



## One session treatment for pediatric blood-injection-injury phobia: A controlled multiple baseline trial



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### ABSTRACT

The present study evaluated the effectiveness of a modified One Session Treatment (OST), which included an e-therapy homework maintenance program over 4 weeks for Blood-Injection-Injury (BII) phobia in children and adolescents. Using a single case, non-concurrent multiple-baseline design, 24 children and adolescents (8–18 years; 7 males, 17 females) with a primary diagnosis of BII phobia were randomly assigned to a one, two or three week baseline prior to receiving OST. Primary outcome measures included diagnostic severity, diagnostic status, and child and parent fear ratings. Secondary outcome measures included avoidance during behavioural avoidance tasks (BAT), global functioning and self and parent reported anxiety, fear and depression. Efficacy was assessed at post-treatment, 1-month, and 3-month follow-up. BII symptoms and diagnostic severity remained relatively stable during the baseline periods and then significantly improved following implementation of the intervention. Treatment response was supported by changes across multiple measures, including child, parent and independent clinician ratings. At post-treatment 8 of the 24 (33.33%) children were BII diagnosis free. Treatment gains improved at follow-ups with 14 (58.33%) children diagnosis free at 1-month follow-up and 15 (62.5%) diagnosis free at 3-month follow-up. Preliminary findings support the effectiveness of a modified OST approach for BII phobic youth with treatment outcomes improving over follow-up intervals.

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Blood-Injection-Injury (BII) phobia is a severe and debilitating condition, characterized by fear and avoidance of seeing blood, receiving an injection or other invasive medical procedure, or being injured (American Psychiatric Association (APA), 2013). It occurs in as many as 0.8%–1.3% of children and adolescents and 3–4% of adults (Burstein et al., 2012; Curtis, Magee, Eaton, Wittchen, & Kessler, 1998; Depla, ten Have, van Balkom, & Graaf, 2008; Essau, Conradt, & Petermann, 2000; Kim et al., 2010) and is associated with serious health consequences. For example, adults with BII phobia report avoiding routine medical check-ups; seeing a physician; having operations; receiving medical treatment for

diagnosed illnesses (e.g. asthma, diabetes and heart failure); and dental treatment (Öst & Hellström, 1997). Moreover, they may avoid certain career paths (e.g., nursing, medicine), travel for fear of receiving necessary vaccinations, and becoming pregnant (Öst, Hellström, & Kåver, 1992). BII is thought to be distinct from the other phobia types in that it is associated with a stronger genetic vulnerability (Van Houtem et al., 2013) and a unique physiological (e.g., fainting) and emotional response (e.g., disgust; Olatunji, Cisler, McKay, & Phillips, 2010).

In adults with BII, behavioural and cognitive-behavioural treatments have received empirical support with five-controlled treatment trials conducted to date (Hellström, Fellenius, & Öst, 1996; Öst, Fellenius, & Sterner, 1991; Öst et al., 1992; Öst, Lindahl, Sterner, & Jerremalm, 1984; Öst, Sterner, & Fellenius, 1989). As is evident, these trials were conducted solely by Öst and colleagues in Sweden and included the evaluation of a range of behavioural interventions including; massed or spaced exposure (e.g.,

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confrontation of feared object or situation in a controlled manner, for a prolonged period of time), applied tension (e.g., brief tension of arms, legs and torso muscles, followed by release, not relaxation, of the muscles and implemented during exposure to BII stimuli), tension only (e.g., tension technique the same as that used in applied tension; however, patients are not exposed to BII stimuli), applied relaxation (e.g., progressive muscle relaxation in the context of exposure to BII stimuli, and a combination of applied tension and relaxation) (Ayala, Meuret, & Ritz, 2009; Öst et al., 1984, 1989). In their systematic review of treatments for BII, Ayala et al. (2009) concluded that regardless of type of intervention (e.g., exposure, applied tension), treatment was equivalent, with 70–80% of patients responding. Despite expectations that applied tension might be associated with greater benefits given the unique physiological response associated with BII (Ayala et al., 2009), there was limited evidence for the additional effects of applied tension above and beyond exposure alone. In contrast, BII phobia has been neglected in the child and adolescent literature and no controlled studies have been conducted to date.

For youth with specific phobia, an intensive cognitive behavioural treatment (CBT) called One Session Treatment (OST) is considered a first line treatment (Milliner & Farrell, 2014; Ollendick & Davis, 2013). OST incorporates in vivo exposure, cognitive challenges, participant modelling, reinforced practice and psychoeducation in a single session maximised to 3 h. Empirical support for OST has been demonstrated in 10 studies, including three large randomised controlled trials (RCT; Ollendick et al., 2015, 2009; Öst, Svensson, Hellstrom, & Lindwall, 2001) and seven smaller clinical trials (Farrell et al., 2013; Flatt & King, 2010; Leutgeb, Schäfer, Köchel, & Schienle, 2012; Leutgeb & Schienle, 2012; Muris, Merckelbach, Holdrinet, & Sijnsenaar, 1998; Muris, Merckelbach, Van Haften, & Mayer, 1997; Waters et al., 2014) for a diverse range of specific phobia subtypes in youth, including animal (e.g., dog, cat, spider), natural environment (e.g., dark, water, heights), situational (e.g., lifts) and other (e.g., vomit, loud noises). In these studies, OST has been found to be superior to a waitlist control (Flatt & King, 2010; Ollendick et al., 2009; Öst et al., 2001), psychological placebo (Ollendick et al., 2009) and Eye Movement and Desensitization and Reprocessing (EMDR; Muris et al., 1998, 1997). Although OST is effective for most phobic youth (50–80% diagnosis free), there still remain a significant proportion of children who only partially respond or do not respond to this treatment (Ollendick & Davis, 2013). Moreover, BII has rarely been examined in these studies.

In their RCT ( $n = 60$ ) for phobic youth, Öst et al. (2001) included 12 youth with injection phobias and 2 with blood phobias. Overall, these youth were found to respond significantly less well to treatment than youth with other types of phobia based on a post-assessment behavioural approach task. These children reportedly had difficulty differentiating the therapist from other health professionals (e.g., doctor, nurse) who they associated with previous anxiety provoking experiences, and as such, were less likely to engage in therapist assisted exposure tasks. Flatt and King (2010) also included a small number (6 participants) of youth with BII phobias; however, they did not examine differences in treatment outcome across the different types of phobia. Ollendick et al. (2015, 2009) specifically excluded youth with BII phobias for various reasons, including poorer treatment response in Öst et al. (2001); unique physiological response (e.g., fainting); and the complexity associated with delivering treatment to these youth (i.e., need for medical professionals).

In a recent paper, Oar, Farrell, and Ollendick (Submitted) described the development of a modified OST approach to enhance treatment outcome for BII phobia in children and adolescents and its use with two youth. The youth received individualised, case-

formulation driven OST. The cases highlighted the unique challenges associated with treating BII in youth. Modifications included addressing the role of pain (e.g., psychoeducation, more graduated exposure steps), disgust (e.g., disgust eliciting exposure tasks), and fainting in the maintenance of children's phobia. Moreover, it was recommended that parents be more actively involved throughout treatment (e.g., education session prior to OST, contingency management training, guidance regarding planning exposure tasks following treatment) and for families to participate in a structured maintenance program post-treatment.

The aim of the current study was to examine the efficacy of this modified OST in a multiple baseline controlled trial in youth (8–18 years) with a primary diagnosis of BII, who were randomly assigned to a 1-week, 2-week or 3-week baseline. This design allows for the evaluation of the efficacy of novel interventions in a controlled manner (Jarrett & Ollendick, 2012). Single case designs are endorsed by the evidence based treatment movement (Task Force on Promotion and Dissemination, 1995) and are considered an important initial step in examining the efficacy of novel treatments. It was expected that BII symptoms and diagnostic status would remain stable during the baseline periods and then significantly improve following modified OST. Moreover, it was predicted that significant reductions would be observed from pre-to post-treatment on clinician ratings (CSR), diagnostic status, global functioning, behavioural avoidance during a behavioural avoidance tasks (BAT), self-reported anxiety, fearfulness and depression. Finally, it was expected that modified OST would be acceptable to families and that treatment gains would be maintained at 1- and 3-month follow-ups.

## 1. Method

### 1.1. Participants

Children and their parents were recruited through referrals from paediatricians, general health practitioners and other health professionals, and via advertising in school newsletters. Youth had to be between 8 and 18 years and meet criteria for a primary diagnosis of BII phobia according to the DSM-V. Comorbidity with other internalising and externalising disorders was permissible provided they were secondary diagnoses, or co-primary with BII. Children and adolescents were required to have at least one parent available to attend all assessment and treatment appointments. Children on psychotropic medications were required to be stabilised on their current dose for at least 6 weeks prior to entering the trial. There were no medication changes throughout the study. Eligible families agreed to be randomly assigned to a baseline period of up to 3 weeks prior to treatment and to cease any concurrent psychological therapy from the time of their enrolment into the trial until the 3-month follow-up assessment, unless clinically required. Youth were excluded if they had a diagnosis of an Autistic Spectrum Disorder or Intellectual Impairment, reported psychotic symptoms or reported serious suicidal ideation.

Forty-seven families contacted the research team and completed an initial telephone screen. Twenty-four children and adolescents (8–18 years; 29.20% males,  $M = 10.86$ ,  $SD = 2.41$ ; 70.80% females,  $M = 12.12$ ,  $SD = 3.41$ ) participated in the trial, which was approved by the Griffith University Human Research and Ethics Committee (refer Table 1). Of those youth, 54.17% ( $n = 13$ ) presented with injection phobia only, and 45.83% ( $n = 11$ ) presented with combined BII phobia. Five children (20.80%) reported a history of vomiting when confronted with their feared stimuli, while a further 4 (16.70%) children reported a history of fainting in the presence of their feared stimuli. Seven children (25%) experienced significant physical health problems including Type 1

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