Received: 13 November 2018 | Revised: 14 July 2019 | Accepted: 5 August 2019

DOI: 10.1111/jasp.12631

ORIGINAL ARTICLE

Journal of Applied Social Psychology WILEY

Subjective well-being and valuation of future health states: Discrepancies between anticipated and experienced life satisfaction

Lukasz Walasek | **Gordon D. A. Brown** | **Gordon D. Ovens**

Department of Psychology, University of Warwick, Coventry, UK

Correspondence
Lukasz Walasek, Department of Psychology, University of Warwick, University Road, Coventry CV4 7AL, UK.
Email: L.Walasek@warwick.ac.uk

Funding information
Leverhulme Trust, Grant/Award Number: RP2012-V-022; Economic and Social Research Council, Grant/Award Number: ES/K002201/1

Abstract

One way of informing health policy decisions is to ask people about the impact that different health states would have on their future subjective well-being. The present research explored the relation between anticipated and experienced changes in health-related subjective well-being, and examined whether affective forecasting errors could be reduced by psychological distancing manipulations. Using survey methodology, we tested whether people can accurately estimate the impact of different possible health states on their subjective well-being. We also manipulated psychological distance: Forecasts were made about present self, future self, or others. Based on construal level theory and past work on affective forecasting errors, our prediction was that increasing psychological distance may reduce the mismatch between anticipated and experienced impact of health states on subjective well-being. We found that the impact of ill health on subjective well-being was greatly overpredicted and that this overprediction was not eliminated when participants were asked to make predictions about themselves in the future or about other people. Consistent with past work, we found that our participants correctly expected that their subjective well-being would deteriorate more if they experienced the highest levels of mental illness as compared to the highest intensities of pain or most severe limitations to physical functioning.

1 | INTRODUCTION

How does ill health affect subjective well-being (SWB; here operationalized as self-rated satisfaction with life), and is it possible to quantify the impact of illness on SWB? The answers to such questions matter not only for our understanding of SWB, but also for policymakers who may wish to value (for the purposes of resource allocation) different health states in terms of the loss of SWB that they bring. One possible method for informing policy is to simply ask people about the impact that different health states would have on their future SWB. Because this method relies on people's self-reports, it enables non-paternalistic policy decisions. Unfortunately, it is well established that people typically misestimate the affective consequences of future events (Kahneman & Snell, 1990; Loewenstein, O'Donoghue, & Rabin, 2003). These affective forecasting errors can lead to a mismatch between the expected impact of health states on one's SWB, and the likely actual change in SWB if such health states are experienced. Here, we examined these affective forecasting errors in the specific context of health states and SWB. More specifically, the aim of this paper was to examine people's ability to forecast health-related SWB changes and to determine whether it is possible to debias people's forecasts using psychological distancing manipulations.

1.1 | Affective forecasting

Affective forecasting theory is motivated by empirical findings showing that people cannot accurately predict their feelings associated with hypothetical future events (Gilbert, Gill, & Wilson, 2002). Numerous studies have shown that people overestimate how unhappy they would be if they experienced a particular negative health outcome (Wilson & Gilbert, 2003), including suffering from visual impairment, asthma, colostomy, and various other chronic illnesses (Loewenstein et al., 2003; Ubel et al., 2001; Ubel, Loewenstein, Schwarz, & Smith, 2005). Whereas people are relatively accurate in expecting that negative outcomes will have a negative impact on their happiness, they are often wrong about the intensity and duration with which a feeling will be experienced. More specifically, people typically both overpredict the initial intensity of an emotional reaction and fail to anticipate how quickly such emotions will dissipate with time (Gilbert et al., 2002).

The robustness of affective forecasting errors poses a serious challenge to medical decision-making and health policy-making. Patients often must decide between medical treatments on the basis of their beliefs about the expected impact each alternative outcome will have on their future SWB. Individuals may mispredict how a particular treatment will impact them if they (a) over-focus on the concrete details of a future health status (focalism: Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000), (b) fail to anticipate that they will likely adapt to living in a particular health status (immune neglect: Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998), or (c) project their current feelings onto their expectations about the future health state (projection bias: Kermer, Driver-Linn, Wilson, & Gilbert, 2006). The same problems may also prevent policy-makers from using people's anticipated SWB changes as reliable input into their decision-making (Halpern & Arnold, 2008).

1.2 | Attenuating errors and psychological distancing

Limited amount of research exists on possible ways in which the forecasting errors can be attenuated. Wesp and colleagues (2009) found that forecasts about positive events (e.g., buying a new car) were less overoptimistic when participants were primed to think about abstract rather than concrete concepts. This manipulation was based on construal level theory, which describes the mental representation of psychological distance. In this theory, as psychological distance increases, "people tend to think in more abstract, general, de-contextualized, high-level construals" (Bhatia & Walasek, 2016; Polman, 2012, p. 142; Trope, Liberman, & Wakslak, 2007), with this assumption holding for spatial, temporal, and social distances (Trope & Liberman, 2010). In the study by Wesp, Sandry, Prisco, and Sarte (2009) low construal (more concrete) priming encouraged participants to think less about a prototypical positive event, but focus more on the concrete details of future events.

With respect to forecasts about negative events, one might expect that the opposite should be true—overly negative affective predictions could be attenuated if people focus more on the abstract properties of the future event. In line with this reasoning, Kross, Ayduk, and Mischel (2005) found that individuals who deliberated about the reasons behind past negative experiences showed less intense emotional reactions when they engaged in an abstract and distanced evaluations, relative to participants who evaluated events from a more concrete and immersed perspective. In a similar vein, albeit without reference to construal level theory, Comerford (2011) was able to reduce forecasting errors by asking participants to think about the average affective responses to a negative event. The effectiveness of this manipulation was attributed to a reduction in focalism—participants who average their feelings are less influenced by a vivid memory of a specific negative event.

Taken together, the evidence suggests that psychological distance can influence affective forecasting errors. Specifically, more abstract representations could reduce the overly negative forecasts of affective reactions to negative events.

1.3 | Present study

In the present paper, we tested whether it is possible to use people's stated beliefs (here self-reported forecasts about future SWB) to accurately estimate the impact of different health states on their SWB. We were particularly concerned with the potential mismatch between people's predictions about the SWB consequences of adverse health effects ("anticipated SWB") and the loss of SWB that they actually undergo ("experienced SWB") when the events occur.

Based on construal level theory, we used manipulations of psychological distance in an attempt to minimize the impact of the focusing illusion that leads to affective forecasting errors in people's predictions about their future SWB. As we were most concerned with potentially adverse health states, and the key aim of our manipulation was to limit the impact of one's current state on judgments about the future, we designed two treatments that encouraged individuals to use high construal-level thinking when evaluating future events. In one treatment group, we asked participants to make judgments about other people: We require them to consider an average person from the population, and predict his/her change in SWB in different health states. In a second treatment, we asked respondents to imagine themselves in their future (in their late 60s) making each judgment. Building on construal-level theory (Trope & Liberman, 2010), we expected that judgments about one's self in the future and judgments about other people will be more abstract (high-level construal) than temporally and personally more proximate judgments about current self (low-level construal). Our prediction was that increasing psychological distance will reduce the mismatch between anticipated and experienced impact of health states on SWB.

Our study is novel in that we elicited people's forecasts of future health states defined in terms of SF-6D, a widely used classification system used in health economics. Using SF-6D allows us to compare our participants' predictions with the results obtained by Brazier, Roberts, and Deverill (2002) and Dolan, Lee, and Peasgood (2012), who used the same taxonomy. Dolan et al. (2012), who analyzed data from the British Household Panel Survey, regressed respondents' life satisfaction on their health scores (as measured by the SF-6D) and several control variables. The scores showed a pattern different from those obtained by Brazier et al. (2002), who used a modified standard gamble method to estimate the weights of different health states of the SF-6D. In contrast to the tariff scores, the SWB analysis found that problems related to mental health and vitality have a much larger negative effect on SWB than pain or limitations in physical functioning. Beyond reducing affective forecasting errors, our secondary goal was to compare estimates based on our methodology with those obtained using a revealed SWB approach (Dolan et al., 2012) and standard preference estimation techniques (Brazier et al., 2002).

2 | METHODS

2.1 | Participants

In our study, it was important that we had access to a diverse sample of participants. We therefore used the crowdsourcing platform, Amazon Mechanical Turk. The Amazon Mechanical Turk population offers a more diverse population than most traditional approaches do (Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010) and participants on this platform do not differ significantly from those used in population-based national surveys in the United States (Levay, Freese, & Druckman, 2016).

We advertised our study on Amazon Mechanical Turk, offering prospective participants $1.00 in return for approximately 15 min of their time. Our aim was to recruit at least 600 participants. Participant ages ranged from 20 to 76 years (M = 39.22, SD = 11.34). In our sample, 324 participants were female, 269 were male, and 1 selected "other." Most of our participants were in full-time employment (480), whereas some were retired (25), unemployed (33), in full-time education (2), looking after the family (34), or did not provide a specific answer (20). Our sample varied in terms of income bracket (see Table A1 in Appendix I). Ethical approval was obtained prior to collecting data. Participants were required to give consent before participating in the study.

2.2 | Materials and measures

2.2.1 | SF-6D

The SF-6D is a shortened version of SF-36 and SF-12, and it is widely used as a measure of general health in clinical populations. Beyond assessing validity of health interventions, SF-6D is also used to generate a preference-based index of health (based on quality adjusted life years) for cost–benefit analysis. The SF-6D consist of six dimensions, including role limitation, social functioning, pain, mental health, and vitality (Brazier et al., 2002). The original scoring (i.e., weights) for SF-6D dimensions was obtained using preference-based method—standard gambles.

2.2.2 | Ten-item personality inventory

The Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003) is a widely used measure of the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism). Despite its short length, this inventory has been shown to have reasonable convergent and discriminant validity as well as test-retest reliability. This questionnaire is primarily used in research in which personality is not the primary topic of interest. We chose to include it in the present research to assess whether individual differences in personality influence the ability to predict impact of health on SWB (cf. Boyce & Wood, 2011).

2.2.3 | Demographics

Following Dolan et al. (2012) we collected various demographic information about our participants. More specifically, we asked all individuals about their age, gender, annual income, occupation, and marital status. The exact wordings of all demographic questions are listed in Appendix II.

2.2.4 | Subjective well-being

Each individual was also required to indicate his/her level of life satisfaction using a slider, with 0 representing "not satisfied" and 100 representing "completely satisfied."

2.3 | Procedure

After seeing the consent form and participant information sheet, all participants provided information about their age, gender, annual income, occupation, marital status, and current level of life satisfaction.

The following screen contained our key manipulation. Each participant was randomly allocated to one of three conditions. In the *present self*-treatment, respondents read the following instructions: "We are studying how you believe different health outcomes would affect *your* [bold font in the original instructions] current life satisfaction." In the *future self*-condition, the word in bold was replaced and people were instead asked to state their beliefs about the SWB of "yourself in the future in your late 60's," and the SWB "of other people" for the *average other* condition. Participants then moved onto the next screen where they began answering questions on how they believed experiencing each of the different levels of the health dimensions of the SF-6D would affect their life satisfaction in the present/future or the life satisfaction of an average other, depending on the condition to which they were assigned. The questions were presented as sliders, with each level of a single domain appearing on the same screen but in a random order. The adjustments in SWB were made relative to a specific reference point. In the present self- and future self-treatments, this value was the participant's previously stated SWB score. In the average-other condition, participants were informed that the mean life satisfaction score in the United

States is 74/100, to provide a neutral anchor value. (This figure was based on the mean self-reported life satisfaction of 200,000 people aged 16 and over reported by the UK's Office for National Statistics based on the Integrated Household Survey conducted between April 2011 and March 2012, and was chosen to ensure the best possible comparability with the results of Dolan et al. (2012).

Following completion of all SF-6D questions, participants completed the 10-item personality inventory. The survey concluded with each individual completing the nonmodified SF-6D to indicate their actual health state.

2.4 | Data preparation

In total, we recorded 618 responses. If data originated from the same IP address, we deleted later responses unless individual entries overlapped in time of completion, in which case we removed all responses. From the remaining 613 responses, we removed participants who did not complete the task in its entirety (n = 19). Our final sample consisted of data from 594 individuals. Raw data are available from the Open Science Framework at https://osf.io/sg72f/?view_only=921d2a5afbfd4a07a2a07245df2c8f5f.

3 | RESULTS AND DISCUSSION

To screen for inconsistent responses, we computed nonparametric Kendall correlations for participants' SWB predictions in each domain. Negative correlations indicated increased expected SWB as severity increases. As such results likely reflected lack of understanding of the elicitation mechanism, we analyzed only data from participants whose correlation was larger than .01[1] for all domains. We also excluded nine participants aged over 59 in the future self-condition; age was not viewed as a relevant exclusion condition in the other two conditions.

The data from the remaining 447 participants were analyzed using hierarchical mixed effect modeling (lme4 package in R, 2014); severity was nested within SF-6D domains. Models assessed the impact of different health states on predicted SWB. Participants' responses were standardized to create SWB scores by subtracting them from the person's current life satisfaction score (or from the average well-being for the average-other condition). SWB scores were first regressed on the SF-6D domains and severities of health. In the more complex version of the model, gender, age, age squared, income, employment status, and marital status were included to replicate the analysis of Dolan and colleagues.[2] In all models, random intercepts for both domain and severity of health were included. A likelihood ratio test determined that the full model did offer a significantly better fit ($\chi^2(32)$ = 389.48 p < .001), but, consistent with Dolan et al. (2012), we found only a negligible improvement in model-fit statistic (conditional R^2: simple = 81.90% vs. full = 85.81%; Nakagawa & Schielzeth, 2013). In the following analysis, we therefore focus on the simple model.[3]

TABLE 1 Results of the reduced model with perspective as a fixed effect

Fixed effects	Estimate (*SE*)	*t*	*p* value
Intercept	−.149 (.014)	−10.59	<.001
Pain	−.089 (.005)	−16.60	<.001
Physical	−.105 (.005)	−19.71	<.001
Role	.040 (.006)	7.18	<.001
Social	.022 (.005)	4.01	<.001
Vitality	−.011 (.005)	−18.66	<.001
Severity 2	.231 (.007)	34.14	<.001
Severity 3	.335 (.007)	49.60	<.001
Severity 4	.500 (.007)	73.88	<.001
Severity 5	.617 (.007)	89.54	<.001
Severity 6	.706 (.008)	89.31	<.001
Condition: future	−.039 (.019)	−2.08	.038
Condition: other	.038 (.019)	1.94	.053
Conditional R^2: .858			

To assess whether perspective (self, other, future self) influenced SWB ratings, we included a fixed effect of condition in the model. This addition did improve the fit for the reduced model significantly: ($\chi^2(2)$ = 337.7, p < .001). Thus the impact of different health states on SWB differed depending on whether judgments were made about one's own self in the present, oneself in the future, or other people. Table 1 and Figure 1 summarize these findings.

The significant effect of severity is visible in Figure 1, where the mean SWB change appears to decrease approximately linearly with severity. Table 1 shows that the fixed effect of perspective was significant, such that overall predicted SWB change was smaller in the "future" condition, relative to the "present" condition. This effect is visible in Figure 1, where the means for the predicted well-being of future self were higher across severities and in all domains than in the other two conditions. It is also clear that the effect was very small in magnitude. It is evident that the predicted SWB changes in the other condition were lower than responses in the other two conditions, but once again, this effect was of a negligible magnitude.

How severe were affective forecasting errors among our participants? Table 2 and Figure 2 shows the comparison between coefficients for each level obtained in the current study (present self-, future self-, other, and all conditions combined) with those obtained by Dolan et al. (2012) and Brazier et al. (2002).[4] The p values were calculated

[1]This analysis is conservative in that it assumes a monotonic increase in severity with SF-6D states. Here we note that our results are largely unchanged if we included all participants in our analysis.

[2]Note that this is not an exact replication of this analysis as some of our predictors differed from those used by Dolan et al. For example, while Dolan and colleagues had access to the exact income of the respondents, we only had 19 income intervals to choose from.

[3]Inclusion of personality scores also had very little effect and we did not include these in our results and discussion.

[4]Coefficients were not estimated simultaneously as in Dolan et al. (2012). Instead, each domain was analysed independently, regressing SWB on levels of a particular domain. These models allow for a random effect of subject, which controls for different baseline SWB of the participants.

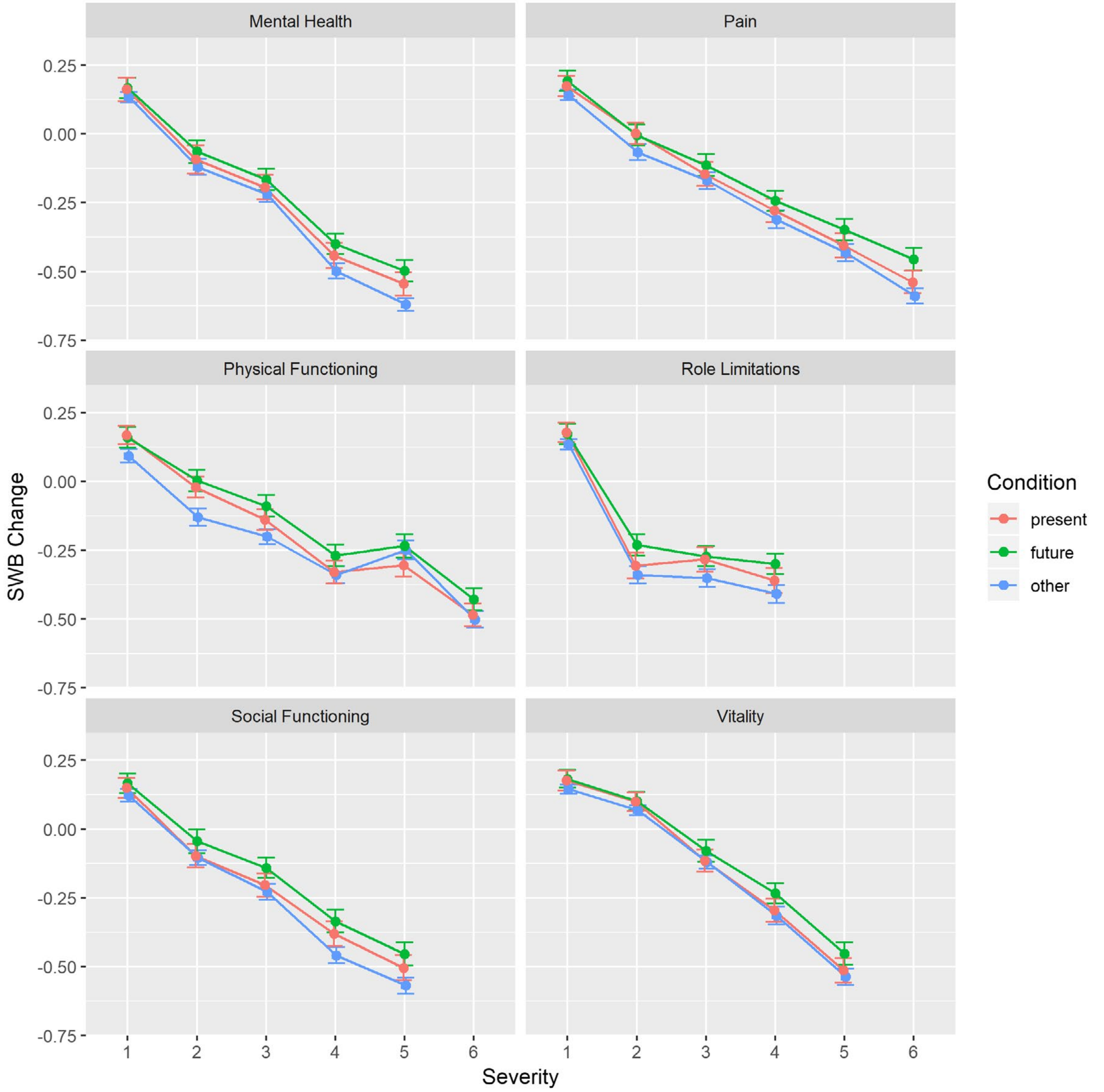

FIGURE 1 Standardized predicted SWB changes across all levels and domains of the SF-6D and across all three conditions. Error bars represent ± 2 standard errors of the means

using the Satterthwaite approximation (lmerTest package in R; Kuznetsova, Brockhoff, & Christensen, 2017).

The results revealed significant affective forecasting errors in all domains and across all health states. Overall, forecasts of the effects of the SF-6D on SWB produced much larger coefficients than those based on SWB ratings obtained when the health states have already been experienced. In Dolan et al. (2012), the largest negative coefficient is −.145 on the fifth level of mental health, representing a 14.5% drop in life satisfaction. However, for our model of forecast life satisfaction, the coefficient on the fifth level of Mental Health was −.707 for data pooled across perspective treatments, representing a much larger anticipated drop in life satisfaction. This pattern held for all dimensions, with most coefficients being at least several times larger than those obtained via revealed preference methods.

How does the ranking of different domains implied by our results compare with that estimated by Dolan et al. (2012) and Brazier et al. (2002)? In contrast to the SF-6D tariff, the pain dimension has the smallest negative effect on SWB. The forecasts of life satisfaction reported here appeared to be in line with the findings reported by Dolan et al. (2012). Coefficients for mental health were higher than those for physical functioning and pain. On the other hand, predicted impact of vitality was comparable in magnitude to that of pain and physical functioning, which (in ordinal terms) is more in line with the results of Brazier et al. (2002). Thus, despite the considerable general overestimation of effects on future SWB, the ranks of predicted SWB effects over domains were relatively consistent with those obtained using experienced SWB methods.

While not directly relevant to affective forecasting, some variation in the relation between the forecast SWB change and the levels of severity was observed.[5] Figure 1 shows a relatively equal spacing

[5]We note that the different levels of the SF-6D need not be interpreted as monotonically increasing in severity, although they frequently are so treated in practice.

TABLE 2 Coefficients (reversed in sign) of the current study and those obtained by Dolan et al. (2012) and Brazier et al. (2002)

	Current study				Dolan et al. (2012)	Brazier et al. (2002)
	Self-Present	Self-Future	Average-Other	Conditions pooled		
Physical 2	−.189*** (.18)	−.157*** (.017)	−.223*** (.016)	−.189*** (.010)	.003 (.005)	−.035
Physical 3	−.307*** (.18)	−.249*** (.017)	−.294*** (.016)	−.282*** (.010)	−.009 (.007)	−.035
Physical 4	−.497*** (.18)	−.430*** (.017)	−.432*** (.016)	−.451*** (.010)	−.018 (.012)	−.044
Physical 5	−.472*** (.18)	−.395*** (.017)	−.343*** (.016)	−.401*** (.010)	−.091** (.019)	−.056
Physical 6	−.653*** (.18)	−.588*** (.017)	−.595*** (.016)	−.611*** (.010)	−.075*** (.019)	−.117
Pain 2	−.172*** (.017)	−.197*** (.017)	−.208*** (.016)	−.193*** (.010)	−.001 (.004)	−.042
Pain 3	−.320*** (.017)	−.306*** (.017)	−.311*** (.016)	−.312*** (.010)	−.006 (.005)	−.042
Pain 4	−.452*** (.017)	−.436*** (.017)	−.452*** (.016)	−.446*** (.010)	−.007 (.008)	−.065
Pain 5	−.579*** (.017)	−.541*** (.017)	−.572*** (.016)	−.563*** (.010)	−.013 (.009)	−.102
Pain 6	−.712*** (.017)	−.649*** (.017)	−.730*** (.016)	−.695*** (.010)	−.048*** (.014)	−.171
Role 2	−.485*** (.020)	−.403*** (.017)	−.474*** (.014)	−.452*** (.010)	.005 (.006)	−.053
Role 3	−.461*** (.020)	−.444*** (.017)	−.486*** (.014)	−.463*** (.010)	−.045*** (.010)	−.053
Role 4	−.538*** (.020)	−.472*** (.017)	−.543*** (.014)	−.516*** (.010)	−.037*** (.009)	−.053
Mental 2	−.254*** (.019)	−.231*** (.018)	−.253*** (.016)	−.246*** (.010)	−.037*** (.004)	−.042
Mental 3	−.356*** (.019)	−.332*** (.018)	−.353*** (.016)	−.347*** (.010)	−.066*** (.005)	−.042
Mental 4	−.603*** (.019)	−.566*** (.018)	−.631*** (.016)	−.600*** (.010)	−.090*** (.010)	−.1
Mental 5	−.706*** (.019)	−.663*** (.018)	−.753*** (.016)	−.707*** (.010)	−.145*** (.016)	−.118
Social 2	−.247*** (.019)	−.211*** (.017)	−.227*** (.016)	−.227*** (.010)	−.023* (.007)	−.059
Social 3	−.354*** (.019)	−.307*** (.017)	−.351*** (.016)	−.336*** (.010)	−.054*** (.009)	−.072
Social 4	−.530*** (.019)	−.501*** (.017)	−.581*** (.016)	−.536*** (. 010)	−.043*** (.016)	−.087
Social 5	.653*** (.019)	−.620*** (.017)	−.691*** (.016)	−.654*** (.010)		
Vitality 2	−.077* (.018)	−.081** (.016)	−.078*** (.015)	−.079*** (.010)	−.020** (.008)	0
Vitality 3	−.291*** (.018)	−.262*** (.016)	−.266*** (.015)	−.272*** (.010)	−.044*** (.009)	−.071
Vitality 4	−.472*** (.018)	−.416*** (.016)	−.460*** (.015)	−.448*** (.010)	−.085*** (.011)	−.071
Vitality 5	−.690*** (.018)	−.635*** (.016)	−.682*** (.015)	−.668*** (.010)	−.097*** (.012)	−.092

Note: Standard errors in parentheses.
****p* < .01; ***p* < .05; **p* < .05.

between the levels of severity in each domain. The anticipated impact on well-being follows a rather monotonic trend in each panel of Figure 1. However, two exceptions must be noted. First, level 5 of physical functioning is perceived as less detrimental than level 4 (although confidence intervals overlap between the two). Interestingly, the wording of these levels also shows some inconsistencies, as level 4 of Physical functioning is described by "Your health limits you a lot in *moderate activities*," whereas level 5 is described by "Your health limits you *a little in bathing and dressing*." This jump from "moderate activities" to "bathing and dressing" might have been responsible for the observed violation of monotonicity. In the second instance, levels 2, 3, and 4 of role limitations domain appear to be rated as if they had an equal negative impact on one's level of well-being. A similar pattern was observed by Dolan et al. (2012) and Brazier et al. (2002). Although the sizes of their coefficients were very different, the consistent impact of role functioning limitations across various levels was also present in their data. Here again, the wording of the four levels in the SF-6D (except for Level 1) do not offer an easily quantifiable indication of magnitude. In other domains, severity is explained in terms of the symptoms' frequency or duration, while in case of the role limitations the ordering is based on the mixture of symptoms, with: physical health (level 2), emotional problems (level 3) to physical health and emotional problems (level 4).

In sum, it appears that participants largely overestimated the impact of future health on their SWB. Although we observed that perspective-taking influenced people's estimates, the size of these effects was too small to alleviate the general overestimation.

4 | GENERAL DISCUSSION

We examined people's ability to predict the relationship between hypothetical future health states they might experience and their future SWB. Our goal was to determine whether it is possible to obtain reasonable valuations of health states by explicitly asking people to predict the impact different health states would have on SWB.

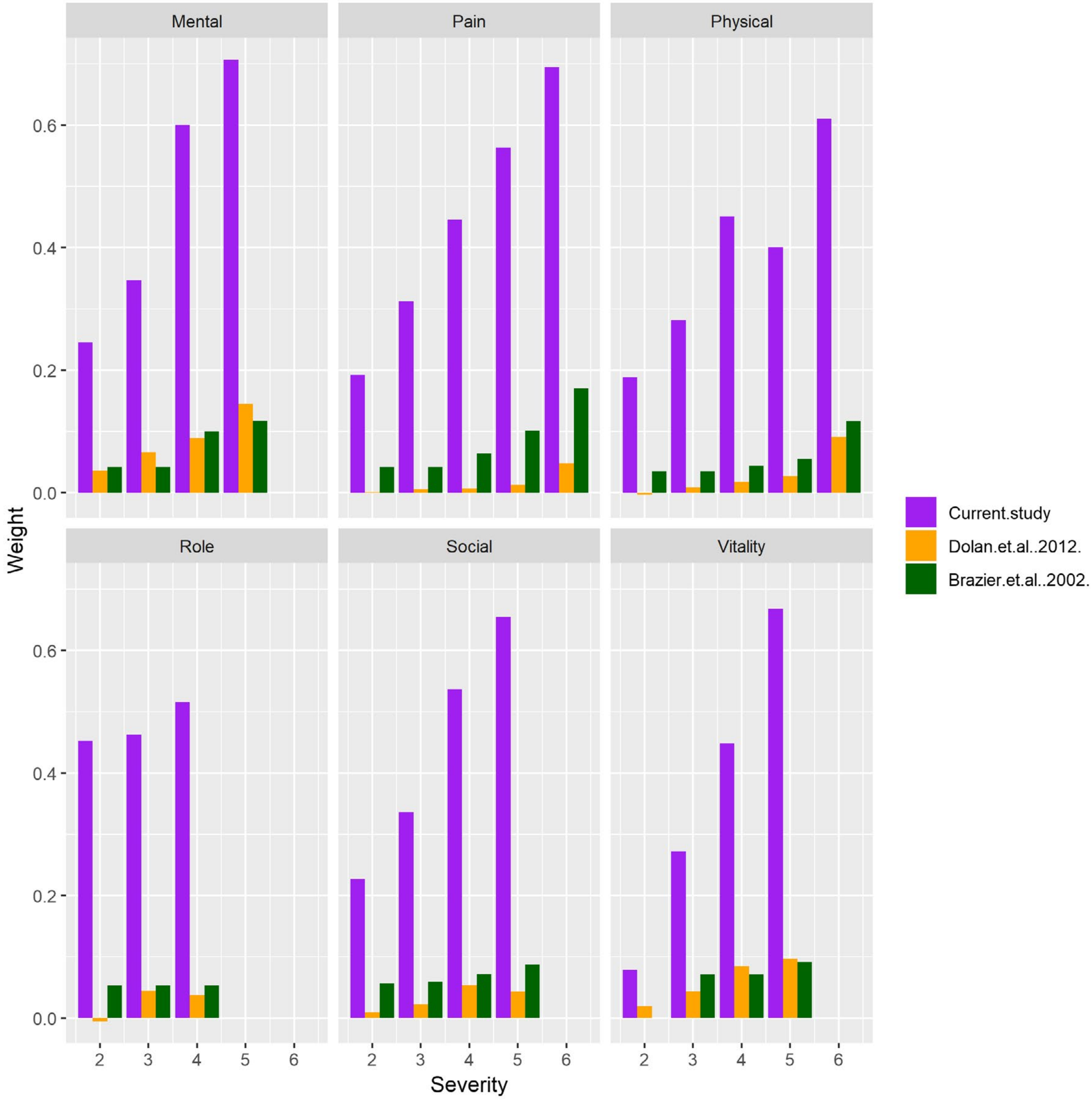

FIGURE 2 Weights for current study, Dolan et al. (2012), and Brazier et al. (2002)

Given that human judgment often shows significant affective forecasting errors, we attempted to debias people's expectations using psychological distancing manipulations. Our findings paint a rather pessimistic picture of people's ability to anticipate how different states of health will affect their well-being. In our experiment, we found that for each SF-6D domain the impact of ill health was greatly overpredicted and that this overprediction was not eliminated when participants were asked to make predictions about themselves in the future or about other people. We found that making predictions about future selves leads to the smallest, albeit still considerable, overestimation of the impact of health states on SWB. A key implication of our results is that formulation of social policy based on experienced SWB (e.g., as obtained from survey data) will likely be paternalistic, as such formulation will involve overriding people's beliefs about their own future SWB.

Research on using SWB to inform and evaluate policies is still in its early stage (Fujiwara & Campbell, 2011). Few efforts have been made to use well-being predictions to determine the relative importance of different health domains. A notable exception is the work of Ubel, Loewenstein, and Jepson (2005) who attempted to debias people's predictions about the emotional impact of chronic illness in a number of ways. The authors encouraged their participants to think more broadly about various aspects of their life that could be affected by their illnesses. Consistent with our own findings, the debiasing techniques did not work, with some resulting in even larger overestimation of the negative emotions experienced during the illnesses. Ubel et al. (2005) were, however, successful in reducing the bias by reminding their participants about their ability to adapt to adverse events. Even here, however, the effect was modest in magnitude (see also Damschroder, Zikmund-Fisher, & Ubel, 2005). Our findings contribute to this literature by documenting an unsuccessful psychological intervention to reduce affective forecasting errors (Dillard, Fagerlin, Dal Cin, Zikmund-Fisher, & Ubel, 2010; Ubel et al., 2005).

A key conclusion of Dolan et al. (2012) concerns the importance of mental health over physical pain in SWB, and mental health also ranked higher than other domains in the SWB predictions that we obtained. However, the opposite is true of vitality, which was assigned lower weight than pain in our data. Despite the discrepancy in magnitude between our coefficients and those obtained by other authors, the revealed importance of mental health is consistent with the work of Dolan and colleagues. Since predictions related to different health states often fail to take into account adaptation (Frey & Stutzer, 2002; Kahneman & Thaler, 2006), the impact of illnesses to which adaptation does not apply will likely be underestimated in preference-based frameworks. Interestingly, our respondents did expect that their happiness would deteriorate more if they experience the highest levels of mental illness as compared to the highest intensities of pain or limitations to physical functioning. Less consistent findings were observed for vitality, which appears to be ranked as highly in terms of its predicted impact on SWB as are pain and physical functioning. This differs from the findings of Dolan et al. (2012), who reported that vitality coefficients largely exceeded those of pain, role limitations, social functioning and physical limitations. Excluding mental health, impact of severity level appeared to be the same in different domains, a finding more consistent with the Brazier et al. (2002) estimates.

In summary, people were unable to predict accurately how their SWB would change under different hypothetical health states. The discrepancy between anticipated and experienced health related SWB raises issues for the application of SWB approaches in public policy. Should attempts at welfare maximization focus on experienced SWB (as measured by surveys) or on people's statements about what they believe will make them happiest? Dolan and Kahneman (2008) express pessimism about using decision utility to inform health-care decisions on the grounds that estimates of one's future hypothetical health state are biased by the focusing illusion (Schkade & Kahneman, 1998). Consequently, assessment of future utility is highly biased by immediate negative emotions felt toward a health state, with responses largely reflecting currently experienced feelings of fear or dread. Yet, using experienced SWB as a target for public policy seems paternalistic in that it involves overriding people's own beliefs about their own future SWB. Targeting public policies on the basis of people's predictions about their own well-being, on the other hand, requires policymakers to ignore a large body of evidence on experienced subjective well-being. One possibility—not explored here—may lie in educating people in the results of prior research on experienced SWB. Would people's predictions about the consequences of ill health for their own future SWB become more accurate if they were informed about the SWB of people who had experienced those conditions? We leave this question as a direction for future research.

ACKNOWLEDGMENTS

The ESRC [grant ES/K002201/1] and the Leverhulme Trust [RP2012-V-022] supported the research.

ORCID

Lukasz Walasek https://orcid.org/0000-0002-7360-0037

REFERENCES

Bhatia, S., & Walasek, L. (2016). Event construal and temporal distance in natural language. *Cognition*, *152*, 1–8. https://doi.org/10.1016/j.cognition.2016.03.011

Boyce, C. J., & Wood, A. M. (2011). Personality prior to disability determines adaptation: Agreeable individuals recover lost life satisfaction faster and more completely. *Psychological Science*, *22*(11), 1397–1402. https://doi.org/10.1177/0956797611421790

Brazier, J., Roberts, J., & Deverill, M. (2002). The estimation of a preference-based measure of health from the SF-36. *Journal of Health Economics*, *21*(2), 271–292. https://doi.org/10.1016/S0167-6296(01)00130-8

Comerford, D. A. (2011). Attenuating focalism in affective forecasts of the commuting experience: Implications for economic decisions and policy making. *Journal of Economic Psychology*, *32*(5), 691–699. https://doi.org/10.1016/j.joep.2011.06.005

Damschroder, L. J., Zikmund-Fisher, B. J., & Ubel, P. A. (2005). The impact of considering adaptation in health state valuation. *Social Science and Medicine*, *61*(2), 267–277. https://doi.org/10.1016/j.socscimed.2004.11.060

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 & Medicine (1982)*, *71*(1), 45–52. https://doi.org/10.1016/j.socscimed.2010.02.038

Dolan, P., & Kahneman, D. (2008). Interpretations of utility and their implications for the valuation of health. *Economic Journal*, *118*, 215–234. https://doi.org/10.1111/j.1468-0297.2007.02110.x

Dolan, P., Lee, H., & Peasgood, T. (2012). Losing sight of the wood for the trees. *Pharmacoeconomics*, *30*(11), 1035–1049.

Frey, B. S., & Stutzer, A. (2002). *Happiness and economics: How the economy and institutions affect human well-being*. Princeton, NJ: Princeton University Press.

Fujiwara, D., & Campbell, R. (2011). Valuation techniques for social cost-benefit analysis: Stated preference, revealed preference and subjective well-being approaches. HM Treasury Green Book Discussion Paper.

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*(3), 617–638. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9781405

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*(1), 430–444. https://doi.org/10.1006/obhd.2001.2982

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

Halpern, J., & Arnold, R. M. (2008). Affective forecasting: An unrecognized challenge in making serious health decisions. *Journal of General Internal Medicine*, *23*(10), 1708–1712. https://doi.org/10.1007/s11606-008-0719-5

Kahneman, D., & Snell, J. (1990). Predicting utility. In R. M. Hogarth (Ed.), *Insights in decision making: A tribute to Hillel J. Einhorn* (pp. 295–310). Retrieved from https://psycnet.apa.org/record/1990-97854-017

Kahneman, D., & Thaler, R. H. (2006). Anomalies: Utility maximization and experienced utility. *Journal of Economic Perspectives*, *20*(1), 221–234. https://doi.org/10.1257/089533006776526076

Kermer, D. A., Driver-Linn, E., Wilson, T. D., & Gilbert, D. T. (2006). Loss aversion is an affective forecasting error. *Psychological Science*, *17*(8), 649–653. https://doi.org/10.1111/j.1467-9280.2006.01760.x

Kross, E., Ayduk, O., & Mischel, W. (2005). When asking "Why" does not hurt. Distinguishing rumination from reflective processing of negative emotions. *Psychological Science*, *16*(9), 709–715. https://doi.org/10.1111/j.1467-9280.2005.01600.x

Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). lmerTest package: Tests in linear mixed effects models. *Journal of Statistical Software*, *82*(13), 1–26. https://doi.org/10.18637/jss.v082.i13

Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of Mechanical Turk samples. *SAGE Open*, *6*(1), 1–17. https://doi.org/10.1177/2158244016636433

Loewenstein, G. F., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *The Quarterly Journal of Economics*, *118*(4), 1209–1248. https://doi.org/10.2139/ssrn.239901

Nakagawa, S., & Schielzeth, H. (2013). A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution*, *4*(2), 133–142. https://doi.org/10.1111/j.2041-210x.2012.00261.x

Polman, E. (2012). Self-other decision making and loss aversion. *Organizational Behavior and Human Decision Processes*, *119*(2), 141–150. https://doi.org/10.1016/j.obhdp.2012.06.005

Ross, J., Irani, L., Silberman, M. S., Zaldivar, A., & Tomlinson, B. (2010). Who are the crowdworkers?: Shifting demographics in mechanical turk. In *CHI'10 Extended Abstracts on Human Factors in Computing Systems (CHI EA'10)* (pp. 2863–2872). New York, NY: ACM. https://doi.org/10.1145/1753846.1753873

Schkade, D. A., & Kahneman, D. (1998). Does living in California make people happy? A focusing illusion in judgments of life satisfaction. *Psychological Science*, *9*(5), 340–346. https://doi.org/10.1111/1467-9280.00066

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463. https://doi.org/10.1037/a0018963

Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of Consumer Psychology*, *17*(2), 83–95. https://doi.org/10.1016/S1057-7408(07)70013-X

Ubel, P. A., Loewenstein, G., Hershey, J., Baron, J., Mohr, T., Asch, D. A., & Jepson, C. (2001). Do nonpatients underestimate the quality of life associated with chronic health conditions because of a focusing illusion? *Medical Decision Making*, *21*(3), 190–199. https://doi.org/10.1177/0272989X0102100304

Ubel, P. A., Loewenstein, G., & Jepson, C. (2005). Disability and sunshine: Can hedonic predictions be improved by drawing attention to focusing illusions or emotional adaptation? *Journal of Experimental Psychology: Applied*, *11*(2), 111–123. https://doi.org/10.1037/1076-898X.11.2.111

Ubel, P. A., Loewenstein, G., Schwarz, N., & Smith, D. (2005). Misimagining the unimaginable: The disability paradox and health care decision making. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, *24*(4), 57–62. https://doi.org/10.1037/0278-6133.24.4.S57

Wesp, R., Sandry, J., Prisco, A., & Sarte, P. (2009). Affective forecasts of future positive events are tempered by consideration of details. *American Journal of Psychology*, *122*(2), 167–174.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (35th ed., pp. 345–411). San Diego, CA: Elsevier Academic Press. https://doi.org/10.1016/S0065-2601(03)01006-2

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*(5), 821–836. https://doi.org/10.1037/0022-3514.78.5.821

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: Walasek L, Brown GDA, Ovens GD. Subjective well-being and valuation of future health states: Discrepancies between anticipated and experienced life satisfaction. *J Appl Soc Psychol*. 2019;00:1–9. https://doi.org/10.1111/jasp.12631