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Augmenting one-session treatment of children's specific phobias with attention training to positive stimuli

Allison M. Waters [a, e, *], Lara J. Farrell [a, e], Melanie J. Zimmer-Gembeck [a, e], Ella Milliner [a, e], Evelin Tiralongo [b, e], Caroline L. Donovan [a, e], Harry McConnell [c, e], Brendan P. Bradley [d], Karin Mogg [d], Thomas H. Ollendick [f]

[a] School of Applied Psychology, Griffith University, Australia
[b] School of Pharmacy, Griffith University, Australia
[c] School of Medicine, Griffith University, Australia
[d] Psychology, University of Southampton, United Kingdom
[e] Griffith Health Institute, Griffith University, Australia
[f] Child Study Centre, Virginia Tech, USA

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ABSTRACT

This study examined the efficacy of combining two promising approaches to treating children's specific phobias, namely attention training and one 3-h session of exposure therapy ('one-session treatment', OST). Attention training towards positive stimuli (ATP) and OST (ATP+OST) was expected to have more positive effects on implicit and explicit cognitive mechanisms and clinical outcome measures than an attention training control (ATC) condition plus OST (ATC+OST). Thirty-seven children (6–17 years) with a specific phobia were randomly assigned to ATP+OST or ATC+OST. In ATP+OST, children completed 160 trials of attention training responding to a probe that always followed the happy face in happy-angry face pairs. In ATC+OST, the probe appeared equally often after angry and happy faces. In the same session, children completed OST targeting their phobic situation/object. Clinical outcomes included clinician, parent and child report measures. Cognitive outcomes were assessed in terms of change in attention bias to happy and angry faces and in danger and coping expectancies. Assessments were completed before and after treatment and three-months later. Compared to ATC+OST, the ATP+OST condition produced (a) significantly greater reductions in children's danger expectancies about their feared situations/object during the OST and at three-month follow-up, and (b) significantly improved attention bias towards positive stimuli at post-treatment, which in turn, predicted a lower level of clinician-rated phobia diagnostic severity three-months after treatment. There were no significant differences between ATP+OST and ATC+OST conditions in clinician, parent, or child-rated clinical outcomes. Training children with phobias to focus on positive stimuli is effective in increasing attention towards positive stimuli and reducing danger expectancy biases. Studies with larger sample sizes and a stronger 'dose' of ATP prior to the OST may reveal promising outcomes on clinical measures for training attention towards positive stimuli.

Introduction

Specific phobias are a significant problem affecting between 5 and 10% of children and adolescents across community and clinical samples (see Kessler et al., 2005; Ollendick, Hagopian, & King, 1997). These disorders typically precede other phobias and anxiety, mood and substance use disorders in adulthood (Gregory et al., 2007; Kendall, Safford, Flannery-Schroeder, & Webb, 2004), and are associated with academic difficulties (Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam, 1995), and social and personal distress (Ollendick & March, 2004). Although the prevention and treatment of childhood phobias has been identified as a major health imperative (Gregory et al., 2007; Ollendick, Öst, Reuterskoild, Costa, & Cederland, 2009), fewer than 10% of adults report ever seeking treatment for their phobias despite suffering

* Corresponding author. School of Applied Psychology, Griffith University, Australia.
E-mail address: a.waters@griffith.edu.au (A.M. Waters).

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with the disorder for more than 20 years on average (Stinson et al., 2007).

Cognitive-behavioural therapy (CBT) is a well-established psychological treatment for childhood anxiety disorders that involves experimentation with alternative, more adaptive behaviours and cognitions, primarily through in vivo or imagined exposure to feared stimuli or situations and restructuring of cognitive beliefs and appraisal processes (Farrell, Waters, Milliner, & Ollendick, 2012; Waters, Wharton, Craske, & Zimmer-Gembeck, 2008). Extinction learning is the theoretical basis of exposure therapy (see Boschen, Neumann, & Waters, 2009; Vervliet, Craske, & Hermans, 2012 for reviews), whereby repeated exposure to the feared stimulus or situation (i.e., conditional stimulus, CS) provides corrective evidence that violates expectancies regarding danger (unconditional stimulus, UCS) and coping estimates (Craske et al., 2008). Learning that the CS is not associated with the UCS during exposure therapy gradually reduces distress (i.e., the unconditional response; UR). Thus, exposure therapy does not remove the original fear learning but leads to additional, new learning that the stimulus or situation is safe (Bouton, 2002). Long-term fear extinction/successful treatment outcomes therefore depend on whether the original fear learning or new extinction learning is retrieved when encountering the feared stimulus or situation again in the future (Boschen et al., 2009).

With between 40 and 50% of children not diagnosis-free following exposure-based CBT (see Rapee, Hudson, & Schniering, 2009, for a review), a considerable number of anxious children either do not respond at all or fail to achieve sustained improvement. Moreover, many who do respond still exhibit residual symptoms, which predict high rates of relapse at long term follow-up (Ginsburg et al., 2014). Further still, many children with specific phobias do not have access to efficacious treatments in their communities (Kendall, Settipani, & Cummings, 2012), whereas the cost of these interventions may prohibit access for many others (Essau, 2005).

To enhance interventions and their application, and to reduce costs and make therapy more easily accessible, an intensive form of exposure-based CBT, called "one session treatment" (OST; Davis & Ollendick, 2005; Ollendick, King, & Chorpita, 2006; Öst, 1997) has been developed that is typically delivered individually in one session (lasting up to 3 h) using a standard format involving three principles of (a) participant modelling, (b) in vivo exposure, and (c) reinforced practice. This treatment has been designated as an evidence-based treatment for adults with specific phobias (Chambless & Ollendick, 2001; Zlomke & Davis, 2008) and shown to be superior to waitlist and active control conditions in several small- and large-scale clinical trials of children with specific phobias (e.g., Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998; Ollendick et al., 2009; Öst, Svensson, Hellstrom, & Lindwall, 2001). After the OST, between 50 and 80% of children with diverse types of specific phobias were diagnosis free by post-treatment and/or 6-month follow-up (Ollendick et al., 2009; Öst et al., 2001). Although such results are encouraging in that they demonstrate that OST can produce similar treatment outcomes as standard CBT packages, they nevertheless indicate that a significant proportion of children with specific phobias still do not benefit or achieve sustained improvement after the OST. This highlights the continued need for more research on ways to enhance outcomes from intensive formats of exposure-based CBT.

Recent advances in understanding the cognitive and neurobiological correlates of anxiety disorders in children can provide insight into new directions for novel interventions (see Waters, Farrell, & Schilpzand, 2013; for a review). Attention bias modification training (ABMT) is an emerging treatment producing a moderate effect size based on studies with adults (see Hakamata et al., 2010 for a review). ABMT aims to modify implicit attention biases towards threat stimuli which are thought to maintain anxiety (see Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & Van-Ijzendoorn, 2007 for a review) by teaching participants to rapidly direct their attention away from threatening and toward neutral cues, thereby reducing anxiety symptoms (cf. Hakamata et al., 2010; Hallion & Ruscio, 2011). Most of the studies on ABMT use a modified visual probe paradigm (MacLeod, Mathews, & Tata, 1986), a computer-based task, originally developed for attention bias assessment. This task presents a series of stimulus pairs (e.g., a threat face and neutral face presented side by side) and, after each stimulus pair disappears, a probe (e.g. small dot or arrow) replaces either the threat or neutral stimulus. Visual probe ABMT modifies attention biases by repeatedly presenting probes after neutral and not following threat stimuli, thereby training participants to preferentially direct their attention to neutral information (e.g., Schmidt, Richey, Buckner, & Timpano, 2009).

Empirically, a redirection of attention can be achieved in subclinical and clinical participants, and this attention modification often results in a decrease of both observed and self-reported anxiety symptoms (e.g., Amir, Beard, Burns, & Bomyea, 2009; Amir, Beard, Taylor, 2009; Amir, Weber, Beard, Bomyea, & Taylor, 2008; Amir & Taylor, 2012; Hazen, Vasey, & Schmidt, 2009; See, MacLeod, & Bridle, 2009; see Clarke, Notebaert & MacLeod, 2014, for a review). However, a number of studies have failed to show favourable effects of ABMT on threat attention bias and/or anxiety levels in subclinical and clinical samples of adults (e.g., Behar, McHugh, Peckham, & Otto, 2010; Eldar & Bar-Haim, 2010; Julian, Beard, Schmidt, Powers, & Smits, 2012; McNally, Enock, Tsai, & Tousain, 2013; Neubaeur et al., 2013; Rapee et al., 2013; Van Bockstaele, Verschuere, De Houwer, & Crombez, 2010).

Research on threat attention bias and ABMT in anxious children has lagged behind that with adults; even so, early findings have been similarly mixed (Bar-Haim, Morag, & Clickman, 2011; Bechor et al., 2013; Cowart & Ollendick, 2011; Eldar et al., 2012; Rozenman, Weersing, & Amir, 2011). Specifically, findings regarding the direction of threat attention bias have been more varied in anxious children than anxious adults with threat vigilance and threat avoidance often observed in anxious children compared to healthy controls (see Salum et al., 2013; Waters, Bradley, & Mogg, 2014). Thus, as biased attention towards threat only manifests in a subset of anxious children (e.g., Bechor et al., 2013; Cowart & Ollendick, 2011), some studies have addressed this issue by excluding children who do not show a pre-treatment bias towards threat stimuli (e.g., Eldar et al., 2012). While this might mitigate potential adverse effects, it limits clinical applicability of ABMT to only a subset of anxious children. Other recent studies combining ABMT with a full course of CBT (e.g., Shechner et al., 2014) found that both active and placebo ABMT augmented CBT outcomes based on clinician and parent-reports of anxiety compared to CBT alone. However, a shift of attention away from threat after treatment was common to all three treatments leaving it unclear whether change in attention to threat due to ABMT contributed to the differential outcomes. Nevertheless, these findings encourage further research on combined treatments.

Training anxious children to preferentially focus attention on positive stimuli could potentially overcome some of the problems in applying ABMT to children. Using a visual-search training paradigm with adults, Dandeneau, Baldwin, Baccus, Sakellaropoulo, and Pruessner (2007) found that participants in the positive training condition (i.e. trained to attend preferentially to smiling rather than disapproving faces) experienced significant reductions in physiological and self-report stress responses, relative to participants in the control condition. Other findings suggest that training attention towards positive stimuli and rewards might minimize anxiety or

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