Segrin, C., & Dillard, J. P. (1992). The interactional theory of depression: A meta-analysis of the research literature. *Journal of Social and Clinical Psychology, 11*, 43–70.

Shacham, S. (1983). A shortened version of the Profile of Mood States. *Journal of Personality Assessment, 47*, 305–306.

Siegel, S. J., & Alloy, L. B. (1990). Interpersonal perceptions and consequences of depressive-significant other relationships: A naturalistic study of college roommates. *Journal of Abnormal Psychology, 99*, 361–373.

Simon, G. E., Revicki, D., & VonKorff, M. (1993). Telephone assessment of depression severity. *Journal of Psychiatric Research, 27*, 247–252.

Vega, B. R., Bayon, C., Franco, B., Canas, F., Graell, M., & Salvador, M. (1993). Parental rearing and intimate relations in women's depression. *Acta Psychiatrica Scandinavica, 88*, 193-197.

Weiss, R. L., & Heyman, R. E. (1997). A clinical-research overview of couples interaction. In W. K. Halford & H. J. Markman (Eds.), *Clinical handbook of marriage and couples interventions* (pp. 13–41). Chichester: John Wiley & Sons.

Weissman, M. M. (1987). Advances in psychiatric epidemiology: Rates and risks for major depression. *American Journal of Public Health, 77*, 445–451.

Whisman, M. A. (1999). Marital dissatisfaction and psychiatric disorders: Results from the National Comorbidity Survey. *Journal of Abnormal Psychology, 108*, 701–706.

Whisman, M. A. (2001). The association between marital dissatisfaction and depression. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association.

Whisman, M. A., & Bruce, M. L. (1999). Marital distress and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology, 108*, 674–678.

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Expectancy of Panic in the Maintenance of Daily Anxiety in Panic Disorder With Agoraphobia: A Longitudinal Test of Competing Models

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Although panic expectancy and the experience of anxiety are clearly related, their causal relationship remains unclear. A series of autoregressive latent trajectory models was used to evaluate the relationship between the highest level of daily anxiety and panic expectancy over time. Participants ($N = 45$) who met criteria for panic disorder with agoraphobia filled out daily diary measures over a 10-day period. It was hypothesized that expectation of panic (measured in the morning) would be primarily responsible for the maintenance of daily anxiety (measured in the evening). Daily anxiety was found to be influenced by a traitlike anxiety component, anxiety from the previous day, and morning expectation of panic. Panic expectancy was found to be influenced by a traitlike expectancy component, but not by the previous day's anxiety. Limitations of the model and future applications are discussed.

According to Clark's (1986) cognitive model, people with panic disorder are prone to recurrent panic attacks because of their catastrophic interpretations of bodily sensations. Another cognitive factor, worry about future events of panic, is thought to drive the high levels of chronic anxiety typical in these clients. A substantial body of research attests to the correlation between catastrophic ideation and indices of panic disorder with and without agoraphobia (for a recent review, see Chambless, Beck, Gracely, & Grisham, 2000). Examples include a diagnosis of panic disorder versus other anxiety disorder (Chambless & Gracely, 1989), the severity of agoraphobic avoid-

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ance and of trait anxiety (Chambless, Caputo, Bright, & Gallagher, 1984), and long-term response to cognitive-behavioral treatment (Clark et al., 1994).

Less research has been conducted on worry about future panic, but the available data indicate that this is also an important factor in the maintenance of panic and associated features. That is, not only do people with panic disorder think that panic would be a bad thing if it happened, but they also appear to consistently overpredict its occurrence (e.g., Kenardy & Taylor, 1999). Consistent with this hypothesis, patients with higher expectation of panic have higher levels of generalized anxiety and of overall symptoms than those with lower expectancies (de Beurs, Chambless, & Goldstein, 1997). Further, expectation of panic in a given situation is correlated with avoidance of and anxiety about that situation (Cox & Swinson, 1994). Indeed, a patient's expectation of panicking is a better predictor of agoraphobic avoidance than is the actual frequency of panic attacks (e.g., Cox & Swinson). Craske and Rowe (1997) suggest that expecting panic, in conjunction with chronic anxiety and anxious apprehension, may even lead to increased frequency of attacks. In a naturalistic study of panic attacks, Kenardy, Fried, Kraemer, and Taylor (1992) found correlational data consistent with this hypothesis (although not proof of it): Higher expectation of having a panic attack was the only significant predictor of actually having an attack an hour later.

Although the body of evidence is in favor of the cognitive model of panic disorder, confidence in the proper interpretation of these findings is limited by the methodology of the research extant. Authors have largely relied upon correlational analyses of concurrently collected data, with some infrequent use of regression approaches to examine longitudinal relationships between cognition and symptoms (e.g., panic attacks, agoraphobic avoidance, anxiety) at two points in time (e.g., Clark et al., 1994). These approaches are not well suited to establishing causal relationships. In other patient samples (anxious and depressed outpatients), research using structural equation modeling (SEM) to test the cognitive model of anxiety has begun to emerge (e.g., Burns & Spangler, 2001). SEM is a step forward in that it permits the researcher to specify the hypothesized direction of relationships; however, as Burns and Spangler noted, it is not without its limitations. In particular, SEM with two or three points of data collection may not capture causal relationships that occur within a shorter time frame, such as those predicted by the cognitive model.

In the present paper, we have two goals: The first is to report a test of the hypothesis that expectation of panic drives anxiety in people with panic disorder with agoraphobia (PDA). Specifically, we examined the relationship between daily measures of panic expectancy and of anxiety. Our second goal is to introduce behavior therapy researchers to what we believe to be a better methodology for approximating a causal test of the relationship between cognition and symptoms. Certainly longitudinal rather than concurrently collected data are most suited for this purpose, but, once the researcher has such data, what is the appropriate statistical approach to examining the relationships? We turn now to consideration of problems with common approaches to analysis of longitudinal data and to a description of a recently developed model for tests of such data, the autoregressive latent trajectory (ALT) model (Bollen & Curran, 2000; Curran & Bollen, 2001). To provide a context for this discussion, we first present our hypothesized model for the day-to-day relationship of expectancy of panic and anxiety among panic disorder clients.

Consistent with the cognitive model, our broad prediction was that expecting panic leads to the maintenance of excessive anxiety over time; however, this hypothesis requires greater specificity. Because people with panic disorder appear to expect panic consistently, it could be hypothesized that the expectation of panic would best be modeled as traitlike (i.e., containing a relatively stable component), with additional allowance for state (i.e., time-varying) fluctuations in expectations. It might be further hypothesized that the state levels of expectancy PDA clients report at any given time would depend not only upon trait expectancy, but also upon recent state levels of expectancy and the various sources of information that people with PDA rely upon in estimating the likelihood of panic (e.g., the presence of feared situations, bodily sensations, or the feeling of having a bad day). In this "expectancy only" model, these fluctuations in expectancy from day to day would be primarily responsible for fluctuations in the experience of anxiety.[1]

The thesis that expectation leads to anxiety is not the only plausible one; a model primarily dependent upon anxiety as a causal factor could also explain findings in the available literature. In this model, anxiety serves to maintain expectation of panic over time. This possibility gains credence from findings that patients with panic disorder tend to use feelings of anxiety to infer that a situation is dangerous (Arntz, Rauner, & van den Hout, 1995). People with panic disorder may associate situations in their lives with panic attacks, become anxious in response to exposure to these situations, and then become more likely to expect a panic attack as a consequence. Such a model is consistent with Zucker et al.'s (1989) findings that, in structured interviews, participants with panic disorder more often reported anxiety without cognition (i.e., without expectation) as the first event in a panic attack. Available evidence also indicates that people with PDA have a high level of trait anxiety (e.g., Chambless, 1985), suggesting that their tendency to overestimate the likelihood of panic may be primarily due to higher trait anxiety. Therefore, in

[1] We use the word *primary* in relation to the question of which variable (anxiety or expectation of panic) shows a stronger predictive relationship with the other variable, once both variables' tendencies to maintain themselves have been controlled for. In other words, in predicting a person's level of anxiety on a given day, it would make sense to account for the person's trait anxiety and the person's level of anxiety yesterday before testing the relationship of prior expectation of panic on that anxiety; the tendencies of expectancy to relate to itself would be similarly controlled for before the relationship of prior anxiety was used to predict expectation. It should also be noted that, throughout this document, the words *primary* and *primarily* are used in reference to the specific variables tested in our model(s). Thus, our investigation of the question of whether anxiety primarily drives expectancy or vice versa does not mean we posit these variables to be the only factors that drive anxiety or expectancy in the broad sense.

an anxiety-only model, trait anxiety, recent levels of anxiety, and various cues for anxiety would be seen as the factors responsible for fluctuations in level of expectation of panic over time.

Thus, it is conceptually possible to defend a model in which either factor (anxiety or expectancy) is the only causal agent. However, we hypothesized that the relationship was best expressed as a partially bidirectional relationship, in which both factors display traitlike properties as well as state-like fluctuations, and one of the factors (expectancy) showed a stronger tendency to maintain the other (anxiety) than the converse.

Given the above hypotheses, there are several plausible and competing models. In our hypothesized model, earlier levels of expectancy will influence later anxiety above and beyond the contributions of the traitlike anxiety factor and past anxiety states, although anxiety may show some weaker tendencies to, in turn, maintain expectation. That is, expectancy will be primarily responsible for the maintenance of anxiety. In the first competing model, earlier levels of anxiety will influence later expectancy above and beyond the contributions of the traitlike expectancy factor and past expectancy states. That is, anxiety will be primarily responsible for the maintenance of expectancy. In the second competing model, the relationship between expectancy and anxiety will be bidirectional, such that anxiety predicts future expectancy, and expectancy future anxiety, but neither relationship takes priority over the other. A final possibility is that the traitlike components of expectancy and anxiety are, themselves, actually expressions of a meta-trait that leads to both anxiety and expectation of panic. Such a meta-trait might be similar to what Barlow (1988) describes as anxious apprehension. Empirically evaluating these four competing models in the framework of a recently developed statistical model is the focus of our paper.

Choice of Modeling Strategy

Two strategies have long been used to evaluate day-to-day relationships such as those that interest us here. One strategy, the fixed effects autoregressive cross-lagged (ARCL) panel design (e.g., Kessler & Greenberg, 1981), is well suited to evaluate time-adjacent relations among the measures averaged over individuals. Such an approach would allow us to test the relationship between successive levels of anxiety and expectancy, but cannot account for the traitlike aspects of anxiety and expectancy that we hypothesize to exist. The second strategy, the random coefficients growth modeling approach (e.g., Bryk & Raudenbush, 1987; Meredith & Tisak, 1990), is well suited to evaluate individually varying propensities toward exhibiting a particular behavior over time. This approach would allow us to evaluate the extent to which both anxiety and expectancy display traitlike components, but does not provide a method for testing the relationships between the two variables. Thus, despite the strengths of each approach, neither alone fully characterizes the combined influences we hypothesize here.

In contrast, Bollen and Curran's ALT modeling strategy (2000; Curran & Bollen, 2001) allows for the simultaneous estimation of both the traitlike trajectory component and the state-like time-specific component of a behavior over time. In ALT, the ARCL and trajectory components of stability and change are estimated within a single general model. The ALT modeling framework thus provides a much stronger match between the theoretical model that generated our research hypotheses and the statistical model needed to empirically evaluate these same hypotheses, and was therefore used to evaluate the four potential models described above. We will provide details regarding the implementation of the ALT models below because of the model's potential usefulness with similar research questions.

Method

Design

Participants in the current study were randomly assigned to one of two groups: eye movement desensitization and reprocessing (EMDR; Shapiro, 1995) or association and relaxation therapy (ART), a credible placebo control condition. These two therapies are described in detail in the study that compared the two treatments (Goldstein, de Beurs, Chambless, & Wilson, 2000). In all, 26 of the current participants received EMDR, whereas 19 received ART. In both treatments, therapists were prohibited from introducing a cognitive model of anxiety, attempting cognitive restructuring, or conducting or assigning in vivo exposure. Adherence checks of 31% of the therapy sessions found no violations of treatment protocol involving the introduction of another therapy (e.g., cognitive behavioral therapy). Although between 50 and 90 days of data were available for most individuals, we examine data from the first 10 days of treatment here. Data from Days 1 through 5 are the focus of our primary analyses, and Days 6 through 10 are used for cross-validation of the final models. We chose these time frames to optimize the balance between statistical power and limiting model complexity given our available sample size (Curran & Muthén, 1999). Data from the first 10 days of treatment were used because participants had received thorough practice and instruction on using the diary measures by that point (see below). This time period was also expected to minimize potential treatment effects.

Participants

Inclusion and exclusion criteria. Participants in the current study were 45 outpatients who met *DSM-IV* criteria for PDA of at least 1 year's duration.[2] All diagnoses were based on the Structured Clinical Interview for *DSM-IV* (SCID-P; First, Spitzer, Gibbon, & Williams, 1995); for diagnosis of PDA, $\kappa = 1.00$

[2] The current sample overlaps highly with the sample originally reported on by Goldstein et al. (2000). The original study concerned comparisons between the two treatment groups, whereas the current study examines maintenance of anxiety over time, which was not addressed in the previous study.

indicated perfect agreement among raters. For a further description of the sample, see Goldstein et al. (2000).

Participants were included in the study if they were between the ages of 18 and 65 and reported at least moderate agoraphobic avoidance (according to the SCID) for no less than 6 months prior to intake. Those in therapy elsewhere were included only if they agreed to suspend treatment for the duration of the study. Potential participants on dosages of alprazolam in excess of 1.5 mg daily (or similar dosages for other benzodiazepines) were excluded, as were those who had been taking antidepressant or antianxiety medication for less than 6 months or who had changed their medication with the last 12 weeks. Of the 50 participants who were originally accepted under the above criteria, 5 participants did not provide data for the current study. Of these participants, 3 refused treatment after providing some initial information, 1 was removed from treatment due to deterioration, and 1 failed to report any diary data for the selected period of time.

Sample characteristics. Participants' mean age was 39 years (range = 25 to 63). Thirty-seven were female. Mean duration of the panic disorder was 13.49 years (range = 1 to 30). Twenty participants were taking psychotropic medication. Eighteen participants had at least one comorbid Axis I diagnosis: dysthymic disorder (2), specific phobia (7), generalized anxiety disorder (6), social phobia (4), or obsessive-compulsive disorder (1). Five of those with one comorbid diagnosis also had another: specific phobia (1), generalized anxiety disorder (1), social phobia (1), posttraumatic stress disorder (1), and obsessive-compulsive disorder (1).

Measures

Panic diaries. Throughout the course of treatment, participants completed panic diaries every morning and evening and at the close of each week. Only data from the morning and evening time periods are used in the current study. On these forms, participants were asked to rate on a 10-point scale their daily expectancy of having a panic attack that day (rated in the morning), their daily highest anxiety that day (rated in the evening), and how many panic attacks they had had that day (also rated in the evening), among several other measures. Participants were initially given instructions for rating their expectancy as follows:

> At the start of the day (as you rise) please record how you rate the likelihood that you will have one or more panic attacks this day. You can use the following scale (0 means no chance of having a panic attack, 10 means that you are certain you will have a panic attack).

Participants were given a Likert-type scale as an example, with the anchor points of *I will have no panic attack* (0), *it is unlikely that I have a panic attack* (3), *more likely than not that I have a panic attack* (7), and *I will definitely have an attack* (10).

The initial instruction form explained that, before they went to bed at the end of the day, participants were to rate their highest anxiety during the day, not counting anxiety felt during a panic attack itself, using the scale of *no anxiety at all* (0), *moderate anxiety* (5), and *extreme anxiety* (10).[3] Participants were supplied with a Likert-type scale in the initial instruction form, although the Likert-type scale itself was not present in the daily diary form. Anxiety felt during panic attacks themselves was recorded on a separate form, and is not reported in this study.

After a week of using the panic diaries pretreatment, participants returned for an assessment session, during which any questions they had about the panic diaries were answered. Further information on the panic diaries on a subsample containing some of the current participants is available in another report (de Beurs et al., 1997), which describes psychometric properties of the panic diaries.

Both the measurement of anxiety and expectancy rely upon single measures per day, leaving the reliability of these measures in some question. However, it is important to note that the ALT modeling technique intrinsically treats these single measures as repeated measures of the same construct over time. In this sense, the models employing data from Days 1 through 5 might be partially characterized as using 5-item measures of the constructs, with each item administered on a separate day. Treated as 5-item measures, the measurement of anxiety and expectancy each showed excellent internal consistency (Cronbach's alphas = .83 and .91, respectively). It should also be noted that, although trait anxiety and expectation were not explicitly measured by the single-item ratings, the inclusion of underlying factors in the models served as tests of whether the measures could be characterized as assessing traitlike components of anxiety and expectancy. If they could not, the models would tend to reject the inclusion of factors implying underlying traits (see below).

Potential Confounding Variables

In addition to measures of daily anxiety and expectancy, described above, four variables were identified as potentially confounding variables that might influence the models under consideration. All were dichotomously coded for analysis: gender (0 = female, 1 = male), psychotropic medication use (0 =

[3] Participants were also asked to rate their average anxiety and panic frequency during the day. Although presumably a reflection of anxiety, panic frequency was not a direct assessment of our construct of interest. Also, in the current sample daily panic frequency did not show an appropriate degree of variability required for the modeling strategy employed. We chose highest anxiety over average anxiety because we expected participants would find their most anxious part of the day more salient, giving more reliability to a specific rating of highest anxiety than to a more diffuse rating of average anxiety. Regardless, highest and average anxiety were highly correlated at all time points considered here (*rs* for Day 1 through Day 10 ranged from .81 to .88). We also reestimated the final model with average anxiety substituted for highest anxiety. All substantive conclusions remained the same.

no, 1 = yes), treatment group membership (0 = EMDR, 1 = ART), and report of panic at any point during the Day 1 to 5 interval (0 = no, 1 = yes). Panic was treated as a dichotomous variable because (a) panics were infrequent during the time period, and daily panic frequency was not normally distributed, and (b) the dichotomous variable allowed for a test as to whether the model applied both to participants who panicked and those who did not.

Results

Data Analytic Plan

The proposed research hypotheses were empirically evaluated using a series of ALT growth models (Bollen & Curran, 2000; Curran & Bollen, 2001). A series of nested univariate ALT models were fitted separately to the repeated expectancy measures and to the repeated anxiety measures to evaluate the pattern of stability and change within each construct over time. These univariate models each contained two key components. First, two underlying latent factors (or growth factors) were estimated to account for systematic stability and change in the construct over time that randomly varies over individuals. The first factor (called here an *intercept factor*) was defined such that the factor loadings for all the repeated measures except the first were fixed to 1.0; the first assessment of the construct was allowed to covary with the underlying factor, but was not associated with this factor via a factor loading.[4] This intercept factor was characterized by a mean and a variance that represented the overall mean level of the construct over time and the degree of individual variability in this overall level, respectively. The intercept factor was the parameter representing the traitlike components of anxiety and expectancy, as described above. Because the means of the repeated measures might have been functionally related to the passage of time, an additional growth factor was estimated to account for these relations. Although the ALT model permits many types of growth factors, in the current case, a second factor, referred to as a *slope factor*, was added with factor loadings set to 1, 2, 3, and 4 that allowed for linear change in the construct over time. This factor represented the potential for systematic change over time. Because participants were in treatment, it seemed plausible that their anxiety or expectancy might systematically decrease over time. The second key component of the univariate ALT models fitted here was the estimation of autoregressive parameters among the daily measures in the presence of the growth factors. Specifically, each measure of the construct on a given day was regressed upon the measure of that construct on the prior day. The autoregressive parameters were then constrained to equality when statistical tests indicated such a constraint did not harm model fit. These parameters

[4] This parameterization is called a "predetermined" model and is done to avoid parameter bias introduced when not allowing for the influences of prior but unmeasured levels of the construct. See Bollen and Curran (2000) for further technical details about estimation, identification, and interpretation.

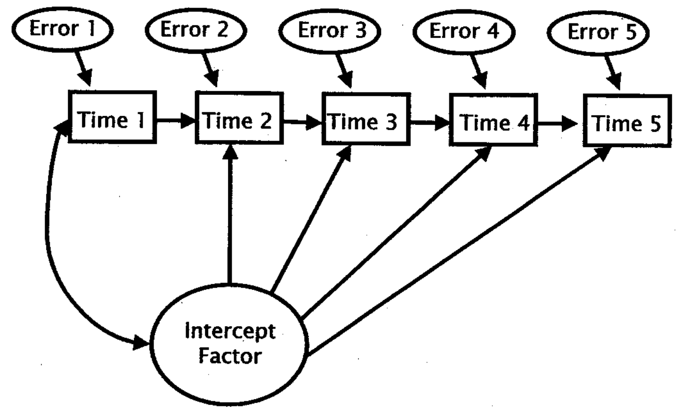

FIG. 1. A univariate autoregressive latent trajectory (ALT) model with five measures of the same construct, a traitlike intercept factor, and stability parameters.

represented the degree to which a previous day's anxiety or expectancy had an influence on the next day's. For example, a participant who was having a "bad day" characterized by high anxiety might be more likely to have higher-than-usual anxiety the next day, as well. A generic univariate model with an intercept factor and autoregressive parameters is presented in Figure 1.

Next, the final univariate ALT models for both constructs were combined to create a single multivariate model to examine the interrelations among expectancy and anxiety over the 5-day period. Essentially, this multivariate model maintained the parameters from the univariate models and permitted tests of the tendency of anxiety and expectancy to predict each other. This multivariate model was then regressed upon four exogenous variables (gender, treatment condition, medication use, and occurrence of panic attacks) to evaluate potential group differences in the longitudinal relations as a function of these measures. This test was analogous to testing for potential covariates in a regression paradigm. Finally, alternative models were estimated to examine the relative stability of the longitudinal effects identified in the multivariate ALT model. This included cross-validating the model on data from Days 6 through 10 and exploring the potential impact of outliers and influential observations.

All models were estimated using direct maximum likelihood estimation in Amos Version 4 (Arbuckle, 1999), and model fit was evaluated based on the model chi-square test statistic, the comparative fit index (CFI; Bentler, 1990), the incremental fit index (IFI; Bollen, 1989), and the root mean squared error of approximation with 90% confidence intervals (RMSEA; Browne & Cudeck, 1993). Adequate model fit is typically indicated by nonsignificant model test statistics, CFI and IFI values exceeding .90, and RMSEA values less than about .05 to .08. We follow these same guidelines here with the exception of the RMSEA. Recent simulation studies have strongly suggested that RMSEA values are significantly overestimated at sample sizes of 100 or less (Curran, Bollen, Paxton, Kirby, & Chen, 2000); given our sample size of 45 subjects, we expect substantial overestimation of the RMSEA due solely to sample size and thus less emphasis will be placed on this fit index to assess model fit.

Univariate Statistics

Table 1 displays correlations, means, standard deviations, skewness, and kurtosis for the first 5 days of expectancy and anxiety ratings. In general, most correlations fell in the medium to large range (e.g., .4 to .8). Correla-
most correlations fell in the medium to large range (e.g., .4 to .8). Correla-
tions of expectancy measures across days were consistently high, suggesting stability in participants' expectancy ratings (e.g., expectancy Day 1 had a high correlation with both expectancy Day 2 and expectancy Day 5). Anxiety ratings tended to be somewhat less stable. Anxiety and expectancy ratings tended to correlate most highly when they were made the same day. Univariate statistics indicated that, across participants, most had at least some expec-
ate statistics indicated that, across participants, most had at least some expec-
tation of panic attacks and moderate experience of anxiety. Finally, all univariate measures of skewness and kurtosis were below 1.0, thus supporting the use of normal theory maximum likelihood estimation.

Missing Data Analyses

Of the 45 subjects considered here, 40 provided complete data on all daily diary ratings, whereas 5 provided partially missing data over the 10-day assessment period. Although the ALT models presented below used direct maximum likelihood estimation that allowed for the retention of partially missing cases, additional analyses were used to determine if participants who had partially missing data were dissimilar from participants with complete data. A series of *t* tests and chi-square analyses compared the two groups (complete data versus partially missing data) on all measures under consider-
ation. Comparisons of the means of the expectancy and anxiety ratings across participants showed no significant differences between participants with par-
tially missing and complete data, $t(42) = 1.53, d = .98$ and $t(43) = 0.24, d =$ .13, respectively ($ps > .13$). Chi-square statistics indicated no significant association between partially missing data and treatment group assignment, medication use (versus no medication use), and gender, $\chi^2(1) = 0.73$, $\chi^2(1) = 0.55$, and $\chi^2(1) = 1.22$, respectively ($\Phi = .11-.16$; all $ps > .25$). There is thus no evidence that there are meaningful differences between the two groups, aside from the large effect size in regard to average expectancy. All longitudinal models will thus be estimated on the full 45 cases.[5]

[5] To explore the possibility of bias resulting from these five partially missing cases, all of the models described below were reestimated using only the 40 cases with complete data over the 10-day period. All substantive findings from all univariate and all multivariate models remained unchanged. The retention of partially missing cases in the ALT models does not appear to unduly influence the obtained findings in any way.

TABLE 1
CORRELATIONS AND UNIVARIATE STATISTICS OF THE FIRST 5 DAYS OF EXPECTANCY AND ANXIETY RATINGS

	Expectancy					Highest Anxiety				
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 1	Day 2	Day 3	Day 4	Day 5
Expectancy Day 1										
Expectancy Day 2	.81***									
Expectancy Day 3	.60***	.54***								
Expectancy Day 4	.78***	.74***	.58***							
Expectancy Day 5	.68***	.62***	.63***	.78***						
Highest Anxiety Day 1	.64***	.63***	.56***	.55***	.47**					
Highest Anxiety Day 2	.66***	.77***	.55***	.64***	.56***	.65***				
Highest Anxiety Day 3	.26	.19	.53***	.16	.38*	.39*	.45**			
Highest Anxiety Day 4	.40**	.30	.47**	.63***	.54***	.36*	.48**	.59***		
Highest Anxiety Day 5	.41**	.33*	.48*	.57***	.66***	.23	.52***	.56***	.76**	
Mean	4.43	4.20	4.68	4.13	4.15	5.50	5.43	5.83	5.48	5.30
Standard Deviation	2.85	2.56	2.73	2.68	2.66	2.59	2.69	2.61	2.60	2.59
Skew	.19	.33	.07	.27	.24	−.34	−.33	−.47	−.10	−.22
Kurtosis	−.64	−.50	−.51	−.70	−.70	−.22	−.87	.07	−.70	−.47

Note. Due to missing data, *n* varies from 41 to 44 across cells.
$*p < .05$; $**p < .01$; $***p < .001$.

ALT Models

Anxiety. The univariate ALT model with an intercept factor and autoregressive structure as described above was estimated and fit the data well: $\chi^2(7) = 14.6, p = .04$; CFI = .92; IFI = .92; RMSEA = .16, CI = .03, .27. However, prior to interpreting the parameter estimates, several alternative models were considered. First, an additional factor was estimated to evaluate the potential for systematic change in anxiety over the 5 days. Although we did not specifically hypothesize systematic change across time in either measure (e.g., "growth" over time), we tested for such change because participants were in therapy at the time of assessment. Factor loadings were fixed to values of 1, 2, 3, and 4 for the repeated measures for Days 2 through 5 to capture the passage of time during the week. The addition of this factor did not lead to an improvement in model fit, indicating that there was not a systematic trend in changes in anxiety over the 5 days, after accounting for the influences of the intercept factor and the autoregressive effects. Finally, equality constraints were imposed upon the autoregressive parameters between time adjacent measures of anxiety, and this constraint did not lead to a significant decrement in model fit, $\chi^2_{change}(3) = 0.39, p = .94$. This final model fit the data well, $\chi^2(10) = 14.99, p = .13$; CFI = .95; IFI = .95; RMSEA = .11, CI = 0, .21, and is identical in form to the generic univariate model presented in Figure 1.

The parameter estimates from our final ALT model were consistent with our predictions. First, the intercept factor was characterized by a significant mean ($\hat{\mu} = 3.39, p < .001$) and a marginally significant variance ($\hat{\psi} = 1.46$, $p = .07$) indicating that there was a statistically significant mean level of anxiety reported across the sample over all the time points, and that there was meaningful individual variability around this mean. The positive and significant autoregressive parameters ($\hat{\rho} = .37, p < .001$) suggest that, in addition to the influence of the individually varying propensity toward experiencing anxiety over time, there was also a positive influence on anxiety for one day as a function of anxiety on the prior day. Finally, the statistically significant unexplained variance in the repeated measures suggests that there may be additional influences on anxiety that are not included in the model.

Expectancy. A similar set of nested models were estimated for expectancy as were estimated for anxiety. As before, the baseline model consisted of a single underlying intercept factor influencing Days 2 through 5 with a factor loading value of 1.0, and autoregressive parameters were estimated between time adjacent daily measures of expectancy. This initial model fit the data well: $\chi^2(7) = 12.6, p = .08$; CFI = .96; IFI = .96; RMSEA = .13, CI = 0, 25. A slope factor, as described above, did not significantly improve the fit of the model. Finally, equality constraints were imposed upon the autoregressive parameters between time adjacent measures of expectancy, and this constraint did not lead to a significant decrement in model fit, $\chi^2_{change}(3) = 1.17$, $p = .76$. This final model fit the data well: $\chi^2(10) = 16.08, p = .18$; CFI = .96; IFI = .96; RMSEA = .12, CI = 0, .22. As was found with anxiety, the intercept factor for expectancy was characterized by a significant mean ($\hat{\mu} = 3.84, p < .001$) and a significant variance ($\hat{\psi} = 4.14, p = .005$). However, contrary to our hypothesis, there was no evidence for autoregressive effects ($\hat{\rho} = .06, p = .53$). That is, the observed covariance and mean structure was replicated quite well with the estimation of only a single underlying latent factor that equally influenced the set of measures over time. Thus, the daily measures of expectancy were found to be a function of the underlying propensity toward experiencing expectancy over time, but expectancy on one day was not found to be influenced by expectancy on the immediately preceding day.

Anxiety and expectancy. The final univariate models of anxiety and expectancy were combined into a single multivariate ALT model. Although the autoregressive parameters were nonsignificant in the univariate ALT model for expectancy, we retained the estimation of these parameters given that we had predicted these a priori. Further, covariances were estimated among the two latent factors and the Time 1 measures of anxiety and expectancy, but no other parameters were initially estimated. As expected, this baseline multivariate model fit the observed data poorly: $\chi^2(41) = 99.28, p < .001$; CFI = .82; IFI = .81; RMSEA = .18, CI = .13, .23. Next, cross-lagged effects were added to the model such that Day 1 evening anxiety was regressed upon Day 1 morning expectancy, and Day 2 morning expectancy was regressed on Day 1 evening anxiety, and so forth. These patterns were estimated across all 5 days of measures (e.g., morning predicting that evening, that evening predicting the following morning, and so on). The addition of these lagged effects led to a significant improvement in model fit, $\chi^2_{change}(8) = 52.17, p < .001$. Next, equality constraints were imposed on the set of expectancy to anxiety effects, and on the set of anxiety to expectancy effects. Neither of these equality constraints diminished model fit. The final model, presented in Figure 2, fit the repeated measures data well: $\chi^2(39) = 52.95, p = .07$; CFI = .96; IFI = .96; RMSEA = .09, CI = 0, .15.

Consistent with the results from the univariate ALT models, the multivariate ALT model suggested that there was a significant autoregressive effect within anxiety such that anxiety on a given day was in part a function of anxiety on the previous day, but there was no such autoregressive effect for expectancy. Of key interest was the finding that there was a strong and consistent effect from earlier expectancy in the prediction of later anxiety, although there was no evidence to support a prospective link between earlier anxiety and later expectancy. That is, expectancy in the morning was positively and significantly associated with anxiety that same evening, but anxiety that evening did not predict expectancy the following morning. Taken together, the multivariate ALT model results indicated that daily anxiety was maintained by three separate influences: a stable, traitlike anxiety component, anxiety from the previous day, and expectation of panic in the morning. Expectancy, on the other hand, appeared to be maintained primarily by a

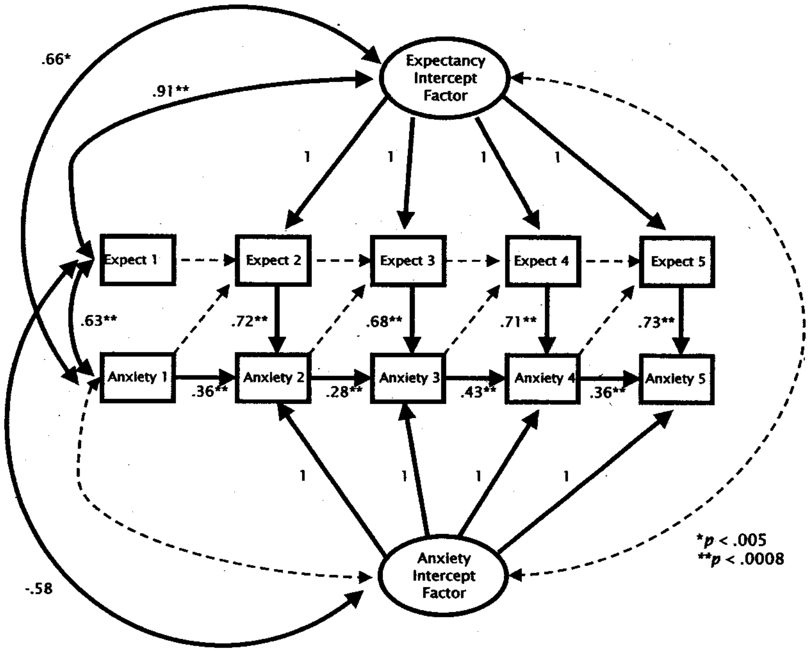

FIG. 2. Final multivariate ALT model of the relationship between anxiety and expectancy over time with factor loadings and estimates of parameters statistically significant at $p < .05$. Error terms are omitted for the sake of clarity. Paths that were estimated but were not statistically significant in the final model are represented by smaller, dashed arrows with no parameter estimates. Factor loadings are marked with the value of 1; parameter estimates are correlations (double-headed arrows), and standardized regression weights (all other estimates). In total, 54 parameters were estimated in this model. Note that expectancy was measured in the morning and anxiety in the evening. Thus, the variables Expect 1 and Anxiety 1 were measured in the morning and evening, respectively, of the same day.

traitlike expectancy component, and was not significantly influenced by previous levels of either expectancy or anxiety. Parameter estimates for the model are also presented in Figure 2.

Competing Alternative Models

Exogenous influences. The multivariate ALT model described above is considered unconditional, given that no explanatory variables were considered. That is, the pattern of stability and change in anxiety and expectancy over time is estimated without controlling for the influence of other individual level measures. To evaluate the potential impact of our set of exogenous measures, the final multivariate model was regressed on four binary indicators: gender, medication use, treatment condition, and panic episode. We had

no theoretical expectations that any of these exogenous measures would meaningfully relate to the stability and change in anxiety and expectancy. However, because the four constructs are theoretically related to anxiety, and therefore might influence the current model, we reestimated the final multivariate ALT model including these four measures to ensure that our ALT model results were robust to the influences of these other measures. The four exogenous variables were allowed to covary with one another, and both intercept factors were regressed on all four exogenous variables. This model fit the data reasonably well, $\chi^2(71) = 94.62, p = .03$; CFI = .92; IFI = .93; RMSEA = .09, CI = .03, .13, but, as expected, the four grouping variables provided little predictive utility in the model. The only significant finding was that the measure of propensity to panic modestly predicted higher levels of underlying anxiety ($\beta = .72, p = .04$). All other predictive effects were at or near zero. Most importantly, all of the prospective relations between anxiety and expectancy identified in the final multivariate ALT model remained unchanged after the inclusion of the four exogenous measures.

Single factor multivariate model. The results of the multivariate ALT model were largely consistent with our theoretical predictions. However, one competing model described above posits the existence of a single meta-trait that underlies both anxiety and expectancy and is solely responsible for any relations among the two constructs over time; once estimated, there should be no relations among these two constructs from one day to the next. To test this competing model, a multivariate ALT model was estimated in which there was a single underlying intercept factor that equally influenced all five measures of anxiety *and* all five measures of expectancy. Further, autoregressive parameters were estimated within anxiety and expectancy, and cross-lagged parameters were estimated across anxiety and expectancy. This meta-trait model was estimated and found to fit the data exceedingly poorly: $\chi^2(46) = 103.75, p < .001$; CFI = .82; IFI = .82; RMSEA = .17, CI = .13, .21. These results provide strong empirical evidence that the observed relations between anxiety and expectancy are likely not due to a single underlying factor influencing all measures over time.

Cross-validation. Given the modest sample size, we concluded that focusing on the first 5 days of data was the optimal combination of statistical power and stability of estimation (e.g., Curran & Muthén, 1999). However, to explore the possibility that our findings were the result of some idiosyncratic characteristic of Days 1 through 5, we reestimated the final multivariate ALT model on the second 5 days of data that were available. This model fit the observed data from Days 6 through 10 comparably to that found for Days 1 through 5: $\chi^2(39) = 67.13, p = .003$; CFI = .91; IFI = .91; RMSEA = .13, CI = .07, .18. More importantly, all of the substantive conclusions about the relations between expectancy and anxiety remained precisely as before. This evidence suggests that the pattern of earlier expectancy predicting later anxiety but not vice versa holds for the second 5 days as well as the first 5 days.

Outlier analysis. Given the modest sample size, it was possible that a small number of influential observations might be inappropriately influencing the final modeling results. To further explore this possibility, we examined standard influence statistics to identify potential clusters of outlying observations within each time point. Examination of Mahalanobis distance (as provided by Amos 4) identified one case characterized by an extreme Mahalanobis d^2 value. Examination of this case revealed valid but consistently high reported levels of both anxiety and expectancy across all 5 days of measure. This case was deleted, and the final model was reestimated. No substantive changes were found in any of the model parameters with the deletion of this case, indicating that influential observations do not appear to be unduly impacting our parameter estimation.

Discussion

The current study provided a test of the day-to-day relationship between expectation of panic and the experience of anxiety. The strengths of the study include the use of longitudinal data, as well as a modeling strategy appropriately suited to testing our hypotheses. Whereas most studies exploring similar relationships have used correlational or regression frameworks, severely limiting their ability to draw conclusions about relationships across time, the current study's framework allows specific tests of the relationship between anxiety and expectation over and above the traitlike aspects of these variables.

As hypothesized, both anxiety and expectancy were found to exhibit a traitlike component, suggesting that an appreciable amount of the variance in each factor over time can be attributed to an underlying tendency to be anxious and to expect panic attacks, respectively. In addition, earlier anxiety was found to have an influence on later anxiety, such that feeling more anxious than usual one day was likely to lead to higher anxiety on the next day. Contrary to our hypothesis, expectancy was not found to have an appreciable effect on later expectancy above and beyond the contribution of an underlying, traitlike expectancy factor. These results suggest that, at least in people with PDA who are similar to our current participants, expecting panic may become a relatively stable, inflexible aspect of the maintenance of anxiety. This observation is consistent with de Beurs, Chambless, and Goldstein's (2000) pretest-posttest data for this same sample. Across the course of brief (noncognitive) treatment for PDA, these authors found that clients' expectation of panic remained consistent, even though the rate of actual panic declined.

The above results are consistent with, and extend, previous findings in this area. The primarily traitlike aspect of expectancy is consistent with chronic overprediction of panic (e.g., Kenardy & Taylor, 1999). Such evidence also provides an explanation for the difficulty clinicians often have in convincing clients that panic is unlikely, even when evidence to support the possibility of panicking is scant. Expectation of panicking was previously found to predict avoidance of and anxiety about a situation set up by experimenters (Cox & Swinson, 1994). The current results suggest that, in naturalistic situations (i.e., daily life), expecting panic in the morning is an important factor in maintaining anxiety during the day. Such findings represent an important step in examining how empirical findings apply to life outside the laboratory.

The current model provides evidence that expecting panic is an important factor in day-to-day maintenance of anxiety for people who have PDA. It was hypothesized that expectation would be primarily responsible for maintaining anxiety. In testing the models, it was striking how clearly and consistently the influence of expectation on later anxiety remained more influential than anxiety on later expectation. Thus, although previous studies could support either expectation of panic or anxiety as a primary factor, the current results are far clearer. It is especially worth noting that, because the current model indicates the presence of *daily* relationships between cognitive and affective constructs, attempts to gauge such relationships with more distal measurement points may yield ambiguous results simply because such studies lack the resolution to adequately observe such relationships. That is, the current model suggests that, if there is a time-lag between cognitive change and affective change, it may, in fact, be quite small, and measurements taken weeks or months apart would be incapable of measuring it.

Although the current results can be construed as evidence that a cognitive model of panic disorder best fits the data, it is not necessary to interpret the current model as one that fits only within the framework of cognitive theories of panic disorder. In constructing our current model, we made no attempt to measure directly the presence or frequency of automatic thoughts or underlying beliefs about the danger of panicking (see Clark, 1986) or the degree to which cognitions may be distorted. Participants were asked only to assess the likelihood of panic during the day. This rating of likelihood of panic seems similar to an inverted rating of confidence that one can get through the day without panicking, suggesting that the current model is also consistent with research regarding the role of self-efficacy in phobic behavior (see Williams, 1996). More generally, however, asking a participant to rate his or her likelihood of panic may lead the participant to access any number of affective or cognitive processes. Thus, although the current results clearly support the notion that expectancy of panic can be a relatively stable factor that is actively involved in maintaining anxiety levels, the model does not evaluate what expectancy itself consists of, other than the suggestion that it is not heavily dependent on felt anxiety.

The current results, supporting the maintenance of anxiety by expectancy, but not vice versa, may have implications for treatment. These findings suggest that, although methods designed to reduce anxiety directly (e.g., relaxation training) may result in clients feeling better in the short run, they will not necessarily result in a direct change in expectation of panic.[6] Rather, the current model supports the proposition that changing expectation of panic is more likely to be successful in changing daily levels of anxiety than vice versa. Notably, although emphasized to differing degrees, both strategies to modify expectations and reduce anxiety are present in many treatment programs for PDA (Craske, Meadows, & Barlow, 1994; Öst, 1988). The implications of the current results are supported by a study comparing cognitive therapy with exposure to applied relaxation with exposure (Clark et al., 1994). Results indicated that cognitive therapy, which was designed to modify beliefs about bodily symptoms, and would thereby be expected to change expectations about the likelihood of panicking, was superior at all time points to applied relaxation therapy from which cognitive élements had been stripped. It is especially important to note that differences between the treatments were evident despite the use, in both treatments of exposure, which can be construed as a method of challenging expectations in its own right. Thus, the available evidence supports the implications of the current model, although they are clearly preliminary (see Limitations section).

A secondary goal of this paper was to illustrate the use of the recently developed ALT modeling framework for use in clinically oriented research settings. Bollen and Curran (2000) present the technical developments of the ALT model, and Curran and Bollen (2001) provide an extended applied example. The ALT model clearly shows promise for the evaluation of additional models relevant to mental disorders and their treatments. For example, a model could incorporate one or more mediators to better explain the relation between the autoregressive processes over time. Although we demonstrated that expectancy of anxiety in the morning was consistently related to experienced anxiety in the evening in the current study, we did not explore what factors account for this relation; the inclusion of mediators would allow for a more comprehensive understanding of stability and change in anxiety over time. For example, if it is hypothesized that the level of activation of a panic danger schema is the primary cause for level of expectancy, which, in turn, affects anxiety, a model could be constructed to test that the relationship between activation of the panic danger schema and anxiety is mediated by expectancy.

In sum, we believe that the ALT modeling strategy is a powerful and flexible approach that has the potential for many interesting applications in clinically oriented research. However, as with any modeling strategy, the relative utility of the ALT model depends entirely upon the characteristics of the particular set of research questions at hand. That said, we believe that it would be beneficial to add the ALT modeling strategy to the increasing number of promising modeling strategies available to allow for an optimal match between the theoretical model giving rise to the research question and the statistical model used to empirically evaluate that same question.

[6] It is, of course, possible that changing overall level of trait anxiety over time may influence either expectation of panic or a third variable that is related to expectation of panic. Such a possibility can neither be supported nor refuted given the current model. Similarly, the current model provides no specific insight into how the use of medication may impact the variables considered in this study. Medication use had no impact on the current model's parameters, but the participants in this sample are presumably limited to people who did not respond strongly to medication. Additional studies could address whether, when medication is effective, its effectiveness is primarily due to decreased anxiety or expectancy.

Limitations and Future Directions

The results of the current model may be limited in generalizability due to the current sample's limited experience of panic attacks during the time frame of the ratings, although we found no appreciable differences between participants who had at least some panic episodes and those who had none. In any case, clinicians often see clients who continue to demonstrate agoraphobic avoidance in the relative absence of panic. For example, Chambless, Caputo, Jasin, Gracely, and Williams (1985) reported the modal number of panic attacks reported in the last week by an agoraphobic sample seeking treatment was zero. The current results are certainly likely to be instructive for this population. Future research should extend the range of applicability of the current research by including samples of participants who are experiencing more panic episodes and by measuring other variables thought to influence the maintenance of anxiety in PDA. In a sample with a higher rate of panic, it would also be possible to examine the hypothesis that expectancy of panic is a maintaining factor in the experience of panic attacks, as well as anxiety.

In a small sample size, greater sampling variability leads to a greater possibility of both unstable parameter estimates and spurious effects generated by individual participants having undue influence on the model. We addressed the former issue primarily through cross-validation to another time period in the same data set; the fact that model fit was acceptable in the cross-validation sample indicates at least moderate reliability in parameter estimates. We addressed the latter issue by carefully scrutinizing the data for the possibility of undue influence; we found no indications that this was the case, but replication in additional samples would more fully address both of the above issues. Although it would have been preferable to have a larger sample, our results demonstrate that the ALT model is feasible in the samples typically available to clinical researchers, who often are not able to obtain data from the kinds of large samples traditionally favored in structural equation modeling applications.

Because expectation and anxiety were not both measured at each time point in the current study, it may appear that expectation in the morning could be based on current feelings of anxiety, or that the relationship shown in the current model is merely a consequence of the constructs' being measured in the same day. Such an argument would have been supported if the one-factor model had proven to be an acceptable solution, but this was not the case. Moreover, the above arguments also assume that either anxiety and expectation relate in the same day primarily due to measurement error or that, for example, an unmeasured amount of anxiety on the morning of Day 2 related to expectation on Day 2. Note that highest level of anxiety, Day 1, had a significant relationship to highest level of anxiety, Day 2, whereas it did not have a significant relationship with expectancy, Day 2. Therefore, it is difficult to understand why highest anxiety, Day 1, would not relate to anxiety the morning of Day 2, which, in turn, would relate to expectation. If the relationship of morning anxiety to expectation were meaningful, one would expect it to be indirectly (albeit imperfectly) measured by the current model. Similarly, the measurement error hypothesis would imply either a one-factor solution or a significant path from anxiety to later expectancy, neither of which was the case. Additional research using a similar data analytic strategy but including additional measures of anxiety and expectancy would be necessary to address these concerns definitively. Similarly, throughout this paper we have only been concerned with the relationship of expectation of panic to daily anxiety; future research should include other variables in order to determine how the relationship shown here compares to the relationship between daily anxiety and other theoretically important constructs.

Another relevant concern is the potential reactivity of the diary measures. We attempted to minimize the impact of potential reactivity by using data from a time period at least 1 week after the onset of self-monitoring. In addition, although self-monitoring is often described as a reactive measure, such reactivity, when it occurs, usually has the result of behavior change in the direction of reducing negative behavior or in the direction reinforced by experimenters (see Kazdin, 1974, for a review). Participants showed no such systematic decrease in expectancy or anxiety in the time periods measured here (nor, for that matter, in expectancy through the study as a whole; de Beurs et al., 2000). There are several arguments that counter the possibility that asking participants to rate their expectancy could increase or maintain such expectancy: (a) No systematic increase was observed; (b) the path from expectancy the previous day to the current day was not significant, which would be expected if recent ratings were maintaining current ratings; (c) such an argument assumes (erroneously, we believe) that participants are not already keenly aware of their own expectations regarding the possibility of panicking. Because it is not possible to fully rule out the concern that aspects of the measures used influenced results, it would behoove future research to employ different measures. For example, computer-assisted technologies are available that allow similar ratings at more finely grained time intervals (e.g., Kenardy et al., 1992).

Given that, as supported by the evaluated models, expectation of panic appears to be a significant factor in maintaining anxiety, future research will be needed to address the question of what factors influence the creation or maintenance of the underlying, traitlike expectation of panic. The current results only imply unique causal pathways that could be manipulated in clinical treatments, and, despite the implied support of the model by existing research (Clark et al. 1994), longitudinal studies specifically evaluating such manipulation of causal pathways are lacking. Future research using daily measures, involving techniques designed to reduce daily anxiety but not expectation of panic, in comparison to techniques designed to reduce expectations of panic but not anxiety, is required in order to confirm the causal mechanisms that are implied by the current model.

References

Arbuckle, J. L. (1999). *Amos 4.0 user's guide*. Chicago: SmallWaters Corp.

Arntz, A., Rauner, M., & van den Hout, M. (1995). "If I feel anxious, there must be danger": *Ex-consequentia* reasoning in inferring danger in anxiety disorders. *Behaviour Research and Therapy, 33*, 917–925.

Barlow, D. H. (1988). *Anxiety and its disorders*. New York: Guilford Press.

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107*, 588–606.

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research 17*, 303–316.

Bollen, K. A., & Curran, P. J. (2000). *An autoregressive latent trajectory (ALT) model: A synthesis of two traditions*. Manuscript submitted for publication.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. Bollen & K. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.

Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. *Psychological Bulletin, 101*, 147–158.

Burns, D. D., & Spangler, D. L. (2001). Do changes in dysfunctional attitudes mediate changes in depression and anxiety in cognitive behavioral therapy? *Behavior Therapy, 32*, 337–369.

Chambless, D. L. (1985). The relationship of severity of agoraphobia to associated psychopathology. *Behaviour Research and Therapy, 23*, 305–310.

Chambless, D. L., Beck, A. T., Gracely, E. J., & Grisham, J. R. (2000). The relationship of cognitions to fear of somatic symptoms: A test of the cognitive theory of panic. *Depression and Anxiety, 11*, 1–9.

Chambless, D. L., Caputo, G. C., Bright, P., & Gallagher, R. (1984). Assessment of fear of fear in agoraphobics: The Body Sensations Questionnaire and the Agoraphobic Cognitions Questionnaire. *Journal of Consulting and Clinical Psychology, 52*, 1090–1097.

Chambless, D. L., Caputo, G. C., Jasin, S. E., Gracely, E. J., & Williams, C. (1985). The Mobility Inventory for Agoraphobia. *Behaviour Research and Therapy, 23*, 35–44.

Chambless, D. L., & Gracely, E. J. (1989). Fear of fear and the anxiety disorder. *Cognitive Therapy and Research, 13*, 9–20.

Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy, 24*, 461–470.

Clark, D. M., Salkovskis, P. M., Hackman, A., Middleton, H., Anastasiades, P., & Gelder, M. (1994). A comparison of cognitive therapy, applied relaxation and imipramine in the treatment of panic disorder. *British Journal of Psychiatry, 164*, 759–769.

Cox, B. J., & Swinson, R. P. (1994). Overprediction of fear in panic disorder with agoraphobia. *Behaviour Research and Therapy, 32*, 735–739.

Craske, M. G., Meadows, E. A., & Barlow, D. H. (1994). *Therapist's guide for the Mastery of Your Anxiety and Panic II (MAP II) program and agoraphobia supplement*. Albany, NY: Graywind.

Craske, M. G., & Rowe, M. K. (1997). Nocturnal panic. *Clinical Psychology, 4*, 153–174.

Curran, P. J. (2000). A latent curve framework for studying developmental trajectories of adolescent substance use. In J. Rose, L. Chassin, C. Presson, & J. Sherman (Eds.), *Multivariate applications in substance use research* (pp. 1–42). Hillsdale, NJ: Erlbaum.
Curran, P. J., & Bollen, K. A. (2001). The best of both worlds: Combining autoregressive and latent curve models. In L. M. Collins & A. G. Sayer (Eds.), *New methods for the analysis of change* (pp. 105–136). Washington, DC: American Psychological Association.
Curran, P. J., Bollen, K. A., Paxton, P., Kirby, J., & Chen, F. (2000, July). *Point estimates and confidence intervals of the RMSEA: Results from a Monte Carlo simulation.* Paper presented at the meeting of the Psychometric Society, Vancouver, BC.
Curran, P. J., & Muthén, B. O. (1999). The application of latent curve analysis to testing developmental theories in intervention research. *American Journal of Community Psychology, 27,* 567–595.
de Beurs, E., Chambless, D. L., & Goldstein, A. J. (1997). Measurement of panic disorder by a modified panic diary. *Depression and Anxiety, 6,* 133–139.
de Beurs, E., Chambless, D. L., & Goldstein, A. J. (2000). *The match/mismatch model and panic patients' accuracy in predicting naturally occurring panic attacks.* Manuscript under editorial review.
de Beurs, E., Wilson, K. A., Chambless, D. L., Goldstein, A. J., & Feske, U. (1997). Convergent and divergent validity of the Beck Anxiety Inventory for patients with panic disorder and agoraphobia. *Depression and Anxiety, 6,* 140–146.
First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured Clinical Interview for DSM-IV Axis I Disorders, Patient Edition.* New York: Biometrics Research Department, New York State Psychiatric Institute.
Goldstein, A. J., de Beurs, E., Chambless, D. L., & Wilson, K. A. (2000). EMDR for panic disorder with agoraphobia: Comparison with waiting list and credible attention-placebo control conditions. *Journal of Consulting and Clinical Psychology, 68,* 947–956.
Kazdin, A. E. (1974). Self-monitoring and behavior change. In M. J. Mahoney & C. E. Thorensen (Eds.), *Self-control: Power to the person* (pp. 218–246). Monterey, CA: Brooks-Cole.
Kenardy, J., Fried, L., Kraemer, H. C., & Taylor, C. B. (1992) Psychological precursors of panic attacks. *British Journal of Psychiatry, 160,* 668–673.
Kenardy, J., & Taylor, C. B. (1999). Expected versus unexpected panic attacks: A naturalistic prospective study. *Journal of Anxiety Disorders, 13,* 435–445.
Kessler, R.C., & Greenberg, D. F. (1981). *Linear panel analysis.* New York: Academic Press.
Meredith, W., & Tisak, J. (1990). Latent curve analysis. *Psychometrika, 55,* 107–122.
Öst, L. G. (1988). Applied relaxation vs progressive relaxation in the treatment of panic disorder. *Behaviour Research and Therapy, 26,* 13–22.
Shapiro, F. (1995). *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures.* New York: Guilford Press.
Williams, S. L. (1996). Therapeutic changes in phobic behavior are mediated by changes in perceived self-efficacy. In R. M. Rapee (Ed.), *Current controversies in the anxiety disorders* (pp. 373–376). New York: Guilford Press.
Zucker, D., Taylor, C. B., Brouillard, M., Ehlers, A., Margraf, J., Telch, M., Roth, W. T., & Agras, W. S. (1989). Cognitive aspects of panic attacks: Content, course and relationship to laboratory stressors. *British Journal of Psychiatry, 155,* 86–91.

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