

# Mapping Individual Differences in the Experience of a Waiting Period

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Waiting for uncertain news, such as the outcome of a job interview or medical test, is a ubiquitous and difficult but little studied experience. We conducted a longitudinal examination, guided by the predictions of the uncertainty navigation model (Sweeny & Cavanaugh, 2012), to examine broad trends and individual differences in experiences during a consequential waiting period. Fifty students preparing for the California bar exam completed questionnaires at 6 time points: shortly before and after the exam, at 2 intermediate time points during the 4-month waiting period, and immediately before and after learning whether they passed. We identified key individual differences in the overall experience of a waiting period, such that dispositional optimists reported lower levels of anxiety and rumination on average, and defensive pessimists and people uncomfortable with uncertainty reported higher levels. Longitudinal growth curve modeling analyses suggested that waiting is most difficult at the start and end of a waiting period, although people maintained hope and optimism throughout the wait. These temporal trends were generally robust, although some individual differences emerged. These findings provide the first evidence regarding when and for whom waiting periods are most difficult and thus can serve as the basis for future investigations of waiting experiences.

**Keywords:** uncertainty, waiting, individual differences, expectations, anxiety

You take it on faith, you take it to the heart/The waiting is the hardest part/Don't let it kill you, babe, don't let it get to you/The waiting is the hardest part.

—Tom Petty and The Heartbreakers, *The Waiting*

In the immortal words of the singer and songwriter Tom Petty, waiting can be one of the hardest parts of stressful life events. Unlike coping with bad news, which, though painful, has the clear goal of identifying ways to improve a bad situation, coping with uncertainty requires people to manage hopes and dreams, fears and worst-case scenarios, all without the simple certainty of knowing exactly with what they are coping. Surprisingly, researchers know relatively little about the ubiquitous experience of awaiting uncertain news. However, the uncertainty navigation model (Sweeny, 2012; Sweeny & Cavanaugh, 2012) provides a theoretical basis for identifying and evaluating common strategies people use during difficult waiting periods. This model suggests that individual differences predict fluctuations in anxiety and rumination, which drive the use of strategies such as emotion regulation (e.g., distraction and denial), expectation management (e.g., bracing for the worst, maintaining hope or optimism), searching for the silver lining in feared outcomes, and preemptively distancing oneself from the implications of bad news. The model also predicts that use of these strategies is likely to fluctuate throughout a waiting period as the salience of uncertainty rises and falls. The goals in the present study were to present the first “map” of affective and cognitive experiences over the course of a difficult waiting period

and to identify key individual differences in both the extent and trajectory of these experiences.

## The Strain of Waiting

Research has confirmed the anxiety-provoking nature of uncertainty in general (Ellsberg, 1961; Izard, 1991; Knyazev, Savostyanov, & Levin, 2005; Parsons, 1980; Penrod, 2001; Reiman, Fusselman, Fox, & Raichle, 1989) and specifically the uncertainty associated with awaiting unknown feedback (Shepperd, Grace, Cole, & Klein, 2005; Shepperd, Ouellette, & Fernandez, 1996; K. M. Taylor & Shepperd, 1998). These findings suggest that although waiting for inevitable events such as the arrival of a bus or one's turn in line may be irritating (e.g., Tom & Lucey, 1997), the combination of uncertainty about the outcome and waiting for that outcome is particularly excruciating. In fact, waiting may be more anxiety provoking than actually facing the worst-case scenario that presumably propels the anxiety of uncertainty (Flory, Faintuch, & Lang, 2008; Janzen & Hadjistavropoulos, 2008), although empirical examinations of this claim are sparse. We particularly examined waiting periods that are characterized by uncertainty, not waiting periods that culminate with a known and certain outcome.

Further complicating waiting periods are the persistent and repetitive thoughts associated with rumination, which are likely to arise when awaiting uncertain news (Sweeny, 2012) and which are associated with worry and fearfulness (Garnefski, Rieffe, Jellesma, Teerwogt, & Kraaij, 2007), psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010), prolonged and elevated depressive symptoms (Nolen-Hoeksema & Morrow, 1993), reduced regulation of negative emotion and memory inhibition (Davis & Levine, 2013), and myriad other harmful consequences (Hertel, 1998; Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky & Tkach, 2003; Lyubomirsky, Tucker, Caldwell, & Berg, 1999;

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Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Strack, Blaney, Ganellen, & Coyne, 1985). The inherent anxiety associated with waiting combined with the anxiety-enhancing potential of rumination is a toxic combination that likely explains the popularity of the idiom "the waiting is the hardest part."

### Individual Differences in Waiting Experiences

Despite the apparent ubiquity of anxiety in the face of threatening uncertainty, a primary goal of our study was to examine variation in the extent to which people experience waiting periods as stressful and difficult. The uncertainty navigation model (Sweeney & Cavanaugh, 2012) identifies three categories of individual differences that likely moderate waiting experiences.

First, we targeted two traits that reflect people's general orientation toward, or comfort with, uncertainty: intolerance of uncertainty (IU) and need for closure. Individuals high in IU find ambiguity and uncertainty particularly distressing and tend to avoid settings in which a clear course of action or outcome is not defined, as they often have difficulty functioning in the face of uncertainty and coping with the possibility of a negative outcome (Buhr & Dugas, 2002; Dugas, Buhr, & Ladouceur, 2004; Dugas, Schwartz, & Francis, 2004). Perhaps unsurprisingly, then, IU has been associated with heightened anxiety (Boelen & Reijntjes, 2009; Holaway, Heimberg, & Coles, 2006) and rumination (Gervais & Dugas, 2008; Yook, Kim, Suh, & Lee, 2010), particularly when exposed to daily hassles (Chen & Hong, 2010) and in the face of uncertainty (Greco & Roger, 2003).

Need for closure is similar to IU in that people high in need for cognitive closure have a desire for predictability, order, and structure and are uncomfortable with ambiguity (Webster & Kruglanski, 1994). In fact, one study confirmed that the subscales of IU and need for closure measures are largely intercorrelated (Berenbaum, Bredemeier, & Thompson, 2008). Thus, although we know of no studies that have examined the effect of need for closure on anxiety over uncertainty, the clear similarity between this construct and IU prompts the hypothesis that people high in IU or need for closure will report greater anxiety and rumination on average across a waiting period.

Second, we targeted two traits that reflect people's general orientation toward future outcomes: dispositional optimism and defensive pessimism. Dispositional optimism reflects a generally positive outlook on future events (Scheier, Carver, & Bridges, 1994). People high in dispositional optimism can recognize that specific outcomes may turn out poorly for them (Radcliffe & Klein, 2002), but they generally assume that their future is bright. In the context of a waiting period, we reasoned that dispositional optimists might have an edge in their ability to cope successfully with uncomfortable uncertainty due to this positive outlook. For example, one item on the revised Life Orientation Test (the most commonly used measure of dispositional optimism; Carver, Scheier, & Segerstrom, 2010; Rasmussen, Scheier, & Greenhouse, 2009), "In uncertain times, I usually expect the best," specifically addresses a positive orientation toward uncertain situations. Thus, we hypothesized that people high in dispositional optimism (and low in dispositional pessimism) would report less anxiety and rumination on average across a waiting period.

The term *defensive pessimism*, though typically correlated with general optimism (negative) and pessimism (positive; Norem,

2001), captures a tendency to embrace pessimism as a motivating and ultimately reassuring mindset (Norem, 2001; Norem & Cantor, 1986). Although defensive pessimism technically refers to a strategy, not a disposition (e.g., Spencer & Norem, 1996), we include it in our analysis of individual differences in waiting experiences due to the tendency for people to use (or not use) the strategy characteristically. That is, studies have identified *defensive pessimists* (in contrast to *strategic optimists*; Norem & Cantor, 1986) who frequently rely on defensive pessimism as an effective way to reduce anxiety, thus meeting Roberts and Mroczek's (2008) definition of a trait as "the relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from one another" (p. 2). In fact, although Norem and colleagues identified defensive pessimism and strategic optimism as strategies, they defined strategies as "process-oriented units of personality" (e.g., Spencer & Norem, 1996, p. 354).

Defensive pessimists adopt low expectations and focus extensively on the possibility of a negative outcome in order to motivate themselves to avoid that outcome (Norem, 2001; Norem & Cantor, 1986; Spencer & Norem, 1996). In contrast, strategic optimists embrace high expectations and avoid ruminating about their outcomes. However, it remains unclear how defensive pessimism and strategic optimism might function when the opportunity to affect one's outcomes has passed, as in the type of waiting period that is the focus of this article. On the one hand, perhaps defensive pessimism has little or no effect on the experience of a waiting period, given that the function of this strategy is moot in such circumstances. On the other hand, the habit of ruminating and reflecting on the possibility of a bad outcome may be hard to break, even when its function is removed. Thus, we tentatively hypothesized that people high in defensive pessimism (and thus low in strategic optimism) would report greater anxiety and rumination on average across a waiting period.

Finally, we targeted a trait that reflects a broader capacity to withstand the blow of threatening events: self-esteem. Self-esteem refers to one's broad sense of self-worth or value (Rosenberg, 1989). In contexts of uncertainty, people with low self-esteem tend to have lower expectations for their outcomes (Campbell & Fairey, 1985; Coopersmith, 1967; Shrauger, 1972), and one study showed that they also report greater anxiety during some parts of a waiting period (Shepperd et al., 1996). Thus, although we anticipated that self-esteem would be less central to the experience of a waiting period than would dispositional comfort with uncertainty or dispositional future outlooks, we hypothesized that people with high self-esteem would report somewhat lower anxiety and rumination on average across a waiting period.

### Strategies for Navigating the Wait

In addition to broad trait-like individual differences, we also suspected that people vary in the strategies they use in response to uncertainty and that these strategies are intertwined with anxiety and rumination during waiting periods. Specifically, people vary in the extent and nature of their efforts to regulate their emotions, including the anxiety associated with waiting for uncertain news. People experience numerous emotions in response to self-relevant events (Ellsworth & Scherer, 2003; Smith & Lazarus, 1993) and must regulate often conflicting emotions when the outcome of an event is uncertain. The uncertainty navigation model identifies a

number of strategies people may use to manage their discomfort and distraction as they wait (Sweeny & Cavanaugh, 2012). These strategies include distraction, reappraisal, expectation management, benefit finding, and distancing (Sweeny & Cavanaugh, 2010).

Distraction is one of the most direct and explicit means of emotion regulation during waiting periods (Gross & Thompson, 2007; Sweeny & Cavanaugh, 2010). People can effectively distract themselves from thoughts about the uncertain outcome by redirecting their focus toward other targets, either internal or external (Sweeny, 2012). That is, people who are awaiting uncertain news can ramp up their involvement in social activities and hobbies unrelated to the domain of uncertainty (external distractions; Nolen-Hoeksema et al., 2008), or they could simply put forth effort to think about unrelated and engaging topics. A large and growing body of research supports distraction as an effective strategy to reduce rumination and improve coping (Lazarus, 1985; Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky et al., 1999; Nolen-Hoeksema et al., 2008).

Although distraction is perhaps the most direct means of regulating emotion, several other strategies can serve the indirect goal of reducing anxiety and rumination during waiting periods. First, people may indirectly manage their anxiety through the process of calibrating and recalibrating their expectations for the outcome of the event as they wait. People typically lower their expectations over time to brace for the possibility of negative outcome (Sweeny & Krizan, 2013), but they may also embrace hope and optimism to make the wait more pleasant (S. E. Taylor, Lichtman, & Wood, 1984; Wilson, Centerbar, Kermer, & Gilbert, 2005). Some research suggests that bracing for the worst and hoping for the best are not mutually exclusive strategies; in fact, expectations often decline even as people hold onto the hope that things will ultimately work out in their favor (Bruininks & Sweeny, 2008).

Another strategy for navigating a difficult wait is preemptive benefit finding (Sweeny & Cavanaugh, 2010). Waiting for important news is difficult in part because the desired outcome is not guaranteed, and the alternative may be very unpleasant. One effective way to find comfort even in such circumstances is to embrace the benefits of the otherwise unpleasant outcome, thus rendering all outcomes (relatively) acceptable. This strategy is well established as an effective approach in the face of a bad outcome (Carver & Antoni, 2004; Davis, Nolen-Hoeksema, & Larson, 1998; Janoff-Bulman & Frantz, 1997; Littlewood, Venable, Carey, & Blair, 2008), but we suggest that the process of benefit-finding may begin well before the news arrives, during the waiting period (Sweeny & Cavanaugh, 2012).

A final strategy for navigating waiting periods is distancing oneself from the implications of a bad outcome. Davis et al. (2012) defined distancing as "creating psychological space between oneself and the distressing event, situation, or stimulus" (p. 238). For example, students might engage in distancing following a midterm exam by thinking about how their grade on the exam does not define their intelligence or academic potential. Research on emotion regulation confirms that distancing effectively reduces negative affect (Davis et al., 2012; Ochsner et al., 2004), and research in the health domain has shown that people are more likely to downplay the personal implications of threatening information when it is particularly self-relevant

(Croyle, Sun, & Louie, 1993; Kassarian & Cohen, 1965; Kunda, 1987). Previous descriptions of the uncertainty navigation model have used the term *invalidating feedback* rather than distancing (Sweeny, 2012; Sweeny & Cavanaugh, 2012), but the term *distancing* better captures the individual's ultimate goal of diminishing the personal importance or implications of any type of uncertain outcome.

### Fluctuations Across Waiting Periods

Although waiting periods are in many ways static, providing little to no opportunity to alter one's fate, these periods are emotionally dynamic. Research on bracing for bad news has shown that the experience of uncertainty changes over time, as do the predictions people make regarding their outcomes (Shepperd et al., 1996; Sweeny, Carroll, & Shepperd, 2006; Sweeny & Krizan, 2013). For example, people reliably lower their expectations for the outcome of a given event as they draw nearer to the end of the waiting period, particularly when an outcome is outside one's control, is self-relevant, or has important consequences (Dawson, Savitsky, & Dunning, 2006; Sweeny & Shepperd, 2007; K. M. Taylor & Shepperd, 1998). A recent meta-analysis confirmed the robustness of this temporal trajectory in a variety of domains including graduate school admissions, public presentations, trivia games, interviews, and attractiveness ratings (Sweeny & Krizan, 2013).

Although time variation in expectations during waiting periods is well-established, we know little about variation in other aspects of waiting or about individual differences in time trajectories. Some research suggests that individual differences play a role in the ways in which people navigate uncertainty. For example, a longitudinal study found that people with low self-esteem were more pessimistic about their midterm grade than were people with high self-esteem just before receiving their results (Shepperd et al., 1996), and students in another study who were high in financial need similarly gravitated toward pessimism about their likelihood of receiving an unexpected bill compared with students who were financially comfortable (Shepperd, Findley-Klein, Kwavnick, Walker, & Perez, 2000). Although these findings suggest that individual differences may play an important role in an individual's experience during waiting periods, at least with regard to expectation management, they do not provide information about the time course of waiting experiences more generally or individual trajectories over time.

### Overview and Hypotheses

This study had three primary goals. The first was to examine individual differences in the experience of waiting. People vary in their comfort with uncertainty, and people may also differ in the extent to which they use certain strategies to manage their anxiety during waiting periods. As described earlier, we focused on individual differences addressing comfort with uncertainty in a general sense (intolerance of uncertainty, Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994; need for closure, Kruglanski & Webster, 1996), general orientation toward future outcomes (dispositional optimism, Carver, Scheier, & Segerstrom, 2010; defensive pessimism, Norem & Cantor, 1986), and self-views that buffer against threat to one's self-concept (self-esteem, Rosenberg, 1989).

The second goal of this study was to provide a snapshot of the relationships among anxiety, rumination, and use of uncertainty navigation strategies as broadly hypothesized by the uncertainty navigation model (Sweeny & Cavanaugh, 2012). Specifically, we examined the extent to which levels of anxiety and rumination across a waiting period predicted efforts to regulate emotions, manage expectations, find benefit in feared outcomes, and distance oneself from the implications of impending feedback during that waiting period.

The third and final goal of this study was to “map” a waiting period by identifying the typical time course of anxiety, rumination, and uncertainty navigation strategies over a relatively lengthy and significant waiting period, as well as individual differences in these trajectories. Studies of temporal patterns in expectations during waiting periods typically only examine the beginning and end of the wait (e.g., Shepperd et al., 1996; Sweeny, Shepperd, & Carroll, 2009), and this approach likely overlooks interesting and important dynamics throughout the rest of the waiting period. Thus, we conducted a longitudinal study that included intermediate time points in order to capture fluctuations that may occur across an extended waiting period.

We identified an appropriate waiting period by considering three criteria. First, the waiting period had to be important and personally relevant to participants. A group of American football fans waiting for the outcome of an extended cricket match in New Zealand are unlikely to experience the sort of anxiety and discomfort typically associated with difficult waits. Second, the waiting period had to span a period of time that was short enough to render the study feasible and maximize generalizability, yet long enough to allow uncertainty navigation processes to unfold. Third, the waiting period needed to be as structured as possible, consistent across participants in the timing of the start and end of the waiting period. The California bar examination fulfilled all three criteria. It is a notoriously difficult rite of passage for law school graduates hoping to transition into practice (only the District of Columbia has a lower pass rate), and following the 3-day exam, test takers wait 4 months before learning whether they passed or failed. The bar exam provides a unique opportunity to study the experience of waiting and how it changes across time and varies between people experiencing it.

Several hypotheses guided our inquiry, based in part on the uncertainty navigation model (Sweeny & Cavanaugh, 2012) and in part on research addressing temporal fluctuations in expectation management during waiting periods (Sweeny & Krizan, 2013). First, we hypothesized that people with a dispositionally positive outlook (i.e., high in dispositional optimism, low in defensive pessimism), people who are dispositionally comfortable with uncertainty (i.e., low in need for closure and intolerance of uncertainty), and people with positive self-views (i.e., high in self-esteem) would experience less anxiety and rumination and report less strategy use during the waiting period. Second, we hypothesized that anxiety and rumination would be strongly correlated and that each would be correlated with strategy use (i.e., emotion regulation, expectation management, benefit finding, and distancing). Third, we hypothesized that anxiety, rumination, and strategy use would decrease following the exam as the salience of the event declined, followed by a steady climb as the moment of truth approached.

## Method

### Participants

Participants preparing for the July 2011 California bar exam were recruited from student bar associations and law school alumni offices at law schools in Southern California to participate in this study. From these efforts, we recruited 50 participants (52% female) from University of California, Los Angeles ( $n = 30$ ), Pepperdine University ( $n = 17$ ), California Western ( $n = 2$ ), and one student whose law degree was from an unknown institution. The sample was primarily White (82%) but also included participants who identified as Asian (8%), Black/African American (6%), and “other” (4%). The average age of participants was 27.5 years ( $SD = 3.95$ ). Forty-five participants (90%) ultimately reported passing the exam.

### Procedures

Participants were provided with information about the study and provided consent before completing the initial questionnaire. All participants were compensated with a gift card to Amazon.com.

We collected data via online questionnaires at six time points. Participants completed the first questionnaire (baseline) within 9 days prior to bar exam, and the sixth and final questionnaire (follow-up) within 24 hr after receiving the results of the bar exam (pass or fail, accessible online at exactly 5 p.m. PST). Because only five of the 50 participants failed the exam, data from this final time point will not be discussed. Of primary relevance to this study are the four intermediate time points during the 4-month waiting period between the time the participants took the bar exam and the availability of results. Participants completed the second questionnaire (Waiting 1) within 3 days of finishing the bar exam ( $M = 2.5$  days after the exam), the third and fourth questionnaires (Waiting 2 and 3) six and 12 weeks into the waiting period, respectively, and the fifth questionnaire (Waiting 4) no more than 24 hr before learning their results ( $M = 6.4$  hr prior to the release of exam results online).

### Measures

At the first time point (baseline), participants completed demographic items and a set of individual difference measures that included dispositional optimism (eight items from the Life Orientation Test, minus the filler items; Scheier & Carver, 1985; e.g., “In uncertain times, I usually expect the best” and “I rarely count on good things to happen to me”; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 3.54$ ,  $SD = 0.78$ , Cronbach’s  $\alpha = .88$ ), defensive pessimism (12 items adapted to generalize beyond academic settings; see Norem, 2001 for original items; e.g., “Considering what can go wrong helps me to prepare,” and “I often start out expecting the worst, even though I will probably do OK”; 1 = *not true at all of me*, 7 = *very true of me*;  $M = 4.69$ ,  $SD = 1.02$ ,  $\alpha = .83$ ), intolerance of uncertainty (12 items, short form of the Intolerance of Uncertainty Scale; Carleton, Norton, & Asmundson, 2007; e.g., “Unforeseen events upset me greatly,” and “I always want to know what the future has in store for me”; 1 = *not at all characteristic of me*, 5 = *entirely characteristic of me*;  $M = 2.58$ ,  $SD = 0.86$ ,  $\alpha = .93$ ), need for closure (16 items; Kruglanski et al.,

1993; e.g., "I don't like situations that are uncertain" and "I don't like to be with people who are capable of unexpected actions"; 1 = *strongly disagree*, 6 = *strongly agree*;  $M = 3.80$ ,  $SD = 0.72$ ,  $\alpha = .85$ ), and self-esteem (10 items; Rosenberg, 1989; e.g., "On the whole, I am satisfied with myself" and "I certainly feel useless at times"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 4.05$ ,  $SD = 0.57$ ,  $\alpha = .87$ ).

At each intermediate time point (Waiting 1–Waiting 4), participants completed measures of their waiting experiences. We detail each of the measures separately to clarify how we created the composite variables that we discuss in the remainder of the article. Participants completed each of the measures described at all of the four waiting time points.

**Anxiety.** Participants completed a 10-item measure of anxiety that included eight general ratings of how they had been feeling over the previous 3 days (e.g., *anxious*, *worried*, *calm*), and two items specific to the bar exam ("I feel anxious every time I think about the bar exam," and "I am worried about my bar exam results"; 1 = *not at all* to 5 = *extremely*;  $M = 2.84$ ,  $SD = 0.74$ , all Cronbach's  $\alpha$ s > .92).

**Rumination.** Participants completed a self-report measure of rumination ("I can't seem to stop thinking about the bar exam"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.47$ ,  $SD = 0.85$ ). We developed this novel, brief, self-report rumination measure because no validated measure assessing rumination about a specific event or outcome was available. Although we focus on the single-item self-report measure in analyses, responses on this item were highly correlated with responses on the related and face valid item, "How many times during the last 3 days have you thought about the bar exam or your bar exam results (prior to completing this survey)?"— $r$ s > .44,  $p$ s < .01.

**Emotion regulation.** Emotion regulation was measured with two items ("In the last 3 days, I've been trying to distract myself from thinking about my bar exam results," and "In the last 3 days, I've done things to manage my anxiety over my bar exam results"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.77$ ,  $SD = 0.81$ ,  $\alpha$ s > .68).

**Outcome predictions.** Participants provided a specific estimate of the likelihood that they had passed the exam ("Please estimate the probability that you will pass the bar exam, between 0% and 100%";  $M = 77.86$ ,  $SD = 16.15$ ). Based on the overall passing rates for the schools from which the participants in our study graduated and weighting by the number of participants from each school (Pepperdine University = 78%, UCLA = 86%, California Western = 58%), an "objective" average passing estimate would have been 82.0% in this sample.

**Bracing.** Participants' self-reported use of bracing as an expectation management strategy was assessed with two items ("I'm bracing for the worst when it comes to my bar exam results" and "I want to make sure I keep my expectations low when it comes to my bar exam results"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.76$ ,  $SD = 0.97$ ,  $\alpha$ s > .78).

**Hope.** Participants completed a single item assessing hopefulness ("I'm hoping for the best when it comes to my bar exam results"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 4.37$ ,  $SD = 0.54$ ).

**Optimism.** Participants completed a single item assessing efforts toward optimism ("I'm trying to be optimistic about my bar

exam results"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 3.91$ ,  $SD = 0.73$ ).

**Benefit finding.** Benefit finding was measured with three items ("I feel I'll learn something from the experience if I fail the exam"; "It might be for the best if I fail the bar exam"; and "I feel like I would grow as a person if I fail the bar exam"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.22$ ,  $SD = 0.83$ ,  $\alpha$ s > .70).

**Distancing.** Distancing was measured with five items (e.g., "The bar exam is a valid measure of the skills and abilities required to practice law" and "The bar exam is overvalued in my profession"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.81$ ,  $SD = 0.85$ ,  $\alpha$ s > .84).

We also included subjective measures of time to feedback. Two items addressed subjective distance from feedback ("It feels like it will be a really long time before I learn my bar exam results" and "It feels like it's taking forever to get my bar exam results"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 3.37$ ,  $SD = 0.82$ ,  $\alpha$ s > .70), and two items addressed subjective proximity to feedback ("It feels like I'll get my bar exam results before I know it" and "I can't believe I'll know my bar exam results so soon"; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.63$ ,  $SD = 0.76$ ,  $\alpha$ s > .48).

## Results

Analyses proceeded in five steps. We first calculated waiting period averages for anxiety, rumination, emotion regulation, passing estimates, benefit finding, distancing, and subjective distance from and proximity to feedback by taking the mean of each variable across the four time points in the waiting period. Second, we examined broad individual differences in waiting experiences by examining correlations between the individual difference measures and the waiting period composite measures. Third, we conducted bivariate correlation analyses between each of these averages to examine interrelationships among anxiety, rumination, and strategy use during the waiting period as a whole. We then moved to longitudinal growth curve modeling to identify the trajectories of each waiting period variable across the four time points and finally to examine individual differences as moderators of these temporal trajectories.

## Individual Differences in Overall Waiting Experiences

Although we included each individual difference measure in an effort to capture unique variation in waiting period experiences, the individual difference measures included in this study (intolerance of uncertainty and need for closure, dispositional optimism, defensive pessimism, and self-esteem) were largely intercorrelated, all  $r$ s > .23,  $p$ s < .10 (Table 1). As anticipated due to their high degree of conceptual overlap, the measures of intolerance of uncertainty and need for closure were strongly correlated ( $r = .74$ ). Thus, we standardized scores on these two scales using  $z$ -scores and then created a composite measure by averaging the two  $z$  scores for each participant. We refer to this composite as *IU/NFC*.

We also explored the possibility that the five individual difference measures might work together to capture a general sense of stable psychological resources during waiting periods. In fact, the four measures (reverse-scoring *IU/NFC* and defensive pessimism) had strong internal reliability, Cronbach's  $\alpha =$

Table 1  
*Intercorrelations Among Individual Difference Measures*

Measure	1	2	3	4	5	6
1. Dispositional optimism	—					
2. Defensive pessimism	-.43**	—				
3. Intolerance of uncertainty	-.65**	.57**	—			
4. Need for closure	-.51**	.37**	.74**	—		
5. IU/NFC composite	-.62**	.51**	.93**	.93**	—	
6. Self-esteem	.62**	-.30*	-.46**	.23	-.38**	—

Note. IU/NFC = intolerance of uncertainty and need for closure.

\* $p < .05$ . \*\* $p < .01$ .

.78. Thus, we standardized scores on each measure and created a composite measure that we refer to hereafter as the *personality composite* for simplicity. Higher scores on the composite measure indicate greater psychological resources (higher dispositional optimism and self-esteem, lower IU/NFC and defensive pessimism), as informed by our hypotheses. We present findings separately for each individual difference measure and using the composite measure in an effort to both detect variation in the roles of each individual difference and explore the role of personality resources more generally. As a reminder, the findings discussed in this section examine correlations between individual difference measures and waiting period variables that have been averaged across the four waiting period measurement points.

Table 2 presents the correlations between each individual difference measure and the waiting period composite variables. First, the composite of IU/NFC was significantly correlated with anxiety, rumination, emotion regulation, and bracing, all in a positive direction, and marginally (and negatively) correlated with benefit finding and subjective distance from feedback.

Second, dispositional optimism and defensive pessimism were both significantly correlated with anxiety, emotion regulation, outcome predictions, bracing, and efforts to be optimistic across

the waiting period. Note that correlations with defensive pessimism were in the opposite direction from correlations with dispositional optimism, such that defensive pessimism was associated with greater anxiety, more emotion regulation, more pessimistic outcome predictions, more bracing, and less effort to be optimistic. Defensive pessimism, but not dispositional optimism, was positively associated with rumination (although dispositional optimism was marginally negatively correlated), and only dispositional optimism was associated with efforts to maintain hope across the waiting period.

Third, self-esteem was not correlated with anxiety or rumination, but it was strongly correlated with outcome predictions (positive) and bracing (negative), as well as efforts to be optimistic (positive). It is interesting that self-esteem was the only trait-like individual difference that predicted perceptions of time, albeit marginally: Self-esteem was negatively correlated with subjective distance from feedback and positively correlated with subjective proximity to feedback.

Finally, the personality composite was negatively correlated with anxiety, rumination, emotion regulation, bracing, and subjective distance from feedback, and positively correlated with outcome predictions, helpfulness, and efforts to be optimistic.

Table 2  
*Correlations and Standardized Regression Coefficients for the Relationship Between Individual Difference Measures and Average Experiences During the Waiting Period*

Variable	Dispositional optimism	Defensive pessimism	IU/NFC	Self-esteem	Personality composite
Anxiety	-.33** (-.11)	.50** (.40*)	.33* (.05)	-.23 (-.02)	-.44**
Rumination	-.24† (-.16)	.30* (.17)	.38** (.27)	.05 (.30)	-.29*
Emotion regulation	-.28* (-.01)	.38** (.23)	.35* (.20)	-.24† (-.10)	-.40**
Outcome predictions	.40** (.18)	-.35* (-.22)	-.22 (.09)	.46** (.31†)	.45**
Bracing	-.49** (-.26)	.51** (.33*)	.38** (.02)	-.41** (-.14)	-.57**
Hope	.36** (.08)	-.11 (.07)	-.23 (-.01)	.19 (-.03)	.29*
Efforts toward optimism	.36** (.27)	-.30* (-.19)	-.20 (.11)	.30* (.12)	.37**
Benefit-finding	.14 (.16)	.07 (.23)	-.27† (-.37*)	-.09 (-.25)	.09
Distancing	-.07 (-.07)	-.02 (-.06)	-.04 (-.08)	-.14 (-.14)	-.04
Subjective distance from feedback	-.23 (.03)	.23 (.07)	-.12 (.17)	-.24† (-.17)	.16
Subjective closeness to feedback	.14 (-.10)	.04 (.22)	.27† (.01)	.26† (.38*)	-.30*

Note. Regression coefficients (in parentheses) represent the relationship between the individual difference measure and the averaged waiting variable, controlling for the other three individual difference measures (not including the personality composite) in a multiple regression. IU/NFC = intolerance of uncertainty and need for closure.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

## Interrelationships Among Experiences During the Waiting Period

Table 3 presents the bivariate correlations among the waiting period composite measures. As hypothesized, people who were generally more anxious during the waiting period also ruminated more, engaged in more emotion-regulation efforts, braced more, and made more pessimistic outcome predictions. Anxiety was also correlated with subjective distance from feedback (a feeling that it would be "forever" before the results were available) across the waiting period. The same general pattern of results emerged for rumination, but rumination was not significantly correlated with outcome predictions.

Emotion regulation also appears to be a well-integrated part of waiting. In addition to strong positive correlations with anxiety and rumination, emotion regulation was positively correlated with bracing, outcome predictions, and subjective distance from feedback.

Measures of expectation management (outcome predictions, bracing, hope, and efforts toward optimism) were largely interrelated, with the exception of outcome predictions and hopefulness. Subjective distance from (but not proximity to) feedback was significantly correlated with bracing and outcome predictions. As already mentioned, outcome predictions were correlated with anxiety and emotion regulation, and bracing was correlated with anxiety, rumination, and emotion regulation; these variables did not correlate with hope or efforts toward optimism.

Neither benefit finding nor distancing was significantly correlated with each other or any of the other measures. Benefit finding had a marginally significant relationship with subjective proximity to feedback (a feeling that feedback would come "before [they] know it"), and distancing had a marginally significant relationship with outcome predictions.

## Temporal Trajectories Across the Waiting Period

We used latent growth curve modeling with two goals in mind. First, we tested our hypotheses regarding robust temporal patterns in anxiety, rumination, and strategy use across the waiting period. Second, we examined individual differences as moderators of these time-dependent patterns. Although an ordinary-least-squares model may be useful for exploratory purposes, it cannot take individual patterns in responding over time into account. Latent

growth models allow us to investigate linked, longitudinal data without the assumptions of independence and homoscedasticity and provide evidence of within-person change over time (Singer & Willett, 2003).

We tested a series of models for each waiting measure using the SAS Version 9.2 PROC MIXED procedure, beginning with the simplest model and building up to more complex models one step at a time. We began with an unconditional means model and progressed to an unconditional linear growth model and then an unconditional quadratic growth model if appropriate, centering on the second time point during the waiting period, to examine the overall time-dependent trajectories in anxiety, rumination, and strategy use. We then tested the fit of conditional models with each individual difference measure added as a predictor of first the linear and then the linear and quadratic patterns. By systematically increasing the complexity of these nested models, we were able to compare changes in model fit and ultimately select the best fitting model for each variable, as defined by the most complex model that provided a significant increase in fit over the previous, simpler model. See Table 4 for pertinent model statistics.

We first discuss the results for the unconditional models and then discuss moderation. To make manageable the large number of models tested, we only present the parameters for the best-fitting models (unconditional and conditional). We also present paired *t* tests where appropriate to illustrate the nature of change over time for specific variables. Finally, Table 5 presents the relationships between individual difference measures and waiting variables at each waiting time point to further illuminate the moderated temporal patterns.

**Anxiety and rumination.** The best-fitting unconditional model for anxiety was the quadratic growth model. This model produced a significant effect of linear time,  $t(148) = -2.05, p = .04$ , and a significant quadratic effect,  $t(148) = 6.79, p < .0001$ . Paired *t* tests revealed that on average, people reported a significant drop in anxiety from Waiting 1 to Waiting 2,  $t(49) = 4.45, p < .0001$ , followed by a significant rise from Waiting 2 to Waiting 3,  $t(49) = -4.09, p = .0002$ , and from Waiting 3 to Waiting 4,  $t(49) = -4.87, p < .0001$  (see Table 6 for means at each time point).

Rumination showed a pattern similar to anxiety, with the quadratic growth model emerging as the best-fitting unconditional model. We found a significant effect of linear time,

Table 3  
*Intercorrelations Between Average Experiences During the Waiting Period*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Anxiety	—										
2. Rumination	.75**	—									
3. Emotion regulation	.70**	.69**	—								
4. Outcome predictions	-.46**	-.19	-.46**	—							
5. Bracing	.60**	.39**	.56**	-.75**	—						
6. Hope	-.05	-.12	.01	.18	-.30*	—					
7. Efforts toward optimism	-.11	-.01	-.04	.43**	-.43**	.58**	—				
8. Benefit-finding	-.10	.02	.09	-.05	.17	-.05	.01	—			
9. Distancing	.04	.01	.20	-.26†	.14	.08	.03	.22	—		
10. Subjective distance from feedback	.54**	.29*	.45**	-.26*	.30*	.17	.21	-.07	-.01	—	
11. Subjective closeness to feedback	-.26†	-.03	-.24†	-.12	-.12	-.02	-.02	.06	.27†	-.71**	—

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

Table 4  
Longitudinal Growth Curve Modeling Parameters

	$\gamma_{00}$	$\gamma_{01}$	$\gamma_{10}$	$\gamma_{11}$	$\gamma_{20}$	$\gamma_{21}$	$\Delta\chi^2$
Anxiety	2.45*		-0.14*		0.31*		7.1*
Dispositional optimism	2.45*	-0.36*	-0.14*		0.31*		8.2*
Defensive pessimism	2.45*	0.37*	-0.14*		0.31*		16.5*
IU/NFC	2.45*	0.44*	-0.14*	-0.21*	0.31*	0.12*	3.6†
Self-esteem	2.45*	-0.41*	-0.14*		0.31*		12.1*
Personality composite	2.45*	-0.62*	-0.14*		-0.31*		16.5*
Rumination	1.75*		-0.24*		0.56*		75.7*
Defensive pessimism	1.75*	0.13	-0.23*	-0.24*	0.55*	0.16*	6.1*
IU/NFC	1.75*	0.39*	-0.24*		0.56*		6.1*
Personality composite	1.75*	0.35*	-0.32*	0.35*	0.56*	-0.21*	4.2*
Emotion regulation	2.13*		-0.28*		0.52*		109.3*
Dispositional optimism	2.13*	-0.29*	-0.28*		0.52*		4.2*
Defensive pessimism	2.13*	0.30*	-0.28*		0.52*		8.6*
IU/NFC	2.13*	0.39*	-0.28*		0.52*		6.8*
Personality composite	2.13*	-0.52*	-0.28*		0.52*		9.2*
Outcome predictions	79.27*		0.59		-1.14*		14.7*
Dispositional optimism	79.27*	8.27*	0.59		-1.14*		7.0*
Defensive pessimism	79.27*	-5.41*	0.59		-1.14*		7.0*
IU/NFC	79.28*	-6.36*	0.59		-1.14*		4.5*
Self-esteem	79.29*	12.22*	0.43		-1.08*		37.8*
Personality composite	79.36*	-10.41*	.59		-1.14*		9.8*
Bracing	2.72*		.09*				6.0*
Dispositional optimism	2.72*	-.60*	.09*				13.7*
Defensive pessimism	2.72*	.46*	.09*				14.6*
IU/NFC	2.71*	.51*	.09*				8.0*
Self-esteem	2.71*	-.71*	.09				16.4*
Personality composite	2.71*	-.82*	.09				17.0*
Benefit-finding	2.17*		.11*				14.9*
IU/NFC	2.17*	-.26	.11*	-.09*			7.0*
Distancing	2.84*		.09*		-.05*		8.8*
Defensive pessimism	2.84*	-.02	.09*	-.09*	.05*	-.05*	5.5*
Personality composite	3.16*	-.06	-.09*	-.15*	.05*	.08*	6.2*
Subjective distance (time)	3.62*		-.52*				89.4*
Subjective closeness (time)	2.09*		.49*		.12*		15.1*

Note. Only best-fitting models are presented; chi-square test indicates improvement in fit over previous, simpler model. If a moderator did not provide any improvement over the best-fitting unconditional model, it is not included in the table. Only variables that showed change over time are included here. IU/NFC = intolerance of uncertainty and need for closure.

†  $p < .10$ . \*  $p < .05$ .

$t(148) = -2.30$ ,  $p = .02$ , and a significant quadratic effect,  $t(148) = 8.42$ ,  $p < .0001$ . As with anxiety, people reported a significant drop in rumination from Waiting 1 to Waiting 2,  $t(49) = 4.39$ ,  $p < .0001$ , followed by a significant rise from Waiting 2 to Waiting 3,  $t(49) = -3.63$ ,  $p = .0007$ , and from Waiting 3 to Waiting 4,  $t(49) = -8.82$ ,  $p < .0001$ .

**Moderators.** IU/NFC emerged as the only moderator of the time course of anxiety, although it did not moderate the time course of rumination. The best-fitting conditional model for anxiety with IU/NFC as a predictor was the model in which IU/NFC predicted the intercept, linear, and quadratic terms (the  $\Delta\chi^2$  test was  $p = .06$ ). This model revealed significant interactions between linear time and IU/NFC,  $t(146) = -2.34$ ,  $p = .02$ , and between quadratic time and IU/NFC,  $t(146) = 1.94$ ,  $p = .055$ , suggesting that IU/NFC moderates both the "tilt" (linear interaction) and the "shape" (quadratic interaction; albeit marginal) of anxiety's curve across the waiting period (Figure 1a).

Defensive pessimism moderated the time course of rumination but not anxiety. The best-fitting model for rumination with defensive pessimism as a predictor was the model in which defensive

pessimism predicted the intercept, linear, and quadratic terms, which revealed significant interactions between linear time and defensive pessimism,  $t(146) = -2.31$ ,  $p = .02$ , and between quadratic time and defensive pessimism,  $t(146) = 2.54$ ,  $p = .01$  (Figure 1b).

The personality composite also moderated the time course of rumination but not anxiety. The best-fitting model for rumination with the personality composite as a predictor was the model in which the personality composite predicted the intercept, linear, and quadratic terms. This model revealed significant interactions between linear time and the personality composite,  $t(146) = 2.21$ ,  $p = .03$ , and between quadratic time and the personality composite,  $t(146) = -2.10$ ,  $p = .04$  (Figure 1c).

**Emotion regulation.** Similar to the case of anxiety and rumination, the best-fitting unconditional time variant model for emotion regulation was the quadratic growth model. This model produced a significant effect of linear time,  $t(148) = -4.06$ ,  $p < .0001$ , and a significant quadratic effect,  $t(148) = 10.29$ ,  $p < .0001$ . On average, there was a significant decrease in emotion-regulation efforts from Waiting 1 to Waiting 2,  $t(49) = 5.74$ ,  $p < .0001$ .



Table 5  
Correlations Between Personality and Waiting Variables by Time Point

Variable	Waiting 1	Waiting 2	Waiting 3	Waiting 4
<b>Anxiety</b>				
Dispositional optimism	-.39**	-.30*	-.16	-.23
Defensive pessimism	.48**	.33*	.40**	.36*
IU/NFC	.50**	.16	.19	.22
Self-esteem	-.32*	-.31*	.01	-.13
Personality composite	-.55**	-.33*	-.25†	-.30*
<b>Rumination</b>				
Dispositional optimism	-.30*	-.12	-.09	-.15
Defensive pessimism	.40**	.10	.09	.23†
IU/NFC	.35**	.21	.23	.31*
Self-esteem	-.13	-.01	.19	.13
Personality composite	-.40**	-.20	-.13	-.24†
<b>Emotion regulation</b>				
Dispositional optimism	-.24†	-.29*	-.19	-.22
Defensive pessimism	.24†	.32*	.26†	.41**
IU/NFC	.30*	.35*	.23	.32*
Self-esteem	-.20	-.19	-.21	-.31
Personality composite	-.33*	-.38**	-.27†	-.38**
<b>Outcome predictions</b>				
Dispositional optimism	.38**	.40**	.38**	.35*
Defensive pessimism	-.30*	-.33*	-.34*	-.32*
IU/NFC	-.19	-.26†	-.24†	-.16
Self-esteem	.43**	.46**	.36*	.46*
Personality composite	.37**	.41**	.38**	.35*
<b>Bracing</b>				
Dispositional optimism	-.44**	-.36*	-.48**	-.43**
Defensive pessimism	.39**	.44**	.43**	.44**
IU/NFC	.27†	.29*	.35*	.42**
Self-esteem	-.35*	-.39**	-.38**	-.29*
Personality composite	-.43**	-.44**	-.49**	-.51**
<b>Hope</b>				
Dispositional optimism	.13	.34*	.44**	-.20
Defensive pessimism	-.04	.03	-.23	-.05
IU/NFC	-.11	-.04	-.30*	-.20
Self-esteem	.14	.24†	.21	.01
Personality composite	.14	.16	.38**	.17
<b>Efforts toward optimism</b>				
Dispositional optimism	.38**	.31*	.25†	.22
Defensive pessimism	-.27*	-.16**	-.27†	-.20
IU/NFC	-.18	-.08	-.25†	-.09
Self-esteem	.33*	.27†	.17	.20
Personality composite	.38**	.26†	.31*	.22
<b>Benefit finding</b>				
Dispositional optimism	.16	.11	.14	.10
Defensive pessimism	.07	.06	.03	.01
IU/NFC	-.16	-.16	-.34*	-.30*
Self-esteem	-.02	-.18	-.04	-.07
Personality composite	.07	.05	.19	.15
<b>Distancing</b>				
Dispositional optimism	.01	-.09	-.11	-.07
Defensive pessimism	-.18	.04	.01	-.01
IU/NFC	-.14	.04	-.03	-.01
Self-esteem	-.05	-.17	-.17	-.13
Personality composite	.13	-.09	-.05	-.03

Note. IU/NFC = intolerance of uncertainty and need for closure.

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

.0001, a marginal increase from Waiting 2 to Waiting 3,  $t(49) = -1.96$ ,  $p = .06$ , and a significant increase from Waiting 3 to Waiting 4,  $t(49) = -10.53$ ,  $p < .0001$ .

**Moderators.** None of the individual difference measures moderated the time course of emotion regulation.

**Expectation management.** The best-fitting unconditional time variant model for participants' outcome predictions (i.e., their

estimated likelihood of passing the exam) was the quadratic growth model. The linear fixed effect was not significant in this model,  $t(148) = 0.81$ ,  $p = .42$ , but the quadratic fixed effect was significant,  $t(148) = -2.91$ ,  $p = .004$ . On average, there was a marginal increase in outcome predictions from Waiting 1 to Waiting 2,  $t(49) = -1.97$ ,  $p = .06$ ; no difference in outcome predictions from Waiting 2 to Waiting 3,  $t(49) = 0.42$ ,  $p = .68$ ; and a

Table 6  
Waiting Period Means and Standard Deviations by Time Point

Variable	Waiting 1	Waiting 2	Waiting 3	Waiting 4
Anxiety	2.94 (0.90)	2.31 (0.84)	2.75 (0.98)	3.34 (0.95)
Rumination	2.58 (1.40)	1.66 (0.82)	2.16 (1.13)	3.48 (1.20)
Emotion regulation	2.92 (.99)	2.15 (0.94)	2.34 (1.05)	3.65 (0.92)
Outcome predictions	77.56 (17.73)	79.28 (17.01)	78.70 (15.91)	75.90 (17.74)
Bracing	2.72 (1.10)	2.58 (1.08)	2.79 (1.11)	2.96 (1.19)
Hope	4.46 (0.68)	4.38 (0.57)	4.32 (0.74)	4.32 (0.79)
Efforts toward optimism	3.82 (0.96)	3.94 (0.77)	3.96 (0.99)	3.90 (0.93)
Benefit-finding	2.05 (0.86)	2.17 (0.96)	2.32 (0.92)	2.35 (0.97)
Distancing	3.32 (0.92)	3.10 (0.91)	3.18 (0.90)	3.15 (0.86)
Subjective distance from feedback	4.01 (0.98)	3.84 (1.03)	3.06 (1.09)	2.54 (1.16)
Subjective closeness to feedback	1.75 (0.66)	2.02 (0.69)	2.78 (0.87)	3.54 (1.12)

significant decrease in outcome predictions from Waiting 3 to Waiting 4,  $t(49) = 2.48$ ,  $p = .02$ . In fact, based on the "objective" expected passing rate of 82.0% in this sample, participants were unrealistically pessimistic immediately after the exam (Waiting 1) and immediately prior to feedback (Waiting 4),  $t_s = 2.15$  and  $2.43$ ,  $p_s = .04$  and  $.02$ , respectively.

In contrast, the best-fitting unconditional time variant model for bracing was the linear growth model, which produced a significant effect of linear time,  $t(148) = 2.14$ ,  $p = .03$ . On average, bracing remained stable from Waiting 1 to Waiting 2,  $t(49) = 1.12$ ,  $p =$

.27, marginally increased from Waiting 2 to Waiting 3,  $t(49) = -1.88$ ,  $p = .07$ , and remained relatively stable from Waiting 3 to Waiting 4,  $t(49) = -1.37$ ,  $p = .18$ .

The best-fitting unconditional time variant models for hope and efforts toward optimism were the unconditional means models in both cases. There were no significant linear or quadratic fixed effects for these variables, and they did not vary significantly across time periods, all  $t_s < .92$ ,  $p_s > .35$ . Thus, we did not examine moderators of the time course for hope or efforts toward optimism.

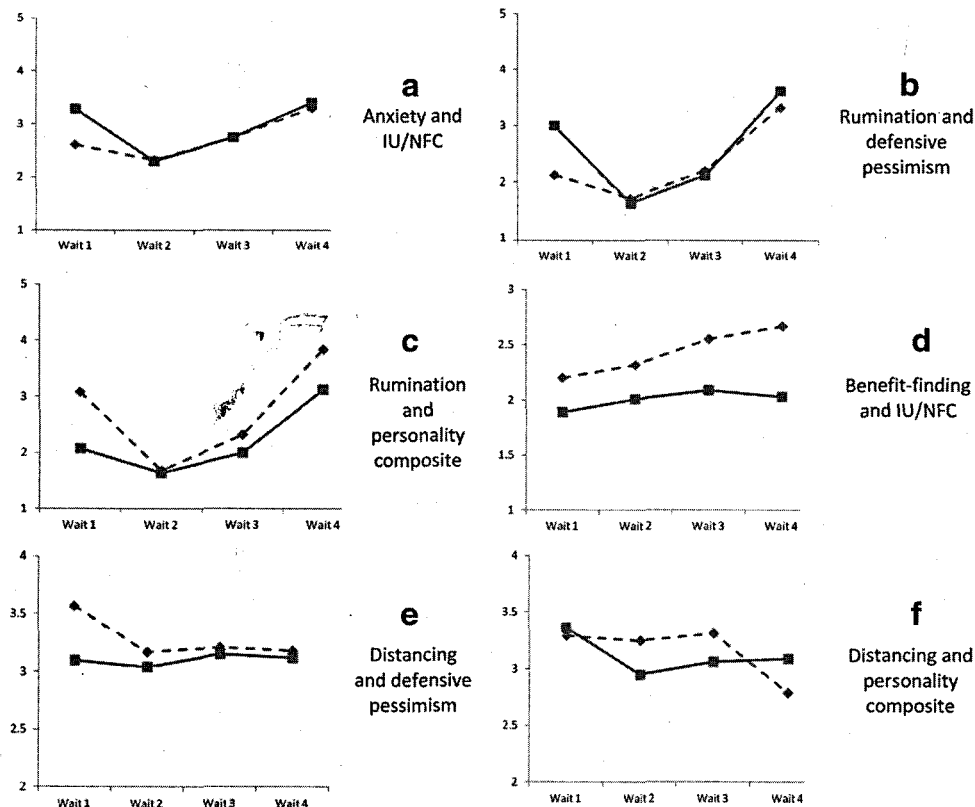


Figure 1. Moderators of waiting period trajectories, using median splits for illustrative purposes. Dashed lines represent participants below the median for the relevant moderator variable; solid lines represent participants above the median for that moderator. IU/NFC = intolerance of uncertainty/need for closure.

**Moderators.** None of the individual difference measures moderated the time course of outcome estimates or bracing.

**Benefit finding.** The best-fitting unconditional time variant model for benefit finding was the linear growth model, which produced a significant effect of linear time,  $t(148) = 3.60, p = .0004$ . On average, there were no significant differences in benefit finding from time point to time point across the waiting period,  $t_s < 1.43, p_s > .16$ ; however, benefit finding was significantly higher at Waiting 4 than at Waiting 1,  $t(49) = -3.52, p = .001$ .

**Moderators.** IU/NFC moderated the time course of benefit-finding. The best-fitting conditional model for benefit finding with IU/NFC as a predictor was the model in which IU/NFC predicted the intercept and linear term, which revealed a significant interaction between linear time and IU/NFC,  $t(148) = -2.17, p = .03$  (Figure 1d).

**Distancing.** The best-fitting unconditional time variant model for distancing was the quadratic growth model. This model produced a significant effect of linear time,  $t(148) = 2.35, p = .02$ , and a significant quadratic effect,  $t(148) = -2.01, p = .046$ . On average, there was a significant decrease in distancing from Waiting 1 to Waiting 2,  $t(49) = 2.66, p = .01$ , but no significant changes in distancing from Waiting 2 to Waiting 3,  $t(49) = -1.28, p = .21$ , or from Waiting 3 to Waiting 4,  $t(49) = 0.54, p = .59$ .

**Moderators.** Defensive pessimism and the personality composite emerged as moderators of the time course of distancing. The best-fitting conditional model for distancing with defensive pessimism as a predictor was the model in which defensive pessimism predicted the intercept, linear, and quadratic terms, which revealed significant interactions between linear time and defensive pessimism,  $t(146) = -2.65, p = .009$ , and between quadratic time and defensive pessimism,  $t(146) = 2.37, p = .02$  (Figure 1e).

The best-fitting conditional model for distancing with the personality composite as a predictor was the model in which defensive pessimism predicted the intercept, linear, and quadratic terms. This model revealed significant interactions between linear time and the personality composite,  $t(146) = -2.47, p = .01$ , and between quadratic time and the personality composite,  $t(146) = 2.29, p = .02$  (Figure 1f).

**Time perception.** The best-fitting unconditional time variant model for subjective distance from feedback was, perhaps unsurprisingly, the linear growth model, which produced a significant effect of linear time,  $t(148) = -8.51, p < .0001$ . On average, subjective distance from feedback remained stable from Waiting 1 to Waiting 2,  $t(49) = 1.27, p = .21$ , but decreased significantly from Waiting 2 to Waiting 3,  $t(49) = 5.16, p < .0001$ , and again from Waiting 3 to Waiting 4,  $t(49) = 3.93, p = .0003$ .

The best-fitting unconditional time variant model for subjective proximity to feedback was, more surprisingly, the quadratic growth model. This model produced a significant effect of linear time,  $t(148) = 8.22, p < .0001$ , and a significant quadratic effect,  $t(148) = 2.88, p = .005$ . Subjective proximity to feedback increased significantly (but with the smallest magnitude) from Waiting 1 to Waiting 2,  $t(49) = -2.67, p = .01$ ; from Waiting 2 to Waiting 3,  $t(49) = -6.39, p < .0001$ ; and from Waiting 3 to Waiting 4,  $t(49) = -5.31, p < .0001$ . Because our focus was on experiences during the waiting period and not time perception, we will not discuss moderators of the trajectories of subjective distance or closeness.<sup>1</sup>

## Discussion

In this study, we examined individual differences in the experience of a consequential waiting period. The findings supported our hypotheses that people with a dispositionally positive outlook on the future and who are dispositionally comfortable with uncertainty would report a different (and more pleasant) waiting experience compared with people who embrace a negative outlook and who are agitated by uncertainty. We also found some support for other predictions of the uncertainty navigation model (Sweeny & Cavanaugh, 2012), most notably with regard to the close relationships between anxiety and rumination on the one hand and emotion regulation and aspects of expectation management on the other. The trajectory of these experiences over the course of the waiting period provides further support for the model's prediction that waiting is most difficult when uncertainty is most salient, namely at the outset of the waiting period and at the moment of truth. However, our findings also revealed some nuanced and unexpected aspects of waiting, which further contribute to the nascent understanding of when, why, and, of particular interest in this study, for whom awaiting uncertain news is particularly unpleasant. We begin by discussing broad patterns in people's experience of a waiting period and then delve into individual differences in these general trends.

## Experiences Across the Waiting Period

Anxiety, rumination, emotion regulation, and pessimistic expectation management were closely interrelated and followed the hypothesized trajectory over the course of the waiting period. In fact, these waiting variables are so tightly intercorrelated ( $r_s > .69$ ) as to raise concerns about redundancy in our measures. However, it is equally possible that anxiety, rumination, and emotion regulation are experientially distinct but closely interrelated in the context of waiting periods, as hypothesized. Our measures for these variables were quite strong (and distinct) in terms of face validity, and thus we doubt that participants conflated them conceptually.

Other aspects of waiting showed different patterns. Hopefulness and efforts to maintain optimism, for example, were largely unrelated to other aspects of waiting (e.g., anxiety, rumination) and remained stable across the waiting period. In contrast, outcome predictions followed a pattern similar to anxiety and rumination, with people becoming more optimistic in the middle of the waiting period and then shifting toward pessimism as feedback drew near, and efforts to brace for the worst climbed steadily over the course of the waiting period. This seeming contradiction between pessimistic and optimistic expectation management is consistent with previous research (Bruininks & Sweeny, 2008), which found that during a waiting period, people maintained hope while simultaneously becoming more pessimistic in their outcome predictions. Bruininks and Malle (2005) put it eloquently when they noted that

<sup>1</sup> Defensive pessimism and self-esteem moderated the time course of subjective proximity to feedback, with a significant interaction between quadratic time and defensive pessimism,  $t(146) = 2.04, p = .04$ , and a significant interaction between quadratic time and self-esteem,  $t(146) = -2.31, p = .02$ . These moderation analyses did not reveal consistent or informative patterns in subjective time perception and thus will not be discussed further.

"people will hope for things that are important to them despite a low likelihood of realizing that outcome" (p. 330). Without question, passing the bar exam was an important outcome to participants in our study; in fact, a measure of outcome importance included at the baseline measurement point was rendered useless by a ceiling effect, with nearly three quarters of the sample providing the highest rating of importance on three separate items.

Benefit finding and distancing also seemed to play a role that was independent of managing anxiety and rumination. Although benefit finding was unrelated to anxiety, it showed a linear increase across the waiting period, such that participants were more and more likely to report anticipated benefits of failing the bar exam (e.g., learning from the experience, growing as a person) as they got closer to the point of feedback. This pattern seems sensible given that people are most in need of such comforting thoughts once negative feedback arrives, not at the outset of the waiting period when thoughts of failure would likely serve only to heighten the discomfort of uncertainty. This is the first study we know of examining preemptive benefit finding rather than examining this coping strategy following the receipt of bad news (e.g., Davis et al., 1998; Janoff-Bulman & Frantz, 1997), and our findings suggest this process may begin much earlier than previously realized, perhaps even prior to the start of the waiting period.

Distancing showed yet another pattern, with people reporting the greatest effort to distance themselves from the implications of a bad outcome at the outset of the waiting period, followed by a decline and then a slight increase toward the end of the wait (Table 6). This pattern suggests that distancing may be most useful in the days and weeks following the onset of the waiting period, when it remains difficult to distract oneself from the source of uncertainty. It may be that the strategy of distancing, which is surely difficult to maintain with regard to personally significant events, is quickly replaced by successful efforts at distraction and later benefit-finding.

Finally, people's perceptions of time during a waiting period, particularly with respect to the impending moment of truth, did not proceed in a predictably linear pattern. Instead, time seemed to pass more slowly in the early part of the waiting period and then speed up during the final months. Although speculative, we suggest that this accelerating perception of the passage of time might be related to the pattern of anxiety and rumination during waiting periods. During the early stages of a waiting period, little seems to be changing, and thus anxiety and rumination decrease to a tolerable level. As feedback draws near, time seems to be speeding up and thus thrusting people toward their inevitable fate, which in turn prompts increases in anxiety and rumination. To be clear, our findings do not provide evidence for such causal relationships, but the strong relationship between overall (i.e., averaged) perceptions of subjective distance to feedback and anxiety during the waiting period provides further evidence of their interdependence.

### Individual Differences in the Waiting Experience

Beyond providing a broad and novel depiction of typical experiences during an extended and consequential waiting period, we identified key moderators of these experiences. Put simply, waiting is easier for some people than for others. Considering the waiting period as a whole, our findings reveal a set of protective traits that seem to ease the difficulties people might face as they

await uncertain news. People who were higher in dispositional optimism, lower in defensive pessimism, and lower in intolerance of uncertainty and need for closure generally experienced less anxiety and rumination and expended less effort on emotion regulation and bracing themselves for the worst. Unexpectedly, self-esteem predicted only expectation management, despite the clear relevance of the uncertain outcome for participants' self-worth. These findings suggest that feeling good about the future and being comfortable with uncertainty are far more important than feeling good about oneself during a difficult waiting period.

Although these individual differences in the overall experience of a waiting period are informative, in many cases these differences were more nuanced, influencing not only the level but also the trajectory of waiting period experiences. For example, anxiety and rumination are fairly uniform during the middle of the waiting period, but people high in IU/NFC (with respect to anxiety) and defensive pessimism (with respect to rumination) seem to be at a disadvantage at the outset of the waiting period, and to a lesser extent at the moment of truth (Figures 1a–1b). The personality composite, which captures psychological resources derived from optimistic future outlooks, comfort with uncertainty, and positive self-views, also moderated the time course of rumination in a similar fashion (Figure 1c). These findings may aid in targeting interventions to reduce anxiety and rumination among people who most need the help and at a time when it may be most useful (e.g., Dugas & Lacouceur, 2000). Targeting people high in intolerance of uncertainty or defensive pessimism at the outset of or even prior to difficult waiting periods may be the most effective way to reduce potentially paralyzing discomfort in the face of new uncertainty.

Expectation management, on the other hand, seems to be robust in its pattern over time. Hope and efforts toward optimism remained stable across time, as discussed earlier, and none of the individual differences assessed in our study moderated the quadratic change in outcome expectations or linear increase in efforts to brace for the worst. Somewhat surprisingly, not even self-esteem moderated the time course of expectation management, as it had in an earlier study (Shepperd et al., 1996, Study 3). These (non)findings provide further support for the robustness of temporal declines in expectations as the moment of truth draws near (Sweeney & Krizan, 2013).

We also identified moderators of benefit-finding and distancing. Regarding benefit finding, people lower in IU/NFC generally anticipated greater benefits from failure, and this relationship was particularly pronounced in the latter part of the waiting period (Figure 1d). In fact, it appears that people high in IU/NFC maintain a relatively low level of benefit finding throughout the waiting period, such that the overall linear increase may be driven by people who are comfortable with uncertainty. This pattern suggests that anticipatory benefit finding may not be a defensive reaction to intense discomfort over the possibility of failure but instead may reflect a healthy coping strategy that is available only (or particularly) to people who are more at ease during a waiting period.

Regarding distancing, people higher in defensive pessimism remained relatively stable in their efforts to distance themselves from the personal implications of failure. In contrast, people lower in defensive pessimism reported the most distancing at the outset of the waiting period and then decreased until they nearly matched people higher in defensive pessimism for the remainder of the

wait. That is, it seems that the overall quadratic pattern in distancing over the waiting period is driven largely by strategic optimists (i.e., people low in defensive pessimism). Although the original conceptualizations of defensive pessimism and strategic optimism focused on the motivating function of this trait prior to performance during a preparatory period (e.g., Norem & Cantor, 1986), our findings suggest that strategic optimism may also play a role during waiting periods when people no longer have control over their performance. With respect to distancing, our findings suggest that strategic optimists may embrace distancing as an effective coping strategy at the outset of the waiting period, when other strategies may be less effective. In contrast, defensive pessimists may get little benefit from distancing, or the benefit they incur remains stable across the waiting period. Future studies can examine the role of distancing during waiting periods in greater depth to better understand its function and to identify mechanisms that might explain the relationship between defensive pessimism, strategic optimism, and distancing.

It is interesting that the personality composite also predicted the time course of distancing, and in quite a different way than did defensive pessimism (Figure 1f). People high and low on this composite measure of psychological resources reported nearly equal distancing at the outset of the waiting period. From there, the trajectories diverge. People with few psychological resources, broadly defined (i.e., low in dispositional optimism and self-esteem, high in defensive pessimism and IU/NFC), maintain a stable level of distancing until the moment of truth, at which point they drop off in their distancing. In contrast, people with many psychological resources (i.e., high in dispositional optimism and self-esteem, low in defensive pessimism and IU/NFC) show an immediate drop off in distancing and then maintain that lower level throughout the waiting period. Although highly speculative, this pattern may suggest that people who have a particularly difficult time awaiting uncertain news simply cannot maintain their emotional distance from the possibility of failure in the final moments of uncertainty. However, we urge caution in interpreting these findings given the novel nature of the personality composite and the ambiguity regarding the role of distancing during waiting periods.

Finally, it is worth noting that none of the individual differences assessed in this study moderated the time trajectory of emotion regulation, although all predicted the extent to which people engaged in emotion regulation on average during the waiting period. Thus, the temporal trajectory of emotion regulation seems to be fairly robust, at least with respect to individual differences in future outlooks and comfort with uncertainty. Also, dispositional optimism did not moderate any temporal trajectory, despite predicting overall anxiety, emotion regulation, and expectation management. It seems that dispositional optimism is broadly protective during waiting periods without sensitivity to particularly vulnerable moments.

## Conclusions

The goal of this study was to provide the first map of individual differences in experiences during an extended and consequential waiting period, guided by the predictions of the uncertainty navigation model. Our efforts revealed broad consistency across people's experiences of anxiety, rumination, emotion regulation, and

pessimistic expectation management, with notable variation in the experience of hope and optimism, benefit finding, and distancing during waiting periods. Most important, we identified key moderators of the overall waiting experience and of temporal trajectories throughout the wait.

To be clear, our findings do not provide evidence for causal relationships among traits, strategy use, and the experience of uncertainty. The uncertainty navigation model predicts bidirectional relationships between anxiety and rumination on the one hand and strategy use on the other, moderated by variation in dispositional comfort with uncertainty, future outlooks, and self-views (Sweeny & Cavanaugh, 2012). For example, the model would predict that people high in need for closure experience greater anxiety in the face of uncertainty, which prompts efforts toward emotion regulation, which in turn reduce anxiety (although perhaps not to the level of someone low in need for closure). Although our study provides novel evidence for broad trends and predictable individual variation in waiting experiences, experimental studies and longitudinal studies with more tightly grouped measurement points are needed to nail down causal temporal dynamics.

Although we selected a single type of waiting period for this initial effort, we did so with generalizability and impact in mind: The wait for bar exam results has similar qualities to many other important waiting periods, including journal and grant submissions, job searches, applications to college or graduate school, and some diagnostic procedures. However, our study design introduced several notable limitations. First, we recognize that our sample size is fairly small ( $N = 50$ ). Despite best efforts, the challenges associated with recruiting a sample of people taking the bar exam (e.g., acquiring permission for contact from alumni offices or student bar organizations; addressing concerns about the time commitment, particularly for the initial survey) limited our sample considerably.

Second, our sample was by nature limited to a particular type of person: current and future lawyers. An analysis of growing unhappiness among lawyers, particularly young lawyers like those in our study (Goldhaber, 1999; Heinz, Hull, & Harter, 1999; Schlitz, 1999), concluded that lawyers are essentially being selected for pessimism (Seligman, Verkul, & Kang, 2001). Specifically, law students with a pessimistic attributional style tend to outperform their optimistic counterparts (Satterfield, Monahan, & Seligman, 1997), perhaps due to the sense of caution and skepticism that accompanies pessimism (Seligman et al., 2001).

Finally, although the waiting period we studied is similar to certain other waiting periods, it is not representative of all waiting periods. For example, waiting periods vary in the significance of the awaited outcome, the degree of uncertainty about the outcome, the duration of the waiting period, and the predictability of the end of the waiting period. Each of these features, among others, likely affects the experience of waiting, particular with regard to the intensity and time course of anxiety, rumination, and uncertainty navigation strategies. Future investigators will seek to replicate our findings with shorter waiting periods, less consequential outcomes, lower probabilities of success, and larger and more heterogeneous samples.

Waiting for important news is a challenging endeavor, and our findings suggest that waiting only gets more difficult as the moment of truth draws near. Anxiety increases, ruminative thoughts

make it difficult to concentrate, energy is channeled toward emotion regulation, and people begin to expect the worst. Our findings begin to identify a metaphorical equivalent to the habits of highly successful people (here, successful at waiting without overwhelming anxiety and rumination), which is an important step for both understanding what makes waiting so difficult for many people and making it easier. Our findings provide a roadmap for researchers by identifying the most difficult moments and the most vulnerable people, with the ultimate goal of easing the burden of awaiting uncertain news.

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