

Coping strategies and immune neglect in affective forecasting: Direct evidence and key moderators

Michael Hoerger*

Abstract

Affective forecasting skills have important implications for decision making. However, recent research suggests that immune neglect—the tendency to overlook coping strategies that reduce future distress—may lead to affective forecasting problems. Prior evidence for immune neglect has been indirect. More direct evidence and a deeper understanding of immune neglect are vital to informing the design of future decision-support interventions. In the current study, young adults ($N = 325$) supplied predicted, actual, and recollected reactions to an emotionally-evocative interpersonal event, Valentine’s Day. Based on participants’ qualitative descriptions of the holiday, a team of raters reliably coded the effectiveness of their coping strategies. Supporting the immune neglect hypothesis, participants overlooked the powerful role of coping strategies when predicting their emotional reactions. Immune neglect was present not only for those experiencing the holiday negatively (non-daters) but also for those experiencing it positively (daters), suggesting that the bias may be more robust than originally theorized. Immune neglect was greater for immediate emotional reactions than more enduring reactions. Further, immune neglect was conspicuously absent from recollected emotional reactions. Implications for decision-support interventions are discussed.

Keywords: affective forecasting, immune neglect, impact bias, coping fallacy, learning.

1 Introduction

Biases in emotional judgment can disrupt decision making. Affective forecasting (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998) is a particular type of emotional judgment that involves predicting how future events will affect one’s emotional state. Affective forecasting can significantly influence a range of important life choices (Böhm & Brun, 2008; Mellers, Schwartz, & Ritov, 1999; Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008), including decisions to seek diagnostic medical testing (Rhodes & Strain, 2008), exercise (Ruby, Dunn, Perrino, Gillis, & Viel, 2011), get divorced (Lucas, 2005), or file for personal bankruptcy (Athreya, 2004). In an effort to elucidate potential biases in affective forecasting, recent studies have examined how well predicted emotional reactions correspond to actual emotional reactions to life events. This research shows that affective forecasting is prone to error, and people are often biased toward overpredicting the intensity and duration of emotional reac-

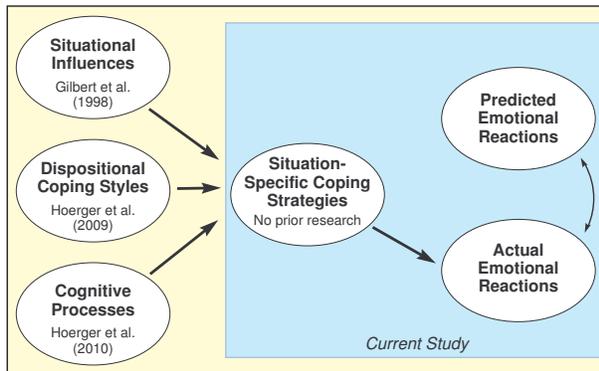
tions to future events (for a review, see Dunn & Laham, 2006).

A key reason for biased affective forecasting may be that people overlook coping strategies that attenuate emotional reactions to events. This phenomenon has been labeled *immune neglect*—the tendency to overlook coping strategies and other aspects of the “psychological immune system” that can reduce future distress (Gilbert et al., 1998). Three studies have provided indirect evidence for immune neglect, but none of these studies directly assessed coping strategies used by participants in the course of managing distressing events. An initial study showed that people overlook subtle aspects of the situation—particularly its potential influence on coping—when making affective forecasts (Gilbert et al., 1998). In that study, participants predicted how they would feel in the event that they received negative personality feedback, either from expert psychologists (purportedly infallible source) or a computer (purportedly fallible source). The source of the personality feedback did not influence predicted emotional reactions, but powerfully influenced actual emotional reactions experienced in response to the personality feedback. That study provided preliminary support for the possibility that, when engaging in affective forecasting, people might overlook coping strategies, such as being able to rationalize information from a fallible source. A follow-up study examined affective forecasting for college football team losses (Ho-

The research was supported by T32MH018911 from the United States Department of Health and Human Services; all study data are available for collaborative works upon request. I wish to thank Stephanie Giannandrea, Adrienne West, Michal Morgan, James Gerhart, James Bomersbach, Courtney N. Baker, and Brian McCabe for their assistance in data coding.

*Rochester Healthcare Decision-Making Group, University of Rochester Medical Center, Department of Psychiatry, 300 Crittenden Blvd, Rochester, NY 14642. Email: Michael_Hoerger@URMC.Rochester.edu.

Figure 1: Empirically-guided framework for immune neglect in affective forecasting.



erger, Quirk, Lucas, & Carr, 2009). In that study, dispositional coping styles were found to be significantly correlated with actual emotional reactions to football losses but were unrelated to predicted reactions; situation-specific coping strategies were not assessed. Finally, a third study examined affective forecasting for the election loss of a favored Presidential candidate (Hoerger, Quirk, Lucas, & Carr, 2010). Cognitive processes, such as working memory, were associated with better emotional functioning after the loss, but had no bearing on predicted reactions. In these studies, situational factors, dispositional coping styles, and cognitive processes were unrelated to predicted emotional reactions; however, they were related to actual emotional reactions, presumably through an implied-but-unmeasured influence on situation-specific coping strategies that buffered emotional reactions to distressing life events (see Figure 1).

The time is ripe for basic research directly testing the immune neglect hypothesis. Recent reform initiatives by the National Institutes of Health (2009) and Institute of Medicine (2001) have called for an expanded emphasis on the emotional processes underlying decision making. Further, immune neglect has recently been theorized to reduce engagement in proactive health behaviors (Rhodes & Strain, 2008; Ruby et al., 2011) and to lead consumers to make faulty personal financial decisions (Dunn, Gilbert, & Wilson, 2011). Research on decision-support interventions is already targeting immune neglect in an effort to facilitate decision-making processes (Dillard, Fagerlin, Dal Cin, Zikmund-Fisher, & Ubel, 2010). Arguably, decision-support interventions are most likely to be effective when they are informed by a foundation of sound empirical evidence (Dolan, 2010; Elwyn, Stiel, Durand, & Boivin, 2011). Direct evidence and a deeper understanding of immune neglect is essential for the development of future evidence-based interventions that will use findings on affective forecasting to improve decision making.

Past studies have documented situational influences, dispositional coping styles, and cognitive processes that are associated with actual emotional reactions to life events, but not predicted emotional reactions—leading to biased forecasts. These three factors are thought to influence actual emotional reactions through their effect on situation-specific coping strategies. No study to date has assessed situation-specific coping strategies, the presumed proximal mechanism underlying forecasting problems, despite implications for decision making and public health.

Therefore, the goals of the present investigation were to (a) examine immune neglect more directly and (b) increase our overall understanding of immune neglect by identifying key moderators. In order to examine immune neglect directly, the present study used quantitatively-coded qualitative data on coping strategies used by participants on the day of a stressful life event. Coping strategies can be assessed reliably using qualitative data (Asai et al., 2010; Oakland & Ostell, 1996). Furthermore, situation-specific coping strategies may be more robust than indirect or dispositional measures of coping in predicting emotional response to discrete life events (Ptacek, Pierceb, & Thompson, 2006), suggesting that past studies may actually underestimate immune neglect. The central hypothesis of the study was that coping strategies would be associated with actual emotional reactions to a stressful life event, but not predicted reactions, thereby demonstrating immune neglect as a source of bias in affective forecasting.

The study was also designed to identify moderators of immune neglect to expand our understanding of the phenomenon. Foremost, the valence of the event—whether the event is pleasant or unpleasant—may influence immune neglect. It has been suggested that immune neglect may only apply to affective forecasting for unpleasant events (Gilbert et al., 1998, p. 635), as pleasant events presumably do not trigger the need for coping strategies. However, research on ambivalence indicates that many so-called pleasant events (e.g., pregnancies, promotions, and major purchases) are actually marked by mixed feelings, including distress, which could trigger the use of coping strategies (de Liver, van der Pligt, & Wigboldus, 2007). Thus, the role of immune neglect in pleasant life events warrants further consideration. Second, immune neglect may vary across the time course of emotional reactions. Emotional reactions in response to life events attenuate over time, and empirical evidence is mixed as to whether affective forecasting is more difficult for immediate or more enduring emotional reactions to events (Eastwick, Finkel, Krishnamurti, & Loewenstein, 2008; Finkenauer, Gallucci, van Dijk, & Pollmann, 2007). Thus, the present study examined whether partici-

pants were more likely to overlook the immediate or more enduring effects of coping strategies upon their emotions. Finally, immune neglect could dissipate with experience. Several studies have examined predicted, actual, and recollected emotional reactions to life events to determine whether people learn from experience to make emotional judgments more accurately (see Hoerger, Chapman, Epstein, & Duberstein, in press). Findings have been mixed as to whether predicted and recollected reactions are similarly problematic, or recollected reactions are less vulnerable to bias. Thus, the present study examined immune neglect in both predicted and recollected reactions. In identifying moderators of immune neglect, this research can determine situations where immune neglect is most relevant and potentially inform future interventions for improving affective forecasting skills.

The current investigation builds on the prior work of my colleagues and I, examining affective forecasting for Valentine's Day of 2006 (Hoerger & Quirk, 2010) and 2007 (Hoerger, Quirk, Chapman, & Duberstein, in press). These studies, and those from other labs (Gilbert et al., 1998; Tomlinson, Carmichael, Reis, & Aron, 2010), demonstrate that young adults are vulnerable to overpredicting the intensity of emotional reactions to events involving relationships, dating, and breakups. For example, young adults overestimate how happy they will feel in the event of having a date on Valentine's Day, and overestimate how unhappy they will feel if they do not have a date (Hoerger & Quirk, 2010; Hoerger, Quirk et al., in press). The current investigation involves primary analyses of existing qualitative data relevant to coping that was gathered during the second of these studies (Hoerger, Quirk et al., in press). The present research is distinct from the prior report in addressing fundamentally different constructs; accounting for variation in actual and recollected reactions (rather than predicted reactions) that are associated with forecasting error; and coding hundreds of archived qualitative responses.

It was hypothesized that coping strategies (coded quantitatively from qualitative data collected on Valentine's Day) would be associated with actual emotional reactions, but not predicted reactions, demonstrating immune neglect as a source of affective forecasting problems. Supplemental analyses also examined whether immune neglect varied as a function of the valence of the event (a pleasant event for those with a date, and unpleasant for those without a date), timing (Valentine's Day, the day after, and two days after), or the type of emotional judgment (predicted ratings versus recollected ratings of emotional reactions to Valentine's Day). Findings were expected to provide the first direct evidence for immune neglect and identify key moderators that will inform the design of future interventions.

2 Method

2.1 Participants and procedures

To facilitate real-time data collection (see Hoerger & Currell, 2011), all measures were completed online via SurveyMonkey.com. Participants ($n = 325$; Hoerger, Quirk et al., in press) were students at a large university in the Midwestern U.S. They were young ($M = 19.8$ years old, $SD = 2.1$), and mainly female (80%) and white (93%). Participants were divided into those purportedly viewing Valentine's Day as a pleasant event (daters: $n = 88$, 27%) or an unpleasant event (non-daters: $n = 237$, 73%). In mid-January, they predicted what their emotional state would be on the evening of Valentine's Day as well as the two subsequent days. Then, on Valentine's Day (after 8pm) and each of the two subsequent days, participants reported on their actual emotional states. On the final day (February 16), they also attempted to recall what their emotional state was on Valentine's Day only.

2.2 Emotion ratings

Using 9-point rating scales, participants rated their predicted, actual, and recollected emotional states across six emotion words: happy, sad, pleased, gloomy, joyful, and miserable. Negative affects were reverse coded, and responses were summated to yield composite indicators of predicted reactions, actual reactions, and recollected reactions (average $\alpha = .91$). Immune neglect was examined in two ways. First, Steiger's (1980) Z test was used to examine whether coping strategies correlated more highly with actual emotional reactions than with either predicted or recollected reactions. Second, an emotional judgment error score was computed using simple difference scores (i.e., predicted rating minus actual rating; recollected rating minus actual rating), with higher scores indicating greater error; coping strategies were then correlated with the error scores to determine whether they accounted for variance in error. Post-hoc analyses examining positive and negative affects separately did not reveal a different pattern of results.

2.3 Coping measure

On Valentine's Day, participants responded to an open-ended question asking them to describe the events of their day (word count: $Mdn = 29.0$, $M = 37.0$, $SD = 34.3$). The author thoroughly reviewed each of these responses, blinded to other data, to identify salient coping dimensions that could be coded later by a team of raters. Responses were reviewed and scored with care, in an effort to avoid potential biases. Four overlapping domains were identified: Social Problem Solving (e.g., prosocial

planning, effective conflict resolution, and avoiding escalating minor disputes), Behavioral Activation (e.g., participating in non-routine activities, making special plans with friends or a partner, and avoiding excessive sleeping or television watching), Negative Rumination (e.g., stewing about loneliness or relationship problems, catastrophic thinking, and avoiding reinterpreting relatively neutral events in positive light), and Isolative Withdrawal (e.g., staying home all day, drinking alone all day, and avoiding social activities). Participant responses were coded for these four situation-specific coping strategies by each of eight raters, including three clinical psychology graduate students, two psychology interns, a psychiatry resident, and two clinical psychologists (including MH); raters were equally balanced on gender. All raters had prior training in clinical psychology, were familiar with coping terminology and literature, and were actively engaged in training or work experiences related to the provision of psychotherapy. Interrater reliability was excellent across 10,400 total ratings (8 raters x 4 ratings x 325 participants), with an average measures intraclass correlation (ICC) of .93. Raters coded each response for Social Problem Solving (operationalized as “handles social situations effectively,” ICC = .89), Behavioral Activation (“pursues enjoyable activities,” ICC = .90), Isolative Withdrawal (“socially isolated,” ICC = .93), and Negative Rumination (“ruminates about negative feelings,” ICC = .88), using a 7-point scale from -3 (Strongly Disagree) to +3 (Strongly Agree). Finally, acknowledging the potential overlap across domains, a composite indicator of Effective Coping ($\alpha = .91$) was derived by averaging scores across each of the 4 coping indicators, after reverse-coding Isolative Withdrawal and Negative Rumination. The appendix provides examples of qualitative responses, quantitative ratings of coping strategies, and corresponding emotion ratings for several participants.

3 Results

3.1 Descriptive overview

Table 1 provides an overview of participants’ predicted, actual, and recollected emotional reactions to Valentine’s Day. As expected, daters and non-daters experienced the holiday much differently. For example, daters predicted ($M = 8.24$, $SD = 0.81$) they would feel more positively than non-daters ($M = 5.26$, $SD = 1.72$) on Valentine’s Day, $t(323) = 15.66$, $p < .001$, Cohen’s $d = 2.36$, which was a very large effect. As shown in the table, daters overpredicted how positive they would feel, whereas non-daters overpredicted how negative they would feel. Overall, participants experienced greater ease in recollected emotional reactions to Valentine’s Day than in predicting them, as indicated by higher correlations ($Z = 13.16$,

$p < .001$) and lower mean differences ($t(324) = 9.59$, $p < .001$). Given substantial differences across daters and non-daters, remaining analyses consider these groups separately.

3.2 Direct evidence for immune neglect

Table 2 summarizes correlations between coping strategies and participants’ predicted, actual, and recollected emotional reactions for Valentine’s Day (2/14 only). Coping strategies played an important role in emotional reactions to Valentine’s Day, generally correlating significantly with actual emotional reactions ($r_{\max} = .63$). As hypothesized, predicted emotional reactions had little to no relationship with coping strategies ($r_{\max} = .15$). Consistent with the immune neglect hypothesis, the composite indicator of effective coping was more highly correlated with actual emotional reactions than predicted emotional reactions (daters: $Z = 4.49$, $p < .001$; non-daters: $Z = 4.78$, $p < .001$), and variation in coping strategies accounting for error in affective forecasting (daters: $r = -.45$, $p < .001$; non-daters: $r = .26$, $p < .001$).¹

3.3 Moderators of immune neglect

Foremost, as noted in the analyses above, immune neglect was present for both daters and non-daters. More specifically, the tendency to overpredict the intensity of emotional reactions was caused by daters overlooking ineffective coping strategies and non-daters overlooking effective coping strategies (see Figure 2). Second, as suggested by the findings in Table 2 and Figure 2, there was no evidence of immune neglect in recollected emotion ratings. Specifically, the effective coping indicator correlated no less with recollected emotional reactions than actual reactions, $Z = 0.00$, ns , and was unrelated to errors in recollecting emotional reactions (average $|r| = .08$, ns). Finally, in terms of timing (not shown graphically), immune neglect was greater for immediate emotional reactions to Valentine’s Day than for more enduring reactions; in particular, the effective coping indicator correlated more highly with affective forecasting errors on Valentines Day itself (average $|r|$ across daters and non-daters = .32) than either of the subsequent days (average $|r| = .13$), $Z = 2.68$, $p = .01$.

¹Post-hoc analyses found that these two correlations were similar after excluding the 10% of participants with the shortest qualitative responses (daters: $r = -.45$, $p < .001$; non-daters: $r = .27$, $p < .001$). The results were also upheld when exploring other cut scores, and when excluding participants who experienced unexpected good or bad luck events. Finally, findings could not be attributed to the potential concern that coping ratings might be a mere proxy for actual emotional reactions; actual emotional reactions correlated highly with predicted emotional reactions, whereas coping strategies did not, demonstrating discriminant validity.

Table 1: Descriptive statistics for predicted, actual, and recollected emotional reactions to Valentine’s Day, among daters and non-daters

Day	Emotional state			Correlation		Mean difference	
	Predicted <i>M (SD)</i>	Actual <i>M (SD)</i>	Recollected <i>M (SD)</i>	P-A <i>r</i>	R-A <i>r</i>	P-A <i>d</i>	R-A <i>d</i>
All participants							
2/14	6.07 (2.02)	6.71 (1.56)	6.75 (1.23)	.56***	.91***	−0.38***	0.07
2/15	6.56 (1.53)	6.82 (1.27)		.58***		−0.20***	
2/16	6.79 (1.31)	6.91 (1.23)		.54***		−0.10	
Daters							
2/14	8.24 (0.81)	7.70 (1.28)	7.86 (1.40)	.33**	.89***	0.45***	0.26*
2/15	7.84 (0.97)	7.37 (1.27)		.61***		0.48***	
2/16	7.51 (1.05)	7.19 (1.10)		.60***		0.33**	
Non-daters							
2/14	5.26 (1.72)	6.34 (1.49)	6.34 (1.66)	.46***	.90***	−0.65***	0.00
2/15	6.01 (1.43)	6.61 (1.21)		.53***		−0.47***	
2/16	6.52 (1.30)	6.81 (1.26)		.52***		−0.23***	

Note. *N* = 325. Daters: *n* = 88. Non-Daters: *n* = 237. P-A = Predicted versus Actual. R-A = Recollected versus Actual. *d* = repeated-measures Cohen’s *d*.

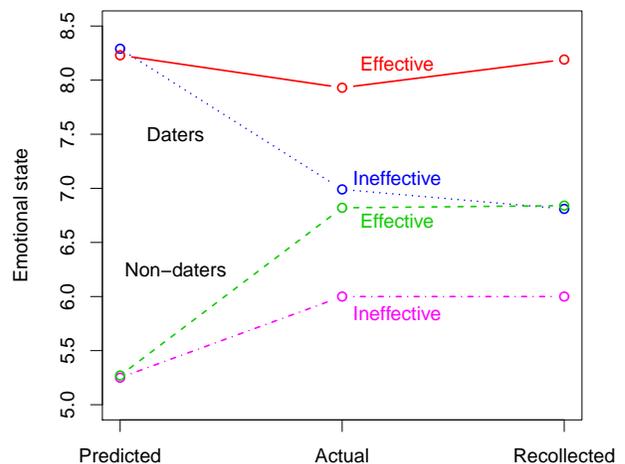
* *p* < .05 ** *p* < .01 *** *p* < .001

4 Discussion

This investigation provides direct evidence for immune neglect in affective forecasting by demonstrating that participants overlook the profound role of situation-specific coping strategies in influencing emotional reactions to a stressful life event, Valentine’s Day. Further, this research enriches our overall understanding of immune neglect by identifying the contribution of potential moderators, including the valence of the event (pleasant or unpleasant), the time course of emotional reactions (immediate or more enduring), and the type of emotional judgment (prediction or recollection). Key findings extend on prior research on immune neglect (Gilbert et al., 1998; Hoerger et al., 2009, 2010) and hold direct implications for future studies aimed at improving affective forecasting (see Table 3).

The Effective Coping indicator has been dichotomized for graphical presentation. Coping strategies influence actual emotional reactions to Valentine’s Day (middle column). Participants overlook the role of coping strategies when predicting emotional reactions (left column), but account for coping strategies when recollecting emotional reactions (right column). More specifically, problems in predicting emotional reactions were caused by daters overlooking ineffective coping strategies and non-

Figure 2: Predicted, actual, and recollected emotional reactions to Valentine’s Day among daters and non-daters with effective and ineffective coping strategies.



daters overlooking effective coping strategies. *N* = 325.

The presence of immune neglect in affective forecasting has cross-cutting implications for multiple domains of decision-making research. Clinical and personality psychologists can use knowledge of individual differences in coping strategies to identify people who may be vul-

Table 2: Correlations between coping strategies and participants’ predicted, actual, and recollected emotional reactions to Valentine’s Day.

Coping strategy	Daters			Non-daters		
	Predicted reaction	Actual reaction	Recollected reaction	Predicted reaction	Actual reaction	Recollected reaction
Social problem solving	.06	.63***	.66***	.08	.36***	.32***
Behavioral activation	.05	.21*	.30**	.06	.34***	.33***
Isolative withdrawal ^a	-.12	.00	.03	-.02	.30***	.26***
Negative rumination ^a	.06	.47***	.57***	.15*	.40***	.38***
Effective coping	.04	.47***	.54***	.08	.39***	.36***

Note. N = 325. Daters: n = 88; Non-daters: n = 237.

^a Reverse-coded so that higher scores on all coping strategies indicate more effective coping.

* p < .05 ** p < .01 *** p < .001

nerable to affective forecasting problems and decisional biases (Appelt, Milch, Handgraaf, & Weber, 2011). Further, emerging research is attempting to improve affective forecasting in order to facilitate decision-making processes (e.g., Dillard et al., 2010; Ruby et al., 2011), and the current findings suggest that immune neglect is an appropriate mechanism for social psychology interventions to target for improving affective forecasting. Additionally, the past three decades of research on the “disability paradox” have drawn attention to the finding that healthy people overestimate the enduring emotional impact of chronic and serious illnesses, a finding that has direct implications for health decision making as well as broader public policy debates (Freedman, 1978; Loewenstein & Ubel, 2008; Ubel, Loewenstein, Schwarz, & Smith, 2005). The disability paradox is often attributed to people’s failure to predict hedonic adaptation to illnesses, and the present findings suggest that people may be particularly prone to overlooking how coping strategies can help them adapt.

Findings indicate that immune neglect is a more pervasive phenomenon than forecasting researchers initially anticipated (Gilbert et al., 1998), evident for both unpleasant and pleasant events. Consistent with prior research, participants neglected how well effective coping strategies would allow them to recover from an unpleasant event (Gilbert et al., 1998; Hoerger et al., 2009; Hoerger, Quirk, Lucas, et al., 2010). Specifically, non-daters overpredicted negative emotional reactions to Valentine’s Day to a greater degree if their coping mechanisms were more effective. This finding has implications for real-world contexts, where overlooking effective strategies for coping with distressing situations could lead people to avoid risks, such as going back to college, changing health behaviors, or leaving an abusive partner. Extend-

ing on past research, participants also neglected the extent to which ineffective coping strategies can sour reactions to pleasant but ambivalent events. In particular, daters were more likely to overestimate positive emotional reactions to Valentine’s Day if their coping strategies for handling problems were ineffective. In real-world scenarios, this could leave ineffective copers feeling blindsided, regretful, and disappointed when experiencing pleasant but ambivalent events, such as attending social gatherings, starting relationships, or relocating for work or school. Over time, repeated disappointment in response to pleasant ambivalent events could lead ineffective copers toward significant social withdrawal (Quirk, Subramanian, & Hoerger, 2007).

This research also showed that immune neglect was greater for immediate emotional reactions than more enduring emotional reactions, which has implications for research methodology and applied interventions. Forecasting studies have often examined emotional reactions days or weeks after emotional events (Dunn & Laham, 2006), but a shift toward more immediate reactions might yield stronger observed effects. Similarly, research on applied interventions aimed at reducing immune neglect (Dillard et al., 2010; Halpern & Arnold, 2008; Rhodes & Strain, 2008) could target specific beliefs about immediate coping processes (e.g., proactive coping).

As opposed to predicted emotional reactions, evidence for immune neglect was conspicuously absent from recollected emotional reactions. Prior findings on recollected emotional reactions have produced mixed evidence for their accuracy (see Hoerger, Chapman et al., in press). The current findings suggest that, at least in the short term, a window exists where people are able to recall past emotional reactions with relative accuracy. Future studies should examine lengthier follow-up periods; it may

Table 3: Summary of key findings on immune neglect.

Aim	Finding	Implication
Primary	<ul style="list-style-type: none"> • Immune neglect hypothesis supported: Participants overlook situation-specific coping strategies, leading to affective forecasting problems 	<ul style="list-style-type: none"> • Individual differences in coping can be used to identify people at-risk for affective forecasting problems • Decision-support interventions should aim to reduce immune neglect • Coping strategies may be important to understanding the “disability paradox”
Secondary	<ul style="list-style-type: none"> • Immune neglect present for both pleasant and unpleasant events • Immune neglect greater for immediate emotional reactions than more enduring reactions • Immune neglect absent in recollected reactions obtained days after a distressing life event 	<ul style="list-style-type: none"> • Generalizability of findings to a wider array of life events than previously imagined • Interventions aimed at reducing immune neglect should focus on increasing awareness of how coping influences immediate emotional reactions • Brief post-event window where interventions targeting affective forecasting skills may be particularly fruitful

be that people rely upon their episodic memory recently after an emotional event, before shifting toward gist-level semantic memory processes that cause affective forecasting problems (Böhm & Pfister, 2008; Hoerger, Chapman et al., in press; Robinson & Clore, 2002). Interventions aimed at modifying long-term patterns of behavior may be most successful if implemented shortly after a desired behavior has occurred, when emotional judgments about the pleasantness of engaging in that behavior are still relatively accurate. For example, people avoid exercise due to overestimating the distress it evokes (Ruby et al., 2011). Interventions that attempt to increase exercise by persuading people of its emotional benefits may be most successful when implemented shortly after someone has engaged in exercise, when their emotional judgments are less likely to be compromised by immune neglect. Similar strategies could be used to increase adherence to other repetitious behaviors that evoke momentary distress, such as attending dental checkups, participating in psychotherapy, or getting annual flu vaccinations.

Overall, the current investigation was balanced by several strengths and limitations. Strengths included the use of an ecologically-valid life event relevant to participants, the collection of data from multiple time points, and the reliable quantitative coding of hundreds of qualitative responses. However, participants were a homogenous sample of students, findings were based solely on a particular holiday, and the study’s coding system was devised specifically for this research. Generalizability to older adults, diverse participants, medical patients, other emotional events, and other measures of coping strategies warrant further study.

Finally, more basic research on affective forecasting and greater conceptual clarity are needed in order to provide a solid foundation for future interventions research. In terms of basic research, future studies can expand on preliminary findings linking coping styles, personality, psychopathology, and cognitive processing to affective forecasts (Hoerger & Quirk, 2010; Hoerger et al., 2009, 2010; Hoerger, Chapman et al., in press; Hoerger, Quirk et al., in press; Sevdalis & Harvey, 2009; Tomlinson et al., 2010). Candidate constructs for incorporation into immune neglect studies include defense mechanisms, implicit attitudes, and explanatory gist representations—processes related to coping, but of less salient personal awareness. Conceptually, affective forecasting studies have addressed a broad range of constructs, but further articulation of the nomological network would be beneficial for guiding theoretically-driven research. Additionally, a more precise nomenclature will be helpful for advancing affective forecasting research to multidisciplinary contexts. In reviews in medical journals, for example, the term “immune” neglect has been described apologetically, as the biological immune system has not been implicated in affective forecasting research (e.g., Halpern & Arnold, 2008, p. 1709; Rhodes & Strain, 2008, p. 55). Instead, a more suitable term for multidisciplinary research might be *coping fallacy*—the mistaken belief that situation-specific coping strategies bear little influence on emotional reactions. Finally, healthcare theorists have identified affective forecasting as one of eight domains of research with significant practical implications for interventions designed to guide applied decision making (El-

wyn et al., 2011). Elwyn and colleagues lament that interventions are often implemented before empirical and theoretical evidence has adequately established their utility. Thus, basic research and conceptual development are fundamental to advancing affective forecasting research in future applied contexts.

References

- Appelt, K. C., Milch, K. F., Handgraaf, M. J. J., & Weber, E. U. (2011). The Decision Making Individual Differences Inventory and guidelines for the study of individual differences in judgment and decision-making research. *Judgment and Decision Making*, 6, 252–262.
- Asai, M., Fujimori, M., Akizuki, N., Inagaki, M., Matsui, Y., & Uchitomi, Y. (2010). Psychological states and coping strategies after bereavement among the spouses of cancer patients: A qualitative study. *Psycho-Oncology*, 19, 38–45.
- Athreya, K. (2004). Shame as it ever was: Stigma and personal bankruptcy. *Federal Reserve Bank of Richmond Economic Quarterly*, 90, 1–19.
- Böhm, G., & Brun, W. (2008). Introduction to the special issue: Intuition and affect in risk perception and decision making. *Judgment and Decision Making*, 3, 1–4.
- Böhm, G., & Pfister, H. R. (2008). Anticipated and experienced emotions in environmental risk perception. *Judgment and Decision Making*, 3, 73–86.
- de Liver, Y., van der Pligt, J., & Wigboldus, D. (2007). Positive and negative associations underlying ambivalent attitudes. *Journal of Experimental Social Psychology*, 43, 319–326.
- Dillard, A. J., Fagerlin, A., Dal Cin, S., Zikmund-Fisher, B. J., & Ubel, P. A. (2010). Narratives that address affective forecasting errors reduce perceived barriers to colorectal cancer screening. *Social Science and Medicine*, 71, 45–52.
- Dolan, J. G. (2010). Multi-criteria clinical decision support: A primer on the use of multiple criteria decision making methods to promote evidence-based, patient-centered healthcare. *The Patient: Patient-Centered Outcomes Research*, 3, 229–48.
- Dunn, E. W., & Laham, S. A. (2006). A user's guide to emotional time travel: Progress on key issues in affective forecasting. In J. Forgas (Ed.), *Hearts and minds: Affective influences on social cognition and behavior*. Psychology Press: New York.
- Dunn, E. W., Gilbert, D. T., & Wilson, T. D. (2011). If money doesn't make you happy, then you probably aren't spending it right. *Journal of Consumer Psychology*, 21, 115–125.
- Eastwick, P. W., Finkel, E. J., Krishnamurti, T., & Loewenstein, G. (2008). Mispredicting distress following romantic breakup: Revealing the time course of the affective forecasting error. *Journal of Experimental Social Psychology*, 44, 800–807.
- Elwyn, G., Stiel, M., Durand, M., & Boivin, J. (2011). The design of patient decision support interventions: Addressing the theory-practice gap. *Journal of Evaluation in Clinical Practice*, 17, 565–574.
- Finkenauer, C., Gallucci, M., van Dijk, W. W., & Pollmann, M. (2007). Investigating the Role of Time in Affective Forecasting: Temporal Influences on Forecasting Accuracy. *Personality and Social Psychology Bulletin*, 33, 1152–1166.
- Freedman, J. (1978). *Happy people*. Brace, NY: Harcourt.
- Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 75, 617–638.
- Halpern, J., & Arnold, R. M. (2008). Affective forecasting: An unrecognized challenge in making serious health decisions. *Journal of general internal medicine*, 23, 1708–1712.
- Hoerger, M., & Currell, C. (2011). Ethical issues in internet research. In S. Knapp, M. Gottlieb, M. Handelsman, & L. VandeCreek (Eds.), *APA Handbook of ethics in psychology*. Washington, D.C.: American Psychological Association.
- Hoerger, M., & Quirk, S. W. (2010). Affective forecasting and the Big Five. *Personality and Individual Differences*, 49, 972–976.
- Hoerger, M., Chapman, B. P., Epstein, R. M., & Duberstein, P. R. (in press). Emotional intelligence: A theoretical framework for individual differences in affective forecasting. *Emotion*.
- Hoerger, M., Quirk, S. W., Chapman, B. P., & Duberstein, P. R. (in press). Affective forecasting and self-rated symptoms of depression, anxiety, and hypomania: Evidence for a dysphoric forecasting bias. *Cognition & Emotion*.
- Hoerger, M., Quirk, S. W., Lucas, R. E., & Carr, T. H. (2009). Immune neglect in affective forecasting. *Journal of Research in Personality*, 43, 91–94.
- Hoerger, M., Quirk, S. W., Lucas, R. E., & Carr, T. H. (2010). Cognition in affective forecasting. *Judgment and Decision Making*, 5, 365–373.
- Institute of Medicine Committee on Quality of Health Care in America. (2001). Crossing the quality chasm:

- A new health system for the 21st century. Washington, D.C.: National Academy Press.
- Loewenstein, G., & Ubel, P. A. (2008). Hedonic adaptation and the role of decision and experience utility in public policy. *Journal of Public Economics*, 92, 1795–1810.
- Lucas, R. E. (2005). Time does not heal all wounds: A longitudinal study of reaction and adaptation to divorce. *Psychological Science*, 16, 945–950.
- Mellers, B., Schwartz, A., & Ritov, I. (1999). Emotion-based choice. *Journal of Experimental Psychology: General*, 128, 332–345.
- National Institutes of Health. (2009). NIH Science of Behavior Change: Meeting Summary.
- Oakland, S., & Ostell, A. (1996). Measuring coping: A review and critique. *Human Relations*, 49, 133–155.
- Ptacek, J. T., Pierceb, G. R., & Thompson, E. L. (2006). Finding evidence of dispositional coping. *Journal of Research in Personality*, 40, 1137–1151.
- Quirk, S. W., Subramanian, L., & Hoerger, M. (2007). Effects of situational demand upon social enjoyment and preference in schizotypy. *Journal of Abnormal Psychology*, 116, 624–631.
- Rhodes, R., & Strain, J. J. (2008). Affective forecasting and its implications for medical ethics. *Cambridge Quarterly of Healthcare Ethics*, 17, 54–65.
- Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, 128, 934–960.
- Ruby, M. B., Dunn, E. W., Perrino, A., Gillis, R., & Viel, S. (2011). The invisible benefits of exercise. *Health Psychology*, 30, 67–74.
- Sevdalis, N., & Harvey, N. (2009). Reducing the impact bias in judgments of post-decisional affect: Distraction or task interference? *Judgment and Decision Making*, 4, 287–296.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin*, 87, 245–251.
- Tomlinson, J. M., Carmichael, C. L., Reis, H. T., & Aron, A. (2010). Affective forecasting and individual differences: Accuracy for relational events and anxious attachment. *Emotion*, 10, 447–453.
- Ubel, P. A., Loewenstein, G., Schwarz, N., & Smith, D. (2005). Misimagining the unimaginable: The disability paradox and health care decision making. *Health Psychology*, 24, S57–S62.
- Zeelenberg, M., Nelissen, R. M. A., Breugelmans, S. M., & Pieters, R. (2008). On emotion specificity in decision making: Why feeling is for doing. *Judgment and Decision Making*, 3, 18–27.

Appendix: Sample data from five research participants

#	Variable	Data
1	Demographics	Dater, Female
	Emotion Ratings	Predicted = 7.8, Actual = 4.8, Recollected = 4.3
	Qualitative Description	I went to class for most the day and that was a pain. I had a test in one of my classes (BIO 210) and the other one let us out late so I was late for my next class. Then I went back to my room and studied for another test the next day before dinner. Then at 6 I got my roommate and we went down to the cafeteria to meet my boyfriend and his friends who forgot to call us to go down to dinner. Then I expected to go back down to my boyfriend's room and hang out with just him for a while but all of his roommates were there so we ended up playing cards with them which was fun but definately not the romantic evening I was looking for. Then I didn't even have a chance to give him his valentines day present before he had to leave (he had given me mine the day before since it was our three-year anniversary and he hadn't gotten me anything). Then I went back to my room and found my roommate and our friend watching chick flicks like Bridget Jones's Diary and How To Lose A Guy in 10 Days. Now she has left and I am just studying for my test tomorrow. An overall disappointing Valentines Day.
	Coping Ratings	Social Problem Solving = -2.3, Behavioral Activation = 0.1, Isolative Withdrawal = -1.5, Negative Rumination = 2.6, Effective Coping = -0.8
2	Demographics	Dater, Male
	Emotion Ratings	Predicted = 8.8, Actual = 3.8, Recollected = 2.5
	Qualitative Description	Well my girlfriend and I celebrated Valentines day the day before by going out to eat. Early today she gave me my gift, a cute box containing 100 things she likes about me (cute) and a picture of us. I gave her the tickets to go seat the showing of Cats at the auditorium over spring break. Then while I was at work, she went snooping through my Myspace and found that I flirt with other girls on Myspace, and we had a bit of a fight about that. However we are ok now and everything is good.
	Coping Ratings	Social Problem Solving = -1.6, Behavioral Activation = 1.8, Isolative Withdrawal = -2.0, Negative Rumination = -0.1, Effective Coping = 0.6
3	Demographics	Non-dater, Female
	Emotion Ratings	Predicted = 7.0, Actual = 7.7, Recollected = 9.0
	Qualitative Description	I had classes all day and then i made little notes for my friends and taped them to a sucker. then i went to baskin-robbins with my friends and then a movie!
	Coping Ratings	Social Problem Solving = 2.1, Behavioral Activation = 2.4, Isolative Withdrawal = -2.1, Negative Rumination = -1.9, Effective Coping = 2.1
4	Demographics	Non-dater, Male
	Emotion Ratings	Predicted = 4.2, Actual = 4.0, Recollected = 3.7
	Qualitative Description	ate breakfast, lunch and dinner. I went to class. Took a test which i didnt study enough for and felt i did not do well on (This upset me). Then i played a game on my gamecube and watched CSI Miami by myself. And now i am typing this to you!
	Coping Ratings	Social Problem Solving = -1.5, Behavioral Activation = -1.1, Isolative Withdrawal = 2.3, Negative Rumination = 2.6 Effective Coping = -1.9

5	Demographics	Non-dater, Female
	Emotion Ratings	Predicted = 3.8, Actual = 7.8, Recollected = 6.7
	Qualitative Description	I went to classes as usual. Around six the girls (four of us) got ready in my dorm room and we all went out to eat at Applebee's, dateless. It was fun, we wore fancy dresses and had a good time.
	Coping Ratings	Social Problem Solving = 2.0, Behavioral Activation = 2.3, Isolative Withdrawal = -2.3, Negative Rumination = -0.5, Effective Coping = 1.8

Note. Emotions ratings are for Valentine's Day, specifically. Effective Coping is the average of the four coping ratings, after reverse-coding Isolative Withdrawal and Negative Rumination. Coping Ratings were reliably coded quantitatively by eight judges, based on participants' Qualitative Descriptions of their holiday. Minor details in the Qualitative Descriptions, such as proper nouns, have been modified for publication to preserve anonymity.