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The Impact of an Eight-Day Intensive Treatment for Adolescent Panic Disorder and Agoraphobia on Comorbid Diagnoses

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Abstract

Previous research findings have shown positive effects of cognitive-behavioral therapy for primary anxiety disorders as well as for non-primary, co-occurring anxiety disorders. In this study, we analyzed data from an existing randomized controlled trial of intensive treatment for Panic Disorder with or without Agoraphobia (PDA) to examine the effects of the treatment on comorbid psychiatric diagnoses. The overall frequency and severity of aggregated comorbid diagnoses decreased in a group of adolescents who received an 8-day treatment for PDA. Results suggest that an 8-day treatment for PDA can alleviate the symptoms of some specific comorbid clinical diagnoses; specifically Specific Phobias, Generalized Anxiety Disorder, and Social Phobia. These findings suggest that an intensive treatment for PDA is associated with reductions in comorbid symptoms even though disorders other than PDA are not specific treatment targets.

Keywords

adolescence; Panic Disorder; Agoraphobia; cognitive-behavioral therapy; comorbidity

Panic Disorder affects approximately 1 – 5% of adolescents (Ollendick, Mattis, & King, 1994) and is associated with such high degrees of functional impairment that it has been characterized as the most severe anxiety disorder diagnosis (Kearney & Silverman, 1992). Approximately one fourth of those who develop Panic Disorder will do so by the time they are 16 (Kessler, et al., 2005). School-aged individuals with Panic Disorder often fear

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entering or remaining in classrooms, school buses, and/or the cafeteria because these situations may be difficult to escape should a panic attack occur (Kearney, Albano, Eisen, Allan, & Barlow, 1997). Places such as parks, playgrounds, and restaurants are often avoided or endured with great distress, fearing that escape from such situations would be difficult should a panic attack be experienced (Kearney, et al., 1997). Some adolescents with Panic Disorder even have difficulty attending part or all of the school day (King & Bernstein, 2001).

Those meeting criteria for Panic Disorder often report high levels of diagnostic comorbidity (Kearney, et al., 1997). In fact, half of all adolescents with Panic Disorder report one or more comorbid internalizing conditions and adolescents with panic are much more likely to meet criteria for comorbid depression than are other anxious youth (Kearney, et al., 1997; Last & Strauss, 1989). This may be of special significance, as the presence of a depressive diagnosis in adolescence has been found to predict worse outcomes in adolescence and adulthood. Specifically, adolescent depression is associated with a greater risk for future externalizing comorbidities (e.g., Conduct Disorder; Weissman, et al., 1999) and is associated with higher rates of suicidality and depression in adulthood (Harrington, Bredenkamp, Groothues, & Rutter, 1994). Therefore, ideal interventions for Panic Disorder should also impact those diagnostic comorbidities that commonly co-occur.

Weekly cognitive behavioral interventions have been found to be highly efficacious in the amelioration of a wide range of anxiety disorder diagnoses, including Panic Disorder (Kendall, Brady, & Verduin, 2001; Pincus, May, Whitton, Mattis, & Barlow, 2010). There is even evidence that the delivery of disorder-specific cognitive-behavioral interventions is associated with reductions in the frequency and severity of comorbid internalizing diagnoses (Ishikawa, Okajima, Matsuoka, & Sakano, 2007; Kendall, et al., 2001). In a previous investigation of the efficacy of a manualized, 11 week, cognitive-behavioral intervention for adolescent Panic Disorder (Panic Control Treatment for Adolescents; Pincus, May, et al., 2010), adolescents displayed significant reductions in their panic symptomatology as well as in other comorbid anxious and depressive symptoms following completion of the intervention. Despite these gains, many of the adolescents who received the 11 week intervention for Panic Disorder (Pincus, May, et al., 2010), explained that they would have liked to experience a reduction in panic symptoms more quickly than was possible in a 11 session treatment (delivered over approximately 3 months), given the impact that the panic symptoms had on their ability to participate in developmentally appropriate tasks. In response to such concerns, an intensive treatment approach was developed to provide adolescents with the cognitive behavioral skills to alleviate their symptoms of panic in a condensed amount of time (8 consecutive days) (Angelosante, Pincus, Whitton, Cheron, & Pian, 2009).

In recent years, a number of different intensive treatments have been developed for a range of anxiety disorder diagnoses (e.g., Specific Phobia; Davis, Ollendick, & Öst, 2009; Social Anxiety Disorder; Mörtberg, Karlsson, Fyring, & Sundin, 2006; and Obsessive-Compulsive Disorder (OCD); Storch, et al., 2007; Whiteside & Jacobsen, 2010). These intensive interventions tend to provide many of the same cognitive behavioral skills included in traditional weekly therapies, although they are provided across a highly condensed time. Preliminary evidence generated through the conduct of single case designs and small open-trial evaluations suggests that interventions such as these are promising and are associated with significant reductions in the severity of the anxiety disorder diagnoses targeted in treatment (Deacon & Abramowitz, 2006; Storch, et al., 2007) as well as patient-rated comorbid anxious and depressive symptomatology (e.g., Storch, et al., 2008). More recently, Ollendick and colleagues (2010) investigated the impact of comorbidity on a one session Specific Phobia treatment as well as the impact of the treatment on comorbid disorders.

Ollendick and colleagues found that having comorbid anxiety disorders did not negatively impact treatment outcomes for specific phobias. Additionally, the clinical severity of comorbid anxiety disorders decreased following the treatment for specific phobias. This research provides some initial evidence that intensive treatments for a specific anxiety disorder may affect comorbid anxiety disorder diagnoses as well.

Despite this information, little is currently known about the manner in which intensive treatments for anxiety disorders in youth impact comorbid diagnoses, given that the majority of the existing data come from small trials or single-case designs. The present study examines adolescents who completed an intensive 8-day treatment for Panic Disorder with Agoraphobia (PDA) as part of a randomized controlled trial (Pincus, Whitton, et al., 2010). In addition to improvements in PDA, we hypothesized that both the frequency and severity of comorbid diagnoses would decrease in adolescents who received an 8-day treatment for PDA as compared to waitlist controls. Additionally, we hypothesized that the number and severity of comorbid diagnoses (aggregated as well as specific diagnoses) would also decrease from pre-treatment to post-treatment.

Method

Participants

Fifty-five adolescents ages 12–17 years of age ($M = 15.10$, $SD = 1.71$) with a primary diagnosis of Panic Disorder with Agoraphobia ($N = 54$, 98.2%) or without Agoraphobia ($N = 1$, 1.8%) participated in a randomized control trial of an 8-day intensive treatment compared to a 6-week waitlist control group. Qualifying participants were recruited from a larger group of families receiving a diagnostic assessment at a university-based research clinic. Five additional adolescents were offered treatment but declined. Of the 55 adolescents in the trial, 22 were males (40%) and 33 were females (60%). Additionally, 27 (85.5%) adolescents were Caucasian, 2 (3.6%) were Hispanic, and 3 adolescents did not provide ethnicity information.

Treatment Condition

After completing an intake assessment, eligible participants were randomly assigned to either: 1) the *treatment group*: an immediate 8-day intensive treatment ($n = 39$) or 2) the *waitlist group*: a 6-week waitlist condition ($n = 16$). The 6-week waiting period is actually an equivalent time frame as the 8-day treatment, because following the 8-day treatment, participants completed 4 weeks of phone contact to supervise continued in-vivo exposures (equaling 6 weeks of treatment plus post-treatment clinician contact). After completing the waitlist condition, all participants in the waitlist group were offered and accepted the 8-day intensive treatment. The intensive treatment entailed 8 days of 2 to 6 hours of treatment for a total of 20 hours of treatment. Treatment components included psychoeducation, cognitive restructuring training, interoceptive exposures, in-vivo exposures, and relapse prevention. The goals of the treatment are to reduce irrational thoughts about the consequences of the sensations associated with panic attacks and of the attacks themselves, to reduce conditioned fear reactions to the physiological symptoms of anxiety and panic, and to reduce avoidance and safety behaviors that result from Panic Disorder. The components of treatment focus purely on PDA and not on any comorbid disorders (for example, symptoms of comorbid disorders were not used as examples for cognitive restructuring training and were not targeted in exposures). This was done both to maintain the fidelity of the treatment protocol and also because of the limits of time inherent in the intensive model. Please refer to Angelosante et al. (2009) for more details about the specific treatment components and their implementation. Diagnostic data for both internalizing and externalizing comorbidities were collected before and immediately following treatment.

Measures

Anxiety Disorders Interview Schedule, Child and Parent Versions (ADIS-IV-C/P; Silverman & Albano, 1997). The ADIS-IV-C/P is an interview conducted by the clinician that assesses for *DSM-IV* anxious and depressive disorder diagnoses and other comorbid disorders. Training in the ADIS-IV-C/P at our site involved first watching a live interview, then completing two interviews collaboratively with a trained interviewer, and finally conducting live interviews and matching diagnoses with a trained observer on three occasions. At this treatment site there was good inter-rater agreement on primary diagnosis ($\kappa = .87$) and clinical severity (Pearson product-moment $r = .62$). 15% of 489 cases were rated by two clinicians to determine reliability. During the interviews, symptoms and potential disorders are rated by the parent and adolescent on a 0 to 8 scale. The clinician then uses this information from the child and parent interview to formulate a Clinician Severity Rating (CSR) which represents the extent of severity, distress, and interference of the symptoms. The ADIS-IV-C/P was administered during the initial diagnostic assessment and a brief version of the ADIS-IV-C/P was administered after the waitlist period (if applicable) and at post-treatment.

The frequency of comorbid diagnoses at pre-treatment, post-treatment, and post-waitlist where applicable, was measured by a count of the number of diagnoses additional to PDA that were present according to the interviewer (who was blind to study condition and time of assessment). Any patient receiving a CSR of 4–8 is considered to have a clinical diagnosis, whereas those with a CSR of 1–3 have a subclinical diagnosis. A CSR of 0 indicates the absence of any symptoms consistent with the given diagnosis. The severity of individual comorbid diagnoses was measured via CSR at pre- and post-treatment, as well as post-waitlist when applicable. The overall severity rating was determined by calculating a mean of the CSRs of all comorbid diagnoses for each participant [e.g., if a participant had comorbid diagnoses of OCD (with CSR of 5) and Social Phobia (with a CSR of 4) then the overall severity rating would be 4.5 for that participant]. If a participant only had one comorbid diagnosis, then the overall severity rating would only account for the CSR of that one diagnosis.

Results

Descriptives of the Sample

See Table 1 for means at pre- and post-waitlist for the waitlist control group and pre- and post-treatment for the immediate treatment group, as well as results from paired-samples *t*-tests. Cohen's *d*, a measure of treatment effect sizes, was calculated using original means and standard deviations so as to not artificially inflate effect size estimates from the correlated pre- and post-treatment scores (Dunlap, Cortina, Vaslow, & Burke, 1996).

Immediate treatment group versus waitlist control group

To determine whether the frequency and severity of comorbid diagnoses changed more in the treatment group than in the waitlist control group, we ran repeated measures ANOVAs. Time (pre to post) was included as a within-subjects factor and group (control vs. intervention) was included as a between subjects factor. There was a significant time by group interaction for frequency of comorbid diagnoses, $F(1, 53) = 4.56$, $p = .04$, $\eta_p^2 = .08$, which indicated that the waitlist and immediate intervention groups differed in how the frequency of comorbid diagnoses changed over the 6 weeks. There was also a significant time by group interaction for average severity of comorbid diagnoses $F(1, 41) = 9.18$, $p = .004$, $\eta_p^2 = .18$, which indicated that the waitlist and immediate intervention groups differed in how the severity of comorbid diagnosis changed over the 6 weeks.

To follow up this finding, we ran dependent samples t-tests to assess for change in frequency over the 6 weeks separately by group. These tests revealed that the intervention group's frequency and severity declined over the course of treatment whereas the control group's frequency and severity did not decline over the same 6 week period as they were on the waitlist (Table 1). Finally, we ran independent samples t-tests to compare post-treatment and post-waitlist frequency and severity of comorbid diagnoses. The differences between post-treatment and post-waitlist frequency and severity of comorbid diagnoses were both significant (frequency: $t(22) = 3.25, p = .004, d = 1.39$; severity: $t(36) = 3.59, p = .001, d = 1.19$).

Pre- to post-treatment comorbid diagnoses (entire sample)

To determine whether changes in the frequency and severity of overall comorbid diagnosis occurred from pre-treatment to post-treatment in the entire sample, we ran paired samples t-tests comparing the frequency and severity of comorbid diagnoses immediately before treatment and at post-treatment. For these analyses, pre-treatment is considered to be the first data collection point for the immediate treatment group and following the waitlist period for the waitlist control group. In the entire sample of participants ($N=55$), a significant reduction in the severity and frequency of comorbid diagnoses occurred across treatment (Table 2). Additionally, when considering only internalizing diagnoses, a significant reduction in the severity and frequency of comorbid diagnoses occurred across treatment as well (frequency: $t(54) = 4.31, p < .001, d = .59$; severity: $t(40) = 6.95, p < .001, d = 1.10$).

Pre- to post-treatment comorbid diagnoses (individual diagnoses)

Finally, to determine whether the intensive treatment for PDA was associated with reductions in the severity of specific comorbid diagnoses, we ran separate dependent samples t-tests for six different anxiety disorders. An examination of specific diagnoses revealed a significant reduction in Clinician Severity Rating (CSR) across treatment for select internalizing diagnoses. Specifically, CSRs were significantly lower at post-treatment than immediately before treatment for Specific Phobias, Generalized Anxiety Disorder, and Social Phobia. CSRs were not significantly lower at post-treatment than at pre-treatment for Obsessive Compulsive Disorder or Major Depressive Disorder (MDD). For means of specific diagnoses before and after treatment, see Table 2.

Proportion of participants with at least one comorbid diagnosis

Of 55 adolescents in the sample, 78.2% had at least one comorbid diagnosis at pre-treatment. Following treatment, 43.6% of the total sample had a comorbid diagnosis. A McNemar's test for correlated proportions reveals a significant decrease in comorbid diagnoses from pre- to post-treatment: McNemar's $\chi^2(1, N = 55) = 17.05, p < .001$.

Discussion

Overall, the treatment of the targeted PDA for adolescents was also effective in reducing the clinical severity and number of comorbid disorders in this sample of 55 adolescents with PDA. Specifically, the primary hypothesis of the present study was supported in that both the frequency and severity of comorbid diagnoses decreased in a group of adolescents who received an 8-day treatment for PDA as compared to a waitlist control group. Additionally, as hypothesized, when all participants were combined (those in both the immediate treatment condition and the waitlist condition) the number and severity of comorbid diagnoses (aggregated) significantly decreased from pre-treatment to post-treatment. Finally, we also hypothesized that the frequency and severity of all comorbid anxiety disorders would decrease after this treatment. This hypothesis was partially supported; specifically,

results suggest that an 8-day treatment for PDA can alleviate the symptoms of some comorbid clinical diagnoses; in particular, Specific Phobias, GAD, and Social Phobia. The severity of OCD and MDD diagnoses also decreased from pre-treatment to post-treatment; however, because only two and four participants, respectively, had these diagnoses at pre-treatment, these results were not significant. These findings add to a nascent body of research about the effects of disorder specific interventions on comorbid internalizing diagnoses (Ishikawa, et al., 2007; Kendall, et al., 2001; Ollendick, et al., 2010; Walkup, et al., 2008).

These results, within the context of the greater body of literature, suggest that the skills provided in an intensive treatment for PDA can generalize to other disorders, even without specific instructions on how to generalize these skills to alleviate the symptoms of other disorders. This could be the case because the core features of the intensive treatment for PDA (specifically, psychoeducation, cognitive restructuring training, interoceptive and in vivo exposures, and guidance about applying treatment components outside of session time) are the same core features that are used when treating other anxiety disorders with CBT. Perhaps during and after the treatment, adolescents in this study may have autonomously started applying these skills to other disorders for which they met diagnostic criteria prior to receiving the treatment.

It appears that Specific Phobias, GAD and Social Phobia may be particularly well-suited to treatment with an intensive treatment when PDA is primary. While other diagnoses (specifically, OCD and MDD) may also be successfully treated, the number of adolescents with those disorders in this study was not adequate to address that question. In a previous study, Pincus et al. (2010) demonstrated that adolescents show lower ratings of symptoms of anxiety and depression following a 12 week manualized CBT treatment for PDA (from which this intensive treatment was adapted). CBT for any anxiety disorder would likely include the same basic components as does the intensive treatment for PDA, namely, psychoeducation, cognitive restructuring training, and in vivo exposures. Conversely, the research literature currently supports exposure and response prevention for treating OCD, which is not included in this treatment. Additionally, symptoms of depression are not discussed or targeted in the intensive adolescent panic treatment, which may mean that depressive disorders might be less likely than other anxiety disorders to display alleviation following this treatment alone. Perhaps a longer time is needed (e.g., a 12 week treatment) for depression to remit, and perhaps the intensive treatment does not target depression as well as a longer treatment. Additionally, for MDD, the benefits of treatment may take longer to take effect. However, more research is necessary to determine this, especially given the small number of participants who had a diagnosis of depression.

An increase in adolescents' self-efficacy could also be responsible for the decrease in number and severity of comorbid diagnoses. By participating in the treatment, perhaps adolescents were able to realize that they could handle experiencing anxiety and that it would not physically harm them. Moreover, perhaps when excessive anxiety did occur (whether related to panic or related to some other trigger for anxiety, such as a social situation) adolescents knew how to handle it by utilizing their new skills, and had the confidence to do so after the success they had overcoming the symptoms of PDA. Furthermore, it could be that as panic and agoraphobia symptoms were reduced, there were more opportunities for social interaction and positive reinforcement from peers, thus further increasing adolescents' self-efficacy in engaging in developmentally appropriate activities.

This study was not without its limitations, one of which was the lack of ethnic diversity of the sample. Additionally, these results do not take into account a longer-term follow-up after treatment to determine whether changes in comorbidity are maintained over time. Moreover,

there were not enough adolescents in the sample with MDD and OCD to determine whether the treatment can be successful in treating these comorbid diagnoses. Regarding intensive treatments more generally, questions of feasibility in community settings remain in terms of how these treatments can fit into the framework of typical 50-minute therapy sessions and affordability to families (Albano, 2009). Effectiveness trials of this and other intensive treatment models are needed to begin to answer these questions.

These results suggest that intensive treatments could potentially work to alleviate the symptoms of other disorders, such as Social Phobia or Generalized Anxiety Disorder, and perhaps, need not be focused on just one circumscribed issue, as has been done in the past. Perhaps subsequent treatment for other disorders may not be necessary, and a treatment for either the most severe or the most impairing disorder (in this case, PDA) would generalize to alleviate symptoms of other disorders. Further research should work to determine which disorders and which approaches are best to utilize first, and for whom, so we can begin to expand the reach and success rates of available treatments.

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Research Highlights

We examined the effects of an intensive treatment for panic disorder on comorbid diagnoses.

The overall frequency and severity of comorbid diagnoses decreased following the 8-day treatment.

The 8-day treatment for panic disorder alleviated the symptoms of Specific Phobias, Generalized Anxiety Disorder, and Social Phobia.

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Table 1
Means at Pre- and Post-Waitlist for Waitlist Control Group and Pre- and Post-Treatment for Immediate Treatment Group

	Pre-treatment <i>M</i> (<i>SD</i>)	Post-waitlist or post-treatment <i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	Effect size (Cohen's <i>d</i>)
Waitlist control group frequency of comorbid diagnoses (<i>N</i> =16)	1.69 (1.20)	1.69 (1.20)	-0.81	15	0.20
Waitlist control group average CSR of comorbid diagnoses (<i>N</i> =16)	4.58 (0.77)	4.55 (0.79)	0.43	13	0.12
Immediate treatment group frequency of comorbid diagnoses (<i>N</i> =39)	1.41 (1.27)	0.62 (0.88)	4.94**	38	0.81
Immediate treatment group average CSR of comorbid diagnoses (<i>N</i> =39)	4.36 (0.48)	2.00 (2.23)	5.00**	29	0.93

Note. CSR = Clinical Severity Rating

* *p* < .05;

** *p* < .01

Table 2
Means for Total Sample (N=55) and for Specific Diagnoses at Pre- and Post-Treatment

	Pre-treatment <i>M (SD)</i>	Post-treatment <i>M (SD)</i>	<i>t</i>	<i>df</i>	Effect size (Cohen's <i>d</i>)
Frequency of comorbid diagnoses for total sample (N=55)	1.49 (1.25)	0.64 (0.91)	6.29**	54	0.86
Average CSR of comorbid diagnoses for total sample (N=55)	4.47 (0.68)	2.01 (2.27)	7.85**	46	1.17
CSR for Specific Phobias (N=19)	4.74 (0.81)	2.68 (1.86)	6.70**	18	1.60
CSR for Generalized Anxiety Disorder (N=18)	4.28 (0.46)	2.11 (1.60)	5.96**	17	1.44
CSR for Social Phobia (N=9)	4.78 (0.97)	2.56 (1.74)	3.36**	8	1.20
CSR for Obsessive Compulsive Disorder (N=2)	4.00 (0.00)	1.00 (1.41)	3.00	1	3.06
CSR for Major Depressive Disorder (N=4)	4.75 (0.96)	1.50 (3.00)	2.93	3	1.69

Note. CSR = Clinical Severity Rating

* $p < .05$;

** $p < .01$