Chapter 11
Empirical Status of One-Session Treatment

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Introduction

One-session treatment (OST) is a massed, intensive exposure treatment that is maximized to a single 3-hour session. OST uniquely incorporates a variety of efficacious methods such as participant modeling, reinforcement, psychoeducation, and cognitive challenges during graduated exposure (Davis and Ollendick 2005; Davis et al. 2009; Öst 1997; Zlomke and Davis 2008). To address these points, various other chapters have covered the implementation of OST (see Chaps. 4–7 and 9) using the extant literature to describe the principles and administration of OST with a variety of different individuals. This chapter, however, will examine the literature to determine the evidence base behind the use of OST, and its current evidentiary standing will be evaluated and updated (see Davis et al. 2011; Davis and Ollendick 2005; and Zlomke and Davis 2008 for previous reviews). The most detailed review of OST to date, by Zlomke and Davis (2008), summarized the literature and concluded that approximately 85–90% of individuals receiving OST benefited significantly from the treatment and that it met empirically supported treatment criteria for a probably efficacious intervention at that time. In the years since Zlomke and Davis, however, a number of other studies have added to the evidence base for OST making a new, updated review timely.

Evidence-Based Practice and Empirically Supported Treatment

The current trend toward evidence-based practice (EBP) in applied psychology has its roots in the early to mid-1990s with the Task Force on Promotion and Dissemi-

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nation of Psychological Procedures (1995; henceforth, Task Force). This Task Force had the mandate of determining the evidence for the use of certain psychological therapies. The result of their report and subsequent updates was a three-tier system of categorization based on the quantity and quality of evidence for a particular intervention. In decreasing evidentiary level, these categories and their criteria are as follows (adapted from Chambless et al. 1996):

Well-established treatments

I. At least two good experiments using between-group designs which show
   (a) A treatment's statistical superiority to a pill, psychological placebo, or another treatment.
   (b) A treatment's equivalence to another well-established treatment using an adequately powered experiment (i.e., at least 30 individuals per group per Kazdin and Bass 1989).

or

II. A sufficient number of single-case design studies (more than nine) that have
   (a) Used accepted and appropriate controlled single-subject designs and
   (b) Included comparisons to treatments similar to criterion I-a.

Further criteria for I and II:

III. The descriptions of the treatment process must be reasonably described or a treatment manual must be used.
IV. Detailed descriptions of participant characteristics must be specified.
V. The treatment's effects must be demonstrated by at least two different researchers or research teams.

Probably efficacious treatments

I. At least two good experiments which show a treatment's statistical superiority to a wait-list control group.

or

II. One or more experiments that meet the criteria for a well-established treatment (I-a or I-b, III, and IV), except there has as yet been no replication by another researcher or research team.

or

III. Three or more single-case design studies which otherwise meet the well-established criteria.

Experimental treatments

I. Those treatments which have not yet been studied or researched in sufficient depth to meet the consideration for probably efficacious or well-established status.

or

II. Those treatments whose research base has not demonstrated improvement to meet the probably efficacious or well-established status.

These strict guidelines came to be known as the criteria for empirically supported treatments (EST). Notably, these EST guidelines differ from EBP, the latter being a broader concept that encompasses the former. In short, a clinician with an evidence-based approach to practice seeks to use the available research and evidence on a particular disorder or problem in planning and conducting appropriate treatment. This plan may or may not include finding an EST for a particular disorder or evidence for a treatment from a randomized clinical trial, but it does emphasize integrating the evidence that is available (e.g., controlled case studies) into an informed approach to treatment (Davis 2009; Ollendick and Davis 2004).

Briefly, in considering EBPs and ESTs it should be noted that the mythology surrounding the use of manuals and EBPs and possible negative outcomes due to manuals have been misleading. A number of criticisms of EBP and EST have not been supported in the literature. For example, manuals for the treatment of anxiety have not been found to impair clinician–patient treatment alliance (e.g., even in children, Langer et al. 2011); to the contrary, using manuals for anxiety and depression have been found to lead to better alliance early in treatment and equivalent alliance outcomes to community treatment as usual over time (Langer et al. 2011). For OST specifically, even children have found manualized OST to be positive: "Results indicated that the treatment was experienced as something positive, and the large majority of children appreciated the pace and degree of control they had during the treatment as well as the therapist and the treatment outcome" (Svensson et al. 2002, p. 80). As a result, this review will provide an EBP review of the literature on OST (i.e., summarizing the evidence that is present) while also updating the more stringent EST status of OST.

Method

A review of all the studies that utilized OST as the primary treatment method for specific phobia, as outlined by Öst (1989), was conducted to examine the empirical status of OST.These articles were identified through literature searches in PsycInfo, Science Direct, and PubMed using the search terms "one session treatment," "OST," "massed exposure," "brief treatment," and "rapid treatment," in combination with "specific phobia." A citation search was also conducted to identify articles that referenced Öst (1987, 1989, 1997) as potential candidates for inclusion. Studies that did not specifically outline the treatment approach in conjunction with Öst's (1989) OST protocol (e.g., instead made vague references to massed exposure, shortened treatment) were excluded from determination of empirical status per EST guidelines (see the preceding list; Chambless et al. 1996).

As a result, several dozen studies and case studies that outlined specific OST procedures were identified and considered for inclusion in this review. Using the Task Force guidelines for ESTs as well as those described in Chambless et al. (1996), an arguably strict approach (Davis 2009; Davis and Ollendick 2005) was taken to

determine the empirical status of OST in adults as well as in children and adolescents. Detailed criteria for well-established, probably efficacious, and experimental treatments are listed earlier. For ease of analysis and better understanding, the studies described in the following sections were separated by phobic stimulus (e.g., spider, dog), session format (i.e., group or individual), and population (i.e., adult or child). In addition, treatment efficacy was evaluated as a whole. Furthermore, clinically significant change, defined as statistically reliable change from pretreatment to posttreatment with posttreatment functioning falling within normal limits (Jacobson and Truax 1991), was assessed in most studies often through the use of clinician severity ratings (CSRs). Studies deemed inappropriate for inclusion in the determination of the empirical status for OST are discussed in a subsequent section. These studies failed to meet the EST guidelines for inclusion (see the preceding list; Chambless et al. 1996) for various reasons including small sample sizes, inadequate power, and inadequate comparison groups. However, their findings are relevant in the growing literature concerning OST and EBP and, therefore, a brief discussion is provided.

OST with Adults

OST has been utilized in a number of controlled studies with adults. These studies have been selected for review for having used rigorous methodologies (e.g., random assignment, diagnosed samples, etc.). OST has been examined in both individual and group treatment formats with various phobic stimuli (e.g., spider, injection, claustrophobia, flying, and small animals). Moreover, all these studies specifically mention the use of an OST protocol in their controlled studies (e.g., Öst 1987, 1989). Findings from these studies are summarized in Tables 11.1 and 11.2.

Spider Phobia

Öst et al. (1991) compared OST with manual-based self-exposure treatment (based on the procedures for traditional OST) in individuals with spider phobia. Results showed that participants in the OST condition made significantly more treatment gains at both posttreatment and 1-year follow-up. These improvements were evident on self-report and behavioral measures as well as on clinician ratings. No differences were observed on physiological measures.

OST was compared with four different types of manual-based therapies for the treatment of spider phobia by Hellström and Öst (1995). These manual-based therapies included specific manual-based treatment in the home, specific manual-based treatment in the clinic, general manual-based treatment in the home, and general manual-based treatment in the clinic. The specific manualized treatments were based on the description of OST given by Öst (1989) while the general manual treatments were based on a manual by Marks (1978) and were not specific to spider phobia.

Table 11.1 Individually administered OST with adults

References	Phobic stimulus	Condition	N	Session length (minutes)
Öst et al. (1991)	Spider	OST, therapist directed	17	126.2
		Self-directed exposure	17	282.8
Hellström and Öst (1995)	Spider	OST therapist directed	10	Not reported
		Specific manual (home)	10	
		Specific manual (clinic)	11	
		General manual (home)	11	
		General manual (clinic)	10	
Thorpe and Salkovskis (1997)	Spider	OST	13	Not reported
		Wait-list control	12	
Andersson et al. (2009)	Spider	OST	14	180
		Internet-based self-help	13	720
Koch et al. (2004)	Small animals	Behavioral treatment	10	99.85 (across all treatments)
		Behavioral treatment + generalization	10	
		CBT (OST)	10	
		CBT (OST) + generalization	10	
Haukebø et al. (2008)	Dental procedures	OST	10	Presumed to be up to 180
		5 sessions of treatment	10	Not reported
		Wait-list control	20	
Öst et al. (1992)	Injection	OST	20	120
		5 sessions of exposure	20	212
Vika et al. (2009)	Injections	OST	23	167
		5 sessions of exposure	26	264
Öst et al. (2001a)	Claustrophobia	OST	10	180
		5 sessions of exposure	11	300
		5 sessions of cognitive therapy	11	300
		Wait-list control	18	
Öst et al. (1997a)	Flying	OST	14	180
		5 sessions of exposure	14	360

CBT cognitive behavioral therapy, *OST* one-session treatment

OST was found to be significantly more effective than both general manual therapies as well as the specific manualized treatment in the home. Notably, the specific manual-based treatment in the clinic group improved more than the other manualized treatment at follow-up assessment only. The OST group was significantly better than the manual conditions on subjective distress during a behavioral avoidance test (BAT), self-report measures, and clinician ratings. Differences were not found on physiological measures though all participants improved on these measures at posttreatment assessment.

Thorpe and Salkovskis (1997) examined the effect of OST on avoidance and phobic beliefs in individuals with spider phobia. Participants, randomized into an OST

Table 11.2 Group-administered OST with adults

References	Phobic stimulus	Condition	N	Session length (minutes)
Öst et al. (1997b)	Spider	Direct group OST	16	Approx. 207
		Direct group observation	16	Approx. 128
		Indirect (video) group observation	16	Approx. 128
Götestam (2002)	Spider	Direct group OST	14	120
		Direct group observation	13	120
		Indirect (video) group observation	11	120
Schienle et al. (2007)	Spider	Small-group OST	14	Up to 240
		Wait-list control group	12	
Leutgeb et al. (2009)	Spider	Small-group OST	22	Up to 240
		Wait-list control group	23	

OST one-session treatment

group or wait-list control group, completed a BAT and self-report measures of cognition and subjective fear prior to and after treatment/wait-list period. Results showed significant differences between the treated and untreated phobic participants on the BAT and on self-reported fear, avoidance, and interference measures. Overall findings indicated that OST, as compared with a wait-list control, significantly improved participants' negative beliefs regarding spiders in addition to their phobic responses.

Andersson et al. (2009) compared OST with guided Internet-delivered self-help for adults diagnosed with spider phobia. The Internet self-help group consisted of five weekly text modules plus a video of exposure instruction. Participants in that group were also assigned a therapist who tracked their homework assignments and their treatment progression. Postassessments showed that these two groups only differed on the BAT as the OST group evidenced a significantly higher proportion of individuals with clinically significant improvement at post; however, the two treatments were equally efficacious at 1-year follow-up. Differences were not observed on any of the self-report measures (e.g., Fear Survey Schedule-III and Spider Phobia Questionnaire).

In addition to individual treatment, OST has also been used with adults in a group-administered format. For instance, Öst et al. (1997b) examined three variations of group-administered OST in individuals with spider phobia at pretreatment, post, and follow-up: direct treatment (traditional OST), direct observation (participant viewed treatment 4–6 ft away), and indirect observation (participant viewed treatment via videotape). The main difference between these treatment groups was that the two observation groups (direct and indirect) did not interact with the phobic stimulus

while the direct treatment group did. Results indicated expected group by time interactions on subjective ratings (i.e., SUDs), self-efficacy ratings, and clinician ratings of phobic severity for participants in the direct treatment group compared with either observation group. Group by time interactions were not significant on physiological measures, BAT performance, or other self-report measures; however, significant improvements were evident across treatment groups at posttreatment assessment. Even so, for BAT performance the direct treatment group did better than the direct observation group at postassessments and follow-up assessments, and did better than the indirect observation group at postassessments. Notably, 75% of the participants in the direct treatment group evidenced clinically significant improvement.

Other researchers have also examined group treatment for spider phobia. Schienle et al. (2007) examined 26 women with spider phobia. They found that a small-group OST group improved significantly more by posttreatment than a wait-list on a BAT and on the spider phobia questionnaire (Klorman et al. 1974). A subsequent 6-month follow-up was conducted, though significant attrition and failure to follow up on a control group limit the interpretation of these findings (Schienle et al. 2009). Leutgeb et al. (2009) also examined small-group OST for women with diagnosed spider phobia. Compared with a wait-list control group, the OST group had improved significantly by 1-week posttreatment on a BAT and on the spider phobia questionnaire.

Götestam (2002) examined three separate group treatments, similar to those in Öst et al. (1997b), for individuals with spider phobia. Groups consisted of direct exposure (i.e., OST), indirect exposure (observing a participant receive treatment), and video modeling (viewing a video of a participant receiving treatment). Results showed no significant group differences at posttreatment: all groups significantly improved on self-report measures of body sensations, cognition, and self-efficacy. These findings were contrary to those found by Öst et al. (1997b) who also utilized group-administered OST.

Small Animal Phobias

Koch et al. (2004) evaluated the efficacy of one session of behavioral treatment (i.e., therapist provides instructions and models for each treatment step) to one session of CBT (loosely followed the guidelines of OST) for individuals with various small animal phobias. Participants were further randomized into a programmed generalization condition, which entailed "booster" sessions between postassessments, or a nonprogrammed generalization condition (i.e., no additional sessions). The participants in this study either met criteria for a full diagnosis of specific phobia or partial criteria (i.e., did not endorse Criterion E of the *DSM-IV* that requires the phobia to significantly interfere in the individual's life or cause them marked distress). Results showed that both treatments produced significant improvements in terms of behavioral measures and subjective fear. Further, the programmed generalization did not improve outcomes for either treatment. In terms of acceptability, participants rated

the OST condition as less intrusive than the participants in the behavioral condition. Overall, Koch et al. (2004) did not find significant differences between conditions.

Injection Phobia

Two controlled studies of OST for injection phobia have been conducted to date. In the first study, Öst et al. (1992) evaluated OST in comparison to five sessions of exposure for injection phobia. Participants in both groups improved, with OST (80% of participants) and the five sessions of exposure (79% of participants) achieving near equal improvement. Both treatments produced improvements in self-reported symptoms as well as on behavioral and physiological measures, with no significant group-by-time interactions. Similarly, Vika et al. (2009) compared OST with five sessions of CBT for dental injection phobia. As with Öst et al. (1992), both treatments led to improvement, even out at 1-year posttreatment, but no differences between treatments were observed.

Dental Phobia

Haukebø et al. (2008) examined the effects of treatment on dental phobia. Three groups were compared: an OST group, a five-session treatment group (details of the treatment are not specified though it is presumed to be CBT), and a wait-list control group. Forty adults participated and were assessed at pretreatment, post-treatment, and 1-year follow-up. Treatment was administered by a dentist trained in CBT. Results generally indicated that the active treatments were superior to wait-list treatments, and that the two treatments did not differ by 1-year follow-up.

Claustrophobia

The only controlled study of OST for claustrophobia was conducted by Öst et al. (2001a). Participants in this study were randomized into one of the four groups: OST, five sessions of exposure, five sessions of cognitive therapy, or a wait-list control condition. Results showed that the three active treatments were superior to the wait-list control condition. No differences emerged between treatment groups on behavioral, physiological, or self-report measures. At posttreatment, 80% of the participants in the OST condition showed clinically significant improvement, while 100% showed this improvement at the 1-year follow-up. Thus, all active treatment groups evidenced clinically significant improvement for the treatment of claustrophobia.

Flying Phobia

Öst et al. (1997a) evaluated the efficacy of OST as compared with that of five sessions of graduated exposure and cognitive restructuring for flying phobia. To date, this is the only controlled study for flying phobia using OST. As self-ratings of anxiety showed no significant differences, the authors found both conditions to be equally efficacious. The differences did not emerge at either posttreatment or a 1-year follow-up. Notably, 93% of the participants in the OST group and 79% in the five-session group took an unaccompanied return flight at posttreatment. At 1-year follow-up, improvements were maintained in both groups on all measures except the behavioral test, in which a total of 64% of the participants (both groups) took the flight.

Summary of Outcomes for OST with Adults

For the treatment of specific phobias, OST has led to significant improvement in all studies reviewed based on pretreatment to posttreatment differences. Moreover, OST has demonstrated versatility as it is able to address phobias of varying types (e.g., animal, situational, blood-injection-injury). OST has demonstrated equivalent to superior status when compared with numerous accepted treatments (e.g., exposure, modeling, and cognitive therapy) and demonstrated clear superiority to wait-list control groups. Further, OST has shown clinical utility in both individual and group therapeutic formats.

OST with Children

Compared with the adult literature, considerably less research has been conducted to examine the use of OST for the treatment of specific phobias in children and adolescents (see Table 11.3). Five studies, however, have compared OST with various other conditions (e.g., other treatments, psychological placebo, wait-list control). These studies have indicated that when carried out with children, OST results in impressive improvement, almost comparable to that seen with adults. In examining the effects of OST, some research indicates that OST demonstrates significant effects across the components of the fear response (see Davis and Ollendick 2005). Specifically, OST alleviated behavioral symptoms of specific phobia in children; however, the effects of OST with physiological and cognitive symptoms are somewhat mixed and undetermined.

Muris et al. (1997) conducted a crossover study comparing eye movement desensitization and reprocessing (EMDR) and OST per Öst's (1989) protocol for the treatment of spider phobia in children. Half of a group of 22 girls (aged 9–14 years) received 1.5 hours of OST followed by 1.5 hours of EMDR whereas the other half

Table 11.3 OST with children and adolescents

References	Phobic stimulus	Condition	N	Session length (minutes)
Muris et al. (1997)	Spider	OST	22	90
		EMDR		90
Muris et al. (1998)	Spider	OST	9	150 + 90
		EMDR	9	90
		Computerized exposure	8	150
Öst et al. (2001b)	Various stimuli	OST alone	21	Up to 180
		OST parent present	20	Up to 180
		Wait-list condition	19	
Ollendick et al. (2009)	Various stimuli	OST	85	Up to 180
		Psychological placebo	70	Up to 180
		Wait-list condition	41	
Flatt and King (2010)	Various stimuli	OST	17	Up to 180
		Psychoeducation/cognitive therapy	15	
		Wait-list condition	11	

OST one-session treatment, *EMDR* eye movement desensitization and reprocessing

of the group received 1.5 hours of EMDR followed by 1.5 hours of OST. Results indicated that OST was superior to EMDR in reducing behavioral avoidance and state anxiety at the maximum BAT step. However, neither treatment produced significant reductions of physiological symptoms and cognition was not measured.

Similarly, Muris et al. (1998) compared OST with EMDR and to a computerized exposure placebo in a sample of 26 girls (aged 8–17 years) with spider phobia. In this study, OST was found to be superior to EMDR and to the placebo treatment in the reduction of subjective fear. However, when considering the alleviation of behavioral symptoms, OST was found to be superior to the placebo treatment, but OST and EMDR did not significantly differ on the behavioral measure. Neither physiology nor cognition was measured.

Öst et al. (2001b) examined the effectiveness of OST with various stimuli in a sample of 60 children (aged 7–17 years) through random assignment to three conditions: (1) OST alone, (2) OST with a parent, or (3) a wait-list control condition. The OST alone condition followed closely to the protocol suggested by Öst (1989). The OST with a parent condition, however, varied significantly from the standard protocol by allowing the parent to serve as an observer, a model, and a source of comfort for the child throughout the session. Findings suggested that the two active treatment groups (OST alone and OST with a parent) did not significantly differ from each other in diagnostic outcome based on the child clinician ratings; however, both treatment groups evidenced significant overall improvement as compared with the wait-list condition (and OST alone had more children significantly improved on two of the three measures compared with OST with a parent). Furthermore, both treatment groups displayed significant improvement on the behavioral measures as compared with the wait-list condition. Significant differences in treatment effects

were not present for physiological symptoms between the three groups and effects on cognitive symptoms were not measured. Treatment gains were maintained and/or further improvement was demonstrated at 1-year follow-up for both treatment groups.

Ollendick et al. (2009) examined the use of OST with 196 children (aged 7–16 years) through random assignment to three conditions: (1) OST per Öst's (1989) protocol, (2) an educational support psychological placebo, or (3) a wait-list condition. The educational support psychological placebo consisted of a 3-hour session in which the child learned about fears, phobia, and anxiety through an educational interactive workbook. No exposure (in vivo or imaginal) was conducted during this treatment condition. Findings suggested that both the OST and the psychological placebo conditions were superior to the wait-list condition for overall treatment effects (i.e., statistically greater improvement, significantly lower CSRs, percent of participants diagnosed free). Furthermore, OST was superior to the psychological placebo for overall treatment effects at posttreatment and at 6-month follow-up. However, the three conditions did not differ on the measure of behavioral symptoms (i.e., BAT) at posttreatment. Measures of physiology were not reported and cognition was not measured. The wait-list condition received treatment after the predetermined waiting period.

Finally, Flatt and King (2010) conducted a study similar to that of Ollendick et al. (2009). They examined OST, psychoeducation, and wait-list conditions in 43 children at 1-week posttreatment and 1-year follow-up. No differences were found between OST and the psychoeducation group at posttreatment or follow-up treatment and both were superior to wait-list treatment. It should be noted, however, that the psychoeducation group was not the same as Ollendick et al. (2009) and its description was more consistent with cognitive therapy and psychoeducation without direct in vivo exposure during the session (though, for example, a detailed plan for self-administered exposure was reportedly developed for each child and practiced). In addition, the parents, not the researchers, conducted the 1-year follow-up, and 60% of the psychoeducation group was lost to follow-up (i.e., only 6 participants completed follow-up)—twice the rate of the OST condition that only lost 29% of participants to follow-up (i.e., 12 participants completed follow-up). For this study, investigators included measures of behavior (both treatments were superior to wait-list treatment but did not differ from each other), physiology (though results were either not reported or did not differ between groups), and cognition (both treatments were superior to wait-list treatment).

The results of these five studies collectively suggest that OST demonstrates significant overall treatment effects as compared with alternative treatments (e.g., EMDR, psychological placebo) and wait-list conditions when conducted with children and adolescents. Further research is needed, however, to examine the effects of OST on the improvement of individual components of fear (i.e., behavior, physiology, and cognition, particularly physiology and cognition as these components were neglected in numerous studies). As OST is further disseminated, investigated, and examined, expanded data collection and analysis in these three areas will help to improve our knowledge on the specific effects of the treatment and its utility for treating various specific phobias in children and adolescents.

Studies Not Included in the Review of EST Status

There are numerous studies that meet the criteria for inclusion in the preceding EST review that provide evidence for using OST with adults and children. In addition, however, there is also a growing literature that does not meet EST criteria per se, but supports the use of the treatment and its unique effects nonetheless. Setting the bar only at the level the Task Force requires, however, can have the effect of excluding studies which otherwise might add to the richness of a broader evidence-based review of OST. As a result, these additional studies will be highlighted briefly here to present the full evidence base for the use of OST.

Several studies examined the effects of OST on spider phobia (Antony et al. 2001; Arntz and Lavy 1993; Arntz et al. 1993; de Jong et al. 1991, 1993, 1996, 2000; de Jong and Merckelbach 1991, 1993; Götestam and Hokstad 2002; Huijding and de Jonng 2009; Merckelbach et al. 1991, 1993, 1996; Muris et al. 1993a, b, 1995; Muris and Merckelbach 1996a, 1996b; Olatunji et al. 2011; Öst 1996; Öst et al. 1998; Raes et al. 2011). These studies were not included in the formal EST review as a number of them essentially compared OST with OST (or slight variants thereof) with no other control group or no comparison or control group at all (Antony et al. 2001; Arntz and Lavy 1993; Arntz et al. 1993; de Jong et al. 1991, 1993, 1996, 2000; de Jong and Merckelbach 1991, 1993; Merckelbach et al. 1991, 1993, 1996; Muris et al. 1993a, b, 1995; Muris and Merckelbach 1996a, 1996b; Olatunji et al. 2011; Öst 1996; Raes et al. 2011). Still other studies were not included as they did not randomize participants to treatment conditions or did not meet other methodological criteria like having participants with diagnosed phobias (Götestam and Hokstad 2002; Huijding and de Jonng 2009; Öst et al. 1998). Even so, many of these studies show that OST is a viable treatment and expand our understanding of what is important about the OST procedure. For example, these researchers have suggested that additional verbal elaboration about the stimulus during OST does not produce improved results (Arntz and Lavy 1993), small vs. large group size in administering group OST results in similar outcomes (Öst 1996), and combining OST with counterconditioning does not lead to improvements over standard OST alone (de Jong et al. 2000).

The remaining studies not included involved a variety of stimuli including "technophobia" (Brosnan and Thorpe 2006), fear of snakes (Sabsevitz et al. 2010), roach phobia (Botella et al. 2010, 2011), various fears (Huey and Pan 2006; Öst 1987; Pan et al. 2011), and height and water phobias (Davis et al. 2007). These studies were not included due to problems with identifying OST as the treatment and/or significant modifications to OST (e.g., Botella et al. 2010, 2011; Brosnan and Thorpe 2006), lack of a control or comparison group/treatment (Botella et al. 2011; Sabsevitz et al. 2010), and other methodological difficulties (e.g., two-thirds of the participants in Pan et al. 2011 did not meet the criteria for a diagnosable phobia, though results generally showed two different types of OST were superior to a self-help manual; Huey and Pan 2006).

Two case studies of OST are also of note. Öst (1987) treated a woman with specific phobias of cats, snakes, rats, and worms using OST in a multiple baseline design

across phobias. The participant received three OSTs, each lasting between 40 minutes and 2-hour. OST effectively reduced behavioral avoidance and subjective distress as reported by the participant. Clinically meaningful improvement was observed on BATs and, although to a lesser extent, on physiological measures (i.e., heart rate and blood pressure). Little generalizability was observed, as improvements were not seen until the phobia in question was targeted with treatment. Improvements were maintained at 6-month follow-up. Also, a multiple baseline study by Davis et al. (2007) was not included as it was the only controlled single case study with a child conducted to date (i.e., fewer than the criteria required by Task Force criteria). The study by Davis et al. (2007) is noteworthy, however, because the authors demonstrated that OST could be effective with a 7-year-old child who also had an autism spectrum disorder diagnosis. They were able to use OST in an unmodified form to successfully treat the boy's specific phobias of heights and water with improvements reportedly continuing at a 6-month check-in (for additional information on using OST with those having intellectual or developmental disabilities see Chap. 9). Three other case studies/case reports have also been conducted; however, they did not meet the methodological criteria for inclusion either for various reasons including the overall number of case studies needed (Muris and Merckelbach 1995; Nelissen et al. 1995; Öst 1985).

Finally, two additional studies have been conducted which require further mention and description. First, Heading et al. (2001) compared a 3-hour prolonged exposure treatment with computer-aided exposure treatment and a wait-list treatment. This prolonged exposure treatment, however, was different enough as to prevent its inclusion in the EST review given the review criteria used for this chapter. Specifically, "No relaxation exercises, modeling, or behavioural experiments aimed at disconfirming specific beliefs were used in the exposure sessions" (p. 107). Instead, the authors state their goal was to examine, "The efficacy of prolonged single-session exposure alone, without other treatment components" (p. 103–104). Even though the results of the prolonged exposure treatment were superior to the other conditions, it was not included in this specific review of OST. It is worth noting, however, that by using less strict review criteria and including this study in the overall review, the evidence for OST in adults would merit "well-established" status.

Second, Hellström et al. (1996) conducted a study on a single-session applied tension treatment for blood phobia (see Chap. 4 for a description). With blood phobia, the patient is taught to tense muscles when confronted with an evocative stimulus to increase blood pressure and prevent fainting (i.e., applied tension). As a result, even though the study compared a massed 2-hour session of applied tension with two other conditions, it was sufficiently different from OST that it was not included in this review (i.e., OST does not involve pairing a response with exposure such as relaxation, or in this case, applied tension). Even so, the evidence behind using applied tension to treat blood phobia is strong.

Summary of the Evidence for OST

Given the evidence obtained from the 14 studies included using adult participants, OST remains a strong candidate for consideration when treating adult-specific phobias of varying types. As with previous reviews, OST has been found to be superior to a variety of already established evidence-based treatments (Zlomke and Davis 2008). OST has demonstrated superiority to modeling (Öst et al. 1997b), self-exposure (Öst et al. 1991), various manualized interventions (Hellström and Öst 1995), and a variety of wait-list conditions (Thorpe and Salkovskis 1997). As a result, OST with adults currently merits probably efficacious status. The use of OST with adults has been studied numerous times; however, it awaits replication of its effects by additional researchers who also include additional treatment conditions for comparison (i.e., the effects have been replicated by other researchers, but only against wait-list control groups; see Tables 11.1 and 11.2) using adequately powered studies in instances where equivalence is found (Kazdin and Bass 1989). Even so, the sheer quantity of studies showing the effects of OST with adults is impressive.

As evidenced by the five aforementioned treatment studies (Flatt and King 2010; Muris et al. 1997; Muris et al. 1998; Öst et al. 2001b; Ollendick et al. 2009), OST merits well-established status when conducted with children and adolescents. The treatment was found to be superior to an alternative treatment in two studies by the same research team (Muris et al. 1997; 1998) as well as superior to a psychological placebo by a separate research team (Ollendick et al. 2009). It was also found to be superior to wait-list conditions in several studies (Flatt and King 2010; Öst et al. 2001b; Ollendick et al. 2009). Each of these studies was adequately powered, utilized a recognized protocol by Öst (e.g., Öst 1989) for OST, and specified participant characteristics. Therefore, using Task Force guidelines, OST may be considered well established for the treatment of specific phobias in children and adolescents. Based on the studies reviewed, OST has continued to demonstrate strong diagnostic and behavioral effects; however, as with similar reviews in the past (Davis and Ollendick 2005; Davis et al. 2011), more research is still needed to fully determine OST's effects on the cognitive and physiological aspects of fear in children and adolescents.

Summary and Conclusions

OST is a massed exposure therapy for specific phobias that has developed a significant evidence base through decades of rigorous research. Overall, the use of OST to treat specific phobia has garnered strong support. In addition to meriting probably efficacious status with adults and well-established status with children and adolescents, OST can be considered probably efficacious when used in a group format as well (Zlomke and Davis 2008; see Table 11.2). Impressively, OST offers benefits similar to those seen with much larger doses of other therapies—even when compared with two to four times as much treatment (see Tables 11.1, 11.2, and 11.3). At

the same time, the rates of clinical improvement remain high with adults, ranging from approximately 70 to more than 90% clinically improved (though varying by the outcome studied). Rates for clinical improvement with children have similarly ranged from approximately 50 to more than 90% (again varying by the outcome variables examined). OST has also been found to be widely accepted by adult patients and child patients (and their parents) alike. Finally, the research to date has provided a wide array of options when conducting OST to fit a given patient or circumstance. For example, there are currently protocols addressing the provision of OST in either individual or group formats, the possible inclusion of parents in treatment, the administration of treatment using technology and augmented reality, the use of the treatment with those having a developmental disorder (see Chap. 9), and the administration of maintenance and generalization programs.

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