**Acceptance and Commitment Therapy: A systematic literature review of prevention and intervention programmes for mental health difficulties in children and young people**

**Background:** Acceptance and Commitment Therapy (ACT) is increasingly being used to treat mental health difficulties, however there is a paucity of reviews concerning ACT with children. **Aim:** To examine the literature about ACT interventions for child and adolescent mental well-being. **Methods:** Searches for articles reporting on ACT interventions to prevent/reduce child mental health difficulties were undertaken. Methodological quality was assessed and a narrative synthesis was used to summarise findings about mental health symptoms and psychological flexibility. **Results:** Ten articles were identified focusing on prevention and intervention for anxiety, depression, obsessive compulsive disorder, anorexia nervosa and trichotillomania. Most studies found that mental health symptoms reduced following an ACT intervention and psychological flexibility increased. However, findings indicate that other active interventions also led to the same changes. **Conclusions:** ACT is a promising intervention for adolescent mental health, although further research is needed to establish whether reductions in mental health symptoms are due to an increase in psychological flexibility.

Acceptance and Commitment Therapy (ACT) is considered to be one of the 'third-wave' models of Cognitive Behavioural Therapy (CBT) (Forman & Herbert, 2009; Hayes, Luoma, Bond, Masuda & Lillis, 2006). ACT differs from traditional cognitive and behavioural approaches by emphasising experiential and contextual strategies for change which are broad and flexible, rather than targeting a specific problem and focusing on cognitive change (Hayes, 2004).

The theoretical framework for ACT is Relational Frame Theory (RFT) (Hayes et al., 2006). Relational Frame Theory posits that language and cognition allow for different concepts to be related and evaluated (Hayes, 2004; Hayes, Strosahl, Bunting, Twohig & Wilson, 2004; Vilardaga, Hayes & Schelin, 2007). 'Psychopathology', or psychological difficulties, arise due to language and cognition (Hayes et al., 2006). For example, thoughts cannot be suppressed, and one thought can easily lead to another, resulting in unwanted cognitions coming to mind. Psychological difficulties can occur when an individual attempts to control their thoughts and avoid or suppress emotional experiences (Hayes et al., 2006). Relational Frame Theory theorises that cognition is difficult to change due to the relational nature of thoughts and language. Rather than attempting to modify thoughts, it is viewed as more helpful to modify the relationships with cognition and language. For example, this might involve dropping attempts to suppress or control thoughts (experiential avoidance) and recognising how thoughts, which are often unhelpful and inaccurate, can dominate behaviour (fusion) (Harris & Hayes, 2009; Hayes, 2004). In summary, human language and cognition are viewed as underlying psychopathology, but these processes have also allowed for human beings to progress as a species and cannot be eliminated (Hayes, Barnes-Holmes & Roche, 2011).

According to the ACT framework, psychological inflexibility is a consequence of cognitive fusion and experiential avoidance, and can be understood as the inability to engage in behaviours which are in line with one's values (Fletcher & Hayes, 2005). ACT aims to increase psychological flexibility, allowing individuals to engage with what is happening in the present moment and make choices

which are in line with their values, even when psychological difficulties are experienced (Hayes et al., 2004; Wilson & Murrell, 2004). Psychological flexibility is increased by developing six processes, which are often conceptualised in the hexaflex model (Ciarrochi, Bilich & Godsel, 2010; McHugh, 2011). The six processes are: acceptance (accepting rather than controlling thoughts and feelings); defusion (recognising thoughts are not facts); self as context (recognition of the self as an observer and that the self is separate from self-evaluations); contact with the present moment (using a mindful state to be aware of the present); values (identifying personal values which can guide behaviours); and committed action (engaging in behaviour based on values) (Ciarrochi, Bilich & Godsel, 2010). These six processes can be widely applied to help individuals experiencing diverse difficulties to lead a life which is more meaningful (Harris & Hayes, 2009). ACT aims to improve psychological flexibility and increase values-led behaviour, rather than to reduce symptoms (Harris & Hayes, 2009; Hayes, Villatte, Levin & Hildebrandt, 2011). Although symptom reduction is not the aim of an ACT intervention, the symptoms of mental health difficulties may decrease as a secondary gain (Hayes et al., 2006), suggesting ACT has value in both the prevention and intervention of psychological difficulties.

Several reviews have shown that ACT is an efficacious intervention for adults presenting with a range of psychological difficulties (A-Tjak et al., 2015; Hacker, Stone & MacBeth, 2016; Powers, Vörding & Emmelkamp, 2009; Ruiz, 2012). Powers et al. (2009) reviewed 18 randomised control trials (RCTs) for ACT as an intervention for depression, physical health difficulties, distress problems and other mental health difficulties. They concluded that ACT is significantly more effective than control conditions, but not more effective than other active intervention controls. Similarly, A-Tjak et al. (2015) reviewed the clinical efficacy of ACT focusing on RCTs for adults with anxiety/depression; addiction; other mental health problems; and somatic health problems. A meta-analysis indicated that ACT outperformed control conditions (including placebo conditions and treatment as usual), and was as effective as other treatments including CBT, cognitive therapy and habituation therapy.

Ruiz (2012) reviewed only studies comparing ACT and CBT for adults, to further understand the change mechanisms of each. Sixteen studies for a variety of difficulties were identified, ranging from mental health difficulties such as anxiety and depression, to health difficulties such as cancer and chronic pain, to other stressors such as test-anxiety and stress at work. Outcomes of interest in the review included measures of depression, anxiety, quality of life, and also ACT processes and CBT processes. A meta-analysis found small to medium mean effect sizes in favour of ACT when primary outcome measures were considered. However, analysis of anxiety and depression outcome measures only, indicated there was no statistically significant difference between ACT and CBT. Nine of the included studies conducted a formal mediation analysis, and overall ACT appeared to work through its proposed processes of change; however CBT did not.

Hacker et al. (2016) considered that the existing reviews of ACT with adults had often focused on a broad range of difficulties, making it difficult to understand what specific difficulties ACT might be useful for. Consequently, Hacker et al. (2016) conducted sequential meta-analyses considering ACT interventions for anxiety and depression only. The authors concluded that although ACT demonstrates moderate effects for anxiety and depression symptom reduction following intervention, sequential meta-analyses indicate there is insufficient evidence to conclude ACT is efficacious for anxiety or depression in comparison to active control conditions.

Whilst a number of reviews have been conducted with adults, there are fewer reviews specific to the use of ACT with children and young people. Murrell & Scherbath (2006) aimed to summarise the state of ACT research regarding children and young people by conducting a review of relevant papers in the area. Their review identified 15 papers about ACT with young people experiencing a range of difficulties including anorexia, anxiety, chronic pain, physical health difficulties, and risky behaviour. It is of note that searches were not conducted systematically; articles were retrieved via

electronic searching of one electronic database (PsycINFO), the Contextual Psychology website, and by contacting prominent researchers in the field. Of the studies identified, many were theoretical, but the 5 empirical papers concerned with ACT for children and young people found that ACT interventions have been associated with a reduction in eating disorder symptoms, increased school attendance and functioning of young people with chronic pain, and a reduction in risk taking behaviours. The authors concluded that further studies using larger samples and controlled designs are needed, and recommended the use of validated assessment methods which can help measure avoidance, thought fusion and valued living, as well as symptomology.

Coyne, McHugh and Martinez' (2011) review primarily provides a theoretical overview of ACT with young people, but the review does describe the findings from a number of studies where ACT was used as an intervention with children and young people. Twelve studies were identified, concerned with anxiety and depression, chronic pain, anorexia nervosa, psychosis, parenting interventions, and preventing risky sexual behaviours. The studies reviewed were reflective of emerging treatment literature, consisting of case studies, small trials and few preliminary RCTs, however the findings of these indicated that ACT is associated with improved symptoms, quality of life, and increased psychological flexibility. The review also concluded that ACT processes are the same for adults and children. The authors identified that future research should consider larger samples and RCT methodologies, investigation of mechanisms of change, and feasibility and acceptability of ACT. Whilst both reviews (Coyne et al., 2011; Murrell & Scherbath, 2006), provided a description of each study included and a summary of the findings, this information is brief and there are limited details provided about the methodology used to identify included articles, and of the outcome measures used in the studies. It is therefore difficult to assess the scope of included articles or to be sure these reviews are comprehensive and not prone to error or bias.

Swain, Hancock, Dixon and Bowman (2015a) conducted the most recent review of ACT interventions with children and young people, not specific to a particular difficulty. The authors included both published and unpublished studies focusing on a variety of conditions including obsessive compulsive disorder, learning disabilities, emotional dysregulation, trichotillomania, tic disorders, pain, anorexia nervosa, depression, stress, impulsivity, sickle cell disease, sexualised behaviour, attention deficit hyperactivity disorder, and post-traumatic stress disorder. Their review included systematic searches and quality appraisal of 21 studies using the Psychotherapy Outcome Methodology Rating Form (POMRF) tool, which includes 22 items to assess methodology, such as reliability of the diagnosis in question, control of concomitant treatments, and replicability of intervention delivered. POMRF scores ranged from 3 to 25 (out of a maximum of 44), indicating variability in study quality. Thirteen studies (61.9%) collected data at multiple time points, and over 95% of the studies reviewed had a specified treatment protocol and used outcome measures which were reliable and valid. Methodological weaknesses across the studies included small sample sizes, non-randomised designs and few alternative treatment or control comparisons, with only one study comparing ACT to an active control condition. Overall, the findings indicated that the majority of studies found ACT to result in improvement in measures of symptoms, quality of life and psychological flexibility. In particular, superior outcomes were found in comparison to treatment as usual for difficulties with pain, depression and sexualised behaviour. The review highlighted that there was limited measurement of change processes, with only eight of the 21 studies measuring avoidance and fusion, and two studies measuring valued living. The authors discussed how few presenting problems have been investigated by more than one study, and that more research is needed. They concluded that research of more rigorous methodological quality, including measures to assess mechanisms of change is required to consolidate the evidence base.

The reviews of ACT interventions for children have highlighted that ACT has been used for a variety of presenting difficulties, with the most recent review undertaken by Swain et al. (2015a) indicating ACT has been used for a wide range of mental health difficulties. Child and adolescent mental health difficulties are increasing, and more research is needed to help understand both why this is, and how children and young people with mental health difficulties are best supported (Gunnell, Kidger & Elvidge, 2018). The consequences of untreated childhood mental health difficulties have been well-documented and include poor outcomes in adulthood such as persisting psychological difficulties, poor interpersonal functioning, poorer physical health and lower outcome (Comer et al., 2011; Copeland, Angold, Shanahan & Costello, 2014; Costello, Mustillo, Erkanli, Keeler & Angold, 2003). Mental health services for children and young people are typically delivering CBT interventions, as evidenced by National Institute for Clinical Excellence (NICE) guidelines which recommend CBT as a first-line treatment for a range of mental health difficulties (Scott, 2009). It has been queried whether current interventions that are available to young people are appropriate to meet their mental health needs, and whether further research might identify alternative interventions (Hoagwood et al., 2018). ACT is one approach which has been increasingly reported in the literature in recent years, and one which may warrant further consideration for use with young people experiencing mental health difficulties. Researchers have highlighted how quickly the evidence base for ACT is increasing (Atkins et al., 2017; Hooper & Larsson, 2015). For example, Atkins et al. (2017) have reported that searching for ACT relevant subject terms on Web of Science identified over 1000 articles, and of these 80% were from the last five years.

The scope of this review was developed with consideration to the proliferation of ACT research in the last 5 years, the need for alternative interventions for young people experiencing mental health difficulties, and guidance that systematic reviews and meta-analyses should be considering interventions for specific difficulties (Tolin, McKay, Forman, Klonsky & Thombs, 2015). Consequently, the current research aimed to: (a) systematically review the ACT literature to identify studies relevant to the use of ACT with children and young people published since 2015; (b) identify and

critically appraise articles which were concerned with using ACT for the prevention of, or intervention for, mental health difficulties experienced by children and young people; (c) identify the study designs and methods which have been used to deliver ACT to children and young people; and (d) provide a narrative synthesis of the findings, considering change in mental health symptoms and changes related to ACT processes and psychological flexibility.

## Method

### *Search and screening procedures*

The PsycINFO, PsycArticles, Scopus and Web of Science databases were searched using the search terms:

1. Acceptance and commitment therap*
2. Child* OR teen* OR adolescen*
3. 1 AND 2

The Association for Contextual Behaviour Science (ACBS) website was also searched as it is considered to be a research community for clinicians and researchers interested in ACT. Searches were limited to articles published from 2015 onwards, as articles published before December 2014 have been identified, appraised and discussed in a systematic review of ACT interventions for children undertaken by Swain et al. (2015a). All retrieved results were screened by title and abstract to see if they met the inclusion or exclusion criteria. Searches and article screening were undertaken by EH.

### *Inclusion criteria*

The inclusion criteria were:

- Articles published from 2015 onwards.
- Interventions targeting the prevention or intervention of mental health difficulties.
- Interventions for children and young people aged 18 or under. Studies with participants who were both older and younger than 18 years were included if the average age of participants was 18 or under.
- Interventions including at least two components of the ACT hexaflex processes: acceptance, mindfulness, self-as-context, cognitive defusion, committed action, and values.
- Research including at least one validated measure of mental health difficulties.
- Articles published in English.

***Exclusion criteria***

The exclusion criteria were: (a) theoretical articles or reviews, and (b) interventions for children and young people experiencing other difficulties (i.e. not mental health), e.g. physical health, behavioural, neuro-developmental difficulties. Although it is recognised that there can be co-morbidity between these difficulties and mental health difficulties, the review was focused on ACT interventions for child and adolescent mental health only, in line with guidance that systematic reviews should focus on specific difficulties (Tomlin et al., 2015).

***Data extraction, synthesis and quality assessment***

For all included studies, data were extracted about participants and study design, specifically: the country where the research was undertaken; the mental health problem of interest; the number of participants; age range of participants; mean age; percentage of the sample who were female; the type of population participants were sampled from (community/inpatient/school, clinical/non-clinical); the study design used; the control (if relevant); and the treatment. Data were also extracted about the intervention and the outcomes used, specifically: the format of the intervention, who

facilitated the intervention, the type of training and experience of ACT the facilitators had (studied ACT/author of the intervention/clinical experience of using ACT/previous ACT training/ACT training specific to the intervention), length of intervention, type of outcomes used (clinician rated/parent-report/self-report), the outcome measures used and the time-points data were collected at. To provide information about the findings of included studies, results regarding change in mental health difficulties were reported. Results regarding changes in psychological flexibility were also reported to provide an indication about the process of the intervention.

All included studies were subjected to quality appraisal using the Quality Assessment Tool for Studies with Diverse Designs (QATSDD) (Sirriyeh, Lawton, Gardner & Armitage, 2012) which was selected due to the heterogeneity of included studies. The tool includes 16 items relating to the design, sampling, choice of outcome measures and evaluation of the study, which are rated on a scale of 0-3 (0 = Not at all, 1 = Very slightly, 2 = Moderate, 3 = Complete). A higher score indicates a paper of better quality. The total score is converted to a percentage. The QATSDD has been evaluated and has been shown to assess the constructs of a 'good research design', as well as having good reliability (K=71.5%) and face validity with a sample of health researchers (Sirriyeh et al., 2012). Two of the QATSDD items relate specifically to studies using a qualitative component in the methodology. Qualitative studies were not excluded from this review, however all the included studies used quantitative components only. Consequently, the two qualitative items were not used for quality assessment, and a total of 14 items were used.

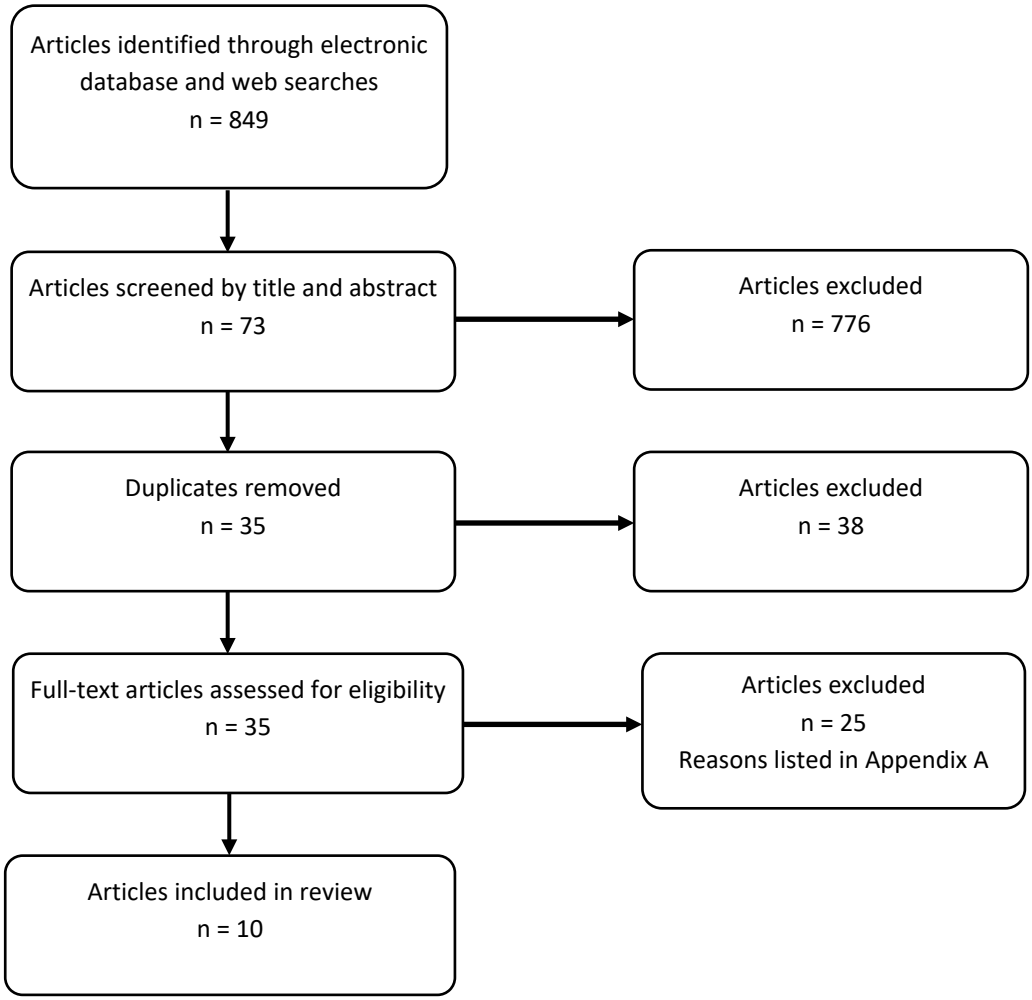
## Results

### *Eligible studies*

Searches of the electronic databases retrieved 849 articles which were screened using the title and abstract, resulting in the exclusion of 776 articles which did not meet inclusion criteria (see Figure 1).

Thirty-eight duplicates were excluded from the remaining 76 articles, leaving 35 articles to be assessed using the full-text. Twenty-five articles were excluded and 10 articles were included in the current review. Reasons for exclusion included the use of interventions for young people with physical health difficulties or behavioural difficulties, and no outcome measures to assess mental health symptoms. Full reasons for exclusion are listed in Appendix A.

**Figure 1. Selection of studies**




***Overview of included studies***

Details of the included studies can be found in Tables 1 and 2. One study was conducted in Belgium, but all of the other studies were undertaken in Australia or the United States of America (USA). Three studies reported on interventions for the prevention of mental health difficulties and the other seven reported on interventions for a range of existing mental health presentations including anxiety, depression, obsessive compulsive disorder (OCD), anorexia nervosa and trichotillomania.

***Sample characteristics***

Across the included studies there was a total of 1319 participants, ranging from 4 to 21 years. This

number includes 14 young people who participated in Lee et al.'s (2018) study reporting on participants aged 12 to 45 years. This study was included as 14 adolescents who were under the age of 18 were part of the sample, and the results for adolescents and adults were reported separately. The mean age of participants across all included studies ranged from 10.33 to 21 years, and the percentage of females ranged from 33% to 89%. The three studies targeting the prevention of mental health difficulties used non-clinical samples from schools (Buckhardt, Manicavasagar, Batterham & Hadzi-Pavlovic, 2016; Buckhardt, Manicavasagar, Batterham, Hadzi-Pavlovic & Shand, 2017; Van der Gucht et al., 2017), one used a clinical sample recruited from a school (Petts, Duenas, & Gaynor, 2017), but all other included studies used a clinical sample from the community.

***Study design***

Three studies used an RCT design to compare ACT with another active treatment (Hancock et al., 2018; Meagher, Chessor & Fogliati, 2018; Swain et al., 2015b). Hancock et al. (2018) and Swain et al. (2015b) used block randomisation to compare ACT with a CBT intervention as well as a waiting list control, and Meagher et al. (2018) randomised participants on an individual basis to compare Acceptance-Based Behaviour Therapy with Acceptance-Based Behaviour Therapy in conjunction with a multisensory learning aide. Four studies used an RCT design to compare ACT to a non-active control group (Buckhardt et al., 2016, 2017; Lee et al., 2018; Van der Gucht et al., 2017). Of these, three studies used cluster randomisation to compare ACT interventions for students with lessons as usual (Buckhardt et al., 2016, 2017; Van der Gucht et al., 2017), and Lee et al. (2018) used individual randomisation to compare ACT with a waiting list control group. Three studies used other quasi-experimental or non-experimental designs (Barney et al., 2017; Petts et al., 2017; Timko et al., 2016).

***Intervention and Outcome measures***

Six studies assessed an ACT-only intervention, one combined ACT with positive psychology, one

provided Acceptance-Based Behaviour Therapy (ABBT) combined with a multisensory learning aide (MLA), one provided ACT following a Motivational Interviewing Assessment (MIA), and one provided Acceptance-Based Separated Family Treatment (ABSFT). Descriptions of all the interventions indicated that at least 3 components of the hexaflex were present. Of the included studies, there was a mixture of group interventions (six studies) and interventions delivered on an individual basis (four studies). The facilitators providing the intervention varied. In half of the included studies, psychologists who had written the intervention or had experience of using ACT clinically, provided the interventions. Two studies reported interventions delivered by therapists, two were delivered by individuals with training in masters-level school psychology, and one intervention was delivered by teachers who received specific training about the intervention.

The number of sessions received by participants ranged from 4 to 20, and the length of these ranged from 25 minutes to two hours. Self-report outcomes were used in all of the included studies. One study also used parent-reported measures, one also used clinician-rated measures, and four studies used all three types of measure. A variety of outcome measures were used, with eight studies including a measure of ACT processes/psychological flexibility, and the others measuring mental well-being only. All studies completed outcome measures pre- and post-intervention, and five studies completed the outcomes at a follow-up point, which ranged from 3 months to one year.

***Assessment of methodological quality***

The quality assessment using the QATSDD resulted in scores which varied from 52% to 90%, with an average of 70.24% (SD = 12.31). Four studies were also assessed using the QATSDD by an independent researcher to check reliability, with moderate agreement between the assessors (K=.791) (McHugh, 2012).

All but one study (Van der Gucht et al., 2017) provided a complete description of the theoretical framework, and seven studies provided a complete description of the study aims and objectives. Lee et al. (2018) provided a moderate description, Van der Gucht et al. (2017) provided a slight description and Petts et al. (2017) did not provide a clear description. All studies gave a moderate or complete description of the research setting, but there was little evidence to show sample sizes were appropriate for the methods of analysis or that samples which were appropriately powered for hypothesis testing had been obtained. Six studies did not provide information to indicate sample size and analysis were considered in the study design, three provided a slight description (Timko, Zucker, Herbert, Rodriguez & Merwin, 2015; Buckhardt et al., 2016, 2017) and one provided moderate information (Hancock et al., 2018).

There was variability in the representativeness of the samples of participants used. A sample was considered representative if there was information to indicate who the target population was and that the sample used was unlikely to be biased or unrepresentative (e.g. using a number of research sites, including young people of different ethnicities and socioeconomic status). Six studies used samples which were moderately or completely representative of the target population, whereas two were slightly representative (Buckhardt et al., 2017; Timko et al., 2015) and two were not representative (or did not provide information about the target group) (Barney, Field, Morrison, & Twohig, 2017; Meagher et al., 2018). Few studies provided detailed descriptions of the data collection procedure, with four studies providing a complete description (Barney et al., 2017; Buckhardt et al., 2017; Hancock et al., 2018; Van der Gucht et al., 2017). Others were missing information such as who completed measures with participants, or where the intervention was delivered, and were therefore scored as having a slight or moderate description. All but one study (Timko et al., 2015) provided a complete description of the rationale for choosing the relevant data collection tools, and all but one study (Meagher et al., 2018) provided complete data about recruitment. The majority of studies provided moderate or complete information about the

statistical reliability and validity of the data collection tools selected, however four studies did not provide any information about this (Buckhardt et al., 2017; Meager et al., 2018; Petts et al., 2017; Timko et al., 2015).

All studies selected data collection methods which were moderately appropriate (able to address the research question but an additional element could have been used) or completely appropriate (the most suitable data collection method to address the research question). All studies used analytical methods which were moderately or completely appropriate for addressing the research question, excluding Petts et al. (2017) who did not outline a clear research question. The majority of studies also provided a complete or moderate rationale for methods of data analysis, excluding Barney et al. (2017). Three studies (Buckhardt et al., 2016, 2017; Hancock et al., 2018) provided a complete discussion of the strengths and limitations of the research, and the remaining studies provided moderate information about this. None of the studies utilised service user involvement in designing the study and were all scored zero for this item.

***Findings of included studies***

An overview of the findings of each study (in terms of changes in mental health difficulties and psychological flexibility) can be found in Table 3.

*RCTs with an Active Treatment Comparison Group*

Three studies compared an ACT intervention with another active treatment (Hancock et al., 2018; Meagher et al., 2018; Swain et al., 2015b). Hancock et al. (2018) used an RCT to measure the effectiveness of ACT in a sample of children aged 7-17 years with anxiety disorders. The young people were recruited from school counsellors, parents, health professionals and via word of mouth. The ACT group was compared to a CBT group as well as a waiting list control and a range of

measures (clinician-rated, parent-report and self-report) were administered pre and post-intervention and at a three month follow-up. The sample size was 193 which is one of the larger samples of the included studies. Effect sizes were small but results showed a significant reduction in self-reported and clinician-rated anxiety symptoms following the intervention and at the three month follow up for students in both the ACT and CBT groups in comparison to the waiting list control. Additionally, there were large effect sizes showing acceptance and defusion significantly increased for the ACT and CBT groups but not for the control. There was no difference in symptom reduction or in acceptance and defusion scores when ACT and CBT were compared to each other. As only one research site was used the generalisability of these findings is limited.

Swain et al. (2015b) reported on the mechanisms of change of an RCT of ACT for 49 adolescents with a diagnosis of anxiety. Other data from this RCT has been reported by Hancock et al. (2018) who focused on the effectiveness of ACT, rather than the mechanisms of change. ACT was delivered in a 10 week group therapy format and compared to a CBT group and a waiting list control. A range of clinician-rated, parent-report and self-report measures for anxiety were used and data were collected pre and post-intervention and at a 3 month follow-up. The findings showed a significant reduction in anxiety symptoms as measured by clinicians, parents and the children following the intervention and at the three month follow-up for both the ACT and CBT groups in comparison to the control. Acceptance and defusion significantly improved for the ACT and CBT groups, mindfulness increased for the ACT group only, and there were no significant changes in valued living for any group. The study offered limited support to the components of the hexaflex as mediators of change and considered that ACT and CBT may act through similar mechanisms. It should be noted that the authors did not report information to suggest the sample was powered for hypothesis testing. In addition, data were only collected at pre and post-intervention, and a 3 month follow up, which may not be frequent enough to detect process changes.

Meagher et al. (2018) compared Acceptance-Based Behavioural Therapy (ABBT) with ABBT taught with a multisensory learning aid (MLA), a model head with a handle which allows thoughts to be written on small pieces of paper and to move in and out of the model head when the handle is turned. Acceptance-Based Behavioural Therapy is based on several components of the hexaflex, specifically defusion, acceptance, contact with the present moment and values. The MLA is used to add tactile, visual and kinaesthetic learning stimuli. Participants were 14 children aged 4-11, the youngest sample of the included studies. Outcomes included both self-report and parent-report measures with findings showing that following the intervention children did not report any significant reduction in anxiety symptoms in the ABBT or the ABBT-MLA conditions, although parents of children in the ABBT-MLA condition reported a significant reduction in anxiety. There were no changes in levels of mindfulness or avoidance and fusion for either group. The multisensory learning aide may have facilitated children's understanding of abstract principles, but the small sample size prevented any specific assessments of the added benefit of using the multisensory learning aide to be undertaken. In addition, there was no control group to help assess the effects of ABBT as a stand-alone intervention.

*RCTs with a Non-Active Comparison Group*

Four studies used an RCT methodology to compare an ACT intervention with a non-active control group (Buckhardt et al., 2016, 2017; Lee et al., 2018, Van der Gucht et al., 2017). Buckhardt et al. (2016) conducted an RCT of ACT combined with positive psychology in comparison to a treatment as usual condition which involved students attending their usual lessons. A large sample of 320 students, in Year 10 and Year 11, was used and the intervention was delivered in the style of lectures to large groups of students. Only two outcome measures were used, one of which, the Depression and Anxiety Scale-Short Form (DASS-21) showed a significant reduction, with medium to strong

effect sizes, in self-reported depression, stress, and in combined anxiety and depression for students with elevated scores. Although analysing all students together showed significant findings favouring ACT, analysing the year groups separately found significant improvement with medium effect sizes for the Year 10 students only. No measure of psychological flexibility was utilised. The findings tentatively suggest using acceptance as an emotion regulation strategy could be beneficial as part of an early intervention programme for mental health difficulties, although it is not possible to determine whether ACT or positive psychology (or a combination of both) was responsible for change in well-being.

Buckhardt et al. (2017) reported on a feasibility study for an RCT trialling ACT as a preventative intervention for depression and anxiety with 48 adolescents, aged 14-16 who were recruited from a non-clinical school population. ACT workshops were delivered by a psychologist to a group of approximately 60 students at a time and follow up workshops were delivered by teachers to smaller groups of students. Only two outcome measures were used in this study (Depression Anxiety and Stress Scale-Short Form, Flourishing Scale) and no measure of psychological flexibility was used. Results showed that following the intervention there was no clinically significant change in the depression and anxiety symptoms reported by the sample. There was however, a medium to large effect size for the means at baseline to the five month follow up, which favoured ACT. Given this was a feasibility study and the sample was small, the findings indicate that an ACT-based intervention delivered in school has potential to help prevent youth anxiety and depression, although further research would be needed to help distinguish between the effects of a lecture-style intervention and teacher-led workshops.

Lee et al. (2018) used an RCT to assess the use of ACT for trichotillomania in comparison to a waiting list control group. The sample included 39 participants, 25 of which were adults and 14 who were

between 12 and 18 years. This study was included in the current review as findings for adolescents were reported separately. Only two validated outcomes were used, one to measure hair-pulling and another to measure acceptance and action. These measures were completed pre and post-intervention. The findings for adolescents were not analysed statistically but a reduction in hair-pulling was reported (30.8% decrease), as was an improvement in acceptance and action (11.3% increase). The adolescents in this study did not benefit from the treatment as much as the adults who reported a 56.7% reduction in hair pulling and a 35.6% improvement in acceptance and action. No statistical testing of efficacy for adolescents was undertaken, meaning it is difficult to draw conclusions about the benefit of ACT for trichotillomania experienced by young people.

Van der Gucht et al. (2017) used the largest sample of participants of the included studies, conducting an RCT of ACT with 616 students within 14 schools. The intervention was preventative, and students received four weekly, 120-minute sessions of ACT within their usual school timetable. The intervention was delivered by their teachers who had attended a 2-day training course. Self-report measures were completed pre and post-intervention and at a one year follow-up, the longest follow-up point of the included studies. Findings showed that there was no significant reduction in mental health difficulties or in avoidance and fusion in comparison to the control group who attended their usual lessons. The authors considered these findings could be due to the brief nature of the intervention, or because the intervention was delivered by teachers (rather than psychologists who are trained in ACT). Post-intervention data were collected between one week and eight weeks following the intervention which might have made it difficult to clearly determine any post-intervention effects, as these could have changed over this time period. Although this was the largest sample of the studies reviewed, the authors did not provide information about whether sample size had been considered in terms of analysis, and it is not possible to conclude that the sample was appropriately powered.

*Other quasi-experimental and non-experimental designs*

Timko et al. (2016) assessed Acceptance-Based Separated Family Treatment (ABSFT) for anorexia nervosa, an intervention which involved the therapist meeting separately with 48 young people aged 12-18 years and their parents, and using the principles of ACT to support the family with the process of re-nourishment. Timko et al. (2016) was the longest intervention of the included studies (20 sessions over 24 weeks) and the sample was predominantly female (89%). Outcomes were completed pre, mid, and post-intervention, as well as at a three month follow-up. The findings indicated positive change with a significant reduction in eating disorder symptoms and an increase in the participants' Body Mass Index over time. Experiential avoidance for young people and parents was measured using the Avoidance and Fusion Questionnaire-Youth (AFQ-Y) for young people and the Acceptance and Action Questionnaire-II (AAQ-II) for parents, as well as a subscale of the Difficulties in Emotion Regulation Scale (DERS) related to avoidance. Both the AAQ-II and DERS subscale showed a significant reduction in avoidance for parents, but only the AFQ-Y did for young people. The study showed preliminary evidence for the use of ABSFT for anorexia nervosa. The absence of a control group however means it is difficult to draw conclusions about how ABSFT compares to other treatments which are more widely offered.

Barney et al. (2017) reported on the findings of a nonconcurrent multiple baseline design used to assess an individual ACT intervention for 3 children aged 10 to 11 years who were experiencing OCD. Although the sample size was very small and not representative of a wider population, the findings showed that after the ACT intervention OCD symptoms had significantly reduced, as had child avoidance and fusion and parental experiential avoidance. The authors concluded that ACT may have applications for children with OCD, and that it can be provided by school psychologists. However, these conclusions should be considered with caution due to the small sample size and the fact that data were missing for two of the three participants.

Petts et al. (2017) assessed an individual Motivational Interviewing Assessment (MIA) + ACT intervention for adolescents with depression, which involved 15 students, aged 14-18 years receiving three sessions of motivational interviewing followed by 12 sessions of ACT. The students were recruited from a school and were deemed eligible to participate if they had a score of 45 or higher on the Children's Depression Rating Scale-Revised (CDRS-R). Following the intervention students self-reported a significant decrease in depressive symptoms (as measured by the CDRS-R and Beck Depression Inventory-II) and in avoidance and fusion (as measured by the Behavioural Activation Scale-Short Form and the Avoidance and Fusion Questionnaire for Youth-8). Both changes in depression and psychological flexibility were demonstrated using more than one measure, but further research is necessary given the small sample size.

**Table 1. Overview of participants and design of included studies**

| Study | Country | Problem of interest | N | Age | Mean age | *%f* | Pop. | Control | Treatment |
|---|---|---|---|---|---|---|---|---|---|
| Barney et al. (2017) | USA | OCD | 3 | 10-11 | 10.33 | 33% | Co, Cl | MB | ACT |
| Buckhardt et al. (2016) | Aus | Prevention of mental health symptoms | 320 | 15-18 | 16.37 | 39% | S, NC | TAU | ACT + PP |
| Buckhardt et al. (2017) | Aus | Prevention of mental health symptoms | 48 | 14-16 | 15.64 | 42% | S, NC | TAU | ACT |
| Hancock et al. (2018) | Aus | Anxiety | 193 | 7-17 | 11 | 58% | Co, Cl | CBT + WLC | ACT |
| Lee et al. (2018) | USA | Trichotillomania | 39 (<18 y = 14) | 12-45 | 21 | 87.20 % (all) | Co, Cl | WLC | ACT |
| Meagher et al. (2018) | Aus | Anxiety | 14 | 4-11 | Not stated | 28% | Co, Cl | ABBT | ABBT + MLA |
| Petts et al. (2017) | USA | Depression | 15 | 14-18 | 16.13 | 73% | S, Cl | - | MIA then ACT |
| Swain et al. (2015b) | Aus | Anxiety | 49 | 12-17 | 13.8 | 63.30 % | Co, Cl | CBT + WLC | ACT |
| Timko et al. (2016) | USA | Anorexia nervosa | 47 | 12-18 | 14.02 | 89% | Co, Cl | - | ABSFT |
| Van der Gucht et al. (2017) | Belgium | Prevention of mental health symptoms | 616 | 14-21 | 17 | 53% | S, NC | TAU | ACT |

N = number of participants, *%f* = percentage of female participants, Pop. = Population
Country: Aus = Australia, USA = United States of America
Problem of Interest: OCD = Obsessive Compulsive Disorder
Population: Cl = Clinical, Co = Community, NC = Non-clinical, S = School
Control: ABBT = Acceptance-Based Behaviour Therapy, CBT = Cognitive Behaviour Therapy, MB = Multiple Baseline, TAU = Treatment As Usual, WLC = Waiting List Control
Treatment: ABSFT = Acceptance-Based Separated Family Treatment, MIA = Motivational Interviewing Assessment, Multisensory Learning Aide = MLA, PP = Positive Psychology

**Table 2. Overview of intervention and outcomes used in included studies**

| Study | Format | Facilitators | ACT Exp | Length | Type of Outcomes | Outcome Measures | Time-points |
|---|---|---|---|---|---|---|---|
| Barney et al. (2017) | I | School therapist in training | St | 9 x 50 min over 9 weeks | CR, PR, SR | ADIS-IV, AFQ-Y, CGI, CY-BOCS, NIMH-GOCS, PAAQ | Baseline + pre + post |
| Buckhardt et al. (2016) | G | Psychologist | Int Au | 16 x 0.5h over 3 months | SR | DASS-21, FS | Pre + Post |
| Buckhardt et al. (2017) | G | Psychologist | Cl Ex, Int Au, Pr Tr | 7 x 25min over 7 weeks + 4 x 25 min teacher-led sessions | SR | DASS-21, FS | Pre, post, 5 month FU |
| Hancock et al. (2018) | G | 3 Clinical Psychologists + trainee psychologists | Cl Ex, Pr Tr | 10 x 1.5h over 10 weeks | CR, PR, SR | ADIS-IV, AFQ-Y, CALIS, CHQ, MASC | Pre, post, 3 month FU |
| Lee et al. (2018) | I | Therapists | Pr Tr | 10 x 50 min over 10 weeks | SR | AAQ-II, MGH-HS, DTF | Pre + post |
| Meagher et al. (2018) | G | Researcher with training in school psychology | | 8 sessions over 8 weeks | PR, SR | AFQ-Y, CAMM, PSWQ-C, SCAS-C, SCAS-P, SDQ | Pre + post |
| Petts et al. (2017) | I | Therapists | Cl Ex, Pr Tr | MIA: 3 sessions over 3 weeks, ACT: 12 sessions over 10 weeks | CR, SR | AFQ-Y8, BADS-SF, BDI-II, CDRS-R, HRQoL, MINI-KID, MSSSS, TASA | Pre + post |
| Swain et al. (2015b) | G | Psychologists | Cl Ex, Pr Tr | 10 x 1.5h over 10 weeks | CR, PR, SR | ADIS-IV, AFQ-Y, CALIS, CAMM, CBCL, CDI, MASC, VLQ | Pre, post, 3 month FU |
| Timko et al. (2016) | I | Psychologists and graduate psychology | Cl Ex | 20 sessions over 24 weeks | CR, PR, SR | AAQ-II, ABOS, AFQ-Y, BMI, DERS, EDE, | Pre, mid, post, 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | students | | | | FamQ, RS | month FU |
| Van der Gucht et al. (2017) | G | Teachers | Int Tr | 4 x 2h over 4 weeks | SR | AFQ-Y, WHOQoL-Bref, YSR | Pre, post, 1 year FU |

ACT Exp = ACT Experience
Format: G = Group, I = Individual
ACT Exp: St = Studied, Cl Ex = Clinical experience, Pr Tr = Previous training, Int Au = Intervention author, Int Tr = Intervention-specific training
Type of Outcomes: CR = Clinician-rated, PR = Parent-report, SR = Self-report
Outcome Measures: AAQ-II = Acceptance and Action Questionnaire-II, ABOS = Anorectic Behavior Observation Scale, ADIS-IV = Anxiety Disorders Interview Schedule for Children - Fourth Edition, AFQ-Y = Avoidance and Fusion Questionnaire for Youth, AFQ-Y8 = Avoidance and Fusion Questionnaire for Youth-8, BADS-SF = Behavioural Activation for Depression Scale - Short Form, BDI-II = Beck Depression Inventory-II, BMI = Body Mass Index, CALIS = Children's Anxiety Life Interference Scale, CAMM = Child Acceptance and Mindfulness Measure, CBCL = Child Behaviour Checklist, CDRS-R = Children's Depression Rating Scale-Revised, CDI = Child Depression Inventory, CGI = Clinical Global Impressions Scale, CHQ = Child Health Questionnaire, CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale, DASS-21 = Depression Anxiety and Stress Scale-Short Form, DERS = Difficulties in Emotion Regulation Scale, DTF = Daily Tracking Form (Self-report of number of hairs pulled), EDE = Eating Disorder Examination, FamQ = Family Questionnaire, FS = Flourishing Scale, HRQoL = Health-Related Quality of Life - 4 Questionnaire, MASC = Multidimensional Anxiety Scale for Children, MGH-HS = Massachusetts General Hospital - Hair Pulling Scale, MINI-KID = Mini International Neuropsychiatric Interview for Children and Adolescents, MSSSS = MacArther Scale of Subjective Social Status - Youth Version, NIMH-GOCS = National Institute of Mental Health Global Obsessive Compulsive Scale, PAAQ = Parental Acceptance and Action Questionnaire, PSWQ-C = Penn State Worry Questionnaire - Child Adaptation, RS = Remission Status, SCAS-C = Spence Children's Anxiety Scale-Child, SCAS-P = Spence Children's Anxiety Scale-Parent, SDQ = Strengths and Difficulties Questionnaire, TASA = Therapist Alliance Scale for Adolescents, VLQ = Valued Living Questionnaire, WHOQoL-Bref = World Health Organization Quality of Life Questionnaire, YSR = Youth Self Report
Time-points: FU = Follow-up

**Table 3. Overview of quality appraisal and findings for included studies**

| Study | Problem of Interest | N | Quality (%) | Mental Health Outcomes *[Time point]* | Psychological Flexibility Outcomes *[Time point]* |
|---|---|---|---|---|---|
| Barney et al. (2017) | OCD | 3 | 62 | OCD symptoms sig. ↓ (CY-BOCS, NIMH-GOCS) *[Post-int]* | Avoidance & Fusion ↓ by 40% (AFQ-Y)<br>Parental experiential avoidance ↓ by 16% (PAAQ) *[Post-int]* |
| Buckhardt et al. (2016) | Prevention of mental health symptoms | 320 | 86 | Depression, stress and depression + anxiety sig. ↓ (DASS-21) *[Post-int]* | - |
| Buckhardt et al. (2017) | Prevention of mental health symptoms | 48 | 71 | No sig. change in depression & anxiety (DASS-21), but medium to large ES for ACT *[5 month FU]* | - |
| Hancock et al. (2018) | Anxiety | 193 | 90 | Anxiety symptoms sig. ↓ for ACT & CBT (ADIS-IV, MASC)<br>No diff. between ACT & CBT *[Post-int + 3 month FU]* | Acceptance & Defusion sig. ↑ for ACT & CBT (AFQ-Y)<br>No diff. between ACT & CBT *[Post-int + 3 month FU]* |
| Lee et al. (2018) | Tricho-tillomania | 14 | 74 | No Stat An.<br>30.8% reduction in hair pulling (MGH-HS) *[Post-int]* | No Stat An.<br>11.3% reduction in experiential avoidance (AAQ-II) *[Post-int]* |
| Meagher et al. (2018) | Anxiety | 14 | 55 | No sig. reduction in anxiety for ABBT or ABBT+MSA (SCAS-C), Anxiety sig. ↓ for ABBT-MLA (SCAS-P) *[Post-int]* | No sig. change for mindfulness or Avoidance & Fusion for ABBT or ABBT-MLA (CAMM, AFQ-Y) *[Post-int]* |
| Petts et al. (2017) | Depression | 15 | 52 | Depression symptoms sig. ↓ (CDRS-R, BDI-II) *[Post-int]* | Avoidance & fusion sig. ↓ (BADS-SF, AFQ-Y8) *[Post-int]* |
| Swain et al. (2015b) | Anxiety | 49 | 76 | Anxiety symptoms sig. ↓ for ACT + CBT (ADIS-IV, CDI, | Acceptance + defusion sig. ↑ for ACT and CBT (AFQ-Y)<br>Mindfulness ↑ for ACT not CBT |

| | | | | | |
|---|---|---|---|---|---|
| | | | | MASC) *[Post-int + 3 month FU]* | (CAMM)<br>No change in valued living for ACT or CBT (VLQ) *[Post-int + 3 month FU]* |
| Timko et al. (2016) | Anorexia nervosa | 47 | 64 | Eating disorder symptoms sig. ↓ (EDE), BMI ↑ over time *[Post-int]* | Experiential avoidance sig. ↓ (AFQ-Y) but no change for experiential avoidance measured by DERS *[Post-int + 3 month FU]*<br>Parental experiential avoidance sig. ↓ (DERS + AAQ-II) *[Post-int + 3 month FU]* |
| Van der Gucht et al. (2017) | Prevention of mental health symptoms | 616 | 71 | No sig. reduction in mental health symptoms (YSR) *[Post-int + 1 year FU]* | No sig. change in avoidance & fusion (AFQ-Y) *[Post-int + 1 year FU]* |

Problem of Interest: OCD = Obsessive Compulsive Disorder
Mental Health & Psychological Flexibility Outcomes: ↓ = decrease, ↑ = increase, AAQ-II = Acceptance and Action Questionnaire-II, ABBT = Acceptance-Based Behaviour Therapy, ADIS-IV = Anxiety Disorders Interview Schedule for Children - Fourth Edition, AFQ-Y = Avoidance and Fusion Questionnaire for Youth, AFQ-Y8 = Avoidance and Fusion Questionnaire for Youth-8, BADS-SF = Behavioural Activation for Depression Scale - Short Form, BDI-II = Beck Depression Inventory-II, BMI = Body Mass Index, CAMM = Child Acceptance and Mindfulness Measure, CDI = Child Depression Inventory, CDRS-R = Children's Depression Rating Scale-Revised, CBT = Cognitive Behaviour Therapy, CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale, DASS-21 = Depression Anxiety and Stress Scale-Short Form, DERS = Difficulties in Emotion Regulation Scale, Diff. = Difference, EDE = Eating Disorder Examination, ES = Effect Size, MASC = Multidimensional Anxiety Scale for Children, MGH-HS = Massachusetts General Hospital - Hair Pulling Scale, Multisensory Learning Aide = MLA, NIMH-GOCS = National Institute of Mental Health Global Obsessive Compulsive Scale, PAAQ = Parental Acceptance and Action Questionnaire, SCAS-C = Spence Children's Anxiety Scale-Child, SCAS-P = Spence Children's Anxiety Scale-Parent, Sig. = Significant, Stat An = Statistical Analysis, VLQ = Valued Living Questionnaire, YSR = Youth Self Report
Time point: FU = Follow up, Post-int = Post-intervention

**Discussion**

The aim of this systematic literature review was to identify and synthesise research reporting on the use of ACT as prevention or an intervention for mental health difficulties experienced by children and young people. Ten studies were identified, reporting on interventions used primarily with clinical samples in the community. Seven of these studies reported a significant reduction in

symptoms of mental health difficulties and of the 8 studies that used a measure of psychological flexibility, six reported improvement.

The present findings suggest that ACT is being researched more, particularly in comparison to findings from previous reviews. Swain et al. (2015a) completed the most recent review about ACT interventions with children and identified 21 papers, published between 2000 and 2014 which concerned a range of difficulties such as physical health, mental health difficulties and behaviour difficulties. The search strategy used in the present review (initially searching for all articles relevant to ACT and young people) meant that studies concerning ACT for young people experiencing a range of difficulties and not just mental health problems were initially identified. As indicated in Figure 1. and Appendix A, there were 35 full-text articles to assess, and all but one of these was concerned solely with ACT for children. Thus, as a comparison of the number of studies reported in both reviews, there were: 21 articles in 14 years identified by Swain et al. (2015a) and 34 articles in 3 years identified by the present review. This suggests there has been a substantial increase in the number of articles concerning ACT with children.

A previous review undertaken by Murrell and Scherbath (2006) concluded that research about the use of ACT with children required validated assessment measures, bigger sample sizes and increased use of controlled designs, all of which were evident in the present review. This is particularly apparent when the findings are compared with Swain et al. (2015a), who identified several articles reporting on case studies or case series designs and a median sample size of 8 participants. The present review found that the median sample size was 48 participants, and more than half of the included studies used an RCT design, which is considered the ideal standard for isolating the effects of an intervention and as a high level of clinical evidence (Odom et al., 2005; Burns, Rohrich & Chung, 2011). This appears to indicate that the quality of the ACT evidence base is increasing in addition to the quantity of published articles.

The findings of the present review highlighted that individuals who received an ACT intervention frequently reported a reduction in mental health symptoms, although for the two studies where an active control was used as a comparison, ACT was not shown to be more effective (Hancock et al., 2018; Swain et al., 2015b). This is consistent with findings from the adult literature, where reviews of ACT have concluded that ACT outperforms control conditions and treatment as usual, but not active CBT treatment (A-Tjak et al., 2015; Powers et al., 2009). The findings suggest that ACT could be more widely considered as an intervention approach and this may broaden suitable treatment options available for young people, including those who do not engage with or who do not respond to CBT. For example, Kendall, Settipani and Cummings (2012) have reported that approximately 35 to 40 percent of young people with anxiety do not respond to CBT treatment. Coyne et al. (2011) have hypothesised that the experiential and metaphorical techniques that are used to deliver ACT may be more appropriate for children than traditional methods of challenging cognitions.

Although the aim of ACT is to increase psychological flexibility (Hayes et al., 2004; Wilson & Murrell, 2004), and improvement in mental health symptoms is considered to be a secondary gain (Hayes et al., 2006), the review found that two studies did not use any measures associated with psychological flexibility (Buckhardt et al., 2016, 2017). Findings from the eight studies that did include measures of psychological flexibility appear to be consistent with the theory that ACT decreases distress by increasing psychological flexibility and changing the relationship with thoughts (Hayes et al., 2004; Wilson & Murrell, 2004); a reduction in mental health symptoms was always seen alongside improvement in psychological flexibility. It is not possible to conclude that the change in psychological flexibility was responsible for the reduction in mental health difficulties. However further study of processes of change would be important to investigate in studies concerning ACT for children and young people. Mediational analyses of ACT interventions with adults have found

measures of psychological flexibility, acceptance, defusion and values are successful mediators (Hayes et al., 2013).

It is also of note that the studies which used CBT as well as ACT (Hancock et al., 2018; Swain et al., 2015b), saw an improvement in acceptance and thought defusion for both participants in the ACT and CBT groups. Again, no firm conclusions can be drawn from this, but it may be indicative that ACT and CBT change processes are not as distinct as hypothesised. Future research needs to account for multiple mediators of interest (such as the components of the hexaflex) and these need to be assessed by validated measures which are sensitive to change. In addition, change should be assessed at frequent time points (such as every session) to help measure changing effects of the intervention, and ideally in comparison to mediators of interest for active control conditions.

The methodological quality of the included studies varied, but overall the quality was good, with the average quality appraisal score being 70.24%. Consistent areas of strengths (and where more points were typically awarded during quality appraisal) often related to how the study had being reported, for example, providing a clear theoretical framework, a rationale for the use of selected research tools and details about the research sites used. Domains which typically scored fewer points included a lack of service user involvement in study design, samples sizes that did not consider statistical power, and samples that were not representative of the wider group of young people being studied. The lower scores that were allocated due to methodological factors and limitations in study designs might be a reflection of how the evidence base for ACT is still developing and research is not yet focused on large trials with big samples of participants. Many of the studies in this review were smaller and conducted with clinical populations recruited from community teams. A further weakness is that many of the studies used pre and post-intervention measures only. This limits conclusions as changes cannot be fully attributed to the intervention (Thiese, 2014), outcomes are

more likely to be influenced by confounding factors and other variables may explain the findings, and consequently the results are less credible (Harris et al., 2006). In addition, only using outcome measures before the intervention and immediately after the intervention means there is limited data about the long-term changes associated with ACT. Collecting data at frequent time points and repeating measures after the intervention has been completed would allow for longitudinal data, such as information about the stability of changes over time to be obtained.

### *Strengths and Limitations*

The current review provides an overview of studies relating to ACT interventions for mental health difficulties (and the prevention of these) published since 2015. The search strategy involved identifying all articles concerned with ACT and young people which increases the chances that all eligible studies were identified. Searching the ACBS website is also likely to have increased the likelihood of identifying all relevant articles as this is widely used as a forum to share work by researchers and clinicians interested in ACT. Articles that were not published in a peer-reviewed journal or were not published in English (Habibollahi & Soltanizadeh, 2016) were not included, which may mean articles that could have been relevant to the study aims were excluded. The inclusion criteria used meant that articles reporting on interventions for adults were included, providing the mean age of the sample was 18 years or younger. This meant that samples could have included a significant number of participants who were older than 18. However, only one study included participants who were older than 18 (Lee et al., 2018) and this paper reported data for adolescents and adults separately meaning it was possible to consider the results for adolescents in isolation. The QATSDD quality appraisal tool (Sirriyeh et al., 2012) was helpful because it allowed studies of several different designs to be subject to the same appraisal process, but it means that finer details of the study design were not critically appraised. For example, consideration of how much training the intervention providers had, and risk of researcher bias were not included but can be useful for evaluating methodologies used. Some of this information has been extracted and reported in the

hope it will be useful for understanding the current evidence base for ACT.

A further limitation of this review is the heterogeneity of the studies reviewed. The studies included report on the use of ACT for a variety of mental health difficulties, using a range of intervention formats of varying lengths, and with a range of different facilitators with different levels of knowledge and training. In addition, all but one of the studies was undertaken in the USA or Australia, and many studies used a combination of ACT with another approach (e.g. positive psychology, Acceptance-Based Separated Family Treatment, motivational interviewing, multisensory learning aide). This heterogeneity means it is difficult to generalise the findings to other countries or a particular mental health difficulty.

***Recommendations for Future Research***

This review highlights the need for future research with samples which are appropriately powered for hypothesis testing, the need for multiple research sites to increase generalisability of findings, and for research designs that are more controlled and rigorous, and which allow for information about outcomes and mechanisms of change to be collected. None of the studies included in this review utilised service user involvement; which might be beneficial for future research and help ensure study designs are acceptable to young people and families. Similarly, none of the included studies obtained any qualitative information about how children and young people experienced the ACT interventions they received, which may be a significant omission from empirical papers, given the high levels of experiential engagement the approach involves. Qualitative research which has sought to specifically explore adolescent experiences of ACT has indicated that young people have found values work appealing and motivating (Kanstrup, Jordan & Kemani, 2019), and that young people experiencing depression and anxiety have found ACT to be a useful approach and have attributed improvements in mental health symptoms to ACT (Dhariwal, 2017). Although limited, this experience-focused research suggests ACT may be an acceptable and engaging approach for young

people. Given the impact on engagement and treatment completion, young peoples' experiences of ACT interventions are an important consideration for further studies in the area, perhaps particularly those comparing differential outcomes between ACT and other treatment approaches.

Although there is still a relatively small number of studies concerning ACT with children and young people at present, the finding that ACT leads to similar changes to CBT is important for clinicians and policy-makers to be aware of. Knowledge about all effective interventions allows for increased treatment options and increased choice of evidence-based psychological treatment for service users, which is often outlined in policy guidance (Matrics Cymru, 2017; NICE, 2019). At present there is no guidance available about how ACT should be implemented (for example, how many sessions and over what time period), but further methodologically rigorous studies could be used to inform policy guidance regarding the use of ACT with specific client groups or in particular settings.

***Conclusion***

ACT is increasingly being utilised to support children and young people with a range of difficulties including their mental health and well-being. Evidence suggests it is useful in increasing psychological flexibility and reducing mental health symptoms, although further rigorous studies focusing on how these processes occur is needed. If ACT is shown to be as effective as other therapies which are available, it could be a useful alternative, particularly as emerging evidence suggests that ACT may be useful as a preventative measure, as a trans-diagnostic approach to managing mental health, and for children and young people of all ages.

**Appendix A. Reasons for exclusion**

| Article | Reason |
|---|---|
| Azadeh, Kazemi-Zadhrani & Besharat (2016) | No measure of mental health used as an outcome |
| Cederberg, Dahl, von Essen & Ljungman (2017) | Young people with physical health difficulties |
| Chang & Hwang (2017) | Young people with behavioural difficulties (anger) |
| Eilers & Hayes (2015) | Young people with neuro-developmental difficulties |
| Enoch & Dixon (2017) | No measure of mental health used as an outcome |
| Enoch & Dixon (2018) | No measure of mental health used as an outcome |
| Erawati, Triredjeki & Sarwono (2018) | No measure of mental used as an outcome |
| Habibollahi & Soltanizadeh (2016) | Not published in English |
| Huestis et al. (2017) | Young people with physical health difficulties |
| Kallesøe et al. (2016) | Young people with physical health difficulties |
| Kallesøe et al. (2017) | Young people with physical health difficulties |
| Kanstrup et al. (2016) | Young people with physical health difficulties |
| Kemani, Kanstrup, Jordan, Caes & Gauntlett-Gilbert (2018) | Young people with physical health difficulties |
| Kemani, Olsson, Holmstrom & Wicksell (2016) | Young people with physical health difficulties |
| Makki et al. (2018) | No measure of mental health used as an outcome |
| Martin et al. (2016) | Young people with physical health difficulties |
| Moazzezi, Moghanloo, Moghanloo & Pishvaei (2015) | Young people with physical health difficulties |
| Moghanloo, Moghanloo & Moazezi (2015) | Young people with physical health difficulties |
| Mohammadi, Farhoudian, Shoaee, Younesi & Dolatshahi (2015) | Young people with behavioural difficulties (aggression) |
| Murrell, Steinberg, Connally, Hulsey & Hogan (2015) | Young people with neurodevelopmental difficulties |
| Puolakanaho et al. (2019) | No measure of mental health used as an outcome |
| Simon, Driessen, Lambert & Muris (2019) | No measure of mental health used as an outcome |
| Thurstone, Hull, Timmerman & Erick (2017) | Young people with behavioural difficulties (substance use) |
| Tighe et al. (2017) | Participants aged 18 and over |
| Tracey, Gray, Truong & Ward (2018) | Young people with behavioural difficulties (at-risk children) |

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