

Panic and agoraphobia: do treatments targeted for one problem also improve the other? A pilot study

Kevin P. Reilly¹, Michael J. Gill²,
Frank M. Dattilio³, Amanda McCormick²

¹ Department of Psychology, Ferrum College

² Lehigh University

³ Harvard Medical School and the University of Pennsylvania School of Medicine

Summary

Background and aim: *The objective of this research was to compare the effectiveness of three different interventions (i.e., guided mastery, interoceptive exposure, and a combination treatment) in the treatment of panic and agoraphobia during a brief pilot study.*

Material and method: *Nine individuals were randomly assigned to each treatment group and given six hours of treatment. It was predicted that guided mastery participants would show the greatest reductions in agoraphobic symptoms, while interoceptive exposure participants would display the greatest reductions in symptoms of panic.*

Results: *Contrary to these predictions, all treatments were equally beneficial for both panic and agoraphobia. It was also predicted that treatment benefits for panic and agoraphobia would be moderated by changes in fear-of-fear, anticipated panic, panic coping efficacy, and agoraphobic self-efficacy. Results indicated that all of these variables moderated treatment benefits for panic, whereas only agoraphobic self-efficacy and anticipated panic mediated treatment benefits for agoraphobia.*

Conclusion: *The findings are discussed in light of past research along with suggestions for the direction of future research.*

Key words: panic, agoraphobia, treatment, effectiveness, guided mastery, interoceptive exposure

Introduction

The present study was conducted in an effort to answer two questions pertinent to the phenomenology and treatment of panic and agoraphobia. First, are panic and agoraphobia separate problems with distinct symptoms? The present study will attempt to answer this question by examining treatments designed specifically for panic or agoraphobia, and testing for differential treatment outcome. Second, which cognitive

This research was supported in part by a private grant awarded through the Department of Psychology at Lehigh University. The study also served as partial fulfillment for the first author's doctoral dissertation. The first author wishes to express his appreciation for early guidance with this study to S. Lloyd Williams, as well as his gratitude to the following individuals who assisted with various aspects of the research: Carla Chance, Jennifer Griffin, Allison Kinter, Elizabeth Morris,

factors mediate treatment effects in panic and agoraphobia? The present study will test three such factors for mediation of treatment effects: fear of fear, anticipated panic, and self-efficacy.

Suggested moderators or predictors of panic and agoraphobia

Fear-of-fear

Fear-of-fear theories emphasize the intense and debilitating fear that panickers have about experiencing the symptoms of panic. Results of several studies suggest that fear of fear moderates panic [1, 2, 3, 4, 5].

Anticipated Panic/Panic Expectancy

Some theorists [6] argue that a heightened expectation of panic can produce a self-fulfilling prophecy in the sense of increasing the likelihood of actually experiencing panic, suggesting that expectations of panic, or anticipated panic, can moderate the actual experience of panic.

Self-Efficacy

According to the self-efficacy theory, the major cognitive factor in agoraphobic avoidance is low self-efficacy, a weak or absent sense that one can either enact coping behaviors or eliminate distressing thoughts when in a feared situation [7]. Results from this research indicate that self-efficacy moderated performance of agoraphobic activities [8, 9], and also predicted situational fear or anxiety experienced during phobic performance [10, 11].

Treatments for panic and agoraphobia

Interoceptive Exposure

Interoceptive exposure involves deliberately provoking feared bodily sensations (e.g., rapid heartbeat) in panickers in a controlled setting [12]. Repeated exposure of this nature enables the panicker to habituate to feared bodily sensations and thus become less likely to panic when faced with these sensations. In a sense, it serves as a form of inoculation. Interoceptive exposure has proven effective in treating panic [13, 14], but in limited testing, interoceptive exposure treatment has been found ineffective in treating agoraphobia [13].

Guided Mastery Treatment

Guided mastery treatment involves assisting agoraphobics in performing gradations of feared tasks, in an effort to increase self-efficacy for coping with these tasks [15]. Guided mastery has proven effective in treating agoraphobic limitation [16, 11]. In one study, guided mastery treatment proved effective in treating panic [17].

For the present study, three treatments for panic and agoraphobia were implemented: guided mastery, interoceptive exposure, and a combination of the two treatments. It is predicted that all of these treatments will yield symptom reduction in panic and agoraphobia. It is further predicted, based on the hypothesis that panic and agoraphobia are separate problems, that these treatments will lead to differential effects. Specifically, because interoceptive exposure targets panic directly and extensively whereas guided mastery targets agoraphobia directly and extensively, it is predicted that interoceptive exposure will be superior for treating panic, whereas guided mastery will be superior for treating agoraphobia.

In addition, the present study will test three cognitive factors, fear of fear, anticipated panic, and self-efficacy, for mediation of treatment effects. Our predictions are as follows: treatment changes in panic will be mediated by changes in panic coping efficacy and fear-of-fear, which are both panic-based measures, but not by changes in self-efficacy or anticipated panic, which are both agoraphobia-based measures. Also, treatment changes in agoraphobia and agoraphobic anxiety would be mediated by changes in agoraphobic self-efficacy and anticipated panic but not by changes in panic coping efficacy or fear-of-fear.

Method

Design

This study utilized a 3-group between-groups pretest-posttest design. The independent variable was treatment condition (guided mastery, interoceptive exposure, and combination treatment). The dependent variables represented potential treatment effects and included measures of panic, agoraphobia, and agoraphobic anxiety. Also included were measures of potential mediators of treatment effects.

Participants

Eighteen female and nine male adult sufferers of panic attacks (aged 27 to 68, $M = 44$) were randomly assigned to treatment groups. The greater number of female to male participants is commensurate with the majority of reported studies on anxiety and panic. Participants experienced a mean of 6 panic attacks per week (minimum = 1 as a condition of inclusion in the study) and spent a mean of 3 hours per day thinking about panic symptoms. Twenty-nine participants were initially selected for participation in the study. However, two dropped out during treatment (one in the guided mastery treatment and one in the combined treatment condition), leaving 27 participants. This completion rate is consistent with other research on panic and agoraphobia [18]. Selected participants had contacted the investigator in response to publicity offering a free treatment program for panic and agoraphobia, or were referred to the program by community professionals or others, and were selected for participation based on screening criteria described below.

Selection procedures

Preliminary questionnaires

Interested participants were mailed a packet of information. This packet included a preliminary questionnaire that contained demographic inquiries and questions pertaining to the nature and severity of the respondent's panic. If scoring indicated that a person had experienced a panic attack in the last two weeks, he/she was invited to an initial interview. All individuals who did not meet the initial selection criteria (10 in total) were referred for treatment to qualified professionals within the local community. In a follow-up telephone contact with these 10 individuals, which was completed between 8-12 months after the initial contact, the primary investigator discovered that 6 had begun taking medication to treat their condition. The other four individuals were unable to be reached due to disconnected phone numbers, relocation, etc.

Initial office interview

The primary investigator interviewed all potential participants at the Phobia and Panic Program at Lehigh University, or at their home if their panic symptoms prevented them from travelling to the university. At this time, participants completed a structured diagnostic interview for anxiety disorders, which was a modified form of the Anxiety Disorders Interview Schedule-Revised [19], with two distinctions from the standard Anxiety Disorders Interview Schedule-Revised. First, questions not pertinent to diagnosing anxiety disorders or major depression were omitted. Second, peripheral questions (e.g., how do you handle the panics now) were also omitted. This interview was used to determine whether the participant qualified for a psychiatric diagnosis of any particular anxiety disorder, although diagnosis was not used to screen for participation.

As a final criterion for selection, individuals must have had at least one area of agoraphobic limitation as determined by the ADIS-R. Individuals who met this criterion in addition to the previous panic-related criteria were invited to participate in the program. Though a diagnosis of agoraphobia requires three areas of agoraphobic limitation (or limitation in going distances from home), the two individuals who were not diagnosed as agoraphobic did have one area of agoraphobic limitation each. Thus based on the selection criteria listed above, they were invited to participate in the program. Individuals who did not meet these criteria were referred for treatment to qualified professionals within the community. Selected participants scored a mean of 20 on the Agoraphobia Scale of the Fear Questionnaire [20], which assesses level of avoidance of common agoraphobic activities such as traveling, walking on busy streets, going into crowded shops, and being in open spaces. Though there is currently no score that is accepted as clinically significant, this mean is similar to means gathered in previously published studies using agoraphobic participants [17, 11]. Participants' scores varied across the scale's 0-40 range, with no emphasis on any one activity. Using the diagnostic procedure described above, 27 participants suffered from panic disorder, 25 also suffered from agoraphobia (6 with mild agoraphobia, 14 with moder-

ate agoraphobia, and 5 with severe agoraphobia), 14 from social phobia, and 8 from depression according to DSM-IV criteria.

After this interview, the therapist introduced two forms to participants: the Panic Record⁴, which obtains information about each panic attack experienced, and the Daily Record of Panic Thoughts⁴, which obtains daily information regarding the amount of time spent thinking about panic. These two forms were completed during a two-week period between the initial interview and pre-treatment sessions, and were used to determine a baseline for panic symptoms. Though there is currently no published reliability/validity information for these scales, they are unquestionably high in face validity.

Pre-treatment session

Assessment interview

During this interview, participants completed several pre-treatment inventory measures of anticipated panic, self-efficacy, fear-of-fear, agoraphobic limitation, and depression. These forms included the following:

Anticipated panic. Anticipated panic was measured by the Agoraphobia Anticipated Panic Scale, on which participants rated their anticipated likelihood of panicking while performing five sub-tasks of increasing difficulty in 15 typical agoraphobic domains. Anticipated panic was the mean rating across all 75 tasks covering the various domains of functioning. Though there is currently no published reliability/validity information for this scale, it is unquestionably high in face validity.

Agoraphobic self-efficacy. Agoraphobic self-efficacy was measured by the Agoraphobia Self-Efficacy Scale [8], on which participants rated their confidence regarding their ability to perform each sub-task for each of the same 15 agoraphobic areas mentioned above from 0 (cannot do) to 100 (certain can do). Self-efficacy was the mean rating across all 75 tasks covering the various domains of functioning. Validity information for this scale comes from studies in which the scale strongly predicted agoraphobic behavior, with correlations between scores and behavior ranging from .60 when taken 60 days before the behavioral test to .85 when taken 1-6 days before the behavioral test [8].

Panic coping efficacy. Panic coping efficacy was measured by the Panic Coping Efficacy Form⁴, on which participants rated their confidence in managing several aspects of a panic attack (e.g., controlling scary thoughts that occur during a panic attack). These items were rated from 0 (cannot cope) to 100 (certain can cope). Panic coping efficacy was the mean rating across all of these items. Even though no reliability or validity information is available for this scale, it is unquestionably high in face validity.

Fear-of-fear. Fear-of-fear was measured in two ways⁵:

1. The Agoraphobic Cognitions Questionnaire: Frequency [21], on which partici-

⁴ These unpublished scales were developed by S. Lloyd Williams for use at the Lehigh Phobia Program.

⁵ We included the Body Sensations Questionnaire among our measures. It proved insensitive to our treatments, and so will not be discussed further.

pants rated the frequency of thoughts of negative outcome experienced during panic (e.g., throwing up, screaming, talking funny) from 0 (don't experience the thought) to 4 (always experience the thought during panic). Frequency was the sum of these respective ratings across all 15 items. This scale has a three-week test-retest reliability of .86 and an internal consistency of .80 [21].

2. The Agoraphobic Cognitions Questionnaire: Severity, on which participants rated the severity of thoughts of negative outcome during panic from 1 (mild) to 5 (very intense). Severity was the sum of these ratings across all 15 items. Again, even though no reliability or validity information currently is available on this scale it is unquestionably high in face validity.

Agoraphobic limitation. Agoraphobic limitation was measured in two ways:

1. The Mobility Inventory for Agoraphobia [22], on which participants rated their avoidance of 27 agoraphobic problem areas when alone from 1 (never avoid) to 5 (always avoid). Examples of problem areas include supermarkets, high places, and driving. Mobility was the sum of the ratings across these 27 items. The Mobility Inventory for Agoraphobia has internal consistency ranging from .91 to .97 and one-month test-retest reliability ranging between .87 and .94 [22].

2. The Fear Questionnaire [20], on which participants rated their tendency to avoid 15 specific activities, including five agoraphobic items, five social phobia items, and five blood/injury phobia items, from 0 (would not avoid) to 8 (always avoid). The five agoraphobic items were summed to yield an agoraphobia scale score that could range from 0 to 40. A total phobia score was calculated by summing across all 15 items. The total phobia score form has a one week test-retest reliability of .85 [20].

Behavioural assessment

After participants completed the aforementioned inventories, a behavioral assessment was administered that measured their ability to perform a graded series of tasks in one of five self-identified feared agoraphobic activities: driving, walking on busy streets, experiencing heights, walking along a bridge, and visiting local shopping malls. Each behavioural test consisted of several tasks ranging in difficulty from easy to very difficult within a single area of functioning (e.g., heights). Each test was standardized by Behavioral Test Manuals, which clearly specified the community settings to be used, the verbatim instructions to be given to participants, and the sequence of tasks to be performed.

Just prior to the behavioral assessment, participants completed the Self-Efficacy for Behavioral Assessment and the Anticipated Panic during Behavioral Assessment scales. Participants rated self-efficacy by indicating their confidence (0%-100%) that they could perform each of 12 sub-tasks. Participants rated anticipated panic by indicating the perceived likelihood (0%-100%) that they would experience a panic attack during performance of each sub-task. Self-efficacy and anticipated panic were the mean ratings across these sub-tasks. These scales have demonstrated three week test-retest reliabilities of .94 (self-efficacy) and .66 (anticipated panic) respectively [16].

Next, participants performed the behavioral assessment. As they completed each

sub-task of the behavioral test, participants rated their current level of anxiety using a 10-point anxiety scale. Anxiety was the mean rating across all of the completed tasks. Immediately following completion of the entire behavioral assessment, participants once again recorded their perceived self-efficacy, anticipated panic, and control of scary thoughts for each of the sub-tasks using the forms described above. Two of the participants in the interoceptive exposure condition completed all of the sub-tasks in the behavioral tests. These participants were then given an additional behavioral test in another agoraphobic area, and both completed all of the sub-tasks on this test as well. Because these two participants could not identify any other agoraphobic areas for assessment, they were not administered a behavioral test after treatment, and were thus dropped from all assessment-related analyses.

Treatment procedures

Following the pre-treatment session, participants were randomly assigned to either the **interoceptive exposure treatment** condition, the **guided mastery treatment** condition, or the **combined treatment** condition. Regardless of assigned treatment condition, treatment consisted of six one-hour sessions conducted over the course of four to six weeks, depending on availability. One-way ANOVA's indicated no significant between group differences at pre-treatment on any measures of panic, agoraphobia, agoraphobic anxiety, or cognitive factors.

Interoceptive Exposure Treatment

This treatment followed guidelines suggested by Carter and Barlow [23], and Dattilio & Salas-Auvert [24]. The aim of interoceptive exposure treatment is to help the panicker become less fearful of panic symptoms through deliberate exposure to these sensations. Thus, the therapist asked the participant to attempt a variety of activities that could induce physical symptoms akin to those experienced during panic, including hyperventilation, running in place, and spinning in a chair. During treatment, the therapist regularly praised the participant's efforts and encouraged him/her to persist without coercing him/her to perform an activity that he/she did not feel ready or able to perform.

Guided Mastery Treatment

This treatment followed guidelines suggested by Williams [15]. The aim of guided mastery treatment is to help participants to achieve rapid and proficient performance accomplishments in feared community activities like driving, shopping, etc. Thus, the participant practiced performing feared tasks within a given behavioural activity (e.g., driving), initially with therapist assistance and, later, on his/her own. The particular therapist assistance and instructions varied widely across phobic areas and subjects. For example, if a driving phobic was only able to drive on the highway with both hands rigidly gripping the steering wheel, and with the radio off, the therapist

encouraged the participant to refrain from these defensive behaviours, all at once or in a progressive manner.

Interoceptive exposure plus Guided Mastery Treatment

A third treatment condition involved equal parts of interoceptive exposure and guided mastery treatments, alternated session by session. This combined treatment was enacted in an effort to determine if lesser amounts of both treatments would lead to lesser, but more generalized, treatment gains.

Therapist/Diagnostician

The principal investigator administered all treatments using standardized treatment manuals which follow guidelines by Carter and Barlow [23] and Williams [15]. Also, the principal investigator provided all diagnoses in consultation with Frank Dattilio.

Control over extratherapeutic influences

Participants were asked to refrain from receiving any other psychological treatment for panic or phobia until after treatment, of which they obliged. Eleven of the participants were taking regularly prescribed medications for their symptoms, four each in the guided mastery and interoceptive exposure conditions and three in the combined treatment condition. These participants were asked to not alter their medication regimen during treatment, of which they obliged. T-tests performed at pre-treatment and post-treatment revealed no differences between those participants taking medications and those not taking medications on any measures.

Because the principal investigator in the present study was also the sole therapist, it is important to address the issue of experimenter bias. Specifically, the principal investigator's expectations regarding between group differences in treatment effects could impact the way treatment was enacted, thus affecting the results of the study. There are two arguments against the influence of this kind of experimenter bias in the present study. First, the three treatments were highly structured with definitive guidelines for the therapist at all times. For example, in interoceptive exposure treatment, if a panicker was able to perform an induction task for one minute without panicking, the therapist instructed him/her to increase the amount of time the activity was performed. And in guided mastery treatment, if an individual was able to drive for one exit on a highway, the therapist instructed him/her to drive for a longer duration on the next occasion. There was little room for interpretation in these treatments, leading to few opportunities for experimenter bias. Second, if different treatment groups were in fact treated differently by the therapist, it is reasonable to assume that this would be reflected in participants' perceptions of the therapist. In the present study, participants completed the Therapist Rating Form at the end of treatment. This form assessed participants' perceptions of therapist supportiveness, using a scale from 0 (not supportive) to 5 (very supportive). Example questions include, "How supportive was the therapist during your

treatment”, “To what degree did the therapist understand your problems with panic”, and “Were you allowed the opportunity to talk about issues you felt were important to your progress.” One-way ANOVA’s indicated that perceived therapist supportiveness did not differ significantly between the treatment groups. In fact, participants’ ratings were near the maximum rating level across all treatment groups, providing evidence for a similarity of perceived positive experience regardless of treatment type.

Another issue involves the lack of a traditional control condition, one which involved no treatment, in the present study. Though some researchers [25] argue that outcome studies must use a control group to maximize internal validity, there are two important reasons why the present study does not involve such a group. First, there has been a general acknowledgment that control conditions are not needed if the experimental treatment can be compared with a treatment of known effectiveness [26]. This criterion was met in the present study. To assess treatment outcome for panic measures, interoceptive exposure treatment (an established effective treatment for panic) will be compared with guided mastery and combination treatments (the experimental treatments). Also, to assess treatment outcome for agoraphobia measures, guided mastery treatment (an established effective treatment for agoraphobia) will be compared with interoceptive exposure and combination treatments (the experimental treatments).

The second reason the present study does not involve a traditional control condition is because the experimenter did not want to introduce bias into the participant population. Seligman [27] has criticized the use of control conditions in treatment outcome research, arguing that it leads to bias regarding expectations of treatment effectiveness. For example, individuals with psychological problems who enter treatment in a natural clinical setting expect to be actively treated by a therapist using an effective treatment strategy. In contrast, individuals who enter treatment in a research setting that involves a control condition expect that they could be randomly assigned to an ineffective treatment. Thus, participants treated in a research setting with a traditional control condition may develop biases against their respective treatment that could impact treatment effectiveness. The present study excludes a control condition and makes participants aware of this to avoid such bias.

Homework

All participants, regardless of treatment condition, were asked to refrain from engaging in treatment activities on their own until the post-treatment session was concluded, at which time they were encouraged to practice the situation they feared.

Post-treatment session

Assessment interview

A post-treatment session, identical to the pre-treatment session described above, was conducted as soon as possible following treatment, within 2-3 days. At the end of this session, the therapist again asked participants to complete the Panic Record and the Record of Panic Thoughts forms during a two-week period immediately following this session. Finally, a follow-up session was scheduled, to take place six weeks after the post-treatment session. This session was identical to the post-treatment session.

Additional checks of treatment implementation

Treatment clarity and credibility

At the end of treatment, participants completed the Treatment Credibility Rating Form. The mean clarity and credibility ratings were a near maximum of 15.1 for the guided mastery group, 13.3 for the interoceptive exposure group, and 14.8 for the combination group. A one-way ANOVA yielded a significant between group difference on this measure, $F(2, 26) = 7.35, p < .01$. A Post hoc Scheffé comparison⁶ comparing the interoceptive exposure group with the other two groups indicated that participants in the interoceptive exposure group gave significantly lower ratings for treatment credibility and clarity than participants in the guided mastery and combination groups, $t(24) = 3.78, p < .01$.

Results

Preparation of dependent measures

Three dependent variables were analyzed in this study: panic, agoraphobia, and agoraphobic anxiety. Panic was measured in three ways: number and frequency of panic attacks during the two week period before and after treatment (**panic number**, **panic severity**), and the amount of time spent thinking about panic per day during the same period (**panic thoughts**). Agoraphobia was measured in two ways: performance on an agoraphobic task during the behavioral assessment (performance-based agoraphobia), and self-report agoraphobic limitation. Scores on the self-report agoraphobic limitation measures were highly correlated (all $r_s > .62, p_s < .01$). Thus, scores on these measures were standardized and combined to create one measure of self-report agoraphobic limitation (**self-report agoraphobia**). **Agoraphobic anxiety** was the amount of anxiety experienced during performance of the agoraphobic task that constituted the behavioral assessment.

Therapeutic improvement as a function of treatment type

3 (treatment condition: guided mastery, interoceptive exposure, combination treatment) X 2 (time of assessment: pre-treatment, post-treatment) between-within analyses of variance with repeated measures on the second factor were performed for each of the dependent variables mentioned above. Main effects for time of assessment were significant for all of the dependent measures, all F_s (dfs 1, 24 or 1, 22) $> 6.00, p_s < .02$, with means indicating that participants significantly improved from pre-treatment to post-treatment on all measures⁷. The effect sizes for these analyses were all large (all $\eta^2 > .21$). Contrary to predictions, there were no significant interactions, all $F_s < 2.10, p_s > .15$, indicating that no one treatment outperformed any other. Table 1 presents the

⁶The Scheffé test was used due to the involvement of multiple comparisons.

pre-treatment and post-treatment means for each panic variable by treatment group, and Table 2 presents the pre-treatment and post-treatment means for each agoraphobic variable and agoraphobic anxiety by treatment group.

Mediation of treatment effects

Preparation of measures of potential mediators

Three factors thought to mediate panic and/or agoraphobia were analyzed in this

Table 1

Effects of therapeutic interventions on Panic

Treatment Group	Pre-Treatment	Post-Treatment
Panic Number		
Guided Mastery	8.44 (12.3)	2.11 (3.2)
Interoceptive exposure	5.67 (5.7)	3.22 (4.9)
Combination Treatment	10.00 (10.7)	4.11 (5.4)
Panic Severity		
Guided Mastery	4.99 (2.9)	3.17 (3.3)
Interoceptive exposure	5.40 (2.2)	4.09 (3.3)
Combination Treatment	6.26 (2.5)	4.26 (3.5)
Treatment Group	Pre-Treatment	Post-Treatment
Panic Thoughts		
Guided Mastery	130.29 (89.8)	54.35 (68.4)
Interoceptive exposure	119.87 (78.9)	82.69 (81.6)
Combination Treatment	105.30 (82.1)	49.96 (58.7)

NOTE. Standard deviations are in parentheses. Panic number is the mean number of panic attacks experienced during a two-week period preceding treatment (pre-treatment) and subsequent to treatment (post-treatment), and scores could range from zero to infinity. Panic severity is the mean severity of each panic attack experienced during the same two-week periods, and scores could range from one, indicating very low severity, to ten, indicating maximum severity. Panic thoughts is the mean number of minutes spent thinking about panic each day during the same two-week periods, and scores could range from zero to 1440.

⁷Because the data for panic number were skewed, a Wilcoxon signed ranks test was used for this analysis, and was also significant ($p < .02$).

Table 2

Effects of therapeutic interventions on Agoraphobia and Agoraphobic Anxiety

Treatment Group	Pre-Treatment	Post-Treatment
Self-Report Agoraphobia		
Guided Mastery	164.10 (64.1)	106.27 (54.9)
Interoceptive exposure	157.03 (43.9)	123.17 (46.2)
Combination Treatment	125.52 (42.8)	97.78 (47.4)
Performance-Based Agoraphobia		
Guided Mastery	50.48 (38.9)	96.33 (11.0)
Interoceptive exposure	50.61 (18.6)	84.62 (19.5)
Combination Treatment	60.94 (15.2)	90.18 (12.3)
Treatment Group	Pre-Treatment	Post-Treatment
Agoraphobic Anxiety		
Guided Mastery	5.80 (2.4)	2.02 (1.1)
Interoceptive exposure	4.96 (1.3)	3.18 (.9)
Combination Treatment	5.44 (2.5)	3.16 (1.6)

NOTE. Standard deviations are in parentheses. Two of the participants in the interoceptive exposure condition completed all of the sub-tasks in two behavioral tests. Because these two participants could not identify any other agoraphobic areas for assessment, they were not given a behavioral test after treatment, and were thus dropped from all assessment-related analyses. Self-report agoraphobia is the mean of the scores on three measures of agoraphobic avoidance, the Fear Questionnaire total, the Fear Questionnaire Agoraphobia, and the Mobility Inventory for Agoraphobia, taken before treatment (pre-treatment) and after treatment (post-treatment). Scores could range from twenty-seven, indicating minimum avoidance, to 303, indicating maximum avoidance. Task-based agoraphobia is the mean percentage of performance of an agoraphobic task, taken before treatment (pre-treatment) and after treatment (post-treatment). Scores could range from 0% (no part of task performed) to 100% (all of task performed). Agoraphobic anxiety is the mean anxiety experienced during performance of the agoraphobic task, taken before treatment (pre-treatment) and after treatment (post-treatment). Scores could range from zero (no anxiety experienced) to ten (maximum anxiety experienced).

study: self-efficacy, anticipated panic, and fear-of-fear. Self-efficacy was measured in three ways: the mean scores on the Agoraphobia Self-Efficacy Scale (**generalized agoraphobic efficacy**), the Self-Efficacy for Behavioral Assessment scale (**behavioral assessment efficacy**), and the Panic Coping Efficacy Scale (**panic coping efficacy**). The two measures for Anticipated Panic were highly correlated ($r = .46, p < .05$) and thus were combined to create one measure of **anticipated panic**.⁸ The two measures of Fear-of-fear, were highly correlated ($r = .75, p < .01$), and thus were standardized and

combined to create one measure labeled **fear-of-fear**. Table 3 presents mean scores on the potential mediators by assessment phase.

Mediation of treatment effects

To test our mediational hypotheses, we conducted thirty (5 potential mediators X 6 dependent variables) analyses of covariance. These were 3 (treatment condition: guided
Table 3

Mean scores on the potential mediators by assessment phase

Cognitive Mechanism	Pre-Treatment	Post-Treatment
Generalized		
Agoraphobic Efficacy	62.7 (21.6)	81.1 (17.1)
Behavioral		
Assessment Efficacy	40.3 (20.9)	80.1 (22.5)
Panic Coping Efficacy	17.6 (13.8)	43.7 (23.6)
Anticipated Panic	47.5 (21.7)	21.9 (16.3)

NOTE. Standard deviations are in parentheses. The Anticipated Panic cores reflect the mean score from both the Agoraphobia Anticipated Panic Scale and the Anticipated Panic During Behavioral Assessment Scale. The Fear-of-Fear scores reflect the sum of the total raw Scores on the Agoraphobic Cognitions Questionnaire Frequency Scale and the Agoraphobic Cognitions Questionnaire Severity Scale. These two Fear-of-Fear measures were standardized and combined for analysis.

mastery, interoceptive exposure, combination treatment) X 2 (time of assessment: pre-treatment, post-treatment) between-within ANCOVA's with repeated measures on the second factor. In each analysis, the covariate was the difference between pre-treatment and post-treatment scores on a given potential mediator. The significance levels and effect sizes of the pre-treatment versus post-treatment effect after controlling for each of the potential mediators are provided in Table 4, along with the significance levels and effect size for that effect from the original ANOVA's.

Generalized agoraphobic efficacy, behavioral assessment efficacy, and anticipated panic mediated changes on every dependent variable. In further testing it was determined that none of these mediators was superior to any other in terms of the strength of its mediating relationship. Panic coping efficacy mediated all dependent variables tapping panic, but none tapping agoraphobia or agoraphobic anxiety. Fear-of-fear mediated panic severity and panic thoughts.

Analyses of improvement from Post-treatment to Follow-Up

⁸The self-efficacy and anticipated panic measures for the behavioral assessment were taken directly before and after treatment to minimize influences outside of treatment itself.

The analyses conducted above were repeated in order to assess whether participants improved or declined on any measures between the post-treatment assessment and

Table 4

Significance levels and effects sizes of the pre-treatment versus post-treatment effects after controlling for various cognitive mediators

Mediator Held Constant	Panic Attacks	Panic Severity	Panic Thoughts
Generalized Agoraphobic Efficacy	.48(.02)	.87(.00)	.49(.02)
Behavioral Assessment Efficacy	.62 (.01)	.27 (.05)	.76 (.01)
Panic Coping Efficacy	.50 (.02)	.18 (.08)	.94 (.00)
Anticipated Panic		.79 (.00)	.33 (.04)
Fear of Fear	.05*(.16)		.55 (.02)
Original P Values		.02**	.007***
Original effect sizes	.21	.26	.25

Mediator Held Constant	Task-Based Agoraphobia	Self-Report Agoraphobia	Agoraphobic Anxiety
Generalized Agoraphobic Efficacy	.35 (.04)	.79 (.00)	.59 (.01)
Current Task Efficacy	.29 (.05)	.20 (.12)	.63 (.01)
Panic Coping Efficacy	.01** (.27)		.06* (.18)
Anticipated Panic		.31 (.05)	.21 (.07)
Fear of Fear	.002*** (.40)		.60 (.01)
Original P Values	.000***	.000***	.004***

the follow-up assessment, which occurred six weeks subsequent to the termination of treatment. Results indicated an absence of any change (all F s < 1, p s > .3). These findings indicate that the therapeutic and cognitive benefits produced by all treatments were maintained well over time.

Discussion

Contrary to expectations, all treatments were equally effective in helping partici-

pants to overcome panic, agoraphobia, and agoraphobic anxiety, and to maintain these improvements over time. That interoceptive exposure treatment was not found to be superior to either guided mastery or combined treatment in lessening panic, is not shocking. Several studies comparing panic-targeted treatment with in vivo exposure, an agoraphobia-targeted treatment, found them to be equally effective in reducing symptoms of panic [28, 14]. Further, guided mastery treatment did prove effective in treating panic in a previous study [17]. Thus the present findings provide further evidence that guided mastery, though developed as a treatment for agoraphobia, may be effective in lessening panic.

That guided mastery was not superior to interoceptive exposure or combined treatment in lessening agoraphobia is more surprising. Why might this have happened? There are two possible explanations. One possibility involves the fairly small sample size used in the present study (nine participants in each treatment condition; seven in the interoceptive exposure condition for measures of agoraphobic performance and anxiety). Notably, although participants in all treatment conditions improved through treatment, the pattern of means was in a direction suggesting that guided mastery was superior for treating self-report agoraphobia and agoraphobic anxiety ($\eta^2 = .19$ and $.12$ respectively), and, naturally, if this pattern of means was maintained with a larger sample size, this superiority would become statistically significant.

It is also possible that these tasks may not have been challenging enough, leading to ceiling effects that lessened between group differences in both performance and performance anxiety. For instance, before any treatment participants could perform, on average, more than half (54%) of the sub-tasks of the behavioral assessment (54%). And post-treatment mean performance level was 91%. Despite this ceiling effect, there were indications that participants in the guided mastery group (96% performance) outperformed participants in the interoceptive exposure and combined treatment groups (85% and 90% respectively) during the post-treatment assessment. And a similar phenomenon is evident with agoraphobic anxiety. These non-significant differences might increase if the agoraphobic activity were more challenging. The prediction that all treatments would be effective in lessening panic and agoraphobia was supported, and is especially interesting considering the short-term nature of these treatments.

In sum, while panic and agoraphobia can exist independently of one another, in the case of panickers with agoraphobia it might be best to consider panic and agoraphobia two related problems, effectively treated by administering performance-based strategies that focus on panic, agoraphobia, or a combination of these problems.

Regarding mediators of panic and agoraphobia, as predicted, panic coping efficacy mediated treatment effects for all measures of panic. Fear-of-fear mediated treatment effects for panic severity and time spent thinking about panic in the present study, as predicted, but not panic attack frequency. Anticipated panic, behavioral assessment efficacy, and generalized agoraphobic efficacy mediated treatment effects on all measures of panic, contrary to predictions. A reasonable conclusion based on this evidence is that as a panicker experiences a lessening in anticipated panic for particular situations, he/she experiences a corresponding reduction in panic that occurs during these situations, and also a reduction in panic that occurs "out of the blue". The results for

behavioral assessment efficacy and generalized agoraphobic efficacy also make sense if one supposes that as a panicker experiences an increase in self-efficacy for performing agoraphobic tasks, he/she feels more capable of managing panic that could occur during these situations; this feeling of capability for managing panic could then extend to panic that occurs “out of the blue.” Or, perhaps panic is a consequence of feeling that one cannot perform certain tasks. As expected, fear-of-fear and panic coping efficacy did not mediate agoraphobia or agoraphobic anxiety. Also as expected, agoraphobic efficacy and anticipated panic mediated agoraphobia and agoraphobic anxiety. In fact, changes in anticipated panic and generalized agoraphobic efficacy from pre-treatment to post-treatment were strongly correlated ($r = -.81, p < .001$), as are changes in anticipated panic and current task efficacy ($r = -.824, p < .001$), providing strong evidence that these two measures tap into the same construct.

Conclusion

In the present study, short-term performance-based treatments were highly effective in reducing symptoms of panic and agoraphobia. What seems to be most important, regardless of treatment strategy, is to strengthen a panicker’s self-efficacy for managing fearful situations/sensations, and to lessen his/her anticipated panic when he/she is faced with these situations/sensations. Future research in this area might focus on developing more challenging assessment tasks for agoraphobics, to better distinguish the differential effectiveness of treatments. And, considering the success of the short-term treatments used in the present study, further investigation of short-term treatments for panic and agoraphobia would be valuable.

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Author's address:

Kevin P. Reilly
Department of Psychology
1 Roberts Hall, Ferrum College, Ferrum, VA 24088, USA
540-365-4407
kpreilly@ferrum.edu.