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Even Optimists Get the Blues: Interindividual Consistency in the Tendency to Brace for the Worst

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Abstract

Objective: The present research examined whether the tendency to brace for the worst by becoming pessimistic as news approaches varies across people, namely, people who differ in their trait-like outlooks on the future (dispositional optimism, defensive pessimism).

Method: Across nine studies in laboratory and field settings, we examined the roles of dispositional optimism and defensive pessimism in the propensity to brace for the worst when awaiting uncertain news. The studies used a variety of paradigms, including predictions about performance on the bar exam, peer ratings of attractiveness, and feedback on an intelligence test.

Results: Results from these studies consistently failed to support individual differences in the tendency to brace for the worst.

Conclusions: Trait-like differences in future outlooks seem to influence only the level and not trajectories of outcome predictions, pointing to relative commonalities in the development of the tendency to brace for the worst.

Keywords: Bracing, expectations, dispositional optimism, defensive pessimism

The tendency to brace for the worst by abandoning optimism at the end of a waiting period is both prevalent and robust (Sweeny & Krizan, 2013). Students' predictions of their midterm grades shift from unrealistic optimism to realism and even to unrealistic pessimism as the news of their grade approaches (Shepperd, Ouellette, & Fernandez, 1996); patients become increasingly certain that they are riddled with disease as the news from a medical test approaches (e.g., Taylor & Shepperd, 1998); and voters become increasingly pessimistic about the chances that their pet initiatives or candidates will be successful on Election Day as the election approaches (Krizan & Sweeny, 2013). Although this general tendency is quite consistent across contexts, numerous studies have found that people brace more in some situations than others (e.g., when the potential bad news is more severe, Taylor & Shepperd, 1998; when the outcome is more personally relevant, Sweeny, Shepperd, & Carroll, 2009). But are some people more likely to brace, regardless of the situation? Specifically, are people less likely to brace for the worst if they generally expect their future to be bright, compared to people with a doom-and-gloom outlook? The current article presents evidence from nine studies in an effort to definitively answer the question of whether dispositional optimism and defensive pessimism moderate the tendency to shift expectations away from optimism in anticipation of feedback.

Bracing for the Worst

Bracing for the worst, or simply *bracing*, entails a change in outcome predictions over time, from relatively optimistic predictions to more pessimistic predictions as objective feedback draws near (Sweeny, Carroll, & Shepperd, 2006). Researchers have used the broader term *sobering up* to capture the full range of temporal shifts in outcome predictions (Sweeny & Krizan, 2013), but the term *bracing* best captures strategic efforts to manage one's expectations in preparation for the possible blow of bad news.

A recent quantitative review of temporal declines in expectations revealed a medium-size overall effect of feedback proximity on predictions across 71 independent samples (Cohen's $d = .40$; Sweeny & Krizan, 2013). This readiness to forsake optimism may be surprising in light of the numerous benefits of a hopeful, positive mind-set (e.g., Andersson, 1996; Armor, Massey, & Sackett, 2008; Carver, Scheier, & Segerstrom, 2010; Helweg-Larsen, Sadeghian, & Webb, 2002; Scheier, Carver, & Bridges, 2001), including research on the experience of awaiting

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uncertain news, which confirms that people who expect the best tend to be less distressed as they wait (Sweeny & Andrews, 2014; Sweeny, Reynolds, Falkenstein, Andrews, & Dooley, 2016). However, well-timed pessimism can be an effective antidote to disappointment—after all, if people expect the worst, they can hardly be unpleasantly surprised (Krizan & Sweeny, 2013; Sweeny et al., 2006; Van Dijk, Zeelenberg, & Van der Pligt, 2003)—and it causes little or no distress if embraced only in the final moments before feedback (Sweeny & Shepperd, 2010). Pessimism at the moment of truth also minimizes the likelihood of looking foolish if things do not turn out as hoped, particularly if people express their newfound pessimism to others (Lerner & Tetlock, 1999).

Variability in the Tendency to Brace

Numerous studies have identified situational moderators of bracing. People are more likely to brace for more severe outcomes (Taylor & Shepperd, 1998; but see Sweeny & Krizan, 2013), outcomes with a lower base rate (Sweeny & Shepperd, 2007), more personally relevant outcomes (Sweeny et al., 2009; Van Dijk et al., 2003), more vivid outcomes (Carroll, Shepperd, & Arkin, 2009), and when the preceding performance was more difficult (Nussbaum, Liberman, & Trope, 2006). Bracing clearly varies across situations, but does it vary across people? To the authors' knowledge, only two studies have directly assessed trait-like individual differences as moderators of temporal declines in expectations. An early article that examined a bracing-like phenomenon examined the role of achievement motivation and found that success-oriented individuals braced more than did failure-oriented individuals (Nisan, 1972). Later, a seminal article that introduced the term *bracing* in this context and first established the time course of the phenomenon also examined the role of self-esteem. This study found that people with high self-esteem braced less than did people with low self-esteem (Shepperd et al., 1996, Study 3).

The two studies just mentioned provide some evidence that people vary in their likelihood of bracing for the worst as the moment of truth draws near. However, achievement motivation and self-esteem are not the first individual differences that are likely to come to mind when pondering the dynamics of expectations for future outcomes. Dispositional optimism and defensive pessimism are directly relevant to trait-like differences in future outlooks, and in fact people tend to make more optimistic predictions to the extent that they are high in dispositional optimism or low in defensive pessimism (Norem, 2001; Radcliffe & Klein, 2002; Sweeny & Andrews, 2014). Dispositional optimism is the trait-like tendency to hold a generally positive outlook toward the future (Carver et al., 2010). People high in dispositional optimism cope more effectively with a broad array of stressors (Nes & Segerstrom, 2006) and tend to be lower in trait anxiety (Scheier, Carver, & Bridges, 1994; Smith, Pope, Rhodewalt, & Poulton, 1989). Defensive pessimism refers to the tendency to strategically adopt pessimistic expectations as a source of motivation in times of uncertainty (Norem, 2001; Norem & Cantor, 1986). Though not technically a trait or disposition (Spencer & Norem, 1996), people demonstrate consistency in their tendency toward defensive pessimism or its inverse, strategic optimism (Norem, 2001).

Intuition would suggest that dispositional optimists are less likely to brace themselves for the worst, and defensives pessimists more likely. With regard to dispositional optimism, the very items used to assess it (Life Orientation Test; Scheier & Carver, 1985; Scheier et al., 1994) point to the possibility that optimists would resist the temptation to slide toward pessimism: "In uncertain times, I *usually expect the best*," and "I'm *always optimistic* about my future," among others (italics added). Moreover, dispositional optimists are less prone to anxiety (e.g., Sweeny & Andrews, 2014), and rising anxiety is one catalyst of bracing (Shepperd, Grace, Cole, & Klein, 2005).

Other explanations for bracing similarly point to the possibility that dispositional optimists might resist the slide toward pessimism. For example, people may brace in response to rising pressure to accurately assess one's likely outcomes (i.e., accountability pressures; Carroll, Sweeny, & Shepperd, 2006; Sweeny & Krizan, 2013). This accountability pressure prompts a downward revision in predictions for reasons that are entangled with rising anxiety: increasing worry over the possibility of looking foolish, using one's anxiety as a source of information about likely outcomes, and a tendency to recall increasingly dire memories of performance quality due to mood-congruent memory processes (see Sweeny & Krizan, 2013). Again, dispositional optimists are relatively less prone to anxiety, which might make them resistant to these effects of accountability pressure. The logic is similar yet opposite for defensive pessimists: Defensive pessimists eagerly embrace pessimism in the face of anxiety (Norem & Cantor, 1986), suggesting that their expectations would decline as anxiety climbs in anticipation of the moment of truth.

Despite the close conceptual relationship between these trait-like tendencies and bracing for the worst, no published study to date has examined whether optimists and pessimists are equally likely to shift away from optimistic predictions over time. As just noted, perhaps the most intuitive hypothesis is that dispositional optimists will resist the tendency to slide toward pessimism as feedback approaches, and conversely, defensive pessimists will happily embrace pessimism given the slightest provocation. That is, optimists of both sorts (dispositional and strategic) might be less likely to brace. On the other hand, no one likes being caught flat-footed by failure, nor does anyone want to look like the fool when an outcome is far worse than anticipated. Moreover, as mentioned earlier, well-timed pessimism at the moment of truth is nearly cost-free and can pay large emotional dividends once one's fate is revealed (Shepperd & McNulty, 2002; Sweeny et al., 2016; Sweeny & Shepperd, 2010). Perhaps trait-like differences in future outlooks affect only one's level of expectations (the "intercept") and not the tendency to shift one's expectations over time (the "slope"). The current article provides a strong test of these competing hypotheses.

Table 1 Unmoderated Bracing Effects

Study	More Distant Prediction *M* (*SD*)	More Proximal Prediction *M* (*SD*)	*t*	*p*	r_{es}
1	65.26 (21.34)	63.14 (22.70)	3.01	<.01	.21
2	7.11 (1.77)	6.66 (1.77)	2.31	.02	.13
3	131.90 (31.80)	120.40 (31.89)	2.62	.01	.18
4	40.74 (10.68)	35.77 (11.75)	2.62	.01	.22
5	71.82 (20.03)	67.55 (21.74)	2.86	.01	.35
6	69.98 (16.57)	62.80 (19.46)	2.07	.04	.20
7	103.57 (30.72)	86.83 (26.10)	2.57	.01	.29
8	27.61 (6.69)	25.34 (6.98)	2.10	.04	.16
9	5.93 (1.06)	5.41 (1.17)	2.07	.04	.23

Note. The *t*-test is either a paired-samples *t* (for longitudinal studies; Studies 1 and 5) or an independent-samples t (for between-subjects studies).

Overview

In this article, we present the findings from all studies to which the authors had direct access (i.e., studies run by members of their lab) that met the following inclusion criteria: (a) the study included either a between-subjects manipulation of feedback proximity or a longitudinal design with repeated measures of outcome predictions; (b) the study included a measure of dispositional optimism, defensive pessimism, or both; and (c) the study showed a "simple" main effect of feedback proximity on outcome predictions (i.e., an overall bracing effect, either between or within subjects).[1] The term *feedback proximity* refers to how soon one expects to learn the awaited news (e.g., one's score on a test).

We first present studies that include both measures (four studies) and then studies that include only dispositional optimism (five studies). In some cases, other published articles present data from these studies; however, in no case have the focal analyses (i.e., interactions between feedback proximity and dispositional optimism or defensive pessimism) been published. By necessity, our analytical strategy differed between longitudinal studies (repeated-measures analysis of variance, focusing on the interaction between dispositional optimism or defensive pessimism as a continuous between-subjects predictor and time as a categorical within-subject predictor) and experimental studies (simultaneous multiple regression, focusing on the interaction between dispositional optimism or defensive pessimism as a continuous, between-subjects predictor and experimental condition as a categorical between-subjects predictor after centering all predictors).[2] Focusing on the more-common experimental studies, even our smallest study (Study 7, $N = 77$) is sufficiently powered to detect a Cohen's f^2 of .08 or greater with 80% power ($p = .05$), and other studies are powered to detect far smaller effects. We also present an aggregation of effect sizes following the individual studies that capitalizes on the large overall sample size across studies (total $N = 1{,}431$).

Due to the large number of studies presented here, we describe only the manipulations and measures of relevance to the focal analyses. When available, we refer the reader to other publications that present further methodological detail, and full materials for all studies are available upon request. We also focus specifically on the interaction between feedback proximity and our individual difference measures of interest. Although we present main effects of feedback proximity, dispositional optimism, and defensive pessimism alongside the focal interaction terms, these bivariate effects are the subject of other articles (e.g., Radcliffe & Klein, 2002; Sweeny & Krizan, 2013). Nonetheless, we include in Table 1 the unmoderated bracing effect for each study (i.e., a *t*-test comparison between outcome predictions made farther from vs. closer to the point of feedback) to confirm the general robustness of bracing across studies. In brief, the average effect size is moderate and reliably greater than zero, $r_{es} = .22$, 95% CI [.166, .271]. Lastly, we present a meta-analysis of our results to aggregate the findings across the nine studies included in this endeavor. Table 2 provides study characteristics and effect sizes (eta-squared for longitudinal studies, standardized betas for experimental studies).

STUDY 1

Participants and Method

Participants ($N = 230$; 61% female) were law graduates taking the California bar exam in July 2013, recruited prior to the bar exam and then completing questionnaires throughout the 4-month waiting period before learning their result on the exam. For the purpose of this article, we will focus on the baseline questionnaire completed prior to the exam and the final two questionnaires participants completed during the waiting period, 1 month and 1 day prior to the release of exam results online. The baseline questionnaire included measures of dispositional optimism (six items from the Life Orientation Test-Revised [LOT-R], minus the filler items, Scheier et al., 1994; 1 = *strongly disagree*, 5 = *strongly agree*; $M = 3.59$, $SD = .60$, Cronbach's $\alpha = .77$) and defensive pessimism (12 items adapted to generalize beyond academic settings; see Norem, 2001, for original items; 1 = *not true at all of me*, 7 = *very true of me*; $M = 4.80$, $SD = .83$, $\alpha = .77$), and the final two questionnaires included the measure of outcome predictions ("Please estimate the probability that you will pass the bar exam, between 0% and 100%"; *M*s = 65.36 and 63.14, *SD*s = 21.31 and 22.70,

Table 2 Study Characteristics and Individual Effect Sizes

Study	*N*	Participants	Design	Context	Prediction Target	Measure: Disp. Opt.	ES: Disp. Opt.	Measure: Def. Pess.	ES: Def. Pess.
Both measures									
1	230	Law graduates	Within	Field	% chance of passing bar exam	LOT-R w/o fillers	.004	12-item	.005
2	332	Undergraduates	Between	Lab	Score on IQ test	LOT-R w/o fillers	.011	12-item	–.081
3	212	Undergraduates	Between	Lab	Score on IQ test	LOT-R	.043	DPQ-R	–.010
4	140	Undergraduates	Between	Lab	Ratings of one's attractiveness	LOT-R	–.118	DPQ-R	.049
Dispositional optimism only									
5	90	Law graduates	Within	Field	% chance of passing bar exam	LOT-R w/o fillers	.001	N/A	N/A
6	109	Undergraduates	Between	Lab	Score on analytical test	LOT-R w/o fillers	–.014	N/A	N/A
7	77	Undergraduates	Between	Lab	Score on analytical test	LOT-R w/o fillers	–.067	N/A	N/A
8	161	Undergraduates	Between	Lab	Ratings of one's attractiveness	LOT w/o fillers	–.038	N/A	N/A
9	80	Undergraduates	Between	Lab	Ratings of one's attractiveness	LOT-R	.020	N/A	N/A

Note. *Within* and *between* refer to within-subject and between-subjects designs. Disp. Opt. = dispositional optimism; ES = effect size; Def. Pess. = defensive pessimism; LOT-R = Life Orientation Test-Revised; DPQ-R = Defensive Pessimism Questionnaire - Revised. Effect sizes for within-subject studies are eta-squared statistics (η^2) for the interaction term between feedback proximity and the continuous individual difference measure; effect sizes for between-subjects studies are standardized betas.

respectively). Additional methodological details are available in Sweeny et al. (2016), Sweeny and Falkenstein (2015), and Howell and Sweeny (2016).

Results

Dispositional Optimism. A repeated-measures analysis of variance revealed a main effect of dispositional optimism, $F(1, 192) = 26.23$, $p < .0001$, such that more optimistic participants made higher predictions overall, but no main effect of time, $F(1, 192) = 1.85$, $p = .18$, and no interaction between dispositional optimism and time, $F(1, 192) = .70$, $p = .40$.

Defensive Pessimism. A repeated-measures analysis of variance revealed no main effect of defensive pessimism, $F(1, 192) = .90$, $p = .34$, no main effect of time, $F(1, 192) = 2.20$, $p = .14$, and no interaction between defensive pessimism and time, $F(1, 192) = .88$, $p = .35$.

STUDY 2

Participants and Method

Participants ($N = 332$; 68% female) were undergraduate students in the psychology subject pool at the University of California, Riverside. Upon arrival at the lab, participants first completed an initial questionnaire that included measures of dispositional optimism (LOT-R minus the filler items, scaled 1–7; $M = 4.52$, $SD = .99$, $\alpha = .79$) and defensive pessimism (same 12-item version as in Study 1; $M = 4.92$, $SD = .98$, $\alpha = .84$). Participants then completed an intelligence test consisting of 10 Raven's matrices (Raven, 1938) and were randomly assigned to one of two conditions. In the no-feedback condition, the researcher indicated that the tests would be processed at a central location and that due to lengthy processing times, participants would not receive their results. In the imminent-feedback condition, the researcher indicated that participants would receive their score on the test in just a few minutes. Participants then completed a final questionnaire that included the measure of outcome predictions ("Of the 10 questions on the intelligence test, how many do you think you answered correctly?"; $M = 6.89$, $SD = 1.78$). Following additional procedures not pertinent to this article, participants were fully debriefed.

Results

Dispositional Optimism. Multiple regression analyses revealed a marginally significant main effect of dispositional optimism, $b = .19$, $SE = .10$, $p = .059$, such that more optimistic participants made higher predictions overall; a main effect of feedback condition, $b = –.47$, $SE = .19$, $p = .016$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = .04$, $SE = .20$, $p = .84$.

Defensive Pessimism. Multiple regression analyses revealed a main effect of defensive pessimism, $b = –.27$, $SE = .10$, $p = .007$, such that more pessimistic participants made lower predictions overall; a main effect of feedback condition, $b = –.47$, $SE = .19$, $p = .015$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between defensive pessimism and condition, $b = –.30$, $SE = .20$, $p = .14$.

STUDY 3

Participants and Method

Participants ($N = 212$; 59% female) were undergraduate students in the psychology subject pool at the University of California, Riverside. Upon arrival at the lab, participants first completed an initial questionnaire that included measures of dispositional optimism (LOT-R including filler items; $M = 3.21$,

$SD = .67$, $\alpha = .76$) and defensive pessimism (the 17-item Revised Defensive Pessimism Questionnaire, scaled 1-7; Norem, 2001; $M = 4.68$, $SD = .64$, $\alpha = .69$). Subsequent procedures relevant to this article were identical to Study 2 (an intelligence test with a between-subjects manipulation of feedback proximity) except for the wording of the measure of outcome predictions ("Scores on the test can range from 0 to 200. A score of 160 and above is excellent, a score of 80 to 159 is average, and a score below 80 is poor. In the space provided, please estimate the score you received on the test. Please estimate an exact number, not a range"; $M = 125.76$, $SD = 32.29$).

Results

Dispositional Optimism. Multiple regression analyses revealed a main effect of dispositional optimism, $b = 10.52$, $SE = 3.21$, $p = .001$, such that more optimistic participants made higher predictions overall; a main effect of feedback condition, $b = -12.36$, $SE = 4.29$, $p = .004$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = 4.11$, $SE = 6.43$, $p = .52$.

Defensive Pessimism. Multiple regression analyses revealed no main effect of defensive pessimism, $b = -3.72$, $SE = 3.45$, $p = .28$; a main effect of feedback condition, $b = -11.55$, $SE = 4.38$, $p = .009$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between defensive pessimism and condition, $b = -1.05$, $SE = 6.91$, $p = .88$.

STUDY 4

Participants and Method

Participants ($N = 140$; 59% female) were undergraduate students in the psychology subject pool at the University of California, Riverside. Upon arrival at the lab, participants were told that seven other students were ostensibly part of the same study, participating in other rooms on campus at approximately the same time. The researcher took a photograph of each participant and indicated that the photo would be uploaded to a website that would allow all participants in the study to view it. Participants then completed an initial questionnaire that included measures of dispositional optimism (LOT-R including filler items; $M = 3.30$, $SD = .70$, $\alpha = .77$) and defensive pessimism (DPQ-R; $M = 4.70$, $SD = .68$, $\alpha = .71$). The researcher returned to the room after the participant completed the questionnaire and brought up a website with seven photos of students, supposedly the students in the concurrent study (in actuality, the photos were of former research assistants who agreed to allow their photo to be used in the study). Participants rated each photo on physical attractiveness using a single item ("Please rate the attractiveness of the person in the photo above"; 1 = *very unattractive*, 10 = *very attractive*).

Participants were then randomly assigned to one of two conditions. In the no-feedback condition, the researcher indicated that the ratings the other students made (i.e., their opinions of the participant's physical attractiveness) would not be made available to the participant. In the imminent-feedback condition, the researcher indicated that participants would learn how they were rated in just a few minutes. Following additional procedures not pertinent to this article, participants then completed a final questionnaire that included the measure of outcome predictions ("When you receive your attractiveness ratings, they will be out of a total of 70 points: 7 raters × 10 possible points = 70 points. Higher scores indicate more positive attractiveness ratings. The average rating across UCR students in similar studies is 35 points"; $M = 38.26$, $SD = 11.6$). After completing the final questionnaire, participants were fully debriefed.

Results

Dispositional Optimism. Multiple regression analyses revealed a marginally significant main effect of dispositional optimism, $b = 2.61$, $SE = 1.38$, $p = .062$, such that more optimistic participants made higher predictions overall; a main effect of feedback condition, $b = -4.19$, $SE = 1.92$, $p = .03$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = -3.96$, $SE = 2.77$, $p = .15$.

Defensive Pessimism. Multiple regression analyses revealed no main effect of defensive pessimism, $b = .82$, $SE = 1.43$, $p = .57$; a main effect of feedback condition, $b = -5.62$, $SE = 2.66$, $p = .036$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between defensive pessimism and condition, $b = 1.21$, $SE = 2.87$, $p = .67$.

STUDY 5

Participants and Method

Participants ($N = 90$; 56% female) were law graduates taking the California bar exam in July 2014, recruited prior to the bar exam and then completing questionnaires throughout the 4-month waiting period before learning their result on the exam. As in Study 1, we will focus on the baseline questionnaire completed prior to the exam and the final two questionnaires participants completed during the waiting period, 3 weeks and 1 day prior to the release of exam results online. In this version of the study, the baseline questionnaire contained only a measure of dispositional optimism (LOT-R minus filler items; $M = 3.63$, $SD = .67$, $\alpha = .80$), and the final two questionnaires included the measure of outcome predictions described in Study 1 (Ms = 72.82 and 67.55, SDs = 20.03 and 21.74, respectively).

Additional methodological details are available in Sweeny (2016) and Howell and Sweeny (under review).

Results

A repeated-measures analysis of variance revealed a main effect of dispositional optimism, $F(1, 56) = 4.88$, $p = .03$, such that more optimistic participants made higher predictions overall than less optimistic participants, but no main effect of time, $F(1, 56) = .06$, $p = .81$, and no interaction between dispositional optimism and time, $F(1, 56) = .07$, $p = .79$.

STUDY 6

Participants and Method

Participants ($N = 109$; 49% female) were undergraduate students in the psychology subject pool at the University of California, Riverside. Participants came to the lab and took a test that ostensibly measured analytical reasoning skills, composed of GRE-style verbal and math items. After participants completed the test, they completed an initial questionnaire that included a measure of dispositional optimism (LOT-R minus the filler items; $M = 3.37$, $SD = .60$, $\alpha = .74$).

Participants were then randomly assigned to one of two conditions. In the no-feedback condition, the researcher announced that the computer that processes the tests froze, and the test scores were lost. In the imminent-feedback condition, the researcher indicated that participants would receive their score on the test in just a few minutes. Participants then completed a final questionnaire that included the measure of outcome predictions ("Scores on the test you took a few minutes ago can range from 0 to 100. A score of 90 and above is excellent, a score between 70 and 90 is average, and a score below 70 is poor. In the space provided, please estimate the score you received on the test, between 0 and 100"; $M = 66.39$, $SD = 18.34$). After completing this questionnaire, participants were fully debriefed.

Results

Multiple regression analyses revealed no main effect of dispositional optimism, $b = 3.86$, $SE = 2.90$, $p = .19$; a main effect of feedback condition, $b = -6.85$, $SE = 3.49$, $p = .052$, such that participants in the delayed-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = -.87$, $SE = 5.81$, $p = .88$.

STUDY 7

Participants and Method

Participants ($N = 77$; 69% female) were undergraduate students in the psychology subject pool at the University of Florida. Procedures relevant to this article were identical to those in Study 6, including the measure of dispositional optimism (LOT-R minus the filler items; $M = 3.13$, $SD = .52$, $\alpha = .81$), although the wording and scale for the measure of outcome predictions differed slightly ("Scores on the test you took a few minutes ago can range from 0 to 200. A score of 160 and above is excellent, a score of 80 to 159 is average, and a score below 80 is poor. In the space provided, please estimate the score you received on the test"; $M = 94.54$, $SD = 29.36$). Further methodological details can be found in Sweeny and Shepperd (2007, Study 1).

Results

Multiple regression analyses revealed no main effect of dispositional optimism, $b = -1.32$, $SE = 6.33$, $p = .83$; a main effect of feedback condition, $b = -16.69$, $SE = 6.59$, $p = .014$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = -7.51$, $SE = 12.65$, $p = .55$.

STUDY 8

Participants and Method

Participants ($N = 161$; 55% female) were undergraduate students in the psychology subject pool at the University of California, Riverside. Procedures were similar to those in Study 4, but we will provide full methodological details due to several subtle differences. Upon arrival at the lab, participants were told that seven other students were ostensibly part of the same study, participating in other rooms on campus at approximately the same time. The researcher then took a photograph of each participant and indicated that the photo would be uploaded to a website that would allow all participants in the study to view it. Participants then completed an initial questionnaire that included a measure of dispositional optimism (LOT minus the filler items; $M = 3.55$, $SD = .58$, $\alpha = .77$). The researcher returned to the room after the participant completed the questionnaire and brought up a website with seven photos of students, supposedly the students in the concurrent study (in actuality, the photos were of former research assistants who agreed to allow their photo to be used in the study). Participants rated each photo on physical attractiveness using five items (e.g., "How attractive is Participant A?" "How appealing is Participant A?"; 1 = *not at all*, 9 = *extremely*).

Participants were then randomly assigned to one of two conditions. In the delayed-feedback condition, the researcher indicated that the ratings the other students made (i.e., their opinions of the participant's physical attractiveness) would be sent to participants in 6–8 weeks. In the imminent-feedback condition, the researcher indicated that participants would learn how they were rated in just a few minutes. Participants then completed a final questionnaire that included the measure of outcome predictions ("When you receive your ratings, they will be out of a total of 45 points. Higher scores indicate more positive ratings. The average

score across UCR students in similar studies is 25 points. The items you were rated on are the same items you rated the other participants on. What do you think the average rating of your photo will be, out of 45 points?"; $M = 26.40$, $SD = 6.92$). After completing this questionnaire, participants were fully debriefed.

Results

Multiple regression analyses revealed a main effect of dispositional optimism, $b = 3.46$, $SE = .90$, $p = .0002$, such that more optimistic participants made higher predictions overall; a main effect of feedback condition, $b = -2.20$, $SE = 1.04$, $p = .036$, such that participants in the delayed-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = -.92$, $SE = 1.82$, $p = .61$.

STUDY 9

Participants and Method

Participants ($N = 80$; 69% female) were undergraduate students in the psychology subject pool at the University of Florida. Procedures were identical to those in Study 8, except that the measure of dispositional optimism was the LOT-R (including filler items) rather than the LOT ($M = 3.78$, $SD = .53$, $\alpha = .75$), and the wording of the outcome prediction measure was different ("What do you think the average rating of your photo will be, between 1 and 9?"; $M = 5.68$, $SD = 1.13$).

Results

Multiple regression analyses revealed a main effect of dispositional optimism, $b = .73$, $SE = .23$, $p = .003$, such that more optimistic participants made higher predictions overall; a main effect of feedback condition, $b = -.69$, $SE = .25$, $p = .006$, such that participants in the no-feedback condition made more optimistic predictions than did participants in the imminent-feedback condition; but no interaction between dispositional optimism and condition, $b = .09$, $SE = .47$, $p = .85$.

RESULTS SUMMARY

Due to the large number of studies included in this article, we conclude with a summary of the effects. Table 2 outlines key study characteristics and presents the individual effect sizes for each study. To determine whether the average effect size from our sample of studies was reliably different from zero, we translated the *p*-value from each interaction term to an *r* effect size, then meta-analyzed the *r* effect size estimates (Rosenthal, 1991). Obtaining effect sizes from *p*-values allowed for the aggregation of effect size estimates across between- and within-subject designs. We used a random-effects approach to construct confidence intervals to maximize the generalizability of our findings. To ensure uniform variance at extreme values of *r*, we applied Fisher's transformation to all *r* effect size estimates before performing aggregate calculations, then back-translated to *r* to report results (Silver & Dunlap, 1987).

Across all studies with a measure of dispositional optimism ($k = 9$), the magnitude of the interaction between dispositional optimism and proximity to feedback was near zero, with an average unweighted *r* of –.009, 95% CI [–.055, .037]. Turning to studies with a measure of defensive pessimism ($k = 4$), the magnitude of the interaction between defensive pessimism and proximity to feedback was also quite small and not reliably different from zero, with an unweighted *r* of .001, 95% CI [–.096, .098].

To determine whether variations across studies (e.g., in the specific measure used, within- vs. between-subjects, sample size) may have influenced the magnitude of the interaction between proximity of feedback and our individual difference variables, we conducted chi-square analyses on the Fisher-transformed effect sizes to assess whether effect sizes were homogeneous or heterogeneous across the studies. The chi-square test of effect sizes for the interaction between dispositional optimism and proximity to feedback indicated that the effect sizes across studies did not vary significantly, $\chi^2(8) = 4.40$, $p = .83$. Likewise, the chi-square test of effect sizes for the interaction between defensive pessimism and proximity to feedback revealed that the effect sizes are homogeneous across the studies, $\chi^2(3) = 3.18$, $p = .36$. These omnibus analyses detect the presence of any moderator, suggesting that the studies did not vary in effect size by study setting, sample size, or version of the dispositional optimism or defensive pessimism measure used.[3]

GENERAL DISCUSSION

We tested the moderating effect of dispositional future outlooks on the tendency to brace for the worst across nine studies, including between- and within-subject designs, lab and field studies, college students and (relative) adults, and predictions for professional, social, and intellectual outcomes. Out of 13 interaction effects, none neared statistical significance, and a meta-analysis of the interaction effect sizes across studies suggests that the moderating role of dispositional optimism and defensive pessimism is likely near zero. Furthermore, we found no evidence for methodological moderators of our effect sizes. That is, there were no statistically significant differences in the effect sizes between studies that differed in sample size, study setting (field/longitudinal studies vs. lab/between-subjects designs), or whether participants completed validated or revised versions of the individual differences measures. In sum, the tendency to brace seems to be largely consistent across individuals who otherwise vary in their approach to anticipating and preparing for future outcomes.

This conclusion stands in contrast to findings regarding situational variability in bracing. As noted earlier, a recent meta-analysis concluded that although the tendency to brace is

generally robust, it also varies across situations and depends on the methodological characteristics of a given study (Sweeny & Krizan, 2013). Why might individual variability be more limited? Although optimism has many benefits as a dispositional approach to life (Carver et al., 2010) and even as an orientation toward specific future outcomes (e.g., Sweeny & Andrews, 2014), forgoing optimism at the moment of truth also has many benefits. This well-timed pessimism carries few emotional costs if embraced briefly (Sweeny & Shepperd, 2010) and protects people from the harsh blow of unanticipated bad news (Sweeny et al., 2016; Sweeny & Shepperd, 2010). Recent evidence further suggests that although bracing is associated with distress over the course of a long waiting period, bracing in the final days leading up to the point of feedback may reduce disruptive, repetitive focus on the uncertain outcome (Sweeny et al., 2016). These benefits of bracing are rooted in the fundamental cognitive experience of expectation violation, which develops in humans in emotional contexts as early as 4 months (e.g., Rochat, Striano, & Blatt, 2002). Given bracing's deep roots in human cognition, perhaps it is unsurprising that most adults learn to use this strategy, at least to some extent, to manage their emotional responses to good and bad news.

As an aside, we would note that our studies generally replicated the effect of dispositional optimism on predictions as a whole, with people higher in dispositional optimism generally making more optimistic predictions (seven out of nine main effects were significant or approaching significance). However, defensive pessimism was not reliably associated with more pessimistic predictions (one out of four main effects was significant). Although the latter finding may seem surprising, defensive pessimism serves its most useful function prior to a performance, when people retain direct control over their outcomes (Norem, 2001; Norem & Cantor, 1986). The present studies examined predictions during a waiting period after a performance is over and one's fate is sealed, when the motivating forces marshaled by defensive pessimists can do them little good.

UNANSWERED QUESTIONS

Although our investigation was quite thorough in many ways, several questions remain unanswered. Perhaps most notable, we focused on two trait-like individual differences that are conceptually tied to the phenomenon of bracing; perhaps other traits moderate this tendency. Earlier studies, albeit each isolated endeavors, found effects of achievement motivation (Nisan, 1972) and self-esteem (Shepperd et al., 1996) on the tendency to brace. Further work on bracing should target these and other individual differences in an effort to replicate those initial findings and to expand this work. Of note, several of the studies presented here included other individual differences measures (e.g., Big Five personality traits, self-efficacy, demographic variables), but none were present in a sufficient number of studies to provide a strong test of their moderating role.

In addition, although we made every effort to present a broad array of study designs and samples, our studies were largely limited to lab-based, between-subjects designs and undergraduate samples (seven out of nine studies in both cases), and no study included an adult sample outside of an academic context. Given the situational specificity of bracing, it would be ideal to replicate our findings in broader settings and with broader samples.

IMPLICATIONS

Our results are likely to be of particular interest to researchers who study expectation management processes, but we would argue that these findings have broader implications for the development of strategies to cope with uncertainty. The consistency across individuals in the tendency to brace even (or perhaps particularly) in young adulthood may point to a relatively early developmental process that produces the tendency to brace for the worst in anticipation of feedback. At the very least, bracing requires two developmental achievements: imagining a state of reality other than the present one (i.e., counterfactual thinking), and recognizing the ability to affect one's emotions by changing one's thoughts. Research suggests that children possess the latter ability by age 5 (Davis, Levine, Lench, & Quas, 2010) and the former by age 3 or 4 (e.g., Robinson & Beck, 2000). These findings suggest that the stage is set in early childhood for learning the contingencies that motivate bracing (more optimistic expectations = higher probability of negative emotions), which may explain why by early adulthood most people readily engage this emotion regulation strategy.

Viewing our findings through this developmental lens also reveals individual differences that may be particularly likely to moderate the tendency to brace, unlike the dispositional differences in future outlooks we examined in this article. To the extent that people are dispositionally inclined to engage in counterfactual thinking or dispositionally inclined toward regulating their emotions by changing their thoughts (i.e., reappraisal), they may also be particularly inclined to brace for the worst. Regarding counterfactual thinking, studies have found that people high in impulsivity (Schmidt & Van der Linden, 2009), high in extraversion, and low in openness generate more counterfactual thoughts of various types (Allen, Greenlees, & Jones, 2014). Regarding reappraisal, considerable research has established trait-like differences in people's use of reappraisal as an emotion regulation strategy (e.g., Gross & John, 2003). Thus, impulsivity, extraversion, openness, and reappraisal tendencies are good targets for future research on individual differences in the tendency to brace.

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Notes

1. The authors had access to 14 additional studies that met the first two criteria but not the third (i.e., marginal or nonsignificant effect of feedback proximity). We include only studies with a clear bracing effect to allow us to proceed to test potential moderators of the effect. However, the conclusion from these additional studies is identical to the conclusion presented in this article.
2. Although we present analyses that treat the trait measures as continuous, we also ran our analyses comparing the top and bottom tertiles of participants on each trait measure. For experimental studies, we conducted 2 (condition: imminent feedback vs. no feedback) × 2 (trait: top tertile vs. bottom tertile) ANOVAs for each trait; longitudinal studies used the same analyses but replaced the continuous trait variables with two-level categorical variables. In no case did an interaction term reach significance (all but three ps > .35), consistent with the results presented here.
3. We also conducted these aggregation analyses including the full set of 23 studies (the nine presented here plus the 14 studies lacking a significant effect for bracing; see note 1). Across all studies with a measure of dispositional optimism ($k = 20$), the average unweighted r was .004, 95% CI [–.02, .027]. In studies with a measure of defensive pessimism ($k = 15$), the unweighted r was –.04, 95% CI [–.091, .012]. Thus, the conclusion (that neither dispositional optimism nor defensive pessimism reliably moderate bracing) is identical with or without the inclusion of the additional 14 studies.

References

Allen, M. S., Greenlees, I., & Jones, M. V. (2014). Personality, counterfactual thinking, and negative emotional reactivity. *Psychology of Sport and Exercise*, **15**, 147–154.

Andersson, G. (1996). The benefits of optimism: A meta-analytic review of the Life Orientation Test. *Personality and Individual Differences*, **21**, 719–725.

Armor, D. A., Massey, C., & Sackett, A. M. (2008). Prescribed optimism: Is it right to be wrong about the future? *Psychological Science*, **19**, 329–331.

Carroll, P. J., Shepperd, J. A., & Arkin, R. M. (2009). Downward self-revision: Erasing possible selves. *Social Cognition*, **27**, 550–578.

Carroll, P. J., Sweeny, K., & Shepperd, J. A. (2006). Forsaking optimism. *Review of General Psychology*, **10**, 56–73.

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, **30**, 879–889.

Davis, E. L., Levine, L. J., Lench, H. C., & Quas, J. A. (2010). Metacognitive emotion regulation: Children's awareness that changing thoughts and goals can alleviate negative emotions. *Emotion*, **10**, 498–510.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, **85**, 348–362.

Helweg-Larsen, M., Sadeghian, P., & Webb, M. S. (2002). The stigma of being pessimistically biased. *Journal of Social and Clinical Psychology*, **21**, 92–107.

Howell, J. L., & Sweeny, K. (2016). Spontaneous-self affirmation promotes health and well-being during a waiting period. Manuscript under review.

Howell, J. L., & Sweeny, K. (2016). Is waiting bad for subjective health? *Journal of Behavioral Medicine*, **39**, 652–664.

Krizan, Z., & Sweeny, K. (2013). Causes and consequences of expectation trajectories: "High" on optimism in a public ballot initiative. *Psychological Science*, **24**, 706–714.

Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin*, **125**, 255–275.

Nes, L. S., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review*, **10**, 235–251.

Nisan, M. (1972). Dimension of time in relation to choice behavior and achievement orientation. *Journal of Personality and Social Psychology*, **21**, 175–182.

Norem, J. (2001). Optimism, pessimism, and psychological well-being. In E. C. Chang (Ed.), *Optimism and pessimism: Implications for theory, research, and practice* (pp. 77–100). Washington, DC: American Psychological Association.

Norem, J. K., & Cantor, N. (1986). Defensive pessimism: Harnessing anxiety as motivation. *Journal of Personality and Social Psychology*, **51**, 1208–1217.

Nussbaum, S., Liberman, N., & Trope, Y. (2006). Predicting the near and distant future. *Journal of Experimental Psychology: General*, **135**, 152–161.

Radcliffe, N. M., & Klein, W. M. (2002). Dispositional, unrealistic, and comparative optimism: Differential relations with the knowledge and processing of risk information and beliefs about personal risk. *Personality and Social Psychology Bulletin*, **28**, 836–846.

Raven, J. C. (1938). *Progressive matrices: A perceptual test of intelligence*. London: H. K. Lewis.

Robinson, E. J., & Beck, S. (2000). What is difficult about counterfactual reasoning? In P. Mitchell & K. Riggs (Eds.), *Children's reasoning and the mind* (pp. 101–119). New York: Psychology Press.

Rochat, P., Striano, T., & Blatt, L. (2002). Differential effects of happy, neutral, and sad still-faces on 2-, 4-, and 6-month-old infants. *Infant and Child Development*, **11**, 289–303.

Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Thousand Oaks, CA: Sage.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, **4**, 219–247.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, **67**, 1063–1078.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (2001). Optimism, pessimism, and psychological well-being. In E. C. Chang (Ed.), *Optimism and pessimism: Implications for theory, research, and practice* (pp. 189–216). Washington, DC: American Psychological Association.

Schmidt, R. E., & Van der Linden, M. (2009). The aftermath of rash action: Sleep-inducing counterfactual thoughts and emotions. *Emotion*, **9**, 549–553.

Shepperd, J. A., Grace, J., Cole, L. J., & Klein, C. (2005). Anxiety and outcome predictions. *Personality and Social Psychology Bulletin*, **31**, 267–275.

Shepperd, J. A., & McNulty, J. K. (2002). The affective consequences of expected and unexpected outcomes. *Psychological Science*, **13**, 85–88.

Shepperd, J. A., Ouellette, J. A., & Fernandez, J. K. (1996). Abandoning unrealistic optimism: Performance estimates and the temporal proximity of self-relevant feedback. *Journal of Personality and Social Psychology*, **70**, 844–855.

Silver, N. C., & Dunlap, W. P. (1987). Averaging correlation coefficients: Should Fisher's z transformation be used? *Journal of Applied Psychology*, **72**, 146–148.

Smith, T. W., Pope, M. K., Rhodewalt, F., & Poulton, J. L. (1989). Optimism, neuroticism, coping, and symptom reports: An alternative interpretation of the Life Orientation Test. *Journal of Personality and Social Psychology*, **56**, 640–648.

Spencer, S. M., & Norem, J. K. (1996). Reflection and distraction: Defensive pessimism, strategic optimism, and performance. *Personality and Social Psychology Bulletin*, **22**, 354–365.

Sweeny, K. (2016). *Bracing later and coping better: Benefits of mindfulness meditation during a stressful waiting period*. Unpublished manuscript, University of California, Riverside.

Sweeny, K., & Andrews, S. E. (2014). Mapping individual differences in the experience of a waiting period. *Journal of Personality and Social Psychology*, **106**, 1015–1030.

Sweeny, K., & Falkenstein, A. (2015). Is waiting the hardest part? Comparing the emotional experiences of awaiting and receiving bad news. *Personality and Social Psychology Bulletin*, **41**, 1551–1559.

Sweeny, K., Carroll, P. J., & Shepperd, J. A. (2006). Is optimism always best? Future outlooks and preparedness. *Current Directions in Psychological Science*, **15**, 302–306.

Sweeny, K., & Krizan, Z. (2013). Sobering up: A quantitative review of temporal declines in expectations. *Psychological Bulletin*, **139**, 702–724.

Sweeny, K., & Shepperd, J. A. (2007). Being the best bearer of bad tidings. *Review of General Psychology*, **11**, 235–257.

Sweeny, K., & Shepperd, J. A. (2010). The costs of optimism and the benefits of pessimism. *Emotion*, **10**, 750–753.

Sweeny, K., Shepperd, J. A., & Carroll, P. J. (2009). Expectations for others' outcomes: Do people display compassionate bracing? *Personality and Social Psychology Bulletin*, **35**, 160–171.

Sweeny, K., Reynolds, C., Falkenstein, A., Andrews, S. A., & Dooley, M. D. (2016). Two definitions of waiting well. *Emotion*, **16**, 129–143.

Taylor, K. M., & Shepperd, J. A. (1998). Bracing for the worst: Severity, testing, and feedback timing as moderators of the optimistic bias. *Personality and Social Psychology Bulletin*, **24**, 915–926.

Van Dijk, W. W., Zeelenberg, M., & Van der Pligt, J. (2003). Blessed are those who expect nothing: Lowering expectations as a way of avoiding disappointment. *Journal of Economic Psychology*, **24**, 505–516.