A randomised controlled trial of Acceptance and Commitment Therapy for anxious adolescents: Effectiveness and mechanisms for change

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Thesis by publication

This Doctor of Philosophy (PhD; Clinical Psychology) dissertation reflects a "thesis by publication" submission to The University of Newcastle, NSW, Australia. The Rules Governing Research Higher Degrees (Rule 000830) allow for a thesis to be submitted in the form of a series of published papers. The details of the thesis by publication rules are provided at Appendix A. This thesis submission follows the formatting guidelines provided therein.

Statement of collaboration/authorship

I hereby certify that this thesis is submitted in the form of a series of published papers of which I am a joint author. The PhD research formed part of a large randomised controlled trial conducted in collaboration with other researchers, and carried out at The Children's Hospital Westmead (CHW), Sydney, NSW, Australia. The major components of the research project involved recruitment, data collection, structured clinical interviewing and assessment (at three time points), delivery of group therapy, statistical analysis and write up. As the PhD student involved with a small team of researchers, I undertook a key role in all aforementioned components of the research. This involved assuming a lead role in recruitment drives to maximise identification of suitable adolescent participants, assessment of children/adolescents and their parents at all three time points, as well as taking the co-therapist and lead therapist role across two group therapy programs; Acceptance and Commitment Treatment (ACT) and Cognitive Behavioural Therapy (CBT). I was also active in formulating statistical planning and consulting with CHW Biostatistician to ensure the appropriateness of the planned analyses, the lead author in four of the five publications included within this thesis, and second author on the remaining paper. Included at Appendix B is a written statement from each co-author, endorsed by the Faculty Assistant Dean (Research Training), attesting to my contribution to the joint publications.

Statement of originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and – notwithstanding the collaborations described above – to the best of my knowledge and belief, contains no material previously

published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968, following an Embargo period of twelve months to allow for the final journal articles to be published ahead of this thesis being made available.

Acknowledgements

In submitting this thesis for examination, I would like to acknowledge the ongoing support and dedication of my primary supervisor, Dr Karen Hancock. Both personally and professionally your authenticity, kindness and empathy (for my often "first-world" problems) has meant more than words. You somehow mastered the juxtaposition that is wearing one's heart on one's sleeve, whilst simultaneously dragging one's self through the muddied trenches on all fours kicking and screaming to the finish line – apparently that was exactly the modelling I needed!

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Publications included as part of the thesis

Swain, J., Hancock, K., Hainsworth, C., & Bowman, J. (2013). Acceptance and Commitment Therapy in the treatment of anxiety: A systematic review. *Clinical Psychology Review, 33,* 965-978.

Swain, J., Hancock, K., Dixon, A., Koo, S., & Bowman, J. (2013). Study protocol: A randomised controlled trial of Acceptance and Commitment Therapy for anxious children and adolescents. *Trials, 40,* 140-152.

Swain, J., Hancock, K., Hainsworth, C. & Bowman, J. (2014*)*. Mechanisms of change: Exploratory outcomes from a randomised controlled trial of Acceptance and Commitment Therapy for anxious adolescents. *Journal of Contextual Behaviour Science.* Advance online publication. http://dx.doi.org/10.1016/j.jcbs.2014.09.001

Articles submitted for publication included as part of the thesis

Hancock, K., **Swain, J.**, Hainsworth, C., Dixon, A., Koo, S., & Munro, K. (2014). *Acceptance and Commitment Therapy versus Cognitive Behaviour Therapy for children with anxiety: Outcomes of a randomized controlled trial.* Manuscript submitted for publication.

Swain, J., Hancock, K., Dixon, A., & Bowman, J. (2014). *Acceptance and Commitment Therapy for children: A systematic review of intervention studies.* Manuscript submitted for publication.

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Contents

Précis

The conduct of a randomised controlled trial (RCT) at The Children's Hospital Westmead (CHW), Sydney, NSW, Australia, is central to the research reported within this PhD thesis. This trial aims to examine the effectiveness of Acceptance and Commitment Therapy (ACT) and traditional Cognitive Behaviour Therapy (CBT), relative to a waitlist control (WLC), in the treatment of anxiety disorders among children aged 7-17 years. The PhD research reported focuses on a subgroup of the participants within this trial; adolescents (aged 12-17 years). The overarching objective of the thesis is to examine the utility of ACT in the treatment of adolescent anxiety and to conduct and exploratory evaluation of the elements of the intervention that operate as mechanisms for change among these participants.

The PhD thesis by publication is comprised of an *Introductory overview*, five chapters – each comprised of an original journal article – and a *Concluding statement*. The *Introductory overview* aims to contextualise the papers within an established body of knowledge. The prevalence and impact of anxiety disorders for children is explored alongside the psychological interventions available for children with anxiety disorders. The current status and limitations of CBT as the first-line evidence based intervention for anxiety disorders is discussed; tempered by the lack of evidence for alternative interventions. ACT is introduced as a "third wave" behaviour therapy. Its underpinning philosophy of science (functional contextualism), theory (relational frame theory), as well as the ACT hexaflex model of psychological flexibility are explored, with reference to the application of ACT approaches to anxiety. The similarities and differences of ACT and CBT as two therapeutic modalities falling under the greater behavioural and cognitive therapy umbrella are reviewed, with reference to their divergent theoretical underpinnings and emphasised outcomes. The existing evidence (ahead of current research) for treating children with anxiety with ACT is explored; considering the impact of therapeutic format (individual, group or family focused) on outcomes. The thesis establishes the importance of providing an empirical account for the basis of psychotherapeutic effects – the "mechanisms of change" – to foster parsimonious clinical practice and optimise the sensitivity and specificity of interventions. From an exploratory study perspective, it elucidates the need to identify mediators of change, as an important precursor to identifying mechanisms.

Chapter 1 is comprised of a systematic review of the published and grey literature undertaken with the aim of examining the utility of ACT in the treatment of anxiety. Outcomes of interest include reductions in clinician- and self-report anxiety measures, diagnostic remission rates, clinically significant/statistically reliable change and long term treatment outcomes. A narrative synthesis approach is adopted to examine the methodological quality and results of 38 studies covering the spectrum of *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* anxiety disorders (alongside test and public speaking anxiety). This review identified only one published article on children (a case study) that was excluded from the review due to methodological inadequacies, highlighting the paucity of research evidence for this high prevalence condition among children.

An extension of the body of knowledge of ACT in the treatment of adult psychopathology is conducted in *Chapter 2* through a discussion of the adaptation and suitability of ACT techniques among child and adolescent populations. *Chapter 2* aims to examine the evidence for using ACT to treat children. A systematic review of published and unpublished child population literature is undertaken to support clinical decision making for the use of ACT. A narrative synthesis approach is employed for the 21 studies meeting inclusion criteria, with studies covering a spectrum of presenting problems. It also reports the results of a methodological quality assessment.

These early chapters set the scene for an overview of the full trial methodology and research protocol, provided in *Chapter 3*. This chapter describes the study design, participants, inclusion/exclusion criteria, procedure as well as main (clinical) outcomes, secondary (quality of life; QOL) outcomes, and putative mediator (process) variables/outcomes. It presents details of the interventions, including a session-by-session description of the ACT protocol designed at CHW as well as treatment fidelity assessment and statistical analysis approaches, including power calculations. *Chapter 4* reports the results of clinical and QOL outcomes of the RCT of the three groups (ACT, CBT and WLC). It reports changes in clinician-, self- and parent-reported clinical measures (anxiety, depression and child behaviour), QOL measures (anxiety

interference, self-efficacy as well as psychosocial and physical health-related QOL) and a measure of acceptance/defusion, gathered at pretreatment, posttreatment and 3-month follow-up (3MFU). Self-efficacy and psychosocial/physical QOL measures were limited to younger children (7-11 years) and, as such, are beyond the scope of the PhD investigation. Anxiety life interference was examined as the QOL outcome of interest among adolescents. Outcomes were only significantly different for younger children (aged 7-11 years) and adolescents (aged 12-17 years) on clinician-rated anxiety severity, in that adolescents evidenced higher mean clinical severity ratings. Despite this difference in severity, outcomes indicated the same pattern of results for younger children and adolescents in terms of main effects for group, time and the interaction. This is in line with a recent review that found no clinical or demographic factors moderated or predicted treatment outcome among children and adolescents (Nilsen, Eisemann, & Kvernmo, 2013). In light of these findings, and to increase statistical power, results for the full sample are presented with the exception of clinical severity ratings, which are presented by age. *Chapter 4* also discusses treatment adherence, credibility and therapist competency evaluations.

Upon establishment of significant changes at therapy cessation, *Chapter 5* provides a preliminary exploration of the ACT "mechanisms of change" for clinical and QOL outcomes. This is conducted via an analysis of theoretically postulated mediators of change, or process variables, which may statistically explain the relationship between therapy and outcome, among the adolescent participants. Research suggests ACT fosters psychological flexibility via six interrelational core processes – putative mediators of change – that form a "hexaflex" model: acceptance, defusion, mindfulness, self-as-context, committed action and valued living. The treatment specificity of these processes is examined through comparison of changes in these measures observed among ACT, CBT and WLC participants. Findings are discussed and contextualised within the existing mediation research conducted among adults with anxiety.

The *Concluding statement* draws together the key findings from each of the preceding chapters, as well as outlining limitations and future research directions. Finally, the *Appendices* include the aforementioned thesis by publication rules (Appendix A), the respective

“Statements from co-authors” for each of the five papers (Appendix B) and the complete ACT protocol “ProACTive” developed at CHW (Appendix C).

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Abstract

Anxiety disorders affect approximately 10-30% of children and adolescents. While traditional Cognitive Behaviour Therapy (CBT) is the first-line psychosocial treatment for children with anxiety, a significant proportion are nonresponsive or exhibit residual symptomatology at treatment cessation. Acceptance and Commitment Therapy (ACT) has been found to be effective among adults with anxiety disorders and children with other psychiatric conditions. ACT fosters psychological flexibility via putative mediators of change that form a "hexaflex" model: acceptance, defusion, mindfulness, self-as-context, committed action and valued living. This research examined ACT versus CBT in the treatment of anxiety disorders among children and adolescents. Among adolescents, an exploratory investigation of ACT mediators for change was undertaken. One-hundred-and-ninety-three children were block randomised to a manualised 10-week group format ACT or CBT program, or to waitlist control (WLC). Repeated clinical – clinician/self/parent-reported anxiety, depression and problem behaviours – and quality of life (QOL) measures – anxiety interference, psychosocial and physical health-related QOL – were taken pretreatment, posttreatment and 3-month follow-up (3MFU). Completers were 157 children, 58% female, with a mean age of 11 years (*SD* = 2.8). Completer and intention-to-treat (ITT) analyses revealed ACT and CBT were both superior to WLC across outcomes, reflecting statistically and clinically significant differences, with gains maintained at 3MFU. While WLC improved significantly on some outcomes at posttreatment, improvements were not clinically significant. Both completer and ITT analyses found ACT and CBT to produce similar outcomes. However, on ITT 3MFU results, CBT evidenced significantly lower scores on clinician-, but not self- or parent-reported outcomes. Mediation results were mixed. The hexaflex mediated the relationship between treatment and clinician-rated anxiety severity for ACT only; with treatment common effects observed for depression and self-reported anxiety. Acceptance and defusion emerged as specific mediators and evidenced the same pattern of effects, with clinician-rated anxiety effects treatment common. Hexaflex effects were accounted for by acceptance and defusion, as all other process measures were nonsignificant. Mediation analyses for parent-rated and QOL outcomes were nonsignificant. Few changes in process measures were observed post to 3MFU and mediation effects were nonsignificant. In conclusion, ACT and CBT are both effective in improving clinical and QOL outcomes among

children with anxiety. Despite mixed results, there was some evidence for acceptance and defusion as treatment common change mediators. Limited support was obtained for the hexaflex model, the processes of valued action and mindfulness/self-as-context and the treatment specificity of mediation effects. ACT may be a viable alternative evidence based treatment option for clinicians working with children with anxiety disorders. Despite their differences ACT and CBT may be underpinned by analogous mechanisms.