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Comorbidity in youth with specific phobias: Impact of comorbidity on treatment outcome and the impact of treatment on comorbid disorders

Thomas H. Ollendick¹, Lars-Göran Öst², Lena Reuterskiöld², and Natalie Costa¹

¹Virginia Tech University, Department of Psychology, Child Study Center, 460 Turner St., Suite 207, Blacksburg, VA 24060, 540-231-6451(wk), 540-231-8193 (fax), tho@vt.edu and ncosta@vt.edu.

²Stockholm University, Frescati Hagv, Department of Psychology, SE-106 91 Stockholm, Tel: +46-8-163821, Fax: +46-8-161002, ost@psychology.su.se and lsm@psychology.su.se.

Abstract

The purpose of the present study was twofold. In an analysis of data from an existing randomized control trial of brief cognitive behavioral treatment on specific phobias (One-Session Treatment, OST; Ollendick et al., 2009), we examined 1) the effect of comorbid specific phobias and other anxiety disorders on treatment outcomes, and 2) the effect of treatment of the specific phobia on these co-occurring disorders. These relations were explored in 100 youth presenting with animal, natural environment, situational, and “other” types of phobia. Youth were reliably diagnosed with the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions (Silverman & Albano, 1996). Clinician Severity Ratings at post-treatment and 6-month follow-up were examined as were parent and child treatment outcome satisfaction measures. Results indicated that the presence of comorbid phobias or anxiety disorders did not affect treatment outcomes; moreover, treatment of the targeted specific phobias led to significant reductions in the clinical severity of other co-occurring specific phobias and related anxiety disorders. These findings speak to the generalization of the effects of this time-limited treatment approach. Implications for treatment of principal and comorbid disorders are discussed, and possible mechanisms for these effects are commented upon.

Keywords

comorbidity; specific phobias; anxiety disorders; one-session treatment

Numerous randomized control trials (RCTs) with Cognitive Behavioral Therapy (CBT) for the treatment of anxiety and phobic disorders in youth have been published in recent years. Collectively, these studies indicate significant reductions in the clinical severity of these disorders and reductions in clinical diagnoses for 50% – 70% of the treated youth in comparison to 10% – 30% of youth in waitlist or comparison control conditions (see In-

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Address all correspondence to Thomas H. Ollendick.

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Albon & Schneider, 2007; Ollendick, King, & Chorpita, 2006; and Silverman, Pina, & Viswesvaran, 2008, for recent reviews). A common theme throughout these RCTs are the high rates of comorbidity in the study samples, with the most common co-occurring disorders being other anxiety and phobic disorders, but also mood and disruptive behavior disorders. Given this high rate of comorbidity, one question that has received attention in recent years is whether the presence of comorbidity compromises treatment outcomes.

Ollendick, Jarrett, Grills-Tauchel, Hovey, and Wolff (2008) recently reviewed the literature on the influence of comorbidity on treatment outcomes for youth with a variety of childhood disorders including the anxiety disorders. Of the 16 RCTs using CBT for anxiety disorders that addressed the effects of comorbidity on treatment outcomes, 15 failed to find any significant differences on post-treatment outcomes due to the presence of comorbidity. For the most part, the types of comorbidity examined in these studies consisted of other phobic and anxiety disorders. Only one of the 16 RCTs reported significant differences in outcomes for participants with comorbid disorders (Berman, Weems, Silverman, & Kurtines, 2000). In that study, differences in successful outcomes were found in the treatment of anxious youth who were comorbid with mood disorders but, as with the other studies, not for youth who were comorbid with other anxiety and phobic disorders.

A second question is what is the effect of treatment of an anxiety or phobic disorder on comorbid disorder(s) that are present prior to the beginning of treatment but not specifically targeted during treatment? To date, this question has received very little attention. However, two studies have examined this question with phobic and anxiety disorders in youth and they provide initial support for the salutatory effects of treatment on untreated, untargeted disorders. With generalized, social, and separation anxiety disorders in youth, Kendall, Brady, and Verduin (2001) reported that CBT treatment produced positive effects not only on the primary disorders but also on non-primary co-occurring anxiety disorders. Similarly, in the treatment of specific phobias in youth, Öst, Svensson, Hellström, and Lindwall (2001) reported that brief CBT (One-Session Treatment, OST) resulted in reductions in comorbid phobic disorders. Thus, initial findings provide limited support for the positive effects of treatment on comorbid disorders, at least when the comorbid disorders fall in the same class of disorders (e.g., treatment of specific phobias results in changes in untreated phobias and treatment of generalized, social and separation anxiety disorders result in changes in these disorders).

The purpose of the present study was twofold. In an analysis of data from an existing RCT on the treatment of specific phobias in youth (OST; Ollendick et al., 2009), we examined 1) the effect of comorbid specific phobias *and* other anxiety disorders (e.g., generalized, social and separation anxiety disorders) on treatment outcomes, and 2) the effect of successful treatment of the specific phobias on co-occurring phobic *and* other anxiety disorders. We predicted that co-morbid phobic disorders would not adversely affect treatment outcomes but that comorbid anxiety disorders (generalized, separation, and social anxiety disorders) *would* adversely affect treatment outcomes at post-treatment and 6-month follow-up; moreover, we predicted that the treatment of the targeted specific phobia would lead to reductions in the severity of co-occurring phobias but *not* reductions in the severity of comorbid anxiety disorders. As such, we examined the specificity and generalization of this brief cognitive behavioral treatment to untreated specific phobias and untreated anxiety disorders.

Method

Participants

Children and adolescents were recruited through referrals from child mental health services, school health services, family medical practices, and newspaper advertisements in Stockholm County, Sweden and the New River Valley and Roanoke Valley areas of southwestern Virginia. For a full description of the original study's inclusion criteria, design, and procedures please see Ollendick et al. (2009).

The sample for the current study was drawn from the original sample of participants ($N = 196$) who were included in the Ollendick et al. (2009) RCT and who were randomized to the OST condition ($N=100$, 50 from Sweden and 50 from Virginia; the remaining 96 youth were randomized to an Education Support control condition). The sample consisted of youth (58% male) with a mean age of 10.21 years ($SD = 2.26$). Ninety-three percent of the sample was Caucasian, 3% were African-American, 2% were Hispanic, and 2% were of other ethnic backgrounds. Of the 100 youth, 54 presented with an animal phobia (e.g., dogs, bees), 25 with a natural environment phobia (e.g., storms, heights), 13 with a situational phobia (elevators, enclosed places), and 8 with an "other" phobia (e.g., costumed characters, vomiting). The blood-injection-injury type was excluded due to differences in physiology and the necessity for supporting medical personnel for treatment purposes.

Comorbidity was defined as fulfilling another DSM-IV diagnosis according to semi-structured diagnostic interviews (Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions, ADIS-C/P; Silverman & Albano, 1996) with a clinician severity rating (CSR) of 4 or above. Relative impairment of various diagnoses, as determined by CSRs, was used as the basis for assigning primary versus secondary diagnoses (Silverman & Albano, 1996). Two groups were formed: 1) No comorbid diagnosis group ($N = 50$) and 2) Comorbid diagnosis group ($N = 50$). For the 50 in the comorbid group, 21 had comorbid phobia(s) only (3 of the 21 had two co-occurring phobias) with no other co-occurring disorders; whereas, the remaining 29 had at least one comorbid anxiety disorder in addition to their primary phobia (14 had GAD; 10 had Social Phobia, 4 had Separation Anxiety Disorder, and 1 had Anxiety Disorder NOS). In addition, 2 of the 29 who had comorbid anxiety disorders had ADHD as a non-primary co-occurring disorder (see Jarrett, Wolff, & Ollendick, 2007, for the reliable and valid use of the ADIS-C/P with ADHD). None of the youth had co-occurring mood disorders or other disruptive behavior disorders. Thus, the bulk of the co-occurring disorders were other phobic and anxiety disorders.

Measures

Diagnostic assessment—The Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions (Silverman & Albano, 1996) were administered by trained-to-criterion graduate student clinicians enrolled in doctoral programs in clinical psychology at the respective sites. One clinician interviewed the child (ADIS-C) while another clinician simultaneously interviewed the primary caregiver (ADIS-P, 94% mothers). The outcomes of these two interviews were discussed with the project directors during weekly supervision sessions at each site to arrive at consensus diagnoses and clinician severity ratings. To assess reliability of the diagnoses, 20% of the video taped interviews were randomly selected and reviewed by independent trained clinicians. Assessors were blind to treatment condition, both prior to and following treatment. Using Cohen's kappa, agreements on diagnoses were .94 and .87 on primary and secondary diagnoses.

Clinician Severity Rating (CSR)—As part of the diagnostic interview with the ADIS-C/P, the clinicians rated the severity of the child's targeted phobia and the co-occurring

disorders on a 0–8 scale, where 0 = no symptoms, 2 = mild, 4 = moderate, 6 = severe, and 8 = very severe. Assessors were blind to treatment condition, both prior to and following treatment. Interclass correlation coefficients were computed on 20% of the sample and indicated good reliability for the CSRs across primary and secondary diagnoses ($ICC = .72$).

Treatment Outcome Satisfaction Scale (TOSS)—Treatment outcome satisfaction was assessed by a 3-item scale devised for this study. Parents and the child independently rated how (1) fearful, (2) avoidant, and (3) interfering the fears were for them following treatment. These items were rated on a 0–8 scale with 0 indicating ‘not at all’ and 8 indicating ‘very, very much.’ The three items were summed and the item mean was calculated separately for parents and children. A mean item score below 3.5 was used to indicate clinically significant improvement (little to very little fear/avoidance/interference; see Ollendick et al., 2009). This measure was obtained only at post-treatment.

Procedure and Treatment

Youth and their families participated in two pretreatment sessions. In the first session, the parent signed an informed consent form and the child provided signed assent, with both forms approved by our respective Institution Review Boards. During this assessment session, the ADIS-C/P (child and parent version) was administered. During the second assessment session, both the child and parent completed a variety of questionnaires. If the child was judged to fulfill the DSM-IV criteria and was appropriate for treatment, the therapists, who were trained doctoral student clinicians enrolled in our respective doctoral programs in clinical psychology, met with the child and his/her parent(s) for a 45-minute session, approximately one week after the second assessment session. The main purpose of this session was for the therapist to get acquainted with the child, to begin to develop a therapeutic relationship, and to undertake a brief cognitive-behavioral analysis of the child's phobia.

Approximately one week later, the child was scheduled for a 3-hour treatment of the specific phobia. The OST treatment followed the principles described by Öst (1997) and elaborated upon in a manual (Öst & Ollendick, 2001), was flexibly implemented, maximized to three hours, and adjusted to the developmental level of the child. The treatment was based on the rationale that the child's distorted beliefs about the phobic object or situation maintains his/her avoidance and escape behavior. This belief then prevents the child from obtaining new information that can correct the false belief. Treatment consisted of graduated exposure in-vivo, embedded in a series of behavioral tests that the child was encouraged to attempt in order to obtain new information about the phobic object/situation. Most of the treatments lasted the full 3 hours but in a few cases the session was terminated earlier if the child no longer displayed significant avoidance behavior and experienced little to no anxiety. Parents were not involved in treatment but were informed of the treatment rationale and procedures.

One week after treatment, the participants and their parents were interviewed with mini versions of ADIS-C/P (sections containing the primary and secondary diagnoses met at pre-treatment) and administered the questionnaires completed at pretreatment. Six months later, the same assessments as at post-treatment were carried out.

Results

The Effects of Comorbidity on Treatment Outcome

Table 1 displays the means and standard deviations of the treated phobia CSRs at pre-treatment, post-treatment, and 6-month follow-up for the targeted phobia by comorbidity status. A Comorbid Group by Time repeated measures ANOVA revealed a significant time

effect [$F(2,100) = 13.50, p < .0001, \eta^2 = .74$]; however, neither the main effect for comorbid group or the critical comorbid group by time interaction was significant, indicating that comorbid group status was not associated with the treated phobia CSR levels at post-treatment or 6-month follow-up. To examine whether treatment outcome satisfaction differed by comorbidity status, two separate chi-square analyses were conducted on the Parent TOSS and the Child TOSS. Chi-square analyses indicated no significant differences among the comorbid groups for either the parent [$\chi^2, 2(N = 78) = .804, p = .669$, Table 1] or the child measures [$\chi^2, 2(N = 84) = .051, p = .975$, see Table 1].

To further examine the effects of comorbidity on treatment outcome, a second repeated measures ANOVA was run on the comorbid group only ($N=50$), with type of comorbidity (phobia only = 21, other anxiety disorder = 29) as the between subjects factor. Results indicated a significant time effect [$F(2,96) = 74.32, p < .0001, \eta^2 = .61$]; however, neither the main effect for type of comorbidity or the time by type of comorbidity interaction was significant, indicating that the type of comorbidity (phobia vs. anxiety disorder) was not associated with differential CSR levels for the treated phobia at post-treatment or 6-month follow-up. Next, separate chi-square analyses were conducted on the parent and child TOSS scores. No significant differences for the type of comorbidity on the parent [$\chi^2, 2(N = 50) = 2.51, p = .285$] or child TOSS [$\chi^2, 2(N = 50) = .192, p = .908$] were found.

The Effects of Treatment on Comorbidity

To address our second question, the effects of treatment on the comorbid disorders, a repeated measures ANOVA was computed on the CSRs for the comorbid disorder of the 50 youth. These results revealed a significant time effect [$F(2, 98) = 41.61, p < .0001, \eta^2 = .50$]. Next, the 50 youth who had comorbidity were divided into two groups as above: 1) comorbid phobia diagnoses only and 2) comorbid other anxiety disorders. For the comorbid phobia diagnosis groups, a repeated measures ANOVA revealed a significant time effect [$F(2, 40) = 19.83, p < .0001, \eta^2 = .50$]. The means and standard deviations on the CSRs for the comorbid phobia diagnosis group were 4.76 (.99) at pre, 3.48 (1.66) at post, and 2.76 (2.76) at the 6-month follow-up. For the comorbid anxiety disorder group, a repeated measures ANOVA also revealed a significant time effect [$F(2, 56) = 22.69, p < .0001, \eta^2 = .45$]. The means and standard deviations for the CSRs of the comorbid anxiety disorder group were 5.21 (1.24) at pre, 3.83 (1.58) at post, and 2.79 (1.84) at the 6-month follow-up.

Discussion

Our findings are relatively straightforward. The presence of comorbid phobia disorders *and* other comorbid anxiety disorders did not affect treatment outcomes in this treatment-seeking sample of 100 youth with specific phobias. Moreover, the treatment of the targeted specific phobias for these youth was effective in reducing the clinical severity of other comorbid phobias *and* other anxiety disorders.

Regarding the effects of comorbidity on treatment outcomes, our findings are consistent with other findings in the extant literature. In our recent review of 16 RCTs using CBT for the treatment of phobic and anxiety disorders (Ollendick et al., 2008) we found that comorbid disorders in the diagnostic profiles of youth did not significantly influence CBT treatment outcomes in 15 of the 16 studies. For the remaining study (Berman et al., 2000) adverse effects were found for the presence of mood disorders only. Overall, then our study of youth with specific phobias and the previous studies with youth with other anxiety disorders (e.g., generalized anxiety disorders, separation anxiety disorders, social phobia, OCD, PTSD) indicate presence of comorbid disorders typically do not have a negative impact on CBT outcomes.

Our findings on the effects of treatment on non-targeted, comorbid disorders are particularly interesting. It is important to note that the CBT treatment used in this study (OST) specifically targeted the phobia for which the youth was referred for treatment. The treatment was highly focused and very brief and intense in duration. It consisted of graduated exposure to the feared object or situation, cognitive challenges to the beliefs associated with the phobic object or situation, therapist modeling and coaching on how to interact with the phobic object or situation, and reinforced practice for approaching and interacting with the phobic object or situation. It was limited to a single session that was maximized to three hours in duration. Comorbid phobia and anxiety disorders were not specifically addressed. Yet, these disorders were significantly affected by the treatment.

In terms of comorbid phobia diagnoses, similar reductions in clinical severity were found independent of the phobia type (e.g., animal, situational, environmental, other). These findings suggest treatment of a certain type of phobia has no necessary implications for the likely resolution of other phobias of the same or different type (see Anthony, Brown, & Barlow, 1997, for discussion of this issue). Rather, comorbid phobias of all types responded similarly to the OST intervention regardless of the type of the treated phobia.

Reductions in clinical severity of other anxiety disorders such as generalized anxiety disorder, separation anxiety disorder, and social phobia are particularly interesting. Standard treatment for these disorders frequently requires 12 – 16 sessions of CBT (see Silverman et al., 2008; Walkup et al., 2008) and such extensive treatment was not provided in the present study. Yet, significant reductions in the severity of these “untreated” disorders were evident at post-treatment and 6-month follow-up. These findings suggest that these disorders – at least when they are secondary to specific phobias and when they are mild to moderate in severity (CSR mean was 5.21) – respond to a relatively brief albeit highly intensive intervention. Future work will need to not only replicate these findings but also determine whether these disorders would respond to this brief, intensive treatment if they were more severe in nature. In addition, future research might explore whether the treatment would produce similar outcomes if these other anxiety disorders were primary and a comorbid specific phobia were treated. If such were the case, treatment of these anxiety disorders might be reduced considerably in length and expense.

On a more theoretical level, why might we expect comorbid disorders, whether they are other specific phobias or other anxiety disorders, to respond to a highly focused, brief, and intensive one-session intervention? We speculate as follows, based both on social learning theory and our clinical experience with OST. In doing so, we invoke Bandura’s notion of self efficacy (1977). In our clinical trial, we showed that self-efficacy estimates for the ability to cope with the specific phobia were increased following successful treatment (Ollendick, 2008). Prior to treatment, the youth reported low levels of self-efficacy for dealing with their specific phobia; after treatment, they reported elevated levels of mastery and bravery. Our clinical observations support increased levels of self-efficacy as well. Following successful treatment, many of our youth were observed to verbalize statements such as “I did it ... look at me, I am doing it ... I did not believe I could do it, but I did.” Other successfully treated youth forwarded pictures of themselves petting dogs in the neighborhood, eating at restaurants with their arms around a costumed character, and sitting on their porch or veranda watching a thunderstorm roll in. Clearly, they were “proud” of their accomplishments. It seems possible to us that this sense of self-efficacy may have generalized to dealing with other phobias and other anxiety disorders following successful treatment. Such speculations, of course, await prospective examination; nonetheless, they seem highly plausible to us.

This study is not without limitations. First, although 100 youth received CBT treatment in this clinical trial, there were an insufficient number of youth with various comorbidities to examine the effects of treatment on a more molecular level. That is, we were unable to compare the effects of treatment on same and different types of phobias (e.g., situational versus natural environment) or on the different anxiety disorders (e.g., generalized anxiety disorder versus separation anxiety disorder). Moreover, we were unable to systematically examine other potential comorbidities such as the disruptive behavior disorders, mood disorders, or substance use disorders that might mitigate treatment outcomes and that are frequently seen in community clinics (see Southam-Gerow, Chorpita, Miller, & Gleacher, 2008). These disorders were simply lacking in our clinical sample. Still, compelling evidence on the differential response to treatments based on referral sources and clinic settings are currently lacking. Such research is sorely needed. Second, our findings are limited by our largely Caucasian and middle class sample. It is conceivable, for example, that comorbidities in lower socioeconomic classes that are compromised by other contextual factors might yield different outcomes. So, too, it is possible that comorbidities in non-Caucasian ethnicities might respond differently, though we have no firm grounds on which to support this speculation (see also Huey & Polo, 2008). Third, our findings might be limited by a selection bias related to families who elected to pursue this brief treatment compared to more traditional and extended CBT treatments. We do know that our families were highly motivated to receive treatment and that in some instances they traveled long distances and at a considerable expense to receive this treatment. Finally, our results may be limited to this specific variant of intensive, exposure-based CBT treatment. When the treatment “works,” the effects tend to be dramatic, reversing years of impairment and distress and possibly producing the generalized effects that were observed (Davis, Ollendick, & Öst, 2009). Whether other, more standard CBT interventions for specific phobias would produce similar effects is unknown. These limitations notwithstanding, our findings are of significance and speak to the importance of addressing the effects of comorbidity on treatment outcomes and the effects of treatment on these and other comorbid conditions.

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Figure 1.
CSR Means for Treated Phobia by Comorbid Group

Table 1

Treated Phobia CSR Means and Standard Deviations at Pre, Post, and Follow-up and Per Cent of Parents and Youth Reporting High Levels of Treatment Outcome Satisfaction at Post Treatment for the Two Groups (N = 100)

	No Comorbidity Group	Comorbidity Group
CSR at Pre	5.86 (1.01)	6.16 (.96)
CSR at Post	3.56 (1.72)	3.62 (1.97)
CSR at 6-month f-up	3.24 (1.78)	3.00 (2.00)
Clinical Significant Improvement on Parent Treatment Outcome Satisfaction Survey	52%	58%
Clinical Significant Improvement on Child Treatment Outcome Satisfaction Survey	74%	74%