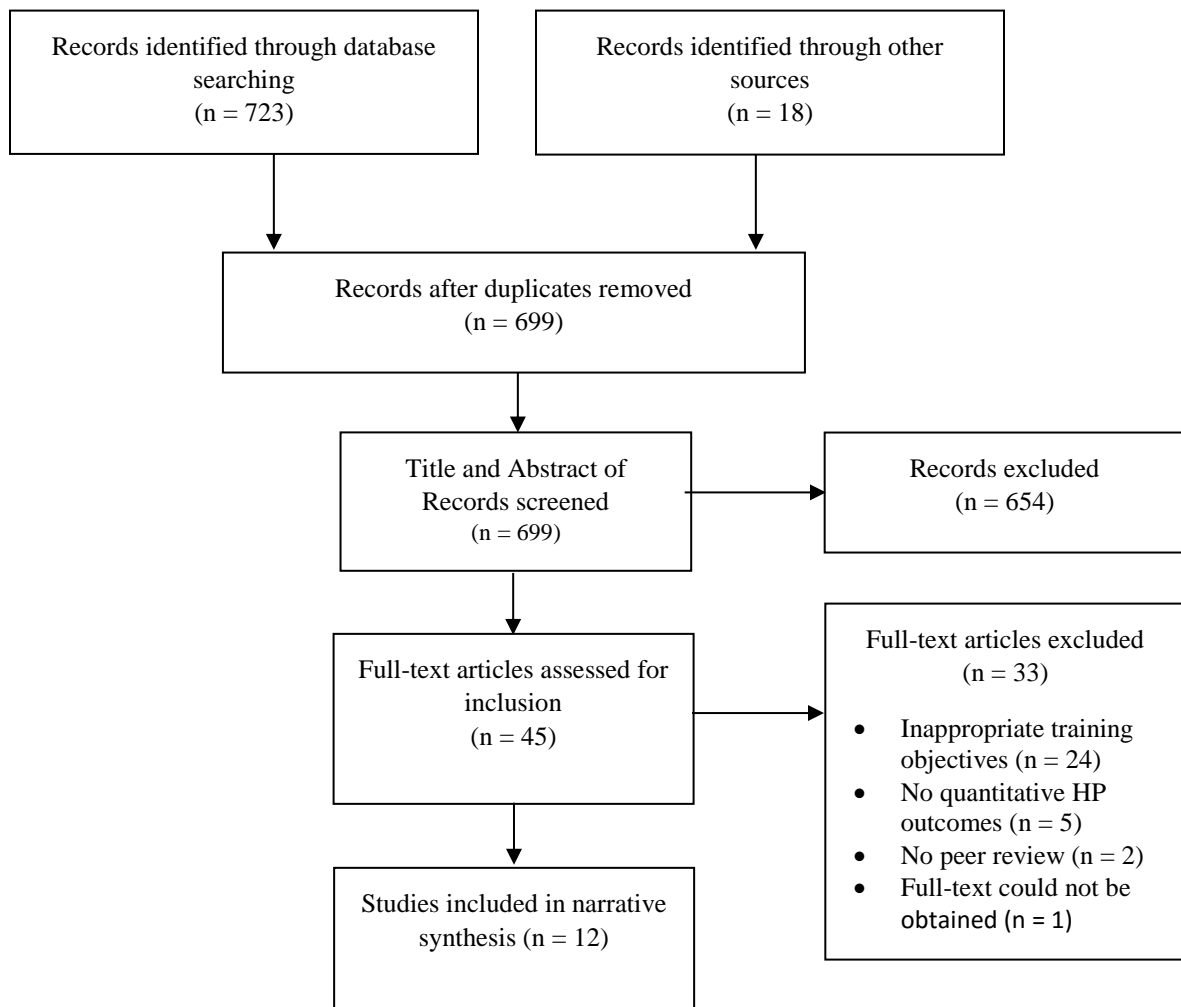
website, and suggestions from contacted authors. No training evaluations were identified in published RCTs related to ACT. Following the removal of duplicates, 699 citations remained. Their titles and abstracts were screened by the first author (GK) for relevance to the review question, resulting in 45 potentially eligible studies. Next, the full-text articles of these 45 studies were obtained and subjected to the above inclusion criteria by the first (GK) and last author (DG). Both authors were in agreement regarding eligible studies. A total of 12 studies fulfilled the inclusion criteria and were retained for review. The full list of reasons for exclusion are summarised in *Figure A.1*. The most common reason for exclusion was inappropriate training objectives (e.g. stress management, reducing stigmatising attitudes).

2.4. Data extraction and synthesis

Data for all studies meeting the inclusion criteria was extracted using a standardised data table. This table was designed based on guidance from the Centre for Reviews and Dissemination (CRD, 2008) and the Scottish Intercollegiate Guidance Network (SIGN 50, 2011). Data extracted included details on: 1) participant characteristics; 2) study design; 3) setting; 4) training format and structure; 5) training methods; 6) training content; 7) outcome measurement; and 8) key findings. Research designs were categorised according to recommendations by Higgins and Green (2011) in the Cochrane Handbook for systematic reviews. Training methods were categorised into: 1) didactic teaching; 2) experiential exercises; 3) interactive activities (e.g. group discussions); 4) use of therapy manuals; 5) homework tasks (e.g. reading assignments, case conceptualisations); and 6) supplemental contact in the form of consultancy, supervision, or coaching. Training outcomes of interest were organised into four categories broadly-based on Kirkpatrick's (1994) well-established training evaluation model: 1) learning outcomes (self-reported indicators of change in knowledge, skill or competency or objective tests of knowledge); 2) adherence and competency outcomes (objective indicators of behavioural change such as

competency rating forms); 3) clinical outcomes (indicators of the impact of training on service user health outcomes); and 4) occupational outcomes (self-reported indicators of change in HP well-being and/ or flexibility processes). Evaluation in this review was limited to a narrative synthesis due to the heterogeneity of included studies.

Figure A.1: Study Selection Process



2.5. Quality Assessment

A checklist consisting of twelve quality criteria phrased as questions was constructed by the first author (GK) in order to assess the methodological strengths and weaknesses of included studies.

Quality criteria were based on existing guidance for assessment of both randomised and non-

randomised studies (CRD, 2008; SIGN 50, 2011) and included the following: 1) Were the study participants and setting clearly described, and were differences between participants and those who did not participate analysed to allow for assessment of the degree to which participants were representative of the broader target population? 2) In studies that included a comparison or control condition, were participants randomly allocated to conditions? 3) Did the study use at least one validated measure of training outcomes? 4) Were the measurement time-points appropriate to the domain(s) being assessed? 5) Was follow-up data collected using at least one of the same measures used at previous measurement time-points? 6) Were the methods and contents of training clear described? 7) Was the training and/ or experience of the trainer(s) and, where relevant, others involved in providing supplementary coaching/ consultancy/ supervision reported? 8) Did the study include monitoring of trainer adherence to the training protocol? 9) Did the study include monitoring of HP engagement with training? 10) Was participant attrition handled appropriately? 11) Was a power analysis reported? 12) Was the sample size appropriate to the statistical analysis and were p-values and effect sizes reported where appropriate? Details on these quality criteria are available in *Appendix C*.

For each of the twelve criterion, studies were rated as of a ‘good’ (2 points), ‘fair’ (1 point), or ‘poor’ (0 points) standard. A ‘not applicable’ rating was also included were the criterion was not relevant to the study design. A total quality score was calculated for each study in the form of a percentage. Where a study received a rating of ‘not applicable’ on a criterion, this criterion was excluded when calculating the total percentage score. This was to avoid penalising studies where certain criteria were not relevant to its study design. To establish the reliability of ratings, the first author (GK) rated all included studies and the second (LF) and third authors (KB) each independently rated a random selection of 50% of the studies. The ratings of all three authors were

then compared and exact agreement 93% of items rated (145/156) was found. The remaining 7% (11/156) of items rated had a difference of one point (e.g. fair standard to poor standard) and consensus was reached through discussion.

3. Results

3.1. Overview of included studies

Table A.1 provides an outline of the characteristics and training details for each included study.

Table A.2 summarises the main measures used and key outcomes. A total of twelve studies were found to evaluate the effectiveness of ACT training for HPs. Study results were published between 1998 and 2016, with the majority (eight studies) published in the last four years. Findings from one study were published in two separate papers (Forman et al., 2007; 2012). The studies were carried out in six countries: six from the United States, two from the United Kingdom, and one each from Australia, Sierra Leone, the Netherlands, and Finland. The number of HPs in the studies ranged from 10 to 334. The majority of HP participants were qualified or trainee mental health providers working in outpatient or community service settings (nine studies). The remaining studies included a sample of physiotherapists working with chronic pain in an outpatient setting (Jacobs et al., 2016) and a mix of mental and physical health care providers in a chronic pain rehabilitation team (Trompetter et al., 2014). Six studies gathered data from service users, the numbers of which ranged from 28 to 745. All client samples were adults and had a variety of presenting problems, including typical outpatient mental health problems such as anxiety and depression, and chronic pain.

As per inclusion criteria, all training programmes aimed to train HPs to deliver ACT-informed interventions. Most sought to provide ACT knowledge and skills for use with heterogeneous client populations, although two programmes focused on ACT for chronic pain (Trompetter et al., 2014;

Jacobs et al., 2016), one focused on ACT for depression (Walser et al., 2013), and one focused on ACT for college student counselling clients (Levin et al., 2015). Research designs included three controlled effectiveness trials using randomised allocation to study conditions, one controlled pretest-posttest study, and eight uncontrolled pretest-posttest studies. Training evaluation methods differed substantially across studies in terms of outcome measures and measurement time-points.

Table A.1. Study characteristics and training details

| Study | Participant characteristics | Study Design | Training Setting | Training format and duration | Training methods | Training content |
|----------------------------|---|--|--|---|------------------|---|
| Strosahl et al. (1998) | <p><u>HP sample:</u> Qualified psychotherapists (n = 18)</p> <p><u>Client sample:</u> Heterogeneous adult clients (n = 126)</p> | <p><u>Controlled pretest-posttest study:</u> comparing the effect of 1) psychotherapists who received ACT training (n = 8) on client outcomes and 2) a control group of psychotherapists who had not received ACT training (n = 10) on client outcomes. Therapists were not randomly assigned to training conditions or clients.</p> | Inservice training at a community-based mental health centre. (USA). | 2-day ACT introductory workshop, 3-day ACT clinical workshop, and monthly group consultations for 1-year post-training. | 1, 3, 4, 6 | Described as an in-depth exposure to ACT strategies and techniques. |
| Lappalainen et al. (2007) | <p><u>HP sample:</u> Masters psychology trainee therapists (n = 14)</p> <p><u>Client sample:</u> heterogeneous sample of adult clients (n = 28)</p> | <p><u>Controlled effectiveness trial:</u> comparing the effect of therapists who received both ACT and CBT training on 1) clients who received ACT treatment and 2) clients who received CBT treatment. Clients were randomly assigned to therapists. Clients were assigned to treatment condition based on the results of functional analysis (FACCM*).</p> | Training as part of a clinical teaching programme. (Finland) | Therapists received 6 hours of lectures on ACT, 12 hours of lectures on CBT, and 10 x 3hrs weekly supervision on both ACT and CBT. | 1, 3, 4, 5, 6 | ACT training was described as emphasising the model's 6 core processes. CBT training was described as emphasising self-monitoring, exposure, problem-solving, behavioural activation, social skills training, and progressive relaxation. |
| Forman et al. (2007, 2012) | <p><u>HP sample:</u> Doctoral psychology trainee therapists (n = 23)</p> <p><u>Client sample:</u> Clients with anxiety or depression (n = 90)</p> | <p><u>2007: Controlled effectiveness trial:</u> comparing the effect of therapist who received both ACT and CT training on 1) clients who received ACT treatment and 2) clients who received CT treatment. Clients were randomly assigned to treatment condition.</p> <p><u>2012: Follow-up outcome study:</u> comparing long-term (18 months) outcomes of clients who received ACT treatment and clients who received CT in 2007 study.</p> | Training as part of clinical teaching programme. (USA) | Trainees received 6 x 3h weekly lectures on ACT, 4 x 3h weekly lectures on CT, and weekly group and individual case supervision during treatment phase. | 1, 3, 5, 6 | Training described as focusing on advanced CBT techniques with emphasis on overlapping and distinctive qualities of ACT and CT. |
| Richards et al. (2011) | <p><u>HP sample:</u> Qualified psychologists (n = 73)</p> | <p><u>Pretest-posttest study:</u> evaluating 1) the effectiveness of ACT training in increasing ACT knowledge and 2) the utility of experiential techniques as a method for delivering training.</p> | Inservice training in a health service setting. | 1-day ACT workshop. | 1, 2 | Described as focusing on the rationale and development of the ACT model and therapeutic techniques. Included discussion about taking risks in sharing difficult experiences before experiential exercises. |

| | | | | | | |
|--------------------------|---|---|---|--|---|--|
| Luoma & Vilardaga (2013) | <u>HP sample:</u> Mental health professionals (MHPs) (n = 20) | <u>Controlled effectiveness trial:</u> comparing the effects of 1) ACT training with post-training experiential phone consultations (n = 10) and 2) ACT training with no further contact (n = 10) on therapist ACT knowledge, psychological flexibility, and burnout symptoms. | Training at association conventions (USA) | · MHPs in both conditions attended a 2-day ACT workshop. MHPs in the consultation condition received an additional 6 x 0.5h phone consultations (over 3 months). | 1, 2, 3, 6 | The 2-day ACT workshop was described as a typical ACT continuing education workshop. The phone consultations included: conceptual learning on ACT; encouragement to use ACT techniques with clients; and encouragement to use ACT processes with themselves whilst working with clients. |
| Walser et al. (2013) | <u>HP sample:</u> Mental health professionals (MHPs) working for the Department of Veteran Affairs (n = 334) <u>Client sample:</u> Veteran clients with depression (n = 745) | <u>Pretest-posttest study:</u> evaluating the effects of ACT training for depression (ACT-D) on 1) therapist outcomes and 2) outcomes for veteran clients. | Inservice Training at multiple U.S Veteran health administration sites. (USA) | 3-day ACT workshop and 6 months of weekly 1.5h case consultations. | 1, 2, 3, 6 | The 2-day ACT workshop was based on the 12-session protocol outlined in ACT for depression (ACT-D; Zettle, 2007) treatment manual. Case consultation was described as focusing on supporting the development and implementation of ACT-D. |
| Trompetter et al. (2014) | <u>HP sample:</u> Multi-disciplinary healthcare providers (HCPs) at chronic pain rehabilitation centres (n = 111). <u>Client Sample:</u> Clients with chronic pain treated with ACT (n = 79) | <u>Pretest-posttest study:</u> evaluating the effects of an ACT training and implementation program on 1) healthcare provider outcomes and 2) client outcomes, and 3) service outcomes. Healthcare providers formed two training cohorts ('early adopters' and 'late adopters'). | Chronic pain rehabilitation centre (The Netherlands) | 18-month training and implementation protocol <u>Early adopters:</u> · 3 x 2days ACT course. · Peer review meetings · Outreach visits from trained supervisor. <u>Late adopters:</u> · 2-day ACT course. · Support from early adopters in educational activities. · Peer review meetings · Outreach visits from trained supervisor. | Described as a train-the-trainer approach. 1, 3, 6 | Training content was based on Schreurs et al. (2012) ACT therapist manual and Veehof et al. (2010) client self-help manual. |
| Levin et al. (2015) | <u>HP sample:</u> College counsellors (n = 30) <u>Client sample:</u> College students receiving | <u>Pretest-posttest study:</u> evaluating the effect of a web-based ACT program on 1) counsellors who completed the online training modules and 2) clients who participated in online guided self-help (3 modules) in addition to face-to-face counselling. The acceptability of | College counselling centre (USA) | Counsellors took part in 4 ACT online training modules. | 1, 2 | The content of the modules was focused on building skills to use an ACT web-based guided self-help programme with students and key features of ACT. |

| | | | | | | |
|-----------------------|---|---|--|---|------------|--|
| | counselling (n = 82) | this web-based program for counsellor and clients was also examined. | | | | |
| Pakenham (2015) | <u>HP sample:</u> Clinical psychology trainee therapists (n = 32) | <u>Pretest-posttest study:</u> evaluating the effect of ACT training on therapist's skills and attributes, ACT processes, and stress. | Training as part of clinical teaching programme. (Australia) | 12 x 2hr lectures and case supervision. | 1, 2, 3, 6 | Described as focusing on the 6 core processes of the ACT module, ACT's therapeutic stance, ACT for depression, and ACT for anxiety. |
| Jacobs et al. (2016) | <u>HP sample:</u> Physiotherapists (n = 26) | <u>Pretest-posttest study:</u> evaluating the effect of ACT training on physiotherapist's pain-related ACT knowledge, psychological flexibility, and attitudes and beliefs towards working with clients with chronic pain. | Inservice training at an outpatient musculoskeletal department. (UK) | 1 x 7 hr workshop. | 1, 2, 3 | Described as targeting skills consistent with the psychological flexibility model that are relevant to physiotherapists working with chronic pain. Included: recognition of barriers to engagement in activity with pain; flexible and target use of pain education; and targeting 6 core ACT processes. |
| Moyer et al. (2016) | <u>HP sample:</u> Doctoral clinical and counselling psychology trainee therapists (n = 10) | <u>Pretest-posttest study:</u> evaluating the effect of ACT training on therapist ACT knowledge, psychological flexibility, emotional regulation, and work-related stress. | Training as part of clinical teaching programme. (USA) | 14 x 3hr sessions. | 1, 2, 3, 5 | Aimed at developing in-depth understanding and proficiency in application of ACT. Included an intensive examination of ACT theory, research, and techniques such as case conceptualisations and the ACT therapeutic stance. |
| Stewart et al. (2016) | <u>HP sample:</u> Non-specialist workers and professionals (HPs) working in a Sierra Leone health service (n = 57) | <u>Pretest-posttest study:</u> evaluating the effect of ACT training on Sierra Leone healthcare workers and professional's psychological flexibility, quality of life, use of ACT exercises with clients. The acceptability of this training was also examined. | Community-based training (Sierra Leone) | 3-day ACT workshop. | 1, 2 | Training focused on: assessing client distress; exploring how workable client's current strategies are for managing distress; values work with clients; case formulation; supporting clients in reducing their investment in unworkable strategies; and assisting clients to broaden their behavioural repertoires using willingness and committed action processes. |

***Note:** HP – helping professional. FACCM - vector graph approach to functional analysis. Training methods coding: 1) didactic teaching; 2) experiential exercises; 3) interactive activities (e.g. role-plays, group discussions); 4) use of therapy manuals; 5) homework tasks (e.g. reading assignments, case conceptualisations); 6) supplementary contact in the form of consultancy, supervision, or coaching.

Table A.2. Main study measures and key outcomes

| Study | Outcome Measurement | Learning Outcomes | Adherence and Competency Outcomes | Clinical Outcomes | HP well-being and ACT process outcomes |
|----------------------------|---|---|--|--|--|
| Strosahl et al. (1998) | Clients in both conditions completed the Problem Identification Survey (non-validated) pre- and post-treatment. | | | ACT trained therapists produced significantly better coping outcomes ($F= 4.05, p < .05$) among their clients compared to non-ACT trained control group. Clients of ACT trained therapists were more likely to have completed therapy (86%) in the 5 months since treatment initiation than non-ACT trained therapists (49%). | |
| Lappalainen et al. (2007) | Trainee therapists completed the VAS self-rated ACT skills and VAS self-rated fear and tension in delivering ACT* pre- and post-treatment delivery. Clients completed 4 symptom-based measures and the AAQ-8 pre- and post-treatment. | Trainee therapists felt significantly less skilled in ACT compared to CBT at post-training ($z = -2.13, p = .03$) but felt equally skilled in ACT and CBT following treatment delivery. Trainee therapists self-rated fear and tension related to delivering treatment decreased significantly for CBT only at post-treatment ($z = -2.23, p = .025; z = -2.61, p = .007$). | | ACT treated patients showed significantly greater improvements (SCL-90: GSI) at post-treatment ($z = 1.68, p = .048$) and 6-month follow-up ($z = 1.63, p = .053$) than CBT treated patients. ACT resulted in significant improvements in psychological flexibility (AAQ-8) ($p = .007$) CBT did not. | |
| Forman et al. (2007, 2012) | Trainee therapist adherence and competency was assessed by independently rating 2/3 randomly chosen taped sessions using the Drexel Scale*. Main client clinical outcome measures were the BDI*, BAI*, and OQ*, completed pre- and post-treatment. | | 92% of ACT and CT sessions received good or excellent competency rating. There was equivalent therapist competence and adherence in ACT and CT conditions. Raters were able to differentiate between ACT and CT for 82% of sessions rated. | At post treatment (2007) clients in both the ACT and CT conditions showed significant improvements on all outcome measures, including the BDI ($d= 1.27, p < .001$), BAI ($d = 0.68, p < .001$), and OQ ($d = 0.75, p < .001$). There were no significant differences in treatment gains between conditions. At 18-month follow-up (2012) CT treatment gains were better maintained than ACT treatment gains. (depression; $h_p^2 = .04, p = .02$, general functioning; $h_p^2 = .04, p = .03$; quality of life; $h_p^2 = .02, p = .08$). | |

| | | | | | |
|--------------------------|--|--|---|--|--|
| Richards et al. (2011) | Psychologists completed the AKQ* and a questionnaire assessing willingness to engage in experiential training exercises pre- and post-training. At 12-month follow-up, psychologists completed a questionnaire assessing the impact of training on their clinical practice. | Psychologist demonstrated a significant increase in ACT knowledge (AKQ) between pre- and post-training ($r = 0.48$, $p < .001$). Of the 40% ($n = 29$) trainees who completed the 12-month follow-up survey, 83% reported that their work had been influenced by training and 90% planned to use ACT in the future. | | | Sharing difficult experiences was rated as less difficult than anticipated, with a pre-training mean difficulty rating of 5.1 and a post-training mean rating of 3.8. |
| Luoma & Vilardaga (2013) | MHPs completed an ACT knowledge quiz, AAQ, and MBI pre- and post-training and at 3-months follow-up. | Knowledge scores had increased between pre and post-workshop ($d = .49$, $p = .02$). This increase was maintained in both groups at follow-up, with no significant between group effects. | | | MHP psychological flexibility (AAQ) improved over time in the consultation group but not in the ACT training only group, with a large between group effect at follow-up ($d = 1.82$, $p = .032$). MHP burnout improved significantly from pre- to follow-up in both conditions ($d = .30$, $p = .059$). No significant between group effects were found. |
| Walser et al. (2013) | MHPs completed a self-efficacy survey (non-validated) pre- and post-training; a measure of therapeutic alliance (WAR-SR) at 4 time-points during treatment delivery. MHP competency in ACT was rated by their supervisors at 3 time points based on consultation calls and taped therapy sessions using the ACT-CCFR*. Clients completed the BDI-II*, the WHOQOL-BREF*, and the AAQ-II pre- and post-treatment. Also completed the WAR-SR* at 4-time points during treatment. | MHP self-efficacy in delivering ACT increased significantly ($d = .65$, $p < .001$) between pre-training and post-consultation. | 96% of MHPs had achieved competency at post-training compared to 21% at pre-training. | Client depression scores (BDI-II) decreased from an average of 30.3 pre-treatment to 19.3 at post-treatment. Client quality of life scores (WHOQOL) increased significantly ($p < .001$) from pre- to post-treatment in all four subscales (Psychological $d = .61$; Physical $d = .46$; Social $d = .45$; Environmental $d = .40$). Client flexibility significantly increased ($d = .76$, $p < .001$). Therapeutic alliance increased significantly ($p < .001$) over the course of treatment in all three subscales (Goal $d = .44$; Task $d = .63$; Bond $d = .35$). | |
| Trompetter et al. (2014) | HCPs self-rated their competence* in working with each ACT process pre- and post-training and implementation. | HCPs reported a significant improvement ($p < .05$, effect size not reported) in self-perceived competencies in working with all | Clients reported that their treatment providers adhered to ACT during treatment. | | |

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|---------------------|---|--|--|--|---|
| | Clients treated with ACT completed an “adherence to ACT by professionals” questionnaire (non-validated) post-treatment. | six ACT processes between pre- and post-training and implementation, rating their competencies as ‘adequate’ post-implementation. HCPs reported an increase in their application of ACT at post-implementation compared to pre-training. | | | |
| Levin et al. (2015) | Counsellors completed ACT-CL Knowledge* pre-training and post-treatment. Student clients completed the DASS*, SWLS*, AAQ-II, FFMQ*, and PVQ-ED* pre- and post-treatment. | Significant improvement in counsellor ACT-CL knowledge ($d = .88, p < .001$) from pre-training to post-usage. Counsellors who performed better on ACT-CL knowledge test used the program with significantly more student clients ($p = .04$, no effect size reported). | | 38% of student clients completed all three online guided self-help modules. Students showed significant improvements ($p < .01$) in all symptom-based measures (Depression, $d = .60$; Anxiety, $d = .55$; Stress, $d = .40$), in psychological flexibility ($d = .66$), and in two of the three subscales of the FFMQ (Awareness, $d = .38$; non-judgementalness, $d = .71$), and in the PVQ-ED ($d = .41$) between pre- and post-treatment. Student clients whose counsellors discussed the programme with them showed greater improvements in psychological flexibility ($h^2 = .13, p < .001$). | |
| Pakenham (2015) | Trainee therapists completed MHP Stress Scale, GHQ-28, SCS*, self-efficacy scale*, WAR-SF*, AAQ, FFMQ, WBSI*, and the VLQ* pre- and 4weeks post-training. | Trainee therapists showed a significant improvement in counselling self-efficacy ($r = .62, p < .001$). | | | Trainee therapists showed significant improvements in psychological flexibility ($r = .51, p < .01$), mindfulness ($r = .74, p < .001$), values processes ($r = .44, p < .05$), and self-compassion ($r = .53, p < .01$), thought suppression ($r = .65, p < .001$), and psychological distress ($r = .72, p < .001$) between pre- and 4 weeks post-training. Only the Goal subscale of trainee-rated therapeutic alliance significantly increased ($r = .12$, Client flexibility significantly increased ($d = .76, p < .05$). There was a significant increase in work- |

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|-----------------------|--|---|--|--|---|
| | | | | | related stress ($r = .54, p < .01$) between pre- and 4weeks post training. |
| Jacobs et al. (2016) | Physiotherapists completed: HC-PAIRS*, PABS-PT*, AAQ-II, MBI, and a questionnaire on the psychological barriers to treatment (non-validated) pre- and post-training. | Physiotherapists showed a significant reduction ($p < .05$) in beliefs related to disability being an inevitable consequence of pain (HC-PAIRS; $d = .75, p = .01$) and in belief that treatment should focus on pain reduction (PABS-PT; $d = .93, p = .00$) between pre- and post-training. Understanding of psychological barriers to treatment improved between pre- and post-training. | | | Physiotherapists showed no significant change in burnout symptoms or psychological flexibility between pre- and post-training. |
| Moyer et al. (2016) | Trainees completed: ACT knowledge quiz*, AFQ-Y*, and DERS* pre- and post-training, and at 4-month follow-up. | Trainee ACT knowledge significantly increased ($d = .29, p = .04$) between pre-training and 4-month follow-up. | | | There was no significant change in trainee acceptance or defusion processes at between pre- and post-training, or post-training and follow-up. Reliable change index (RCI) indicated that most trainees improved in emotional regulation over time. |
| Stewart et al. (2016) | HPs completed: AAQ-II, VQ*, SWLS* pre- and post-training, and a questionnaire on the use of ACT exercises with clients at 3-month follow-up. | All HPs reported using ACT exercises with clients at follow-up. | | | HPs showed significant improvements from pre- to post-training, and from post-training to follow-up in psychological flexibility ($h^2 = .23, p < .01$) and life satisfaction ($h^2 = .15, p < .05$). There was no significant change in taking valued actions. |

Note: Lappalainen et al. (2007): Visual Analogue scale (VAS), non-validated and developed by the study authors. Forman et al. (2007, 2012): The Drexel CT/ ACT Therapist Adherence and Competence Rating Scale (McGrath et al., 2012), Beck Depression Inventory, version 2 (BDI-II; Beck et al., 1996), Beck Anxiety Inventory (BAI; Beck et al., 1988), and Outcome Questionnaire (Lambert et al., 1996). Richards et al. (2011): ACT Knowledge Questionnaire (AKQ; see Luoma & Vilardaga, 2013; Richards et al., 2011; available for download at https://contextualscience.org/act_knowledge_questionnaire). Walser et al., (2013): The Working Alliance Inventory, Short Revised (WAI-SR; Hatcher & Gillaspay, 2006), The ACT Core Competency Rating Form (ACT-CCRF; see Luoma et al., 2007a), The Beck Depression Inventory -II (BDI-II; Beck et al., 1996), The World Health Organisation Quality of Life Scale, Brief (WHOQOL-BREF; WHOQOL Group, 1998). Trompetter et al.

(2014): Self-perceived competencies in working with ACT questionnaire, developed by the study authors and based on a questionnaire published in Luoma et al. (2007b) and The Determinants of implementation success questionnaire, developed by the study authors and based on the findings of Fleuren, Wiefferink, and Paulussen (2004). Levin et al. (2015): ACT-CL Knowledge, developed for a study by Levin et al. (2014) and based on similar previous knowledge questionnaires, Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995), Satisfaction with Life Scale (SWLS; Diener et al., 1985), Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006), and the Personal Values Questionnaire-Education Subscale (PVQ; Ciarrochi, Blackledge, & Heaven, 2006). Pakenham (2015): Self-compassion Scale (Neff, 2003), Working Alliance Inventory-Short Form (WAR-SF; Tracey & Kototovic, 1989), The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), and The Valued Living Questionnaire (VLQ; Wilson et al., 2010). Jacobs et al. (2016): Healthcare Provider's Attitudes and Beliefs Towards Common Low Back Pain (HC-PAIRS; Houben et al., 2004) and The Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT; Ostelo et al., 2003).

3.2. Methodological Quality

Table A.3 provides the quality ratings over the twelve criteria, including a total quality percentage score. Although considerable variability in methodological rigour was evident, it is important to note that the quality assessment checklist used in this review is not a precise comparative measure and thus serves only as indication of the methodological strengths and weaknesses. Based on the quality criteria, a study by Walser et al. (2013) was of the highest methodological quality within this review.

3.2.1. Representativeness

HP sample characteristics were insufficiently described in three studies (Forman et al., 2007, 2012; Moyer et al., 2016; Richards et al., 2011) and these were therefore rated as ‘poor’ for sample representativeness. A notable limitation was the lack of analyses on possible differences between HPs who participated and those from the target population who did not. Only one study addressed this issue (Levin et al., 2015) and was therefore rated as ‘good’. Of the six studies that included client participants, sample characteristics were generally well-described, with the exception of one study which employed a service user sample solely to obtain feedback on HP adherence to ACT (Trompetter et al., 2014). Half of these studies did not consider potential differences between clients who participated and those who did not participate, undermining their external validity (Strosahl et al., 1998; Lappalainen et al., 2007; Trompetter et al., 2014). Training and service setting characteristics were adequately described in all studies.

Table A.3: Quality Ratings

| | | Strosahl et al. (1998) | Lappalainen et al. (2007) | Forman et al. (2007;2012) | Richards et al. (2011) | Luoma & Vilardaga (2013) | Walser et al. (2013) | Trompetter et al. (2014) | Levin et al. (2015) | Pakenham (2015) | Jacobs et al. (2016) | Moyer et al. (2016) | Stewart et al. (2016) |
|------|------------------------------|------------------------|---------------------------|---------------------------|------------------------|--------------------------|----------------------|--------------------------|---------------------|-----------------|----------------------|---------------------|-----------------------|
| 1a) | Representative HP Sample | Fair | Fair | Poor | Poor | Fair | Fair | Fair | Good | Fair | Fair | Poor | Fair |
| 1b) | Representative Client Sample | Poor | Poor | Good | N/A | N/A | Good | Poor | Good | N/A | N/A | N/A | N/A |
| 2) | Allocation to Conditions | Poor | Good | Good | N/A | Good | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3) | Measurement Validity | Poor | Good | Good | Poor | Good | Good | Poor | Good | Good | Good | Good | Good |
| 4) | Measurement time-points | Fair | Fair | Fair | Good | Good | Good | Good | Good | Good | Good | Good | Good |
| 5) | Follow-up data | Poor | Poor | Good | Fair | Good | Fair | Fair | Poor | Poor | Poor | Good | Fair |
| 6) | Training protocol(s) | Fair | Fair | Poor | Fair | Good | Good | Good | Fair | Good | Good | Good | Good |
| 7) | Trainer details | Fair | Fair | Good | Fair | Good | Fair | Poor | N/A | N/A | Fair | Good | Fair |
| 8) | Adherence to protocol(s) | Poor | Poor | Poor | Poor | Poor | Fair | Fair | N/A | Poor | Poor | Poor | Poor |
| 9) | Engagement in training | Good | Poor | Poor | Poor | Good | Good | Good | Good | Poor | Poor | Poor | Poor |
| 10a) | Handling of HP attrition | Fair | Poor | Poor | Poor | Good | Good | Good | Fair | Poor | Good | Good | Good |
| 10b) | Handling of client attrition | Good | Poor | Fair | N/A | N/A | Good | Poor | Fair | N/A | N/A | N/A | N/A |
| 11) | Power analysis | Poor | Good | Poor | Poor | Poor | Poor | Poor | Poor | Poor | Poor | Poor | Poor |
| 12) | Statistical analysis | Good | Poor | Good | Good | Poor | Good | Fair | Fair | Good | Good | Poor | Good |
| | Total % score | 39% | 36% | 50% | 31% | 70% | 77% | 46% | 64% | 45% | 54% | 54% | 59% |

3.2.2. Study conditions

Three out of the four studies that included a control/ comparison group used random allocation to study condition. Allocation was self-selected in the remaining study (Strosahl et al., 1998) leaving it open to potential bias; though details were provided on baseline comparability in terms of variables considered important to the outcomes measured (i.e. therapist length of treatment provision and clinical effectiveness).

3.2.3. Measurement Quality

Nine of the twelve studies reported on at least one reliable and valid measure of training outcomes. The remainder used questionnaires or surveys designed by the study authors (Strosahl et al., 1998; Richards et al., 2011; Trompetter et al., 2011). A consistent weakness across studies was the lack of psychometrically robust measures of learning outcomes. Three different non-validated measures of ACT knowledge were employed, including; the AKQ, which was originally created for use in a study by Luoma and Vildardaga (2013); an ACT knowledge quiz created for use in a study by Moyer et al. (2016), and; the ACT-CL knowledge, which was developed for a study by Levin et al. (2014) to assess ACT web-based learning.

Another notable gap was the lack of well-validated self-report or objective measures of therapist adherence and competence. Three different non-validated measures were used to evaluate self-perceived skills and competency in ACT, all of which were developed by the study authors (Lappalainen et al., 2007; Walser et al., 2013; Trompetter et al., 2014). Two studies employed objective rating scales (Forman et al., 2007, 2012; Walser et al., 2013): The Drexel CT/ ACT Therapist Adherence and Competency Scale (DUACRS; McGrath et al., 2012), which has demonstrated good interrater reliability in competency ratings and in distinguishing between cognitive therapy (CT) and ACT (McGrath et al., 2012), and; The ACT Core Competency Rating Form (ACT-CCRF; see Luoma, Hayes, & Walser, 2007), which has yet to be psychometrically assessed.

Finally, of the five studies that investigated changes in HP flexibility as a result of training used generic measures designed for use with general adult populations or, in one study, for youth populations. The theory underpinning ACT suggests that measures of flexibility tailored to the area under investigation may be more sensitive to change (Hayes et al., 2004). Thus, the use of generic flexibility measures in HP populations may fail to detect meaningful changes, undermining the validity of results.

In terms of measurement time-points, nine studies assessed HP outcomes pre- and post-training to evaluate changes produced by training. The other three measured HP and/ or client outcomes at post-training and post-client treatment (Strosahl et al., 1998; Lappalainen et al., 2007; Forman et al., 2007, 2012). These were deemed to be less appropriate as they did not allow for comparisons with baseline data and were therefore rated as ‘fair’. Seven studies collected follow-up data on the impact of training, ranging from three to eighteen months post-training or post-client treatment. However, only three of these studies used the same measure at post and follow-up to allow for direct comparisons on outcome measures (Forman et al., 2007, 2012; Luoma & Vilardaga, 2013; Moyer et al., 2016).

3.2.4. Training details

The majority of studies reported information on the training and experience of those delivering training and/ or those providing supervision or consultation. The type and level of information was inconsistent, such as describing trainer(s) as “experienced in ACT” or “ACT trained”, or providing number of years under ACT supervision or years of working clinically with ACT. Only one study described an ACT trainer as peer-reviewed (Moyer et al., 2016). All but one study described the duration and format of training to a good standard. Levin et al. (2015) described four web-based training modules but did not report their duration. All studies gave some details on training methods (e.g. experiential exercises, homework tasks). However, the level of detail on training content varied substantially, with three studies deemed to be of a fair standard in this regard (Strosahl et al., 1998; Lappalainen et al., 2007; Richards et al., 2011)

and one of a poor standard (Forman et al., 2007; 2012). Less than half reported on indicators of HP engagement in training, including: attendance rates; log-on rates in a web-based training programme; and number of participants that met set training requirements.

3.2.5. Study Designs

This review included three randomised studies and nine non-randomised studies. All three randomised studies involved two comparison conditions and were classified as quasi-experimental due to the lack of allocation concealment (Lappalainen et al., 2007; Forman et al., 2007; 2012; Luoma & Vilardaga, 2013). Of the nine non-randomised studies, one was classified as a controlled pretest-posttest study due to its use of a control condition (Strosahl et al., 1998) and the remaining eight had only one study condition and were thus classified as pretest-posttest studies. No studies attempted to control for performance or detection bias.

3.2.6. Data Analysis

Standards in the handling of missing data differed across studies. Two papers used intention-to-treat (ITT) analysis. Forman et al. (2007; 2012) used ‘last observation carried forward’, which can bias results and was therefore deemed of ‘fair’ standard. Walser et al. (2013) used a mixed effects regression model, which is less vulnerable to bias and was thus rated as ‘good’. Three papers reported using multiple imputation, two of which recorded which data was used to replace missing data (Stewart et al., 2016; Trompetter et al., 2014) and were rated as ‘good’ and one which did not (Levin et al., 2015) and was thus rated as ‘fair’.

The remaining seven papers did not report using statistical methods to manage missing data. For three of these studies, attrition rates were relatively small (<20%) (Moyer et al., 2016; Luoma & Vilardaga, 2013; Jacobs et al., 2016) and they were therefore rated as ‘good’. HP attrition rates were unclear in three studies (Richards et al., 2011; Lappalainen et al., 2007; Forman et al., 2007, 2012) and client treatment drop-out rates were also unclear in one of these studies (Lappalainen et al., 2007). As a result, these studies were rated as ‘poor’.

Only one of the twelve studies reported having completed a power analysis (Lappalainen et al., 2007). The majority of HP sample sizes were below 35, undermining the reliability of their findings. In three studies, the HP sample sizes were deemed so small as to have a low probability of detecting subtle training effects (Lappalainen et al., 2007; Luoma & Vilardaga, 2013; Moyer et al., 2016) and were therefore rated as ‘poor’. Two studies did not report effect sizes where appropriate (Trompetter et al., 2014; Levin et al., 2015).

3.3. ACT training practices

Table A.1 outlines the training characteristics of each included study. As can be seen from the table, training practices were somewhat inconsistent across studies, particularly in relation to duration of contact. Training programmes ran from six hours to six days and the median length was approximately 19 hours (almost three days). Full day workshop-based training formats were the most common (seven studies); although four were delivered in lecture or session format as part of clinical teaching programmes, and one was delivered as online training modules. Seven studies included supplemental supervision or consultations delivered in group or individual formats, one of which was conducted by phone (Luoma & Vilardaga, 2013). However, the format, frequency, and duration of this additional contact was diverse.

Training methods varied across studies, although all involved didactic teaching and eight incorporated experiential exercises, such as self-practice of ACT processes. Where experiential exercises were not included, the training programme did involve some form of interactive teaching, such as group discussion (Strosahl et al., 1998; Lappalainen et al., 2007; Forman et al., 2007, 2012; Trompetter et al., 2014). One study explicitly examined a sample of qualified psychologist’s reactions to experiential work and found that it was generally well received (Richards et al., 2011). Furthermore, sharing difficult personal experiences was rated as less difficult than anticipated (post-training mean difficulty rating = 3.8, pre-training mean difficulty rating = 5.1). Six studies included homework tasks (e.g. reading assignments, further personal practice, case conceptualisations).

The content of training was described differently in each study, although the majority made reference to the ACT model's six core processes. Four trainings were tailored to working with a specific clinical population including: ACT for depression (ACT-D), ACT for chronic pain, and ACT guided self-help for college students (Walser et al., 2013; Trompetter et al., 2014; Jacobs et al., 2016; Levin et al., 2015). Three trainings included the use of therapy manuals by Hayes et al. (2003), Schreurs et al. (2012), Veehof et al. (2010), and Zettle (2007).

3.4. Training Outcomes in the context of methodological quality

3.4.1. Learning Outcomes

Overall, the studies included in this review produced positive results with regards to the effectiveness of ACT training for improving learning outcomes. As can be seen from *Table A.2*, all four studies that measured ACT knowledge found significant improvements between pre- and post-training ($p < .05$) (Richards et al., 2011; Luoma & Vildardaga, 2013; Levin et al., 2015; Moyer et al., 2016). Both Luoma and Vildardaga (2013) and Moyer et al. (2016) collected follow-up data at three months and at four months respectively, and found that these knowledge gains were maintained. Of note, in Luoma et al.'s (2013) study, there were no significant differences between mental health professionals who received ACT consultations in addition to a two-day workshop training and those who attended the workshop only. These findings combined with those by Richards et al. (2011) and Levin et al. (2015), who both evaluated relatively time-limited trainings (one-day workshop and four online modules respectively) suggest that ACT knowledge can be disseminated effectively in a relatively short time. However, in interpreting these findings, it is important to be aware that none of the knowledge measures used had demonstrated adequate psychometric properties.

Four studies employed other indicators of learning outcomes, including changes in self-efficacy, self-perceived competency, and self-reported skills (Walser et al., 2013; Trompetter et al., 2014; Pakenham, 2015; Lappalainen et al., 2007). Three of these studies reported positive outcomes, with significant improvements between pre- and post-training (see *Table*

A.2). The fourth study measured self-perceived skills in psychology trainees after they had received both ACT and CBT training and following a client treatment phase using both models, during which they received weekly supervision (Lappalainen et al., 2007). This study found that trainees felt significantly less skilled in ACT when compared to CBT at post-training ($z = -2.13, p = .03$) (Lappalainen et al., 2007). The trainees felt equally skilled in both models following treatment delivery, however their self-rated fear and tension related to delivering treatment decreased significantly for CBT only at post-treatment delivery (*see Table A.2*). Despite trainees reporting higher levels of fear and tension in delivering ACT than CBT, they produced significantly better treatment gains when treating clients with ACT compared to CBT ($z = 1.68, p = .048$) (Lappalainen et al., 2007). Of note, only one of these studies employed a validated measure (Pakenham, 2015) called the Counsellor Activity Self-Efficacy Scale (Lent, Hill, & Hoffman, 2003), however this measure is not specific to ACT.

A final study (Jacobs et al., 2016) examined learning outcomes specifically related to beliefs about chronic pain in physiotherapists and knowledge of psychological barriers to treatment using two measures called the Healthcare Providers Attitudes and Beliefs towards Common Low Back Pain (HC-PAIRS; Houben et al., 2004) and the Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT; Ostelo et al., 2003), both of which have demonstrated adequate psychometric properties. Comparisons between pre- and post-training showed a significant reduction in beliefs related to disability being an inevitable consequence of pain ($d = .75, p = .01$) and improved knowledge of psychological barriers to treatment. Jacobs et al.'s (2016) training consisted of one seven-hour workshop, adding weight to the suggestion that ACT principles can be learned in a relative short time-period.

3.4.2. Competence outcomes

Three studies employed objective indicators of HP adherence and competency in delivering ACT, with positive results (*see Table A.2*). In the first study, independent assessors rated two or three randomly chosen therapy sessions post-training (Forman et al., 2007; 2012). Ninety-

two percent of sessions were rated as ‘good’ or ‘excellent’ and assessors were able to distinguish between ACT and CT in 82% of sessions. The second study compared ACT competency ratings pre- and post-training (Walser et al., 2013) but used the mental health professional’s supervisors as raters, rather than independent parties. Results showed that 96% had achieved competency at post-training compared to 21% at pre-training. The third study obtained feedback from clients treated by ACT on their treatment provider’s adherence to ACT (Trompetter et al., 2014). All clients who participated reported good adherence; though response rates were not reported and results were therefore at risk of selection bias. All three of these studies included supplementary contact in the form peer review meetings, case consultations, or case supervision. However, without a training-only control group comparison, it is not possible to say whether this additional contact had an additive effect in terms of ACT competency.

3.4.3. Clinical Outcomes

As shown in *Table A.2*, five studies analysed the effects of ACT training on client outcomes. Results were generally positive. One study compared the impact of ACT training to a non-training control group (Strosahl et al, 1998) and two studies compared the differential impact of ACT and CT or CBT training (Forman et al., 2007; 2012; Lappalainen et al., 2007). Strosahl et al. (1998) found that ACT trained therapists produced significantly better treatment gains ($F = 4.05, p < .05$) in their clients than non-trained therapists at post-treatment (Strosahl et al., 1998). Lappalainen et al. (2007) found that ACT treated clients had significantly greater treatment gains than CBT treated clients at post-treatment ($d = .75, p = .01$) (Lappalainen et al. 2007). However, client attrition rates were not reported in this study, weakening the generalisability of results. Forman et al. (2007; 2012) showed that both CT treated clients and ACT treated clients showed significant and equivalent improvements at post-treatment as measured by the Beck Depression Inventory ($d = 1.27, p < .001$), the Beck Anxiety Inventory ($d = 0.68, p < .001$), and the Outcome Questionnaire ($d = 0.75, p < .0001$). However, CT

treatment gains were better maintained than ACT at 18-months follow-up (see *Table A.2*). The authors note that it is not possible to know whether this latter finding reflects differences in training effectiveness or other client-related variables (Forman et al., 2012).

The remaining two studies that evaluated client outcomes did not employ comparison or control groups. Overall, results were again positive. Walser et al. (2013) found a significant increase in quality of life amongst clients treated by ACT-trained HPs and a decrease in depression scores between pre- and post-treatment (see *Table A.2*). Client psychological flexibility significantly improved ($d = .76, p < .001$) and there was a significant increase in therapeutic alliance as rated by HPs and clients over the course of treatment (Goal; $d = .44, p < .001$, Task; $d = .63, p < .001$, Bond; $d = .35, p < .001$). This study scored the highest in terms of methodological quality, both in terms of internal and external validity, adding weight to its findings. Levin et al. (2015), who assessed the impact of a web-based ACT guided self-help programme adjunctive to face-to-face counselling for college students, found significant improvements in almost all student well-being indicators (Depression; $d = .60, p < .01$, Anxiety; $d = .55, p < .01$, Stress; $d = .40, p < .01$) and psychological flexibility ($d = .66, p < .01$). Results showed that students whose counsellors discussed the programme with them had greater improvements in psychological flexibility ($\eta^2 = .13, p < .001$). However, no significant changes were found on measures of satisfaction with life, mindful observing, and values processes in this study. A key limitation was the lack of a control group of student clients who received therapy only. Without this comparison, it is not possible to know whether these positive outcomes can be attributed to the ACT guided self-help programme.

3.4.4. HP well-being and ACT process outcomes

Five studies evaluated the impact of ACT training on HP well-being and ACT processes (see *Table A.2*). In a study by Luoma and Vildardaga (2013), the effects of ACT training with supplemental experiential phone consultations on HP outcomes were compared to ACT

training with no further contact. Results indicated that flexibility increased over time in the consultation group but not in the training-only group, with a large between group effect size ($d = 1.82$, $p = .032$) at three-months follow up. Burnout symptoms also improved significantly from pre-training to follow-up in both conditions, as measured by the Maslach Burnout Inventory ($d = .30$; $p = .059$). Luoma and Vilardaga's (2013) study was of relatively high quality among the papers rated in this review, increasing the generalisability of these positive findings. Pakenham's (2015) study was less methodologically rigorous, with a particular concern being the lack of data on the representativeness of the sample. However, significant improvements in trainee psychologists' flexibility ($r = .51$, $p < .01$), mindfulness ($r = .74$, $p < .001$), values processes ($r = .44$, $p < .05$), self-compassion ($r = .53$, $p < .01$), thought suppression ($r = .65$, $p < .001$), psychological distress ($r = .72$, $p < .00$). With respect to trainee-rated therapeutic alliance, only scores on the goal subscale significantly increased ($r = .12$, $p < .05$). Of note, trainee work-related stress had significantly increased at four-weeks post-training. Pakenham (2015) hypothesised that this was related to the added work demands of complex client caseloads.

In a study by Stewart et al. (2016), health providers in Sierra Leone demonstrated significant improvements in psychological flexibility ($\eta^2 = .23$, $p < .01$) and life satisfaction ($\eta^2 = .15$, $p < .01$) from pre-training to follow-up. No significant changes were found in values processes. This study was towards the higher end in terms of relative quality with a reasonable sample size ($n = 57$) and good external validity. In a sample of physiotherapists working in chronic pain, Jacobs et al. (2016) found no significant changes in burnout symptoms or psychological flexibility between pre- and post-training. The validity of these findings are undermined by the study's small sample size ($n = 26$), which may have reduced the probability of detecting meaningful change. Finally, Moyer et al. (2016) found no significant change in trainee acceptance or defusion processes from pre- to post-training, but found an increase in trainee

emotional regulation, as measured by a reliable change index. This study's sample size was extremely small ($n = 10$), limiting the interpretability of findings.

4. Discussion

This study aimed to systematically review published articles relating to ACT training for helping professionals (HPs) in order to facilitate further research in this area. It focused on the methods, content, and outcomes of ACT training. Only twelve studies were found to evaluate the impact of training HPs to deliver ACT-informed interventions, reflecting that this research is still in its primary stages. However, most studies were published within the last four years, suggesting increased interest in evaluating ACT training programmes as ACT becomes more widely disseminated into mental and physical healthcare settings. The studies reviewed here were highly variable in terms of the duration, methods, and content of training, and in methodological quality and evaluation strategy. Although this heterogeneity limits the extent to which this review can draw conclusions on the effectiveness of ACT training, it is in itself an important finding. It highlights the need for more uniform training practices, increased methodological rigour, and a greater consensus on how best to evaluate ACT training outcomes.

The majority of trainings studied aimed to provide HPs with the knowledge and skills to deliver ACT to heterogeneous client populations. Only four studies investigated ACT training tailored for use with specific clinical populations, including veterans with depression (Walser et al., 2013), clients with chronic pain (Trompetter et al., 2014; Jacobs et al., 2016), and students attending a college counselling service (Levin et al., 2015). ACT has demonstrated efficacy with a diverse range of populations (see reviews by A-tjak et al., 2015; Hann & McCracken, 2014; Öst, 2014, 2008; Ruiz, 2012) however it is not clear from these studies whether trainings are more effective when tailored to the needs of specific service settings or populations. This would be an interesting question to pursue in future research.

Based on this review, workshops appear to be the most popular ACT training format. The relative effectiveness of workshops and other formats such as short-training sessions or lectures was not possible to judge given the considerable variability in training durations. Over half of the training programmes included supplementary coaching, consultation, or supervision. One study directly addressed the additive effects of post-training contact by comparing a training-only group with a training-plus-consultation group (Luoma & Vilaradaga, 2013). Although small in sample size, the results of this study suggest that more than a two-day ACT workshop is needed to improve the flexibility of HPs and that phone consultation, which is relatively cost-effective, may be an appropriate form of supplementary contact. A study by Pakenham (2015) also found significant improvements in HP flexibility following training and post-training case supervision; though it is not possible to know whether training alone would have been equally effective due to the lack of a control group. Interestingly, Stewart et al. (2016) also found a significant increase in flexibility among HPs attending a three-day workshop only, suggesting relatively longer workshops also can have a positive impact on flexibility processes. It is possible that longitudinal contact in and of itself could explain these findings. In contrast, Moyer et al. (2016) and Jacobs et al. (2016) found no significant changes in HP flexibility following a relatively long training programme in lecture format (42 hours) and in a short workshop (seven hours) respectively. Differences in methodological quality, training content, and the use of non-population specific flexibility measures across these studies make it impossible to draw any firm conclusions. Given that enhancing HP flexibility is a key goal of ACT training, further research on how best to target flexibility processes is needed.

Two studies allowed for the comparison between ACT and other treatment models in terms of the ease of dissemination. Forman et al. (2007; 2012) found that training in ACT and CT were equally effective in terms of HP competency and clinical outcomes, although treatment gains were better maintained clients who received CT compared to ACT at 18-month follow-up. Lappalainen et al. (2007) found that, in HPs trained in both ACT and CBT, ACT treated clients

demonstrated significantly better outcomes than CBT treated clients at post-treatment. However, HPs themselves felt less skilled in ACT than CBT following training and, although they felt equally skilled in both models post-treatment, they remained more fearful and tense about delivering ACT. This may suggest that confidence in delivering ACT may take longer to achieve and is consistent with Strosahl and Robinson's (2009) suggestion that ACT can sometimes feel counter-intuitive. ACT's focus on the relationship individuals have with their thoughts and feelings, rather than the specific content of these inner experiences, is a marked deviation from traditional CBT approaches and indeed, western society's attitudes towards mental health in general. However, it would be premature to draw conclusions in this regard without further research.

ACT training outcome measures were diverse and several studies employed non-validated instruments. Lack of consistency in measurement severely limited the comparisons that could be made between study findings. The most problematic measurement concerns were the lack of psychometrically sound indicators of ACT knowledge and self-perceived efficacy. There was also psychometric data available for just one measure of adherence and competence, called the Drexel CT/ ACT Therapist Adherence and Competence Rating Scale (McGrath et al., 2012). As noted above, measures of flexibility were designed for use in general adult or youth populations, potentially reducing their sensitivity to change. As far as the authors are aware, there is currently no measure of flexibility tailored to HP populations. Given the inconsistencies in measurement across these studies, there may be a need to develop a consensus on how best to measure ACT training outcomes to advance research in this area.

Variations in training methods and content also limited the conclusions that can be drawn regarding the effectiveness of ACT training. In addition, many studies did not provide enough detail to allow for replication. This latter issue may be partly due to word-limit restrictions imposed by journals. It has been argued that ACT does not lend itself easily to manualised treatment procedures (Plumb & Vilardaga, 2010) and it may be that standardised training

protocols would be difficult to implement, or perhaps even inappropriate. However, without some uniformity across studies, it is difficult to identify the ‘active ingredients’ of ACT training and to design training programmes that specifically target these mechanisms of change. The experience and/ or training of those delivering training also varied across studies, which adds a further potential confounding variable into the mix. Addressing these issues will be crucial in furthering our understanding of what training is needed to be an effective ACT practitioner.

This review has limitations that must be considered when interpreting the results. Only peer-reviewed journal articles in the English language were included. Publication and language bias are therefore a potential concern. It may be possible that there are findings relevant to this review within the “grey” or unpublished literature, including dissertations, or published in languages other than English. Although quality assessment of the included studies was conducted systematically, the quality criteria checklist employed was non-standardised and did not allow for precise comparisons between studies. However, the use of independent raters and the high degree of inter-rater reliability mitigates this limitation somewhat. Finally, evaluation in this review was restricted to a narrative synthesis due to the heterogeneity of studies.

In conclusion, the results of the twelve studies included in this review were generally positive, suggesting that ACT training can be effective in providing HPs from a variety of backgrounds with the necessary knowledge, skills, and competency to deliver ACT interventions. Furthermore, ACT training can enhance the flexibility of HPs, which has been associated with greater occupational well-being and positive therapeutic attributes (e.g. Stafford-Brown & Pakenham, 2012; Kurz et al., 2014; Noone & Hastings, 2011; McCracken & Yang, 2008). However, the heterogeneity across studies in terms of training practices, evaluation strategies, and methodological quality, mean these findings must be considered preliminary in nature.

4.1. Recommendations for future research

Based on the results of this review, five recommendations can be made for this research field to grow. These recommendations are outlined below.

- 1) Developing standard measures of ACT training outcomes in the following domains: knowledge; skills/ competencies; and helping professional (HP) flexibility. It would be important for such measures to be psychometrically sound and well-validated.
- 2) Conducting research that assesses the relationship between self-reported and observed changes in ACT knowledge, skills/ competencies, and HP flexibility.
- 3) Including more comprehensive descriptions of training practices, content, and trainer's training, experience, and competency. Conducting assessment of adherence to training procedures and participant engagement in training.
- 4) Identifying aspects of ACT training that are hypothesised to be the main mechanisms of learning and skills development (e.g. experiential exercises) and employing study designs that allow for the testing of these hypothesised 'key ingredients' by comparing their differential impact on outcomes. Employing study designs that involve good controls for non-ACT specific aspects of training and support may also be useful.
- 5) Conducting research that compares training outcomes between professionals with different occupational backgrounds (e.g. applied psychologists compared to physiotherapists) or at different stages of qualification (e.g. trainee psychologists compared to qualified psychologists).

Chapter 1 References

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Chapter 2

Psychological Flexibility in Helping Professionals: The Development and Initial Validation of the Mindful Healthcare Scale.

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Abstract

Background: Preliminary research suggests that psychological flexibility, a central concept in Acceptance and Commitment Therapy (ACT), may be of particular benefit to helping professionals in managing the unique challenges inherent to their therapeutic work. These findings have been established using general measures of this concept, such as the Acceptance and Action Questionnaire (AAQ). However, the theory that underpins ACT suggests that measures of flexibility tailored to the area under investigation may be more sensitive to change. This research therefore sought to develop and test a new measure of psychological flexibility in helping professionals (HPs) called the Mindful Healthcare Scale (MHS). **Method:** Following item generation and a review by ACT experts, a sample of 480 HPs was used to explore the factor structure of the MHS and test its reliability. A different sample of HPs ($n = 196$) was then used to confirm the factor structure of the MHS and test its reliability and convergent validity with a general measure of psychological flexibility and three other measures of constructs related to HP occupational functioning. **Results:** The final factor solution revealed a hierarchical measurement model for the MHS including 3 sub-factors corresponding to an engaged, awareness, and defusion subscale, and a higher order factor representing overall psychological flexibility in professional helping. Internal consistencies as measured by Cronbach's alpha were .74 (engaged), .71 (awareness), .74 (defusion), and .79 (overall flexibility). The MHS correlated in the expected directions with measures of burnout syndrome, self-compassion, and empathy. **Conclusions:** The MHS shows initial promise as a measure of psychological flexibility in HPs with a stable and theoretically-coherent factor structure, acceptable internal consistency, and strong construct validity with predicted variables. The potential uses of the MHS and recommendations for future research are outlined.

1. Introduction

1.1. The well-being and performance of helping professionals

Working in the helping professions has long been recognised as a rewarding but demanding occupation (Wieclaw et al, 2006; Schaufeli, Maslach, & Marek, 1993). Engaging in effective helping relationships with people experiencing physical and/ or mental health problems presents a range of unique challenges, including a high degree of self-giving and human caring (Kangas & Shapiro, 2011) and pressing responsibilities regarding the welfare of other (Peters, 1985). It is therefore unsurprising that helping professionals (HPs) are especially vulnerable to work-related stress (Mann, 2004; Wall et al., 1997) and a myriad of associated health problems such as burnout syndrome (Hooper et al., 2010), depression and anxiety (Gilroy, Carroll, & Murra, 2002), and cardiovascular disease (Melamed et al., 2006). Adverse stress reactions can also have a detrimental impact on the quality of care clients receive. Elevated stress-levels in HPs are associated with impairments in decision-making and communication skills (Shanafelt et al., 2002), attention and concentration (Braunstein-Bercovitz, 2003), the capacity for empathy (Thomas et al., 2007), and the ability to form successful therapeutic alliances (Enochs & Eitzback, 2004).

Despite the risks posed by work-related stress in the helping professions, theoretically-informed research in the area remains limited, particularly in relation to underlying psychological processes that may influence practitioner functioning (Noone & Hastings, 2010; Devereux, Hastings, & Noone, 2009; Jennings, 2008). However, interest in the ways HPs cope with job demands has highlighted an association between avoidance-based strategies and poorer outcomes (Kurz, Bethay, & Ladner-Graham, 2014; Brinkborg et al., 2011; Noone & Hastings, 2010; Monto-Rodriguez & Gallagher-Thompson, 2009; Healy & McKay, 2000). Thus, psychological processes related to avoidance may represent a fruitful avenue for further research.

1.2. Psychological Flexibility

The positive relationship between attempts to avoid, control, or otherwise change private events (e.g. thoughts, feelings, memories, physical sensations) and psychological distress is consistent with, and can be explained by, an emerging theoretical construct known as psychological flexibility (or, herein, flexibility). Flexibility refers to a person's capacity to contact the present moment and the thoughts and feelings it contains, without being controlled by such inner experiences and, depending on opportunities available in the environment, persisting with or changing their behaviour in pursuit of values and goals (Bond et al., 2011, p.678). The flexibility model underlies Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2012), one of several contextual CBTs that emphasise the ways in which individuals relate to their thoughts and feelings, not just the content or form of these internal events, in well-being and performance (Bond et al., 2011; Zettle, 2005). According to ACT, individuals who base their actions more on their personal values, and less on efforts to avoid unpleasant feelings, perform more effectively and are less vulnerable to adverse stress reactions (Bond, Lloyd, & Guenole, 2013; Hayes et al., 2006).

A person's level of flexibility is defined on a continuum (flexible to inflexible) and is said to be the product of six overlapping processes, including: present moment awareness (conscious attention to the here-and-now), cognitive defusion (taking a step back from thoughts and observing them, rather than getting caught up in them), willingness (acceptance of unwanted thoughts and feelings and being willing to let them come and go, rather than attempting to avoid them), a contextual sense of self (accessing a transcendent sense of self that is separate from the content of mental events); clarity of personal values (knowing what actions you value), and committed action in service of those values (acting on those values even when inner experiences make this difficult) (Hayes et al., 2006). Recently, these processes have been organised into a more succinct framework of three response styles, called the 'Triflex' model. These include "openness" (cognitive defusion and willingness), "centred" (self-as-context and

present moment awareness), and “centred” (clarity of personal values and committed action in service of them) (Hayes, Strosahl, & Wilson, 2012; Harris, 2009).

The primary goal of ACT is to enhance flexibility by fostering these processes using contextual and experiential change strategies (Hayes et al., 2006). A substantial evidence-base now exists demonstrating ACT’s effectiveness for a wide variety of problems (see reviews by A-tjak et al., 2015; Öst, 2014, 2008; Ruiz, 2012). As interest in ACT grows, the flexibility model is increasingly used to maximise well-being and performance in working populations, where it is usually referred to as ACT training (Bond et al., 2011). Flexibility has been found to correlate with, and longitudinally predict, a range of occupational outcomes, including work-related stress, job performance, job satisfaction, and work-related learning (Bond, Lloyd, & Guenole, 2013; Bond & Flaxman, 2006; Bond & Bunce, 2003).

1.3. Conceptualising flexibility in professional helping

In the context of professional helping, the six component processes of flexibility can be conceptualised as involving: 1) an awareness of one’s private experiences in the present moment when working with clients; 2) defusion from thoughts relating to oneself and clients, so such thoughts are not experienced as literally true; 3) willingness to have unwanted inner events, rather than engaging in avoidance; 4) relating to oneself and clients as distinct from thoughts and feelings about self/ client; 5) clarifying patterns of activity in service of the value of helping clients; and 6) committing to these valued actions even when uncomfortable thoughts and feelings make this difficult. Based on this conceptualisation, it is proposed that HPs with higher levels of flexibility should be more able (and more likely) to take actions consistent with their helping role, despite the emotional and cognitive challenges this may present. They should therefore be less likely to cope with challenges using avoidance and, as a result, less vulnerable to stress and more effective in their work. There are several theoretical reasons to assume that enhanced flexibility may also facilitate specific professional skills associated with successful helping relationships. Because flexible HPs may be more willing

to have unpleasant thoughts and emotions that can arise in the therapeutic context (e.g. those occasioned by encountering a client in pain), they may therefore be more open to the client's perspective and to feelings of empathy. By remaining present with a client, rather than investing attentional resources in avoidance, their sensitivity to their client's needs is likely to be greater and, due to their commitment to valued-action, they are more likely to take effective action.

Although preliminary in nature, some empirical data already exists in support of the above propositions. Several correlational studies have identified a relationship between burnout symptoms and flexibility processes in helping professionals (Kurz et al., 2014; Noone & Hastings, 2011; McCracken & Yang, 2008). Promising evidence has also emerged from ACT training outcome studies, including reduced burnout (MacConachie et al., 2014; Noone & Hastings, 2010, 2009; Bethay et al., 2012; Brinkborg et al., 2011; Hayes et al., 2004), less professional self-doubt, greater self-compassion, a stronger bond with clients (Pakenham, 2015; Luoma & Vilardaga, 2013; Stafford-Brown & Pakenham, 2012), and increased willingness to use evidence-based treatments (Varra et al., 2008; Luoma et al., 2007). However, it is important to note that only four of these outcome studies directly examined flexibility as a mediator of training gains and only two found significant effects (Stafford-Brown & Pakenham, 2012; Varra et al., 2008). The authors highlighted methodological weakness as a possible explanation, noting that general measures of flexibility may not be sensitive enough to detect meaningful change in domain specific variables/ problem-specific areas (MacConachie et al., 2014; Brinkborg et al., 2011).

1.4. Measuring psychological flexibility

Two measures of general flexibility within adult populations are currently available: The Acceptance and Action Questionnaire (AAQ-II; Bond et al.2011, AAQ; Hayes et al., 2004) and the more recently developed Comprehensive Assessment of ACT Processes (CompACT; Francis et al., 2016). Although both measures are well-validated and have demonstrated

correlations with many indicators of psychological health (Francis et al., 2016; Bond et al., 2011; Hayes et al., 2004), the theory underpinning flexibility suggests that measures of flexibility tailored to the area under investigation may be more sensitive and offer greater predictive utility (Hayes et al., 2004). Indeed, several studies have shown that domain-specific measures of flexibility are more predictive of change within their respective areas than general measures, including the Work-related Acceptance and Action Questionnaire (WAAQ; Bond, Lloyd, & Guenole, 2013), Chronic Pain Acceptance Questionnaire (CPAQ; McCracken & Zhao-O'Brien, 2010), and the AAQ-Substance Abuse (Luoma et al., 2011).

1.5. The current research

To the authors' knowledge, there are no measures which specifically address flexibility in the context of professional helping. Given: 1) the importance of understanding underlying psychological processes that may impact on HP functioning; 2) the emerging evidence for the relevance of flexibility; and 3) that further investigation may be hindered by the lack of adequate assessment instruments, the current research aimed to develop and psychometrically evaluate a new measure of flexibility in professional helping, called the Mindful Healthcare Scale (MHS). The measure development process involved two studies. In Study One, a sample of HPs was used to explore the factor structure of the MHS, refine the scale, and assess its reliability. Study Two used a second sample of HPs to confirm the factor structure of the MHS, re-assess its reliability, and examine its convergent validity in relation to other measures. In accordance with the flexibility model (Hayes, Wilson, & Strosahl, 2012), it was hypothesised that the items of the MHS would be represented by a factor structure that linked the items to the six component processes of the construct. In addition, it was hypothesised that a one factor model would fit the data well. The MHS was expected to positively correlate with a measure of general flexibility as well as a measure of empathy and self-compassion, and to negatively correlate with a measure of burnout (such that higher flexibility would relate to lower burnout).

Ethical approval for this study was obtained from the Department of Clinical and Health Psychology Ethics Research Panel at the University of Edinburgh.

2. Study One: Initial Scale Development and Exploratory Factor Analysis

2.1. Item Generation

An initial pool of 154 items was generated by the study authors based on a review of the theory underlying the construct of flexibility (Hayes, Strosahl, & Wilson, 2012) and previous research pertaining to domain specific measures of this construct (see *Appendix D* for initial item pool). An operational definition of flexibility as it manifests in the context of professional helping was developed to include each of the construct's six component processes (see section 1.3 for details). As recommended by the literature, the authors generated an overly-inclusive initial item pool to ensure all aspects of the target construct were well-represented and could be adequately assessed (Clark & Watson, 1995; DeVellis, 2012). Each item was structured as a declarative sentence and phrased in as simple and concrete terms as possible. The direction of item wording was alternated to reduce the impact of response sets (DeVellis, 2012). A Likert-Scale (Likert, 1932) response format was selected for the scale due to its ease of use for participants, suitability for coding and statistical analysis, and generally good reliability (Baron, 1996; Nunnally & Bernstein 1994). Items were scored on a 6-point Likert Scale denoting varying degrees of endorsement, from 1 ("never true") to 6 ("always true"). Higher scores indicated higher levels of participant flexibility in the context of professional helping and thus some items were intended to be reverse scored.

2.2. Review by ACT Experts

The content validity of the initial item pool (154 items) was assessed by ACT experts. This method is recommended by the literature on scale development (DeVellis, 2012; Clark & Watson, 1995) and has been used in previous research on domain specific measures of flexibility (e.g. Bond, Lloyd, & Guenole, 2013; Luoma et al., 2011). Members of the Peer Reviewed Trainers Community of the Association for Contextual Behavioural Science

(ACBS) were contacted via email and invited to participate. The Peer Review is the association's mark of a person who is competent to train others in the delivery of ACT with high fidelity and high quality. Of the ten experts contacted, eight agreed to participate and were provided with a link to an online survey containing the initial item pool. Experts were asked to rate each item according to how well it represented its corresponding component process on a four-point Likert Scale ranging from "not at all representative" (1) to "highly representative" (4). They were also invited to provide feedback on item quality (e.g. socio-cultural bias, ambiguity, readability) and to contribute additional or alternative items.

Individual item ratings of representativeness were entered into an Excel spread sheet and their frequencies, means, and modes were examined. Items with a modal rating of four, indicating that the majority of the panel rated the item as highly representative, were retained (96 items). Items rated as "not at all representative" by more than one member of the panel were also removed (12 items). The remaining 84 items were then grouped according to their corresponding component process and, within each grouping, ranked from highest to lowest modal rating. The first eight items (with the highest modal ratings) in each group were retained, leaving a total of 48 items. The qualitative feedback from the panel was then explored and 12 items were reworded to improve their clarity and readability. Finally, in order to maintain a balance of positively and negatively worded items within each grouping, the direction of one item's wording was changed. The first version of the MHS (MHS-V.1) thus included 48 items (24 flexibility items and 24 inflexibility items).

2.3. Scale Refinement

2.3.1. Sampling

Helping professionals were targeted for recruitment via advertisements on social media platforms (Facebook.com and Twitter.com) and helping professional-orientated electronic mailing lists including the Association for Contextual Behavioural Science (ACBS) listservs and Nursing Studies within the School of Health and Social Science at the University of

Edinburgh listserv. Individuals were eligible for inclusion if they were helping professionals, defined as having worked directly in a therapeutic capacity with clients (e.g. service users, patients) during the past 5 years. They were also required to be adults (age 18 or over) with a good understanding of written English. Eligibility was determined by self-assessment. Participation involved completing an anonymous online survey comprised of the MHS V.1 (see *Table B.1* for a list of the 48 items) and a five-item demographic questionnaire. The latter was created by the study authors to obtain basic information on participant age, sex, occupation, education, and previous exposure to ACT training.

2.3.2. Participants

Study One used a sample of 480 participants (Sample 1). The sample was 81.5% female, with a mean age of 39.5 years ($SD = 9.5$, range 18-75), and included qualified psychologists (57%), psychotherapists and counsellors (10%), nurses (9%), trainee or assistant psychologists (7%), doctors (4%) and support workers (3%). The remaining 11% included speech and language therapists, physiotherapists, dieticians, occupational therapists, social workers, health coaches, advocates, alternative therapists, academics, and educators. Thirty-four percent of the sample had received more than two days of ACT training, 37% had received two days or less, and 29% had received none.

2.3.3. Analytic Plan: Initial Validation

The purpose of Study One analysis was to determine the number of factors (or latent variables) underlying the MHS, reduce the number of items into a more coherent scale, and then assess the scale's reliability. Although the authors had an a priori hypothesis regarding the factor structure of the scale, the factors were estimated using exploratory factor analysis (EFA). Decisions on which factors to retain were based on the results of parallel analysis (PA; Horn, 1965), and the minimum averaged partial test (MAP test; Velicer, 1974). The PA and the MAP test usually lead to the same decisions on factor retention; though current guidelines recommend using both as results are not always identical (O'Connor, 2000, p. 398). Factors

were retained on the basis of eigenvalues, which indicate the amount of variance accounted for by a factor (Russell, 2000). Factors with eigenvalues that exceeded randomly generated eigenvalues ($p < .05$) (Horn, 1964) and were greater than 1.0 (Thurstone, 1975) were retained.

Decisions on which items to retain were based on factor loadings, which indicate how much each item maps onto each of the underlying factors (Nunnally & Bernstein, 1994). Increasingly stringent criteria for factor loadings were used in iterative steps to exclude items and increase the distinctiveness of factors. Once potential scales were identified, reliability analysis was conducted for the full scale and subscales using Cronbach's coefficient alpha as a measure of internal consistency.

Prior to EFA, a series of analyses were conducted to prepare the dataset and assess its suitability for factor analysis. First, data was screened at an individual item level for missing data amounts and patterns using visual inspection. Missing data was handled according to recommendations by Elders (2011), who outlines procedures for different patterns of missing data (data missing completely at random, missing at random, or not missing at random). Second, item distributions were examined by inspecting histograms and frequency tables to check that each item was responded to with the full range of the response format, and that responses were normally distributed. Using Tabacknick and Fidell's (2007) criteria as a guide, items with excess skewness and/ or kurtosis ($r > 2.0$) were removed. Third, item-total correlations were used to evaluate how well each of the items correlated with all the other items. Items with low item-total correlations were excluded. Finally, the remaining items were subjected to the Kaiser-Meyer-Olkin (KMO; Kaiser, 1974) test of sampling adequacy and Bartlett's test of sphericity to assess whether the correlations among the items were good enough to proceed with factor analysis. Data were analysed using IBM SPSS Statistics Version 24 (IBM, 2016).

2.4. Study One Results

2.4.1 Initial Analyses

Visual inspection of missing items revealed that one participant had omitted two items. No discernible pattern could be seen regarding those missing items. In line with Elder's (2011) recommendations for data missing at random, no participants were excluded from the dataset ($n = 480$) and the aforementioned participant had two items prorated using their mean MHS-V.1. score (Hawthorne & Elliot, 2005). Twelve items were identified with excess skewness and/ or kurtosis based on Tabacknick and Fidell's (2007) criteria ($r > 2.0$). To ensure each of flexibility's component processes were adequately represented in factor analysis, it was decided to retain 7 of these items with skewness less than 2.0 and kurtosis less than 5.1. This decision was based on the hypothesis that the sample was more flexible than the general population of helping professionals as 71% had previous exposure to ACT training. Using Nunnally & Bernstein's (1994) threshold for item-total correlations ($r < .30$), 11 items were removed. The KMO index for the remaining 32 items was .89 and Bartlett's test of sphericity was significant ($\chi^2 = 5237.33$, $df = 561$, $p < .001$), indicating that the data were suitable for factor analysis.

2.4.2. Exploratory Factor Analysis

In the first round of EFA using an oblique rotation method (Russell, 2000), no specification was made for the number of factors to be estimated. Based on PA and the MAP test, five factors were estimated. Examination of the factors found that the fifth factor was extremely small (2 items) and had an eigenvalue of 0.52 (2.6% variance explained). The same procedures were therefore re-run, this time specifying four factors to be estimated. Results indicated that the fourth factor had an eigenvalue of 0.97 (3.2% variance explained). As neither a five-factor or four-factor solution was interpretable, the same procedures were repeated specifying a three factors to be estimated. The first factor had an eigenvalue of 6.19 (20.6% variance explained), the second had an eigenvalue of 2.235 (7.4% variance explained), and the third had an

eigenvalue of 1.23 (4.1% variance explained). It was thus decided to retain a three-factor measurement model.

2.4.3. Item Analysis

In order to determine which items to retain on each of the three factors, four iterations of EFA were conducted on the remaining 32 items. Increasingly stringent criteria for factor loadings were used to exclude items (Nunnally & Bernstein, 1994). On the first run, three items were removed based on poor loadings (< 0.34) on any of the three factors or high cross loadings (> 0.3) on more than one factor. On the second run, one item was removed due to high cross loading (> 0.3). On the third run, two items were removed based on poor loadings (< 0.36). On the fourth and final round, four items were removed with factor loadings less than 0.36. The second version of the MHS (MHS-V.2) thus contained 22 items, which are highlighted in bold in *Table B.1*.

The KMO index for the MHS-V.2 was good (.85) and Bartlett's test of sphericity was significant ($\chi^2 = 2835.30$, $df = 231$, $p < .001$). The first factor had an eigenvalue of 5.00, accounting for 22.7% of the variance, the second factor had an eigenvalue of 2.59, accounting for 11.8% of the variance, and the third factor had an eigenvalue of 1.90, accounting for 8.65% of the variance. Based on item content, this three-factor solution was interpretable as a "defusion" subscale (factor one, 5 items), an "awareness" subscale (factor two, 9 items), and an "engaged" subscale (factor three, 8 items).

2.4.4. Reliability

Cronbach's coefficient alpha (α) for all 22 items on the MHS-V.2 was .74, indicating acceptable internal consistency (DeVellis, 2003). Internal consistencies for each of the subscales was .78 (defusion), .73 (awareness), and .79 (engaged), indicating that they were also acceptable.

Table B.1. MHS Version 1 items and factor loadings

| Item | Factor 1 Loading | Factor 2 Loading | Factor 3 Loading |
|--|------------------|------------------|------------------|
| 1. I pay close attention to what my client is saying and doing. | .347 | | |
| 2. It is harmful to have negative thoughts about a client. | | | .710 |
| 3. I am reluctant to try new things with clients | - | - | - |
| 4. Even if I feel frustrated with a client, I can still help them. | - | - | - |
| 5. I know what I value in my work with clients. | | .628 | |
| 6. It is normal to have doubts about my ability to help. | | | -.487 |
| 7. I avoid discussing topics with my clients that I find uncomfortable. | -.417 | | |
| 8. When with clients, I notice my feelings without getting lost in them. | - | - | - |
| 9. My beliefs about myself get in the way of my therapeutic work. | - | - | - |
| 10. I feel little sense of purpose in my job. | | -.434 | |
| 11. I avoid trying new techniques with my clients. | - | - | - |
| 12. Even when I doubt myself, I do something to help my clients. | | .358 | |
| 13. I care about doing good work with clients. | - | - | - |
| 14. I identify so much with my professional role that I find it hard to feel off duty. | - | - | - |
| 15. I find it difficult to notice my own feelings when working with clients. | - | - | - |
| 16. My judgements about a client do not get in the way of me relating to them. | | | |
| 17. I am OK with having unpleasant thoughts and feelings when working with clients. | | | -.541 |
| 18. I do the things that need to be done to help my clients, even if it is difficult for me. | .323 | .310 | |
| 19. I tend to operate on “automatic pilot” when working with clients, not fully involved in what I am doing in the moment. | -.373 | | |
| 20. My perspective on life has not changed much as a result of my work with clients. | | -.327 | |
| 21. When with clients, I notice my thoughts and feelings without having to react to them. | .448 | | |
| 22. I don’t get much from my role as a helping professional. | | -.684 | |
| 23. I get caught up in trying to “rescue” or being overprotective of my clients. | | 3.55 | |
| 24. When working with clients, I pay attention to what is occurring in the moment between us. | .450 | | |
| 25. I find it hard to get negative thoughts about my clients out of my mind. | -.399 | | |
| 26. I cannot bear feeling lost or stuck in my therapeutic work. | - | - | - |
| 27. I know what motivates me in my work with clients. | | .630 | |
| 28. I am able to confront difficult situations that arise in my work with clients. | .420 | | |
| 29. Even with clients who are quite different from me, I can still see their perspective. | - | - | - |

| | | | |
|---|-------|-------|------|
| 30. I find it hard to stay focused on what my client is saying. | - | - | - |
| 31. If I have a bad day at work, I can step back and see the bigger picture. | .511 | | |
| 32. I don't let my worries stop me from doing what is important for my clients. | - | - | - |
| 33. My attention tends to wander unhelpfully when working with clients. | -.422 | | |
| 34. My job feels like something I "should" do, rather than something I "want" to do. | | -.584 | |
| 35. Worries about my abilities as a helping professional get in the way of my work. | -.540 | | |
| 36. I am able to be fully in the moment with clients. | - | - | - |
| 37. It is important to me to try and make a difference for my clients. | | .625 | |
| 38. Even if I have pessimistic thoughts about my client's situation, I can keep trying to help them. | | .466 | |
| 39. I get very entangled in my client's life stories. | | -.592 | |
| 40. I am willing to try new interventions, even if I feel less confident. | .332 | .304 | |
| 41. If an unpleasant thought about a client comes into my head, I try to get rid of it. | | | .778 |
| 42. Even if it might help in the long term, I avoid doing anything with my client that might upset them. | - | - | - |
| 43. I am able to move on from negative thoughts about my therapeutic work. | .480 | | |
| 44. I don't really care that much about my work, I just do it because it is what I do. | - | - | - |
| 45. I try hard to avoid negative thoughts about my therapeutic work. | | | .681 |
| 46. My judgements about my abilities as a helping professional are true. | - | - | - |
| 47. Even if I am unsure what will help, I am willing to try something. | | .452 | |
| 48. My professional identity does not define the whole of me. | .382 | | |

***Note:** Factor loadings below 0.3 were suppressed for clarity. Items 3, 4, 8, 11, 14, 15, 26, 29, 32, 36, and 46 were excluded based on low ($r < .30$) item-total correlations. Items 9, 13, 30, 42, and 44 were excluded based on excess skewness and kurtosis (> 2.0). Items retained for MHS-V.2 are highlighted in bold.

3. Study Two: Confirmatory Factor Analysis and Construct Validity

3.1. Sampling

Helping professionals were targeted for recruitment using the same procedures as in Study One (see section 2.3.1). Participation involved completing an anonymous online survey comprised of the MHS Version 2 (MHS-V.2; 22 items), the same five-item demographic questionnaire used in Study One, and four other measures related to psychological flexibility and professional helping as outlined in section 3.3. The same inclusion criteria were applied as in Study One (see section 2.3.2.). An additional criterion was applied to exclude individuals who had previously participated in Study One. Eligibility was again determined by self-assessment.

3.2. Participants

Study Two used a sample of 196 participants (Sample 2). The sample was 78.6% female, with a mean age of 41.2 years ($SD = 10.7$, range 22-71), and included qualified psychologists (61%), psychotherapists and counsellors (12%), trainee or assistant psychologists (9%), doctors (5%), and nurses (3%). The remaining 10% included support workers, paramedics, midwives, physiotherapists, social workers, academics, educators, advocates, and alternative therapists. Fifty-one percent had received more than two days of ACT training, 37% had received two days or less, and 12% had received none.

3.3. Measures

3.3.1. The Comprehensive Assessment of ACT Processes (CompACT)

The CompACT (Francis et al., 2016) is a 23-item self-report measure of general psychological flexibility comprised of three subscales: Openness to Experience (OE; higher scores indicating greater willingness to experience internal events without trying to control them, Behavioural Awareness (BA; higher scores indicate greater mindful attention to current actions), and Valued Action (VA; higher scores indicate greater engagement in meaningful activity). Responses are given on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The CompACT has demonstrated good internal consistency and convergent validity in a non-

clinical sample of adults (Francis et al., 2016). In the current sample, the CompACT had an α = .92 for the full scale and .87, .86, and .87 for the OE, BA, and VA subscales respectively.

3.3.2. Interpersonal Reactivity Index (IRI)

The IRI (Davis, 1980) is a 28-item self-report measure of empathy comprised of four subscales: Perspective Taking (PT; higher scores indicate higher tendency to adopt the psychological perspective of others), Empathic Concern (EC; higher scores indicate greater tendency to feel concern for others in distress), Fantasy (FS; higher scores indicate higher tendency to emotionally identify with fictional characters in books, films etc.), and Personal Distress (PD; higher scores indicate a greater tendency to let negative emotions that arise in response to other's distress get in the way of effective helping). An example of an item from the PD subscale is "I tend to lose control during emergencies". Responses are given on a 5-point scale ranging from 1 (does not describe me well) to 5 (describes me very well). The current study examined the four subscales separately due to previous findings indicating that a combined total score is less meaningful (Albiero et al., 2006; Eisenberg & Fabes, 1990; Davis, 1983). The IRI has demonstrated good intra-scale and test-retest reliability and adequate convergent validity in samples of college students (Davis, 1983; 1980). In the current sample, the IRI subscales had an α of .69 (PT), .66 (EC), .72 (FS), and .74 (PD).

3.3.3. Self-Compassion Scale – Short Form (SCS-SF)

The SCS-SF (Raes et al., 2011) is a 12-items self-report measure of self-compassion that assesses how respondents typically act towards themselves in times of difficulty. Responses were given on a 5-point point scale from 1 (almost never) to 5 (almost always) with higher scores indicating higher levels of self-compassion. The SCS-SF is a shorter version of the 26-item Self-Compassion Scale (Neff, 2003) and has the same factor structure (Raes et al., 2011) corresponding to six subscale mean scores and a global self-compassion mean score. It has demonstrated adequate reliability and validity for total scores in two sample of college students; though the internal consistencies for some of the subscales were relatively low

(ranging between .54 and .75) (Raes et al., 2011). The current study therefore examined only the global self-compassion mean score which, in the current sample, had an α of .89

3.3.4. Oldenburg Burnout Inventory (OBI)

The OBI (Demerouti et al., 2003) is a 16-item self-report measure of burnout comprised of two subscales: Exhaustion, (higher scores indicate experiencing higher negative consequences of intense physical, emotional, and cognitive strain) and Disengagement (higher scores indicating greater detachment from one's work). Responses are given on 5-point scale from 1 (strongly disagree) to 5 (strongly agree). As recommended by the authors, subscale scores and a total scale score (overall burnout) were generated. The OBI has demonstrated good convergent validity with the more popular Maslach Burnout Inventory (MBI; Maslach et al. 1996) and has shown adequate reliability and validity across several occupational groups (Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Demerouti et al., 2003). In the current sample, the OBI had an α .86 for overall burnout, .84 for exhaustion, and .70 for disengagement.

3.4 Analytic Plan

The purpose of Study Two analysis was to confirm the hypothesised factor structure of the MHS V.2 in a second sample of helping professionals and to test its construct validity. Based on ACT theory and the results of Study One, flexibility in the context of professional helping could have three possible factor structures, including: three correlated factors as identified in EFA (model 1); a hierarchical structure consisting of three primary factors and a higher order factor representing overall flexible helping (model 2); or a one factor representing overall flexible helping (model 3). Each of these models were tested using confirmatory factor analysis (CFA). Data screening, handling of missing data, and reliability analysis followed the same procedures as in Study One (see section 2.3.3.). Data were analysed using R Version 3.3.3 (R Foundation for Statistical Computing, 2017).

The fit of the three measurement models was analysed using covariance matrices. The maximum likelihood estimation was used to assess the fit of the models. As the chi-square (χ^2)

statistic is highly sensitive to sample size, and can thus overestimate a model's degree of misfit (Bollen, 1989), five additional fit indices were examined. These including the normed chi-square (NC), which is calculated by dividing the chi-square value by the degrees of freedom (χ^2/df), the comparative fit index (CFI), the iterative fit index (IFI), the root-mean-square error of approximation (RMSEA), and the standardized-root-mean-square residual (SRMR) (Bollen, 1989; Hu & Bentler, 1998; Jackson, Gillaspay, & Purc-Stephenson, 2009).

The following criteria indicating good model fit were applied; a non-significant chi-square ($p < .05$), a value of 3 or less for the NC (Bollen, 1989), a CFI and IFI value of greater than .95 (Hu & Bentler, 1998), a RMSEA value of less than .06 (Hu & Bentler, 1998), and SRMR value of less than .05 (Byrne, 2013; Diamantopoulos & Sigauw, 2000). Modification indices, which indicate potentially useful revisions to the model (Furr & Bacharach, 2014), were also considered by re-specifying the model with correlated errors between items in each of the primary factors and re-examining the fit indices. Once a model fit was established, three iterations of CFA were conducted to remove items which had poor loadings and did not contribute to the reliability of the full scale and subscales. Pearson correlations were then used to assess the relationships between the MHS and established measures of general flexibility (CompACT), self-compassion (SCS-SF), burnout (OBI), general empathy (IRI), and personal distress (IRI-PD).

3.5. Study Two Results

3.5.1. Data Screening

Sample two had no missing data ($n = 196$). There were no items with excess skewness ($r > 2.0$). Seven items were identified with excess kurtosis (< 3.75), suggesting participants were more likely to positively endorse flexibility in professional helping. Given that 88% of participants had previous exposure to ACT training, it was hypothesised that sample two was more flexible than the general population of helping professionals and therefore all seven of these items were retained.

3.5.2. Confirmatory Factor Analysis

The hierarchical factor structure (model 2) emerged as the best fit to Sample Two data. The results of CFA with model one and model three are not reported here but are available by request from the authors. The results of CFA with the hierarchical measurement model are displayed in *Table B.2*. Based on modification indices, the model was specified to include correlated errors between four items in the engagement sub-factor. These correlated errors represent common variance associated with the four items over and above their association with the sub-factor. Nine items that had low factor loadings (<.75) and did not contribute to internal consistency were removed, leaving a total of 13 items in the final version of the MHS (MHS V.3). Cronbach's coefficient alphas for the MHS-V.3 subscales were .74 (engaged), .71 (awareness), and .74 (defusion), indicating acceptable internal consistency. The full scale had an alpha of .79, which was also acceptable. As can be seen from *Table B.2*, the fit indices are all indicative of an excellent model fit. The chi-square statistic was non-significant ($p > .05$), the NC was less than 3, the CFI and IFI are greater than .95, the RMSEA is less than .06, and the SRMR is below .05. Study Two therefore confirms the hierarchical structure of the MHS. *Figure B.1* is a path diagram showing the MHS-V.3 and factor loadings for each of the 13 items. A copy of the final MHS is available in *Appendix E*.

Table B.2. Confirmatory factor analysis results for sample 2 ($n = 196$)

| Model | χ^2 | df | p value | NC | CFI | IFI | RMSEA | SRMR |
|---------------------------------|----------|------|-----------|-------|------|------|-------|------|
| Hierarchical Model (model 2) | 71.962 | 59 | .12 | 1.220 | .980 | .980 | .033 | .046 |

* $p < .05$

3.5.3. Construct Validity.

Table B.3 displays the pattern of correlations of the MHS full scale and each of the subscales with other measures of theoretically related constructs. The MHS demonstrated significant correlations with the CompACT in the expected direction, indicating good convergent validity with an established measure of general flexibility. With regards to concurrent validity, the

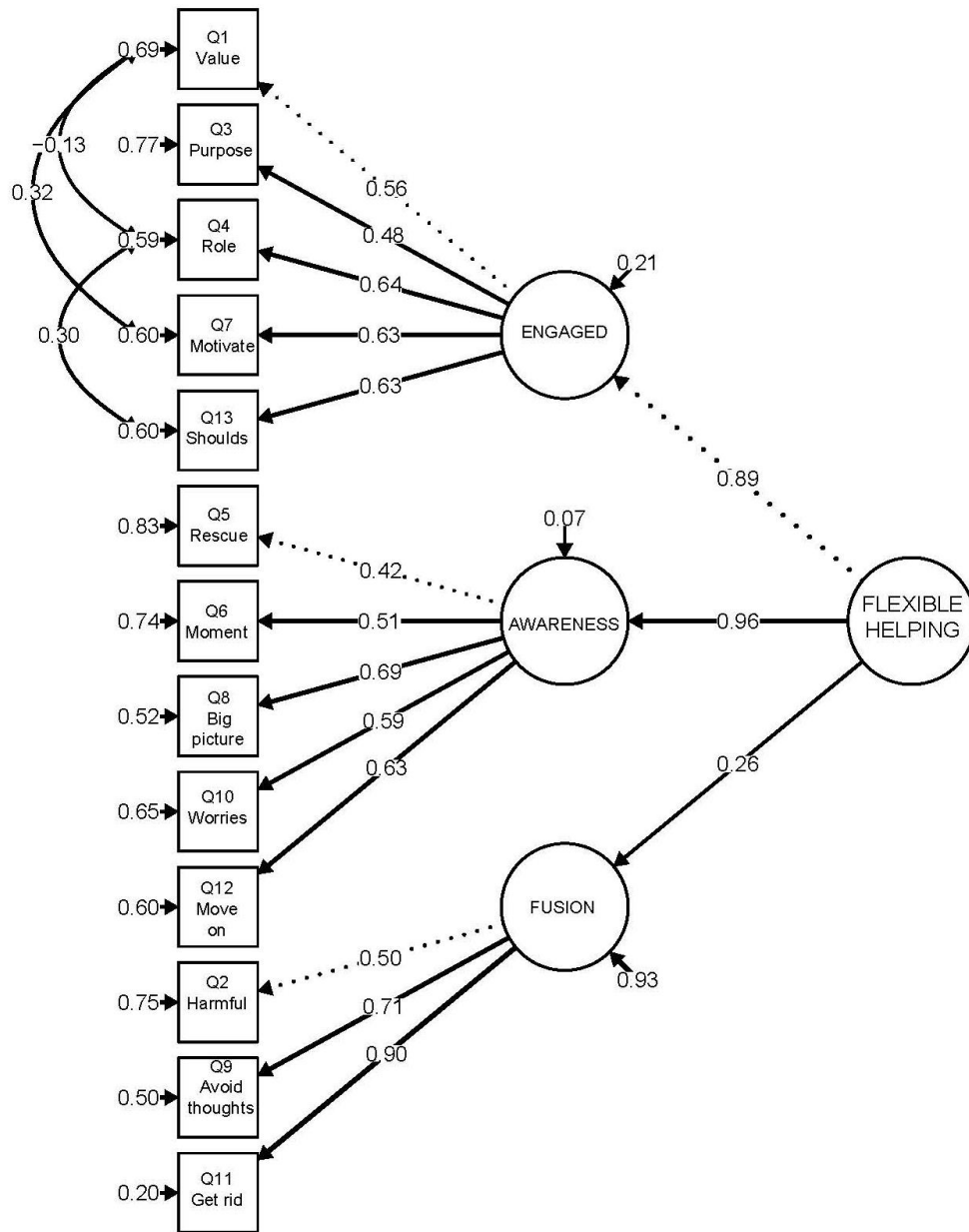
MHS showed significant correlations in the expected directions with the SCS-SF (self-compassion), the OBI (burnout), and the ‘perspective taking’ and ‘personal distress’ subscales of the IRI (empathy).

Table B.3. Correlations between MHS and other constructs in sample 2 ($n = 196$)

| Measure | Correlation (r) with the MHS | | | |
|---|----------------------------------|------------------|--------------------|-------------------|
| | Flexible Helping Scale | Engaged Subscale | Awareness Subscale | Defusion Subscale |
| Comprehensive Assessment of ACT Processes | | | | |
| Overall Flexibility Scale | .68** | .57** | .59** | .32** |
| Openness to Experience Subscale | .62** | .45** | .51** | .41** |
| Behavioural Awareness Subscale | .54** | .47** | .53** | .17** |
| Valued Action Subscale | .54** | .54** | .45** | .16* |
| Interpersonal Reactivity Index (IRI) | | | | |
| Perspective Taking Subscale | .16* | .14* | .10 | .10 |
| Empathic Concern Subscale | .06 | .20** | -.06 | -.01 |
| Fantasy Subscale | -.10 | -.06 | -.24 | .08 |
| Personal Distress | -.52** | -.38** | -.53** | -.23** |
| Self-Compassions Scale - Short Form (SCS-SF) | | | | |
| | .58** | .43** | .53** | .30** |
| Oldenburg Burnout Inventory (OBI) | | | | |
| Total Scale | -.62** | -.66** | -.50** | -.15* |
| Exhaustion Subscale | -.57** | -.56** | -.47** | -.17** |
| Disengagement Subscale | -.54** | -.65** | -.40** | -.81** |

*Correlation is significant at the 0.05 level (1-tailed). ** Correlation is significant at the 0.01 level (1-tailed)

Figure B.1. Path Diagram of the final version of the MHS, including factor loading for each item



***Note:** Item scores were re-keyed (higher scores = higher flexibility), resulting in positive values for item factor loadings.

4. General Discussion

The current research sought to develop and psychometrically assess a measure of flexibility in relation to professional helping called the Mindful Healthcare Scale (MHS). Results across two samples of HPs (n = 676) suggest that the MHS is a psychometrically sound and theoretically valid instrument. Given the growing body of evidence indicating that flexibility may have an important role in the wellbeing and occupational functioning of HPs, it is hoped that this new measure will have considerable utility in furthering our understanding of the psychological processes underpinning both the development of adverse stress reactions in HPs and professional skills associated with successful helping relationships.

4.1. MHS measurement model

Although an initial pool of items was generated by applying the six component processes of flexibility to the context of professional helping, a hierarchical measurement model containing three primary factors and a higher order factor emerged from exploratory and confirmatory factor analysis. This factor structure is consistent with the more recent ‘Triflex’ model that conceptualises flexibility as involving three response styles (openness, centred, and engagement) (Hayes, Strosahl, & Wilson, 2012). The three primary factors of the MHS conceptually correspond to these response styles; though were re-labelled to more accurately reflect item content. They include: 1) “defusion”, which involves separating from thoughts about oneself and clients so they are not taken literally and a willingness to have unwanted thoughts about self/ clients, rather than engaging in avoidance; 2) “awareness”, which involves conscious attention to the present moment when working with clients and relating to oneself and clients as distinct from thoughts and feelings about them; and 3) “engaged”, which involves clarifying valued activities in service of clients and committed action in service of these values even when uncomfortable thoughts and feelings make this difficult. The higher order factor representing overall flexible helping is consistent with, and adds further weight to, the conceptualisation of flexibility as unified model consisting of inter-linked common core

processes (Hayes, Strosahl, & Wilson, 2012). Importantly, the four factors of the MHS demonstrated good internal consistency in both samples ($n = 676$).

4.2. Convergent validity

The hypothesis that the MHS would be associated with theoretically-related variables was supported by the strong correlation between flexible helping and general flexibility, as measured by the CompACT. Interestingly, the CompACT's factor structure is also consistent with the Triflex model of flexibility and this allowed for a more in-depth examining of relationships between the two measure's subscales. Results were encouraging, with each MHS subscale demonstrating its single highest correlation with a conceptually corresponding subscale of the CompACT. These findings suggest both measures are tapping into similar constructs and provide strong support for the convergent validity of the MHS.

4.3. Concurrent Validity

Examining the patterns of correlations with other measures related to the wellbeing and occupational functioning of HPs, the largest associations were found between the MHS and the OBI, a measure of burnout syndrome. This finding suggests that higher levels of flexibility in HPs are strongly related to lower levels of burnout, which is consistent with the results of previous correlational studies (Kurz et al., 2014; Noone & Hastings, 2011; McCracken & Yang, 2008) and adds weight to the proposition that flexibility is a key factor underlying adverse stress reactions to the demands of professional helping. Importantly, we do not know the direction of this relationship and it is possible that adverse work stress leads to lower flexibility, or that a third variable influences them both. A strong association was also found between higher levels of flexible helping and self-compassion (SCS-SF) in line with previous research showing that ACT training, which aims to enhance flexibility, increases self-compassion in HPs (Pakenham, 2015; Stafford-Brown & Pakenham, 2012).

Finally, the full scale of the MHS demonstrated a positive correlation with the 'perspective taking' subscale of the IRI and a negative correlation with the "personal distress" subscale.

This suggests that HPs with higher levels of flexible helping are more empathic, defined by these subscales as having a greater tendency to adopt the psychological perspective of others and having less of a tendency to let negative emotions get in the way of effective helping. This is a particularly promising finding given the authors' proposition that flexible HPs would be more likely to be open to the client's perspective and more able to take actions consistent with their helping role even when uncomfortable thoughts and feelings make this difficult. Interestingly, only the "engaged" subscale of the MHS was associated with "empathic concern" subscale and none of the MHS scales had a relationship with the 'fantasy' subscale. None of the MHS items directly reflect the tendency to feel concern for others or indeed, identification with fictional characters. It is therefore possible that the MHS does not tap into some aspects of empathy and it would be useful to examine this further using an alternative measure, such as the Empathy Scale (Hogan, 1969). Taken together, the relationship between flexible helping and measures of burnout, self-compassion, and empathy provide substantial support for concurrent validity.

4.4. Methodological Limitations

It is important to note that the current research is the first to assess the psychometric properties of the MHS and the results must therefore be considered preliminary in nature. Further investigation is needed to evaluate whether the MHS represents a psychometrically robust measure. In particular, this research did not examine the incremental validity of the MHS and thus it remains to be seen whether this new measure is more sensitive than existing measures of general flexibility. Moreover, the data was not subjected to experimental manipulation and thus the causality of the observed relations cannot be determined. It is also possible that the MHS performs differently in the intervention context and its sensitivity to ACT training and other contextual CBTs designed to enhance flexibility would therefore need to be a key focus for future research. A high percentage (76%) of both samples studied had previous exposure to ACT training. Both samples also had a high ratio of females to males. Thus, the results

require replication in samples more representative of the HP population's training experience and sex ratio. Finally, further samples would need to be recruited in order to assess the test-retest reliability of the MHS, which has not yet been established.

4.5. Conclusions

The current research has produced a promising new measure of flexibility in relation to professional helping that has a stable and theoretically-coherent factor structure, acceptable internal consistency, and strong construct validity with predicted variables. As such, it has a range of potential uses. For example, it is likely to have considerable research utility in understanding the mechanisms through which the demands of professional helping result in negative mental and physical health outcomes and in furthering knowledge of the psychological processes underpinning positive therapeutic skills and attributes. It is also likely to have applied utility, particularly in relation to ACT training for HPs, where it can be used to measure the impact of various protocols on trainee flexibility and can provide useful information on changes in the component processes of flexibility. This would allow trainers to tailor protocols to maximise intervention gains and indeed, to target specific processes for improvement and track progress. The face validity, brevity, and accessible language of the MHS mean it can be used with ease across multiple disciplines, including those from a non-mental health background.

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Appendix A: Systematic Review Protocol

Review Title:

Training people to deliver acceptance and commitment therapy (ACT): a systematic review.

Review Team Members:

Gillian Kidney, NHS Grampian (Lead Researcher)

Lene Forrester, NHS Grampian

Kirsty Banks, NHS Grampian

David Gillanders, University of Edinburgh.

Organisational affiliation of the review:

University of Edinburgh and NHS Grampian

Review Question:

To investigate the methods, content, and outcomes of ACT training in order to identify future research needs in this area.

Search Strategy:

Sources and search dates

- MEDLINE (1946 – January 2017, OVID Interface)
- EMBASE (1974 – January 2017, OVID Interface)
- AMED (1985 – January 2017, OVID Interface)
- PsycINFO (1806 – January 2017, EBSCO Interface)
- The Association for Contextual Behavioural Science (ACBS) website (January 2017)
- Manual search of reference lists of included studies.
- Manual search of all published randomised controlled trials (up to January 2017) related to ACT for evidence of training evaluations.
- Contact with prominent authors in the field to ensure no recently published papers are missed.

Restrictions

- Publication period up to January 2017.
- Papers published in English Language.

Search Terms

- Index terms and free-text terms related to “acceptance and commitment therapy” and “training”.

Participants/ Population:

Inclusion Criteria: Participants will be any pre or post-qualified helping professionals.

Exclusion Criteria: Participants under the age of 18 years.

Intervention:

Inclusion Criteria: Any intervention which includes the objective to train helping professionals to deliver ACT-informed interventions.

Exclusion Criteria: Interventions which do not include the objective to train helping professionals to deliver ACT, such as primary interventions for helping professionals (e.g. stress management).

Comparator(s)/ Control:

Inclusion Criteria: Standard training, no training, alternative training, alternative ACT training methods or content, or no comparison or control condition.

Exclusion Criteria: None.

Types of Studies to be Included:

Studies which include at least one quantitative measure of training outcomes.

Context/ Setting of Studies:

Studies conducted in any setting, including non-clinical settings will be eligible for inclusion.

Primary Outcome(s):

Primary outcomes will include the following, identified through quantitative data collection procedures using validated or non-validated assessment tools:

- Learning outcomes: self-reported indicators of change in knowledge, skill, or competency; objective tests of knowledge.
- Adherence and competency: objective indicators of behavioural change (e.g. competency rating forms).
- Clinical outcomes: self-reported or objective indicators of the impact of training on service user health outcomes.
- Occupational outcomes: self-reported or objective indicators of change in helping professional well-being and ACT processes.

Data Extraction (selection and coding):

The first author (GK) will identify and remove duplicate citations from the search, then screen all titles and abstracts for relevance to the review question. Full-text articles of the remaining studies will then be subjected to the above inclusion and exclusion criteria by the first (GK) and last author (DG). Any discrepancies will be resolved through consultation with the second author (LF). Data will be extracted by the first author (GK) using a data extraction form. This form will be developed by the first author based on guidance from the Centre for reviews and Dissemination (CRD, 2008) and Scottish Intercollegiate Guidance Network (SIGN 50, 2011).

Data to be extracted will include details on:

- Participant characteristics
- Study Design
- Setting
- Training format and structure
- Training methods

- Training content
- Outcome measurement
- Learning outcomes
- Adherence and competency outcomes
- Clinical outcomes
- Occupational outcomes (well-being and ACT processes)

Risk of bias (quality assessment):

The quality of included studies will be assessed using criteria developed by the first author (GK) and based on guidance from the CRD (2008) and SIGN (SIGN 50, 2011). To establish the reliability of quality ratings, the first author (GK) will assess all included studies and the second (LF) and third (KB) authors will each independently rate a random selection of 50% of the studies. The ratings of the three authors will then be compared. Any discrepancies will be resolved through discussion among the authors.

Strategy for Data Synthesis:

Scoping searches identified considerable heterogeneity across studies. It is therefore anticipated that the data will not be appropriate for meta-analysis. A narrative synthesis is therefore planned unless sufficient similar studies are found.

Dissemination Plans:

The review will be disseminated as a chapter in the first author's (GK) doctoral project in part fulfilment of the University of Edinburgh Clinical Psychology Training Programme. It will also be submitted for consideration to relevant peer-reviewed journals and for presentation at research conferences. Details of the review will be made available on the ACBS website and a link to the publication will be added to the University of Edinburgh's Department of Clinical and Health Psychology thesis database.

Appendix B: Search strategy used in MEDLINE (January 2017)

Database: Ovid MEDLINE(R) 1946 to Present with Daily Update

- 1 exp "Acceptance and Commitment Therapy"/ (167)
- 2 ((ACT or Acceptance) and Commitment Therapy).ti,ab. (369)
- 3 ((ACT or Acceptance) and Commitment Training).ti,ab. (6)
- 4 exp Education, Graduate/ or exp Education, Professional/ or exp Education, Continuing/
or exp Education, Nonprofessional/ (473272)
- 5 exp Professional Competence/ or exp Education, Professional/ or exp Professional
Practice/ (574126)
- 6 (train* or educat* or supervis* or disseminat* or implement* or competence or teach* or
taught or adopt* or skill* or develop* or provision or provid* or course or workshop or
program* or inservice or profession* or graduate).ti,ab. (6611324)
- 7 1 or 2 or 3 (416)
- 8 4 or 5 or 6 (6962137)
- 9 7 and 8 (256)

Appendix C: Quality Assessment Criteria

1. Representativeness: Were the study participants and setting clearly described? Were differences between participants and those who did not participate analysed to allow for assessment of sample representativeness?

Good (2): Study participants were clearly described. An analysis was conducted of differences between participants and those who did not participate.

Fair (1): Study participants were clearly described. An analysis was not conducted of differences between those who participated and those who did not.

Poor (0): Study participants were insufficiently described and no analysis was conducted of differences between those who participated and those who did not.

2. Comparison/ Control Condition(s): In studies that included a comparison or control condition, were participants randomly allocated?

Good (2): Participants were randomly assigned to study conditions.

Poor (0): Uncontrolled assignment to study conditions or insufficient information to permit judgement.

3. Measurement: Did the study include at least one validated measure of training outcomes?

Good (2): Study included at least one validated measure of training outcomes.

Poor (0): Study did not include any validated measures of training outcomes.

4. Measurement Time-Points: Were the measurement time points appropriate to the domain(s) being assessed?

Good (2): Measurement data was gathered at pre-training and post-training.

Fair (1): Measurement data was gathered at two time-points, but these were not ideal (e.g. post-training and post-treatment).

Poor (0): Measurement data was not gathered at two time-points, or the time-points were inappropriate to the domain being assessed.

5. Follow-up Data: Was follow-up data collected and did this data include at least one of measures used at previous time-points?

Good (2): Follow-up data was collected and at least one of the measures used was the same as at previous time-points.

Fair (1): Follow-up data was collected but different measures were used than those used at previous time-points.

Poor (0): No follow-up data was collected.

6. Training Protocol(s): Were the methods and content of training clearly described?

Good (2): Training methods and content were clearly described

Fair (1): Limited information on training methods and content were provided.

Poor (0): No information on training methods and content were provided.

7. Trainer Details: Was the training and/ or experience of the trainer(s) and, where relevant, others involved, reported?

Good (2): The training and/ or experience of the trainer(s) and other relevant parties were reported.

Fair (1): Limited information on the training and/ or experience of the trainer(s) and other relevant parties were provided.

Poor (0): No information was provided.

8. Adherence to Training Protocol: Did the study include monitoring of trainer adherence to the training protocol?

Good (2): The study employed some form of adherence monitoring (e.g. adherence rating form).

Poor (0): No adherence monitoring was employed or insufficient information to permit judgement.

9. Helping Professional Engagement in Training: Did the study monitor helping professional engagement in training?

Good (2): Data was gathered on helping professional engagement in training (e.g. attendance, completion of training tasks).

Fair (1): Helping professional engagement was monitored but results were not reported (e.g. there were required tasks to be completed).

Poor (0): Study neither referenced nor reported on monitoring of helping professional engagement in training.

10. Attrition: Was participant attrition handled appropriately?

Good (2): Attrition rate was reported. Where retention was less than 80%, this was handled by appropriate statistical adjustment (e.g. intention-to-treat analysis, multiple imputation).

Fair (1): Attrition rate was reported, and was greater than 20%, and not accounted for by appropriate statistical adjustment.

Poor (0): Attrition rates were not reported or insufficient information to permit judgement.

11. Power Calculation: Was a power analysis reported?

Good (2): A power analysis was conducted.

Poor (0): A power analysis was not conducted or insufficient information to permit judgement.

12. Statistical Analysis: Was the sample size appropriate to the statistical analysis and were effect sizes reported where appropriate?

Good (2): The sample size was appropriate to the statistical analysis and effect sizes were reported where appropriate.

Fair (1): The sample size was appropriate to the statistical analysis but effect sizes were not reported where appropriate.

Poor (0): The sample size was inappropriate to the statistical analysis and effect sizes were or were not reported.

Appendix D: Initial Pool of MHS items (154 items)

1) Present Moment Awareness

1. I find it difficult to stay focused on what my client is saying.
2. I tend not to notice my own feelings when interacting with clients.
3. I tend not to notice how I am feeling in the moment when with clients.
4. I tend to operate on "automatic pilot" when working with clients.
5. I find myself just "going through the motions" in my therapeutic work.
6. When interacting with clients, I tend to be preoccupied by thoughts about what I have said and what to say next.
7. I am not fully present with my clients.
8. I find it hard to stay present with my clients.
9. I find it difficult to connect with what my client is experiencing.
10. I tend to drift off into my own thoughts when working with clients.
11. I miss what my client says because I am distracted by my own thoughts.
12. My attention tends to wander when working with clients.
13. I am able to be fully in the moment with clients.
14. I pay close attention to what my client is saying and doing.
15. I am focused on my client and their needs.
16. I can pay attention to many things at once without getting too hooked on one thing.
17. I am not distractible in my client work.
18. When working with clients, I pay attention to what is occurring in the moment between us.

2) Cognitive Defusion

19. A practitioner should always like their client.
20. I place great importance on my thoughts about my therapeutic work.
21. I try to change how I am feeling about clients.
22. It is harmful to have uncaring thoughts about a client.
23. I find it hard to get negative thoughts about my clients out of my mind.
24. I am distressed by any negative thoughts I have towards clients.
25. I worry about having negative thoughts and feelings about clients.
26. Worries about my abilities as a helping professional get in the way of my success.
27. Clients should not doubt their practitioner's skills.
28. It is wrong for a client to be angry with me.
29. I dread working with clients who make me feel inadequate.

30. If my client does not like me, I must be doing something wrong.
31. There is always a right thing to say or do.
32. I should always know what to do when working with clients.
33. Self-doubt is a sign of incompetence.
34. If my client is not making progress, it must be my fault.
35. I get caught up in self-critical thoughts about my therapeutic work.
36. I am hard on myself when I have struggles with clients.
37. I get caught up in my own thoughts and I can't see my client's point of view.
38. I become caught up in client's reasons for not making progress.
39. I get very entangled in my client's life stories.
40. When my client feels hopeless, I feel ineffective.
41. If my client wanted to get better, they would.
42. When my client tells me of obstacles to their progress, I find it hard to consider alternatives.
43. I get caught up in intellectualising or theorising about how best to help my clients.
44. I try not to think about my clients during my personal time.
45. It is normal to have doubts about my ability to help.
46. It is OK to not like some clients.
47. It is OK to say the wrong thing sometimes.
48. My judgements about a client do not get in the way of me relating to them.
49. Even if I have pessimistic thoughts about my client's situation, I can keep trying to help them.
50. It is normal for a client to have negative thoughts or feelings about their care provider.
51. My thoughts about my clients can change relatively quickly.
52. I am able to move on from negative thoughts about my therapeutic work.

3) Self-As-Context

53. My judgements about my abilities as a helping professional are true.
54. My judgements about myself get in the way of my therapeutic work.
55. I identify so much with my professional role that I never feel off duty.
56. My identity as a helping professional defines me.
57. I would be a more effective practitioner if I felt better about myself.
58. It seems like most practitioners are handling their work better than I am.
59. I avoid thinking about mistakes I have made because it makes me feel guilty.
60. I find it difficult to separate my personal and professional life.
61. The way I feel with a client usually determines the actions that I take.

62. I need to control my feelings in order to work well with clients.
63. If I believe I cannot help a client, it is true.
64. The only way to make progress with clients is to fully understand their problems.
65. I cannot help my client unless I fully understand their problem.
66. I tend to overanalyse my work with clients.
67. I am very different from my clients.
68. If I am open to my client's emotions, it will become overwhelming for me.
69. I try hard to control my emotions when interacting with clients.
70. I find it difficult to see my client's perspective.
71. My interactions with clients have not changed me.
72. My perspective on life has not changed as a result of my work with clients.
73. I am reluctant to think about alternative ways of working with clients.
74. Once I have made up my mind about a client, it rarely changes.
75. When with clients, I notice my thoughts and feelings without having to react to them.
76. When I have a judgement about my therapeutic work, I can step back and get perspective from it.
77. I am able to stand back from my thoughts and feelings and take a different perspective.
78. My professional identity does not define the whole of me.

4) Clarity of Personal Values

79. I try to please my clients.
80. It is important that my clients always feel good when I am working with them.
81. I don't get much from my role as a helping professional.
82. I would leave my profession if I could.
83. I feel little sense of purpose in job.
84. I gain little satisfaction from my work with clients.
85. My job feels like something I "should" do rather than something I "want" to do.
86. I don't really care that much about my work, I just do it because it is what I do.
87. I care about doing good work with clients.
88. It matters to me to try and assist my clients as best I can.
89. It is important to me to try and make a difference for my clients.
90. It is important to look after yourself, even when you are looking after others.
91. How I treat myself is as important as how I treat my clients.
92. I make time to reflect upon my work.
93. I can be helpful even if I am unsure what to do.

- 94. I know what I value in my helping role.
- 95. I know what motivates me in my helping role.

5) Willingness

- 96. I cannot work effectively with clients who I dislike.
- 97. I cannot work with clients who seem to dislike me.
- 98. In order to for me to be an effective practitioner, I first must have all my doubts worked out.
- 99. I cannot work effectively with clients who make me feel bad.
- 100. I cannot work effectively with clients who make me feel inadequate.
- 101. I can't help others effectively until I feel OK.
- 102. I can't be an effective practitioner unless I feel OK.
- 103. I must be in the right frame of mind to be helpful to others.
- 104. I can't stand feeling incompetent.
- 105. I can't stand feeling frustrated or guilty.
- 106. If an unpleasant thought comes into my head whilst interacting with clients, I try to get rid of it.
- 107. I cannot tolerate it when I have negative thoughts about my therapeutic work.
- 108. I can't bear feeling lost or stuck in my therapeutic work.
- 109. I am very reluctant to try new things with clients.
- 110. Trying something new with clients is too much hassle.
- 111. I cannot bear uncertainty in my therapeutic work.
- 112. I feel mainly relief if a client I find difficult to work with does not attend.
- 113. If I feel I am not being helpful, there is no point in trying.
- 114. If I feel uncertain, I can still be helpful to my client.
- 115. Even when I am unsure what will help, I am willing to try something.
- 116. I avoid interacting with clients when I feel anxious or uncomfortable.
- 117. My thoughts and feelings do not get in the way of my being helpful to clients.
- 118. It is okay for me to have thoughts and feelings about myself and clients that I do not like.
- 119. I can be helpful to clients, even if I don't feel good about myself.
- 120. I am OK with having some negative thoughts and feelings about my therapeutic work.
- 121. Even if I feel frustrated with a client, I can still care about them.
- 122. Even though I dislike a client, I can still help them.
- 123. My judgements about my own abilities do not stop me from helping my clients.
- 124. I am willing to try new interventions even if I feel less confident.

125. I would try a new intervention even if it was very different from what I am used to doing.
126. It is OK to have unpleasant thoughts and feelings when interacting with clients.
127. I am open to the ebb and flow of my own feelings and reactions in working with clients.

6) Committed Action in Service of Values

128. I never act against my thoughts and feelings.
129. I act according to what I “should” do, rather than what I “want” to do.
130. Even if it might help in the long-term, I avoid doing anything with my client that might upset them.
131. My behaviour is more focused on maintaining control of my own feelings than doing what is right for my client.
132. When I am finding my work with client’s difficult, I avoid seeking support from colleagues.
133. If I feel I might become emotional with my client, I avoid doing anything that might make this worse.
134. I am unable to take action unless I have all my doubts resolved.
135. If I think I might get something wrong, I will not do it.
136. I neglect my own needs in order to help others.
137. I avoid trying new techniques with my clients.
138. I can get hooked into trying to ‘rescue’ or be overprotective of my clients.
139. If I have negative thoughts and feelings about a client, I try to reduce the amount of contact I have with them.
140. I put off making a decision about how best to help my client.
141. I avoid discussing topics with my clients that I find uncomfortable.
142. My negative thoughts about clients affect how I interact with them.
143. I can help my client get in touch with emotional material even if it feels uncomfortable for both of us.
144. In moments of difficulty with a client, I can be kind towards myself.
145. I do what is best for my client even if it brings up unpleasant thoughts and feelings for me.
146. I can do the things that need to be done to help my clients, even if doing so is hard for me.
147. I am able to confront difficult situations that arise in my helping role.
148. Even when I doubt myself, I do something to help my clients.
149. I can be helpful no matter how I feel.
150. I can act in accordance with my values, even if it is difficult for me.

151. I don't let my worries stop me from doing what is important for my clients.

152. Even though it might be difficult, I do say things that my client might not find easy to hear.

153. I attend training courses so I can improve on my ability to help others.

154. My judgements about my own abilities do not stop me from providing good care for my client.

Appendix E: MHS

Mindful Healthcare Scale

This questionnaire asks about your experiences as a helping professional. It asks about thoughts, feelings, perspectives, things you care about and things you find hard in your work with people.

Throughout, we use the term 'client' to describe people who receive your services, but you may prefer to use a different term such as 'patient' or 'service user'.

Please rate how true each statement is for you. Generally, your first response or gut reaction is important, so try not to spend too long thinking about each statement.

| 1 | 2 | 3 | 4 | 5 | 6 |
|--|------------------|----------------|-----------------|--------------------|-------------|
| never true | very seldom true | sometimes true | frequently true | almost always true | always true |
| 1. I know what I value in my work with clients. | | | | 1 2 3 4 5 6 | |
| 2. It is harmful to have negative thoughts about a client. | | | | 1 2 3 4 5 6 | |
| 3. I feel little sense of purpose in my job. | | | | 1 2 3 4 5 6 | |
| 4. I don't get much from my role as a helping professional. | | | | 1 2 3 4 5 6 | |
| 5. I get caught up in trying to "rescue" or being overprotective of my clients. | | | | 1 2 3 4 5 6 | |
| 6. When working with clients, I pay attention to what is occurring in the moment between us. | | | | 1 2 3 4 5 6 | |
| 7. I know what motivates me in my work with clients. | | | | 1 2 3 4 5 6 | |
| 8. If I have a bad day at work, I can step back and see the bigger picture. | | | | 1 2 3 4 5 6 | |
| 9. I try hard to avoid negative thoughts about my therapeutic work. | | | | 1 2 3 4 5 6 | |
| 10. Worries about my abilities as a helping professional get in the way of my work. | | | | 1 2 3 4 5 6 | |
| 11. If an unpleasant thought about a client comes into my head, I try to get rid of it. | | | | 1 2 3 4 5 6 | |
| 12. I am able to move on from negative thoughts about my therapeutic work. | | | | 1 2 3 4 5 6 | |
| 13. My job feels like something I "should" do, rather than something I "want" to do. | | | | 1 2 3 4 5 6 | |

Thank you for completing this questionnaire

Appendix F: Journal of Contextual Behavioural Science (ACBS)

Guide for Authors

Types of article

All manuscripts must clearly and explicitly be of relevance to CBS. You may find the JCBS article "Contextual Behavioral Science: creating a science more adequate to the challenge of the human condition" helpful in assessing whether your manuscript is likely to be of interest to readers of this journal.

Articles should fall into one of seven categories:

1. Empirical research (up to 6000 words)
2. Brief empirical reports (up to 3000 words)
3. Review articles (up to 10,000 words)
4. Conceptual articles (up to 6000 words)
5. In practice (up to 3000 words)
6. Practical innovations (up to 3000 words)
7. Professional interest briefs (up to 3000 words)

Word limits exclude references, tables and figures but include the abstract

Ethics in publishing

Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Human and animal rights

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to Biomedical journals. Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed.

Declaration of interest

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/ registrations, and grants or other funding. If there are no conflicts of interest then please state this: 'Conflicts of interest: none'.

Authorship

All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

Reporting clinical trials

Randomized controlled trials should be presented according to the CONSORT guidelines. At manuscript submission, authors must provide the CONSORT checklist accompanied by a flow diagram that illustrates the progress of patients through the trial, including recruitment, enrollment, randomization, withdrawal and completion, and a detailed description of the randomization procedure. The CONSORT checklist and template flow diagram are available online.

Informed consent and patient details

Studies on patients or volunteers require ethics committee approval and informed consent, which should be documented in the paper. Appropriate consents, permissions and releases must be obtained where an author wishes to include case details or other personal information or images of patients and any other individuals in an Elsevier publication. Written consents must be retained by the author and copies of the consents or evidence that such consents have been obtained must be provided to Elsevier on request. For more information, please review the Elsevier Policy on the Use of Images or Personal Information of Patients or other Individuals. Unless you have written permission from the patient (or, where applicable, the next of kin), the personal details of any patient included in any part of the article and in any supplementary materials (including all illustrations and videos) must be removed before submission.

Preparation

Peer review

This journal operates a double blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final.

Use of word processing software

It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork. To avoid unnecessary errors, you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Article structure

Subdivision - unnumbered sections

Divide your article into clearly defined sections. Each subsection is given a brief heading. Each heading should appear on its own separate line. Subsections should be used as much as possible when cross referencing text: refer to the subsection by heading as opposed to simply 'the text'.

Introduction

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

Material and methods

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

Theory/calculation

A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Results

Results should be clear and concise.

Discussion

This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract

A concise and factual abstract is required. The abstract should state briefly the purpose of the

research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Graphical abstract

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531×1328 pixels (h \times w) or proportionally more. The image should be readable at a size of 5×13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier's Illustration and Enhancement service to ensure the best presentation of their images and in accordance with all technical requirements: Illustration Service.

Highlights

Highlights are mandatory for this journal. They consist of a short collection of bullet points that convey the core findings of the article and should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). You can view example Highlights on our information site.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources

List funding sources in this standard way to facilitate compliance to funder's requirements: Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa]. It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding. If no funding has been provided

for the research, please include the following sentence: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Math formulae

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Footnotes

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Artwork

Electronic artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.

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[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T. (2015). *Mortality data for Japanese oak wilt disease and surrounding forest compositions*. Mendeley Data, v1. <https://doi.org/10.17632/xwj98nb39r.1>.

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