

After Adversity Strikes: Predictions, Recollections and Reality Among People Experiencing the Onset of Adverse Circumstances

Yvette Peeters · Dylan M. Smith · George Loewenstein · Peter A. Ubel

Published online: 16 July 2011
© Springer Science+Business Media B.V. 2011

Abstract Numerous studies on affective forecasting have demonstrated that people frequently underestimate their ability to adapt to adverse circumstances. But to date, these studies have not assessed people's affective forecasts early in the experience of these new circumstances. We present two longitudinal studies of people experiencing new adversities. In the first study 54 patients experiencing new limb amputations were recruited to participate in a mailed survey. Patients assessed their well-being, functioning and general health (1) two weeks after discharge from the hospital and (2) three months later. At the first time point patients also predicted their well-being, functioning and general health at three months. In the second study 55 patients experiencing new colostomies were recruited and received mailed surveys at three time points; (1) at baseline (within one week after leaving the hospital), (2) one month after baseline, and (3) seven months after baseline. Again we assessed their actual and predicted well-being, functioning and general health. In both studies the actual change was compared to the change expected by patients. Across

This study was presented at the 31st annual meeting of the Society for Medical Decision Making, 2009.

Y. Peeters (✉)
Department of Medical Decision Making, Leiden University Medical Center,
P.O. Box 9600, 2300 RC Leiden, The Netherlands
e-mail: y.peeters@lumc.nl

D. M. Smith
Department of Preventive Medicine, Stony Brook University, Stony Brook, NY, USA

G. Loewenstein
Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA, USA

P. A. Ubel
Fuqua School of Business, Duke University, Durham, NC, USA

P. A. Ubel
Sanford School of Public Policy, Duke University, Durham, NC, USA

both studies, patients expected to significantly improve on all three domains but reported little actual improvement. Together, these studies demonstrated that people with new disabilities overestimate hedonic adaptation—they expect their overall well-being to improve more than it actually does.

Keywords Adaptation · Amputation · Colostomy · Quality of life · Affective forecasting · Overestimation · Optimism · Scale recalibration

1 Introduction

In order to make good decisions, people often need to accurately predict how their future well being will be affected by their choices. For example, if confronted with a choice of whether to move across the country to accept a better paying job, a person would need to predict how her happiness will be affected by the increased income, the new location, leaving friends behind, etc. To a large extent, making the best choice in this type of circumstance depends on making accurate predictions from the choices that are made available.

However, numerous studies on affective forecasting have demonstrated that people frequently mispredict the longterm emotional responses to events (Gilbert et al. 1998; Gilbert et al. 2004; Wilson and Gilbert 2005). People typically overestimate the duration and affective impact of negative life events, assuming prior to experiencing such events that these events would will have enduring emotional consequences. In effect, people who are not currently experiencing a given adversity underestimate their ability to adapt to such circumstances (Gilbert et al. 1998; Wilson and Gilbert 2003). For instance, people imagine that chronic illness and disability will have a sustained impact on their wellbeing, whereas people experiencing such problems often report high levels of wellbeing (Ubel et al. 2003; Ubel et al. 2005a).

But what about the beliefs, the affective forecasts, of people who have recently experienced an adversity and are in the process of adapting to this adversity? Do they, too, underestimate their future ability to adapt? Or has early insight into adaptation altered their affective forecasts?

To date, we do not know of any research addressing this question. Such research could provide further insight into how affective forecasts change over time. In addition, it could illuminate important decisions that take place soon after people experience new circumstances. Patients with new colostomies may have to decide whether to push for operations to reverse their colostomies, for example. People who fail to receive tenure have to decide, potentially before adaptation is complete, whether to remain in academia.

However, research on affective forecasting has been silent on this issue and has not, yet, investigated people's beliefs about adaptation when they are early in the experience of a new adversity. Instead, many studies (Gilbert et al. 1998; Gilbert et al. 2002; Ubel et al. 2005b), have compared people's naive predictions about imaginary adversities to the reported experiences of people in the circumstance in question. This type of design has provided insight into affective forecasting of people not experiencing an adversity but it does not allow us to determine whether people who are newly experiencing adversity fail to properly consider hedonic adaptation in forecasting their own happiness.

Other studies have employed longitudinal designs, but do not capture people's predictions early in the course of adapting to the adversity. For instance, Gilbert et al. (1998) assessed people's predictions of their long-term emotional reaction to the outcome of a political election and found that people who supported the candidate who lost the election expected to experience stronger negative emotions than they actually did. Similarly, patients waiting for a renal transplant expected to experience a greater increase in well being than they actually did (Smith et al. 2009a). These prospective designs established that immune neglect and hedonic adaptation are powerful phenomena. But they did not provide an opportunity to see what people predict early in the process of adapting to adversity.

Understanding these early predictions provides a new context in which to study affective forecasting. To date, no one knows whether affective forecasting errors occur during the early phase of adaptation, and whether they mirror other forecasting errors in underestimating adaptation. The aim of this study was to investigate if “newbies”—people early in the experience of a new adversity—are prone to the same kind of forecasting errors as have been demonstrated in research on pre-event affective forecasting. Using a longitudinal design, we followed recently disabled patients to compare their predictions (about how much they would adapt to their condition) to their actual experience of adaptation over time. Based on previous research in affective forecasting, we examined three competing hypotheses—that people new to disabilities would (a) underestimate their ability to adapt over time, resulting in predictions of well being that are biased low, (b) accurately predict adaptation, and (c) overestimate adaptation. We elaborate on each of these hypotheses in the following paragraphs.

There are reasons to think that these newbies will underestimate adaptation. First, as reviewed above, such underestimation occurs in pre-event affective forecasting, having been demonstrated for short-term minor events like the outcomes of football games (Wilson et al. 2000), more significant phenomenon like people's beliefs about how long they will be influenced by a move to a different climate (Schkade and Kahneman 1998), and serious chronic adversities, like spinal cord injuries and divorce (Ubel et al. 2005). Second, early in the experience of a new adversity, many people experience strong negative emotions. It is plausible that it would be difficult for them to therefore imagine themselves with weaker emotions, due to what Loewenstein calls a hot/cold empathy gap (Loewenstein 1996).

On the other hand, there are reasons to think that newbies may accurately predict adaptation. First, having begun to experience the new adversity, they may already have new insight into the speed and thoroughness of hedonic adaptation. With their psychological immune systems already in high gear, they may be more able to imagine the long term trajectory of their emotions.

Finally, there are reasons to think that newbies will actually *over* estimate adaptation. Some adversities, like new health problems, may create realistic hope for improvement in health related domains, and people might mistakenly assume that these improvements will be accompanied by similar improvements in well-being (Smith et al. 2009a). For instance, people undergoing below-the-knee amputations must recover from arduous surgeries, and must then undergo taxing physical therapy regimes. While these people cannot expect to get their lower legs back, they can expect to experience improvement in physical functioning in the months following their amputation. Will they overgeneralize from their beliefs about physical functioning, and therefore mispredict how much their overall quality of life will also improve?

2 Study 1: Predicting Physical Functioning, General Health and Well-Being After Amputation Surgery

2.1 Overview

In study 1, we report on a longitudinal survey of patients undergoing limb amputations, in which we assessed their physical function, general health and well-being by mailing surveys to them at baseline (2 weeks after discharge) and 3 months later. At baseline, we also asked patients to predict what their physical functioning, general health and well-being would be 3 months later. With this design, we were able to assess the accuracy of people's predictions across these three domains.

2.2 Participants

We recruited patients at the University of Michigan Medical Center who underwent a major single limb amputation and were over 18 years old. We excluded people who had had previous limb amputations, were suffering from dementia, were terminally ill, or could not understand written English. We contacted 69 patients while still in the hospital recovering from the surgery of whom 54 agreed to participate in our longitudinal study. Participants were paid \$40 for each completed survey.

2.3 Study Measurements

2.3.1 *Well-Being*

We assessed life satisfaction by asking patients how much they agreed with the statement "I am satisfied with my life," on a scale ranging from 1 (strongly disagree) to 7 (strongly agree) (Diener et al. 1985). We also asked patients how often they felt "calm and peaceful", "energetic" and "depressed", on a scale ranging from 1 (none of the time) to 5 (all of the time) (Ware and Sherbourne 1992). We then created a composite measure of well-being by averaging scores across these four measures (Cronbach's $\alpha = 0.75$).

2.3.2 *Physical Functioning*

We assessed three aspects of physical functioning: (1) "satisfaction with current level of physical functioning" on a scale ranging from 1 (very dissatisfied) to 5 (very satisfied); (2) "engagement in social activities outside the home such as visiting friends, neighbors and relatives", on a seven point scale ranging from 1 (never) to 7 (very frequently); and (3) "social activities inside the house such as talking on the phone, having someone over for a visit", on the same seven point scale. Cronbach's α for a composite of these three measures was 0.53.

2.3.3 *General Health*

To assess general health, we utilized the first item of the MOS 36-item short form health survey which assesses self-reported general health on a scale ranging from 1 (poor health) to 5 (excellent health) (Ware and Sherbourne 1992).

Table 1 Patient characteristics of patients who had amputation surgery

	Three month survey ($N = 37$)	
	Mean (SD)	N (%)
Age	55.11 (12.00)	
Gender		
Female		17 (49%)
Race		
Non white		5 (14%)
Marital status		
Married		15 (43%)
Divorced/widow		14 (40%)
Single		5 (14%)
Cause amputation		
Something sudden		10 (29%)

3 Results

Of the 54 patients who agreed to participate and returned the first survey, 13 did not respond to the 3 month follow up survey. In total, 41 (76%) patients returned both the first written survey and the 3 month survey. The most common reasons for non response were moving, death, and voluntary withdrawal. Four patients had additional amputations during the survey period and were excluded. The demographic characteristics of the 37 patients included in this study are shown in Table 1. Patients answered the first survey an average of 45 days ($SD = 18$) after surgery and the second survey 98 days ($SD = 30$) after the first survey.

Table 2 shows patients' baseline ratings for well-being, physical functioning, and general health, their predictions for how these three domains would change at 3 months, and their actual outcomes at the 3 month time point. Student's t tests were conducted to compare these ratings. As can be seen, patients' self-reported well-being did not increase over time ($t(31) = .05$, $p = .96$, effect size = .01) whereas they expected a significant improvement of approximately seven points ($t(31) = 3.64$, $p = .001$, effect size = .64). Also, on functioning and on general health they reported no significant improvement (functioning: $t(34) = .42$, $p = .68$, effect size = 0.07; general health: $t(34) = -1.72$, $p = .10$, effect size = .29) even though they had expected to improve (functioning: $t(34) = 4.17$, $p = .00$, effect size = .70; general health: $t(34) = 2.97$, $p = .005$, effect size = .50).

Patients whose amputation was caused by something gradual, as well as patients whose amputation was due to something sudden, showed similar patterns. We found no interaction effect except for expected well-being. Both groups expected an improvement on well-being, although patients whose amputation was caused by something gradual expected a stronger improvement (from 55.14 (19) to 65.88(17)) compared to patients whose amputation was caused by something sudden (from 57.70 (24) to 59.60 (17)), $F(1, 29) = 4.66$, $p = .039$.

In general, patients anticipated significant improvement across all three domains, but did not experience any significant improvements (and in fact experienced a decline in self-reported health of borderline statistical significance). Rather than underestimate adaptation,

Table 2 Predicted and actual valuations of patients with amputation surgery

	N	Baseline actual Mean (SD)	3 Month prediction Mean (SD)	3 Month actual Mean (SD)	B–P ^a <i>t</i> -value	B–3M ^b <i>t</i> -value	P–3M ^c <i>t</i> -value
Well-being	32	56.2 (19.6)	63.4 (17.3)	56.1 (21.5)	3.64**	.05	2.28**
Functioning	35	53.0 (18.1)	65.5 (16.4)	54.2 (19.8)	4.17**	.42	3.39**
General health	35	41.4 (26.4)	50.0 (25.0)	35.0 (25.2)	2.70**	–1.72*	3.75**

Ratings of patients with amputation surgery for their actual and predicted well-being, functioning and general health 6 weeks and 3 months after surgery. Actual change is compared with expected change using student's *t* test

^a Baseline actual—3 month prediction

^b Baseline actual—3 month actual

^c 3 Month prediction—3 month actual

** $p < .001$, * $p \leq .10$

then, these patients overestimated it—they anticipated an improvement in well-being that did not arise.

4 Discussion

Rather than underestimate adaptation, the patients in study 1 overestimated how much their well-being, physical functioning, and general health would improve in the months following their amputation. In the introduction, we discussed several factors that could cause people to overestimate adaptation to adversity. We suggested that people might overgeneralize when making predictions—anticipating that they would experience improvements in physical functioning they might, therefore, overestimate how much their sense of well-being would also improve. In Study 1, however, such an overgeneralization does not account for such mispredictions, because these patients did not, by patient self-report, experience significant improvements in general health or physical functioning over this time period.

Why did people with new amputations overestimate improvement across all three domains? One possibility is that the baseline measure, completed several weeks after the amputation, took place after significant adaptation had already occurred. They might have experienced several weeks of significant improvement, and mistakenly assumed that they would continue to experience similar improvements. To further complicate matters, patients with amputations are often plagued by many other chronic, even progressive, illnesses, like vascular disease and diabetes. Having begun to recover from their amputations, they may mistakenly imagine their health improving over the next 3 months, while overlooking the likelihood that they will experience new medical problems. Indeed, four patients were removed from our analyses because they required additional amputations during the 3 month follow-up period. Patients focused too narrowly on the likelihood that their recently amputated limb would improve, they might have underestimated the chance that other problems would arise.

We address some of these complicating issues in our second study including people with a different health problem: patients undergoing surgery to have a colostomy. First, we not only asked these patients to predict how their lives would change after the surgery, but also asked them to reflect back on how their lives had in fact changed at later time points.

Using this method, of both assessing predictions and recollections, we can more thoroughly test whether people have theories about how these different life domains ought to change over time, and whether these theories are accurate (Ross 1989). Thus, for example, a patient might assume at baseline that both his health and well-being will improve in the next 6 months. If his health then declines however, due potentially to unforeseeable events, our method allows us to test whether he recognizes this decline in health or, instead, whether his theory about how his health has changed will trump his actual experience. Second, we mailed our first survey within several days to 1 week after patients were discharged from the hospital following their surgery, thus capturing earlier experiences and predictions than we captured in Study 1.

5 Study 2: Predicting and Recalling Well-Being, Physical Functioning, and General Health After Colostomy Surgery

5.1 Overview

In Study 2, we recruited patients undergoing colostomy surgery at the University of Michigan Medical Center. We assessed their physical functioning, general health and well-being at three time points: (1) baseline (within one week of leaving the hospital), (2) one month after baseline, and (3) seven months after baseline. At baseline, we also asked people to make predictions about their lives 1 month later. And at 1 month, we had them make predictions about their lives at the 7 month period, while also asking them to recall their physical functioning, health and well-being at baseline. Finally, at 7 months, we asked people to recall how they stood on these three domains at the 1 month time point.

5.2 Participants

One hundred and seven patients at the University of Michigan Medical Center who had either a colostomy surgery were recruited shortly after their surgery. Out of these 107 patients, 11 patients were excluded because they could not speak English or had poor health. Participants were paid \$40 for each completed survey.

In total 76 (79%) of the 96 patients agreed to participate and returned the first survey by mail. Of these 76 patients, 3 had their colostomy reversed between the first and second measurement and 14 between the second and third measurement. Only patients who did not have their colostomy reversed during the study period were included in analyses. Table 3 presents the demographic information of the remaining patients.

5.3 Study Design and Measurements

General Health and Physical functioning (Cronbach's $\alpha = .58$) were measured in the same way as in Study 1. We added a Quality of Life rating to the measures of well-being (on a scale ranging from 0 to 100, where 0 represents the worst imaginable quality of life and 100 represent the best imaginable quality of life). (Cronbach's $\alpha = .75$).

When people receive colostomy surgery, the colostomy can be intended to be permanent or temporary, creating two subgroups of colostomy patients with different ultimate outcomes (Smith et al. 2009b). All of the following analyses focused on patients who still had their colostomy at the time of assessment, even though some still expected to get their

Table 3 Patient characteristics of patients who had colostomy surgery

	One month after release (<i>N</i> = 55)		Six month after release (<i>N</i> = 34)	
	Mean (SD)	<i>N</i> (%)	Mean (SD)	<i>N</i> (%)
Age	51.39 (13.94)		53.59 (14.30)	
Gender				
Female		21 (39%)		15 (44%)
Race				
Non white		7 (13%)		6 (18%)
Marital status				
Married		37 (68%)		24 (71%)
Divorced/widow		9 (16%)		6 (17%)
Single		9 (16%)		4 (12%)
Colostomy/ileostomy supposed reversed				
Yes		25 (48%)		14 (44%)
Cause colostomy/ileostomy				
Inflammatory bowel disease		18 (33%)		12 (35%)
Familial adenomatous polypsis		2 (4%)		1 (3%)
Cancer		21 (38%)		15 (44%)
Trauma/accident		2 (4%)		1 (3%)
Spinal cord injury		2 (4%)		1 (3%)
Other cause		14 (26%)		9 (27%)
More than one reason listed		4 (7%)		5 (15%)

colostomy reversed in the future. We also included this variable—permanent versus temporary colostomy—in analyses and checked for any interactive effects. We did not find any significant or near-significant ($p < .10$) interactions, and therefore combined the data across these two groups of patients.

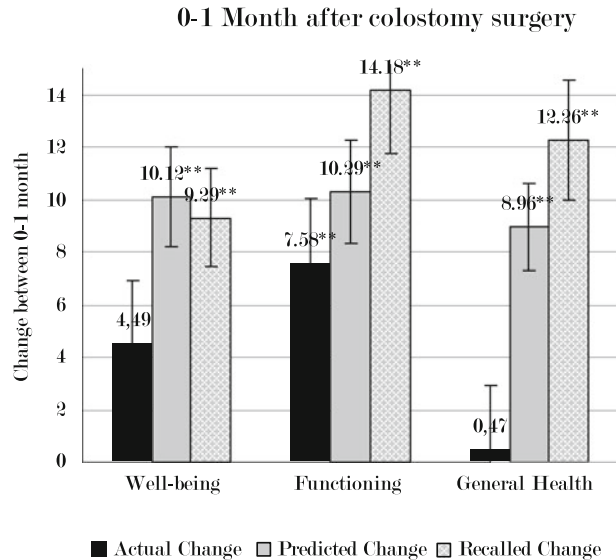
Similar as in study 1, we also checked for interaction effects on gradual or sudden underlying cause for the colostomy. Although we did not find any significant interactions, we did find one near significant effect ($p = .058$) In contrast to patients in study 1, patients with a sudden cause expected stronger improvement on well-being compared to patients with a gradual cause. However, both groups expected to improve on well-being between the first two time points.

6 Results

Figure 1 illustrates changes in well-being, physical functioning and general health from baseline to 1 month, and contrasts these actual changes with predicted changes (how much people thought at baseline that these domains would change over that time), and recalled changes (how much people thought, at one month, that those domains had changed). Student's t tests were conducted to test the significance of these changes.

From baseline to 1 month, people's overall well-being increased by approximately four points, ($t(37) = 1.86$; $p = .07$; effect size = .27), an almost statistically significant improvement, but one that paled in comparison to people's expectations (with people

Fig. 1 Actual, predicted and recalled change on well-being, functioning and general health reported by patients with colostomy surgery within 1 week of leaving the hospital and 1 month. [±] 95% Confidence interval. ** $p < .001$, * $p \leq .05$



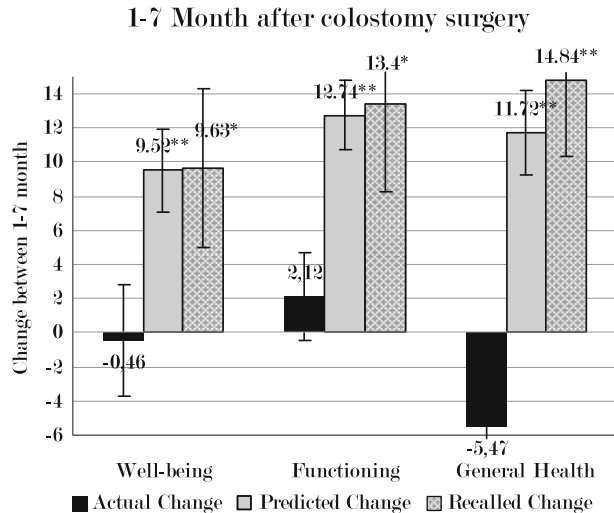
predicting approximately a ten point increase ($t(37) = 5.26$; $p < .001$; effect size = .66) and also compared to their recollections (with people recalling approximately a nine point increase ($t(37) = 4.96$; $p < .001$; effect size = .48)). A similar pattern emerges for the other domains. The patients did experience significant improvement in physical functioning, ($t(50) = 3.10$; $p = .003$; effect size = .39), approximately what they predicted, ($t(50) = 1.27$; $p > .05$; effect size = .14), but significantly less than what they recalled ($t(50) = 2.23$; $p = .03$; effect size = .32). This pattern was even more dramatic for measures of general health, which did not change significantly from baseline ($t(52) = 0.19$; $p > .05$; effect size = .02) despite people both predicting that it would change ($t(52) = 5.39$; $p < .001$; effect size = .34) and remembering that it had changed ($t(52) = 5.34$; $p < .001$; effect size = .50).

Figure 2 illustrates the actual changes patients experience from 1 to 6 months, as well as their beliefs about these changes. Again student's t tests were conducted to test the significance of these changes. For space reasons, and because they were substantively similar to the baseline/1 month comparisons, we briefly summarize these results. Once again, the data demonstrate striking disparities between actual experience and belief. And once again, the main error people make is to expect (and remember) more improvement than they actually experience.

7 Discussion

Across two very different health conditions, we discovered that people newly experiencing a serious adversity overestimated their own hedonic adaptation; they expected their overall sense of well-being to improve more than it actually did. In addition, they overestimated how much their general health and physical functioning would improve over the same time period. Finally, when asked to recall changes over these same time periods, people "remembered" experiencing substantial improvements in all three domains; their recollections, like their expectations, indicated substantial overestimation of adaptation. The

Fig. 2 Actual, predicted and recalled change on well-being, functioning and general health reported by patients with colostomy surgery between one month and 7 month after leaving the hospital. \pm 95% Confidence interval. ** $p < .001$, * $p \leq .05$



patients' apparent belief that they would quickly thrive in the face of adversity stands in contrast to research on pre-event affective forecasting, which has shown that people imagining adversity *underestimate* their ability to adapt to a wide range of adverse circumstances. Even though the patients in this study had different underlying illnesses, with dissimilar future prospects, no strong differences were found between subtypes of patients within each type of disability. Admittedly, our analyses comparing patient groups are limited, due to small sample sizes; nevertheless, the pattern of mispredictions was qualitatively similar.

Why did the mispredictions in this study run in the opposite direction of those found in so many other studies? One possible factor is that, in contrast to other studies that have elicited estimates of adaptation before individuals experienced adverse events, our study assessed people early in their experience of the new circumstance. This raises the possibility that mispredictions differ depending on whether one is viewing circumstances completely from the inside or partially from the outside. When healthy people imagine life with a colostomy, for example, they recognize that life with normal bowel function is better than life with a colostomy, and theorize that these differences must therefore significantly influence overall well-being (Tversky and Kahneman 1992). By contrast, people with a new colostomy, when imagining their well-being over the next 6 months, are imagining life from the inside. They are still imagining themselves as someone with a colostomy, and might therefore tap into different theories about how their well-being will change over time, theories about how emotions, in general, change over short periods of life, or theories about the likelihood that early improvements in physical function or well-being will persist, and will have large, positive effects on overall well-being. People expect positive events in their own future even when there is no supportive evidence for it (Ross 1989).

In the studies described, patients predicted on average that their general health would improve over time, and yet they did not as a group report such improvements. It is possible that the patients in our studies simply did not experience the kind of health improvements that they expected to. These mispredictions could have contributed to their affective forecasting errors. But we favor an alternative explanation—that the lack of improvement

in general health seen in our studies reflects the subjective nature of our health measures, which relied on patient self-report. For example, new amputees, recently home from a stay in the hospital, may have considered their health to be relatively good compared to what it had been immediately after their operation. One month later in our follow up survey, patients might have reported a decline in health even though their objective health was stable, because they now judged their health relative to different standards. Our data cannot determine whether this kind of scale recalibration occurred. But in support of this theory, the patients in study 2 demonstrated recall bias not only in measures of self-reported well-being, but also in measures of self-reported health. Our health measures, in other words, behaved similarly to our measures of well-being.

Our findings add nuance to the story researchers have been developing about hedonic adaptation. In early studies, researchers established the surprising frequency and intensity of adaptation. People's emotions were shown to be relatively resistant to even substantial changes in their circumstances (Brickman et al. 1978) and people often underestimate the extent of their hedonic adaptation (Loewenstein et al. 1999). More recently, researchers have uncovered more subtle findings about adaptation and affective forecasting. Adaptation is not as universal as experts once believed, nor as complete (Lucas 2007). Individual differences, too, have been shown to influence people's ability to adapt to specific circumstances (Smith et al. 2005, 2007). Our research adds yet another twist to the plot. We have shown that early in the experience of an adverse event, people shift from underestimating adaptation to overestimating it. Future research is needed to elucidate when people are prone to making these different kinds of mispredictions.

Acknowledgments Y. Peeters was supported by a *VIDI-award* of the Netherlands Organization for Scientific Research NWO Innovational Research Incentives (grant number 917.56.356), and by Leiden University Fund (LUF)/Van Walsem. Peter Ubel was supported by a Health Policy Investigator Award from the Robert Wood Johnson Foundation. The study was supported by R01-HD040789 from the NIH.

References

- Brickman, P., Coates, D., & Janoffbulman, R. (1978). Lottery winners and accident victims—is happiness relative. *Journal of Personality and Social Psychology*, 36, 917–927.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75.
- Gilbert, D. T., Gill, M. J., & Wilson, T. D. (2002). The future is now: Temporal correction in affective forecasting. *Organizational Behavior and Human Decision Processes*, 88, 430–444.
- Gilbert, D. T., Lieberman, M. D., Morewedge, C. K., & Wilson, T. D. (2004). The peculiar longevity of things not so bad. *Psychological Science*, 15, 14–19.
- 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.
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes*, 65, 272–292.
- Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being the foundations of hedonic psychology* (pp. 85–105). New York: Russell Sage Foundation.
- Lucas, R. E. (2007). Long-term disability is associated with lasting changes in subjective well-being: Evidence from two nationally representative longitudinal studies. *Journal of Personality and Social Psychology*, 92, 717–730.
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, 96, 341–357.
- Schkade, D. A., & Kahneman, D. (1998). Does living in California make people happy? A focusing illusion in judgments of life satisfaction. *Psychological Science*, 9, 340–346.

- Smith, D. M., Langa, K. M., Kabeto, M. U., & Ubel, P. A. (2005). Health, wealth, and happiness. *Psychological Science*, 16, 663–666.
- Smith, D. M., Loewenstein, G., Jepson, C., Jankovich, A., Feldman, H. I., & Ubel, P. A. (2009a). Mispredicting and misremembering: Patients with renal failure overestimate improvements in quality of life following a kidney transplant. *In Press*.
- Smith, D. M., Loewenstein, G., Jankovich, A., & Ubel, P. A. (2009b). The dark side of hope: Lack of adaptation to a temporary versus permanent disability. *In Press*.
- Smith, D. M., Loewenstein, G., Rozin, P., Sherriff, R. L., & Ubel, P. A. (2007). Sensitivity to disgust, stigma, and adjustment to life with a colostomy. *Journal of Research in Personality*, 41(4), 787–803.
- Tversky, A., & Kahneman, D. (1992). Advances in prospect-theory—cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5, 297–323.
- Ubel, P. A., Loewenstein, G., & Jepson, C. (2003). Whose quality of life? A commentary exploring discrepancies between health state evaluations of patients and the general public. *Quality of Life Research*, 12, 599–607.
- Ubel, P. A., Loewenstein, G., & Jepson, C. (2005a). Disability and sunshine: Can hedonic predictions be improved by drawing attention to focusing illusions or emotional adaptation? *Journal of Experimental Psychology Applied*, 11, 111–123.
- Ubel, P. A., Loewenstein, G., Schwarz, N., & Smith, D. (2005b). Misimagining the unimaginable: The disability paradox and health care decision making. *Health Psychology*, 24, S57–S62.
- Ware, J. E., & Sherbourne, C. D. (1992). The Mos 36-Item short-form health survey (Sf-36).1. Conceptual-framework and item selection. *Medical Care*, 30, 473–483.
- Wilson, T. D., & Gilbert, D. T. (2003). How happy was I, Anyway? A tetropective impact bias. *Social Cognition*, 21, 421–446.
- Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting—knowing what to want. *Current Directions in Psychological Science*, 14, 131–134.
- Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axsom, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 78, 821–836.