



# Affective forecasting

---

Matthew Coleman

February 2022



# Contents

<b>1. Summary</b>	<b>3</b>
<b>2. Introduction</b>	<b>4</b>
<b>3. Intensity</b>	<b>5</b>
<b>4. Duration</b>	<b>8</b>
<b>5. Projection</b>	<b>12</b>
<b>6. Limitations</b>	<b>15</b>
<b>7. Conclusion</b>	<b>17</b>
7.1 Practical takeaways	17
7.2 Recommended reading	19
<b>8. References</b>	<b>19</b>

# 1. Summary

- People make mistakes when predicting the intensity and duration of their own and others' feelings.
- These error-prone intuitions in 'affective forecasting' have implications for donors, researchers, and policymakers interested in doing the most good with their money and time.
- We underestimate the importance of global priorities that are resistant to hedonic adaptation and difficult to mentally simulate (to 'put ourselves in other shoes').
- Mental illness and chronic pain are the most likely causes that are under-valued. Other candidates include drug addiction, and possibly animal welfare and longtermism.
- In order to avoid such biases, global priorities researchers should use subjective measures of how people actually feel about their lives, rather than making intuitive assumptions.

**Table 1.** An overview of affective forecasting biases in this report

Component	Bias	Definition
Intensity	Intensity bias	The tendency to anticipate more intense hedonic reactions than people experience (Buehler & McFarland, 2001).
Intensity	Future anhedonia	The belief that hedonic states will be less intense in the future than in the present (Kassam et al., 2008).
Duration	Durability bias	The tendency to overpredict the duration of affective reactions to future events (Wilson et al., 2000).
Duration	Region-beta paradox	The tendency for intense hedonic states to abate more quickly than mild states (Gilbert et al., 2004).
Projection	Projection bias	The exaggeration of the degree to which people's future tastes will resemble their current tastes. (Loewenstein et al., 2003).
Projection	Empathy gaps	The tendency for people to mispredict how they (or others) will behave in a different mental state (Sayette et al., 2008).

## 2. Introduction

The ability to mentally simulate the future is, on reflection, nothing less than a superpower. At will, people can imagine how they will feel in all kinds of situations without ever having experienced them before. You know that you will be ecstatic if you receive an offer for your dream job, and you do not need to perform surgery yourself to know that you will wince at carving into someone's organs.

While people's intuitions about happiness are accurate in some ways, in others they are reliably wrong. These mistakes in *affective forecasting*, the process of predicting future feelings (Gilbert & Wilson, 2007; Wilson & Gilbert, 2005; Wilson & Gilbert, 2003), can lead us to form inaccurate beliefs about what really matters. Understanding the gaps between what people *think* makes others happy and what actually does (the 'expectation-reality gap') can help us to identify and evaluate global priorities more effectively.

Mental simulations produce these errors because they are egocentric, neglect context, and poorly represent time. Why? Consider the life of a person living with incurable blindness. How happy do you think that person is? In making an affective forecast, your mind uses a few cognitive shortcuts to come up with an answer. Without direct access to the blind person's feelings, the mind instead makes use of the information it has, asking how it would feel if *you* were the one who was blind, rather than someone else, and how it would feel to *become* blind, rather than to be blind (Gilbert, 2009).

The affective forecasting biases identified in this report show that people often overestimate the impact of a future event on their happiness (with one exception, see [Section 3](#) on future anhedonia). Crucially, these biases apply to some global problems more than others. If people's intuitions were consistently wrong about how various problems affect happiness, there wouldn't be any implications for global priorities research. This report argues that there *are* global problems more susceptible to forecasting errors than others.

Global priorities researchers have paid little attention to affective forecasting (for an exception, see Chapter 5 of Plant, 2019). Mental illness in particular, and chronic conditions in general, are likely to be underestimated. Other candidates include drug addiction, animal welfare, and longtermism, although I am not confident these are the only relatively neglected topics. Additionally, while the focus of this report is on improving the lives of current people, I will briefly explain how affective forecasting errors apply to other species and future people, too.

Accounting for expectation-reality gaps in happiness also has implications for improving cost-effectiveness analyses and research measurement strategies for assessing global priorities. If certain global problems are overlooked because of flawed intuitions about happiness, then capturing data about happiness is necessary to quantify the importance of these problems and the costs of interventions that remediate them.

The four components of affective forecasting, as outlined by Wilson & Gilbert (2003) are valence, specific emotions, intensity, and duration.

People predict valence (whether an event will make a person feel positive or negative) very accurately, so there are no notable errors to discuss for this component. Forecasting research on specific emotions (e.g., Agerström, Björklund, & Carlsson, 2012; Robinson & Clore, 2001; Woodzicka & LaFrance, 2001) is not relevant for this report, so it will also not be discussed further.

The issue is that people frequently mispredict the *intensity* and *duration* of feelings that follow changes in life circumstances. Instead of the aforementioned taxonomy, I suggest a taxonomy outlining the components of affective forecasting biases that are particularly relevant to global priorities research and have structured this report accordingly. [Section 3](#) reviews biases related to mispredictions about the **intensity** of future feelings. [Section 4](#) reviews mistakes people make regarding the **duration** of future feelings. [Section 5](#) reviews biases on the **projection** of one's present feelings to one's future self and other people. While projection is not typically considered its own distinct category because it overlaps with the other components, it is treated separately here because of its unique global priorities implications. Sections 3-5 are intended to identify and define the biases in the category (for a list, see Table 1 above) and explain the implications of these biases. [Section 6](#) addresses broader limitations for interpreting the affective forecasting literature and [Section 7](#) includes a brief conclusion with a list of practical takeaways and recommended reading.

### 3. Intensity

People have no trouble understanding that receiving a pay raise or falling in love will make them happier, while getting fired or broken up with will make them feel worse. In other words, as mentioned earlier, people are generally highly accurate in predicting valence (whether they will feel positive or negative) (Wilson & Gilbert, 2003).

However, people are far less attuned to predicting the *intensity* of their feelings in response to a given change in life circumstances. By comparing people's expected feelings before an event to their actual feelings after an event, research has found an **intensity bias**, an overestimate of how strong their emotional reactions will be (Gilbert, Driver-Linn, & Wilson, 2002). This includes more

common events such as sports fans watching their favourite team win or lose (Hoerger et al., 2009; Wilson et al., 2000; Van Dijk, 2009) and students receiving exam scores (Buehler & McFarland, 2001), as well as less common and more consequential events like romantic breakups (Eastwick et al., 2008) and learning the results of an HIV test (Sieff, Dawes, & Loewenstein, 1999).

The intensity bias can be largely explained by people's tendency to focus too much on a single event and not enough on the consequences of other peripheral events, a phenomenon referred to as **focalism** (Kahneman et al., 2006; Wilson et al., 2000). In other words, "nothing in life is as important as you think it is, while you are thinking about it" (Kahneman, 2011).

For example, a seminal study by Schkade & Kahneman (1998) found that people living in the midwestern United States and in California reported nearly identical life satisfaction (approximately 2.8 on an 11-point scale from -5 to +5), but people living in both regions predicted that Californians would be about 0.6 points higher in life satisfaction than Midwesterners. When asked about their satisfaction with the weather specifically, people in California *were* more satisfied than Midwesterners. However, the participants overestimated how much weather actually mattered for overall wellbeing. By focusing too narrowly on the beautiful weather in California when making these predictions, people underweight the many other circumstances in people's lives that matter more for wellbeing.

In the health domain, Smith et al. (2008) found that kidney transplant patients substantially overestimated how much their quality of life would improve following the transplant operation. On a scale of 0-100, patients predicted that their quality of life would be about 25 points higher one year after their transplant, but after undergoing the transplant only rated their quality of life as having improved by 15 points.

Understanding focalism's role in producing the intensity bias is important for improving intervention measurement strategies in several ways.

First, focalism affects the survey responses of intervention recipients in ways that can skew effectiveness assessments. For example, if recipients are asked about their feelings in response to the intervention, wellbeing measures may be inflated because they represent their specific feelings about one circumstance rather than their general day-to-day feelings. Instead, researchers should ensure that recipients are asked about their overall wellbeing.

Second, researchers should measure the impact of interventions on recipients' wellbeing multiple times and over longer time scales throughout daily life, as opposed to merely measuring the immediate consequences when the effects of the intervention loom largest in recipients' minds.

Doing so will remediate the “mismatch in the allocation of attention between thinking about a life condition and actually living it” (Kahneman, 2011).

Third, it is important to evaluate how an intervention affects other people in the community as well as the beneficiaries (i.e., spillover effects). This would overcome the pernicious consequence of focalism in which people neglect important contextual features when thinking about the future. Spillover effects on wellbeing are commonly accounted for in research on cash transfers (McGuire, Kaiser, & Bach-Mortensen, 2020), but is less common for most other interventions.

When making affective forecasts that require comparisons between multiple outcomes, people demonstrate a different form of focalism. In such cases, an ‘isolation effect’ drives the intensity bias, such that people focus too much on features that vary a lot but do not matter much for happiness, at the expense of less variable features that matter much more. In one study, undergraduate students soon to be randomly assigned to a dormitory for the next three years predicted that the physical features of the dormitories, which differed a lot, would impact their happiness more than the social features, which varied less, despite recognizing that social features were more important when explicitly asked (Dunn, Wilson, & Gilbert, 2003).

The consequences of the isolation effect is perhaps most relevant when comparing the importance of physical and mental health. Because it is easier to simulate physical health conditions (Birkjær, Kaats, & Rubio, 2020), its importance is likely overestimated. Imagining mental illness is more amorphous and abstract, so people underestimate the magnitude of difference between people with and without mental illnesses. In line with this explanation, Schroeder & Epley (2020) demonstrate that charity donors considered homeless people’s psychological and physical needs differently from how the homeless themselves rated their needs. On a 1-10 scale, donors predicted recipients valued psychological needs, such as meaning and purpose, at 6.81, compared to 8.84 for physical needs such as food. Recipients, however, valued their psychological and physical needs equally, at about 8.5.

Another affective forecasting bias related to intensity is referred to as **future anhedonia**, defined as the belief that hedonic states will be less intense in the future than in the present (Kassam, Gilbert, Boston, & Wilson, 2008). For example, people predict that earning a cash prize today will be more positive than earning an identical cash prize in the future. This is, in part, because people “do not realize how they will feel when those costs and benefits are actually experienced” (Kassam et al., 2008).

How can we render this evidence consistent? It seems impact bias refers to, and results from, a mental comparison of present events to future events, whereas future anhedonia involves a comparison of a future event to the same event in the further future. Importantly, the extent of

people's future anhedonia was positively associated with the degree to which they devalued the future in a classic economic task (Kassam et al., 2008). This demonstrates that predicting less intense future feelings is related to valuing the future less. This bias is likely explained by the psychological disconnect between the present and future self, such that future selves are perceived less vividly.

Future anhedonia is particularly relevant for longtermism. The psychological tendency to underestimate future feelings relative to present feelings likely contributes to people's aversion or apathy towards longtermism, given the idea that the intensity of events (very) far away is mentally dulled.

## 4. Duration

Despite the mind's ability to think across time, it does so in brief, fleeting snapshots, so it has trouble *representing* time (Gilbert & Wilson, 2009). Actual experience unfolds over far longer temporal horizons than the mind can simulate. As a result, people make routine errors in forecasting the duration of their feelings.

This **durability bias** is formally defined as the tendency to overestimate the duration of one's future affective responses. Focalism and immune neglect are two psychological processes underlying the bias, both of which I will now address.

Just as with intensity, focalism also drives forecasting errors for duration (Wilson et al., 2000). When people predict how happy or unhappy they would feel in response to events like winning the lottery, being incarcerated, getting married, or receiving a disability diagnosis, they focus too narrowly on the initial feelings resulting from that shift in circumstance. Those initial feelings wear off, in part because attention towards that event dissipates and reallocates towards more common, everyday experiences like eating meals or watching television (Frederick & Loewenstein, 1999; Kahneman et al., 2006). Doing so likely has evolutionary benefits as people's mental resources can be devoted to uncertain, transient circumstances instead of static ones (Graham & Oswald, 2010; Perez-Truglia, 2012; Rayo & Becker, 2007).

Beyond focalism, the durability bias has been attributed to another mechanism - the ability of people's 'psychological immune system' to attenuate the emotional reactions they display following life changes. People's lack of awareness of the influence of the psychological immune system on wellbeing is termed **immune neglect** (Gilbert et al., 1998). In other words, people hedonically adapt almost completely to most favourable and unfavourable circumstances (Brickman, Coates, & Janoff-Bulman, 1978; Suh, Diener, & Fujita, 1996; for reviews, see: Frederick & Loewenstein,

1999; Luhmann & Intelisano, 2018; Lyubomirsky, 2011), typically in far less time than people predict (Ayton, Pott, & Elwakili, 2007).

This process, also referred to as ‘emotional evanescence’, operates largely through psychological ‘sense-making’ processes that help make the world more predictable and explainable (Wilson, Gilbert, & Centerbar, 2003). Life events, such as the death of a spouse or unemployment, *do* matter for happiness (Lucas, 2007a), for some people more than others (Diener, Lucas, & Scollon, 2009), but people tend to overestimate how *long* they will matter.

The durability bias leads people to underestimate the badness of chronic health conditions. Due to focalism, people tend to use initial intensity as a proxy for the total severity of a problem. However, if you account for the duration of feelings as well as their magnitude, there may be less intense, but particularly enduring, health issues that have a larger detrimental effect on happiness over time. Related research aligns with this speculation, indicating that individuals with chronic pain had lower life satisfaction than people with severe physical impairments (Graham, Higuera, & Lora, 2011) and that milder health issues such as migraines have persistent negative consequences on psychological wellbeing (Shields & Wheatley Price, 2005).

It is important to understand which, if any, domains of global priorities are more susceptible to immune neglect. One such candidate is the physical health domain (Loewenstein & Ubel, 2008; for reviews, see: Flynn, Hovasapian, & Levine, 2021; Martin et al., 2020). In one study, Riis et al. (2005) found that hemodialysis<sup>1</sup> patients were similarly happy to healthy nonpatients (0.7 for patients, 0.8 for nonpatients, using a 5-point scale from -2 to +2). However, both patients and nonpatients predicted a large difference in their mood if they were in the others’ position. Specifically, patients predicted a mood of 1.2 if they were healthy, and nonpatients predicted a mood of -0.4 if they were a patient.

Similarly, healthy people mistakenly believed they would be far happier than people with a chronic health condition (i.e., diabetes, asthma, haemophilia, epilepsy, or kidney disease). Healthy people’s average self-reported happiness was 6.3 on a 1-9 scale, which was not statistically different from the average happiness rating of 5.9 for people with a chronic health condition. However, healthy people expected that those living with one of the health conditions would have a much lower happiness rating of 3.9 (Walsh & Ayton, 2009).

---

<sup>1</sup> Hemodialysis is a treatment to restore healthy kidney function by filtering waste and water from blood.

Perhaps even more counterintuitively, Smith et al. (2009) found that people who underwent a reversible ostomy<sup>2</sup> operation had lower life satisfaction than those who underwent an irreversible ostomy, demonstrating a paradox in which people with putatively better objective circumstances were psychologically worse off. This finding in particular speaks to the power of sense-making mental processes. Because those with an irreversible condition could not do anything to change it, they were better able to adapt to it.

The failure to appreciate the power of the psychological immune system has significant consequences for assessing the burdens of disease. QALYs and DALYs are often used to assess impact, but affective forecasting errors limit their validity. For example, QALYs rely on people's intuitions about how it would feel to experience a certain illness (Whitehead & Ali, 2010). These guesses have been found to inaccurately represent the actual experiences of individuals with that illness (McPherson et al., 2004).

Rather than account for people's intuitions about the impact of poor physical health on quality of life, researchers should ask people experiencing those illnesses directly about their feelings (Dolan & Metcalfe, 2012). In other words, effectiveness metrics should account for the mismatch between people's objective circumstances (e.g., disease) and their subjective wellbeing, and do so without relying on people's faulty predictions.

Birkjær et al. (2020) argue that “as long as subjective wellbeing measures are not embedded into our [...] tools, we may continue to be blind to fundamental determinants of experienced wellbeing.” When these measures have been included, they are found to be more strongly associated with mental health than physical health (Dolan, 2011). For example, mental symptoms such as loneliness have been found to predict life satisfaction more strongly than physical symptoms (Birkjær et al., 2020). Similarly, depression and anxiety symptoms were associated with lower self-reported happiness to a far greater degree than extreme pain, and physical health was not associated at all (Mukuria & Brazier, 2013). The underappreciation of the impact of poor mental health is likely the single most important implication of affective forecasting for global priorities research (Walker, Donaldson, & Plant, 2021).

In line with this claim, Greene, Sturm, & Evelo (2016) found that respondents were generally unaware that people are more likely to hedonically adapt to an acute physical disability like paraplegia than to psychological distress like depression, instead predicting the opposite. Physical disabilities are tragic, and they certainly can lead to long-term declines in wellbeing (Lucas, 2007b), but many types of disability do not require constant attention, which allows for at least partial

---

<sup>2</sup> Smith et al. (2009) used this term to refer to either a colostomy or ileostomy. These are similar procedures, but colostomy operations target the large intestine, while ileostomy operations target the small intestine.

hedonic adaptation. Meanwhile, mood disorders are, by their very nature, often present in people's minds and therefore less subject to hedonic adaptation. We are not well-calibrated to understanding the magnitude of other people's suffering, unless we are experiencing it ourselves.

Beyond these cause areas, there are important methodological issues with measuring wellbeing that may stem from immune neglect. In the case of health interventions, retrospective reports are biased in a way that likely inflates the perceived impact of an intervention. For example, Smith et al. (2008) found that, following a transplant, patients remembered their pre-transplant quality of life to be much lower than what they reported at the time. Therefore, the different score assumes a greater impact than is warranted.<sup>3</sup>

Further, people's retrospective reports tend to neglect duration, instead representing only "a weight average of 'snapshots' of the actual affective experience" (Fredrickson & Kahneman, 1993). When recalling their feelings about a past event, people form summaries based on their most *intense* feelings and their most *recent* feelings, referred to as the "peak-end rule" (Kahneman et al., 1993; c.f. Kemp, Burt, & Furneaux, 2008). For example, patients who had just undergone a colonoscopy judged their total amount of pain based on the most amount of pain they felt during the procedure and the amount of pain they felt during the last few minutes of the procedure, but longer procedures were not remembered as more painful than shorter ones (Redelmeier & Kahneman, 1996).

Therefore, minimizing retrospective reports when possible is a necessary precaution to take against memory biases that could skew cost-effectiveness analyses. Instead, intervention recipients should be asked about their current wellbeing before, during, and after an intervention so that comparing changes in wellbeing from the intervention are not subject to these biases. Additionally, as previously mentioned in [Section 3](#), researchers should measure wellbeing at multiple points over longer time scales. This is the only way to understand how enduring the effects are of an intervention on happiness. Given that people's feelings dissipate more quickly than they predict, it is crucial to capture the temporal dynamics of affective experience.

Finally, another duration-related bias is the **region-beta paradox**, where potentially big problems can end up causing less inconvenience than small problems because the big problems cross a threshold that causes us to react to them, whereas small problems do not. A potentially important forecasting error here is that people fail to understand that stronger hedonic states are often psychologically attenuated faster than milder hedonic states. In one experiment, participants

---

<sup>3</sup> This gap may be attributable to rescaling, such that people use different standards when responding to the same scale at different points in time (e.g., reporting a happiness score of 7 at time 1 and 8 at time 2, despite feeling equally happy at both sampling instances). However, for reasons given in Plant (2020), rescaling over time is likely not a serious problem.

expected they would dislike a transgressor who strongly insulted them for longer than a transgressor who insulted them less strongly, despite the opposite being true (Gilbert et al., 2004).

Intuitively, it would make sense that more intense emotional reactions would also persist longer, but because those intense feelings command attention, our minds are able to address and reduce them. As Gilbert et al. (2004) analogized, “a trick knee hurts longer than a shattered patella because the latter injury exceeds the critical threshold for pain and thereby triggers the very processes that attenuate it”.

This is relevant for global priorities research because less intense health problems (such as migraines and chronic pain) are less likely to cause individuals to seek treatment, and so they can endure longer. For example, only 15-25% of Europeans with probable migraines sought professional health care (Katsarava, 2018). Therefore, public health campaigns which nudge individuals into taking action for such health problems may be particularly impactful.

## 5. Projection

When people engage in affective forecasting, they project their current selves onto the situation they’re imagining. This **projection bias** leads to systematically biased judgments in which people exaggerate the degree to which their present perspective matches their future selves (Loewenstein, O’Donoghue, & Rabin, 2003; Loewenstein, & Schkade, 1999).

For example, people who shopped for groceries were influenced by their present level of hunger, leading them to purchase more items not on their grocery lists relative to people with lower levels of hunger (Gilbert, Gill, & Wilson, 2002). In another study, cigarette smokers who were not deprived of nicotine underestimated how much they would value smoking in the future compared to smokers who were deprived of nicotine (Sayette et al., 2008). Similar findings have been shown for predictions about pain. People who did not receive a painful stimulus devalued their future feelings of pain compared to people who had recently experienced the painful stimulus (Read & Loewenstein, 1999). This research collectively demonstrates that people utilise their current feelings (e.g., level of nicotine craving) to make predictions about their future feelings.

This problem directly applies to how people predict other people’s feelings. Because people only have direct access to their own feelings, they have to make inferences when trying to understand the feelings of others (Van Boven, Loewenstein, & Dunning, 2005; for reviews, see: Loewenstein, 2005, Van Boven et al., 2013). When people share common experiences, this is often not an issue. For instance, it is easier to console a friend grieving from a relative’s death if you’ve had to grieve the loss of a loved one yourself. But people often lack that perspective-taking ability, leading to similar

affective forecasting errors regarding intensity and duration that were discussed in Sections [3](#) and [4](#). Unique to this section is the added layer of mistakes that arise when predicting the feelings of other people (and non-human animals) whose minds and/or circumstances are very different from our own.

Attempts at inferring others' feelings often lead to so-called **empathy gaps** in which people struggle to understand mental states different from their own. For example, chronic dialysis patients reported a 19% higher quality of life than non-patients predicted (Sackett & Torrance, 1978). These self-other discrepancies in affective forecasting (Igou, 2008; Lau, Morewedge, & Cikara, 2016; Mata et al., 2019; Pollman & Finkenauer, 2009) add another important element for understanding how expectations about happiness deviate from reality. It is necessary to consider not just how people predict feelings across time, but also for other people.

One such discrepancy arises when predicting others' duration of feelings. People underestimate the speed at which they will recover from negative life changes, but this immune neglect is even greater when predicting others' feelings, especially for more dissimilar others. This occurs because people use available information about their own coping abilities to make predictions about themselves, but they lack such information when projecting those predictions to other people (Igou, 2008).

Forecasting errors about other people are greater when there is available social category information about the other person. For example, research participants were asked to forecast how unhappy people would be if the sports team they supported lost that day. Forecasters provided with group information about the target of the forecast (i.e., which team they supported) predicted that losing would make them about twice as unhappy compared to forecasters not provided with any group information (Lau, Morewedge, & Cikara, 2016).

This provides an important nuance to understanding the cognitive processes driving affective forecasting. Mental simulations about other people are biased towards one's own feelings (Pollman & Finkenauer, 2009), so information about those other people should help correct for those biases. Instead, information can lead to an *overcorrection*, such that people think the characteristics of the other people will make a larger difference in their experienced feelings than they actually do. This provides yet another reason to directly measure the wellbeing of those affected by various global problems rather than relying on intuition.

It is important to acknowledge the possibility that errors in judgments of others' feelings may be attributable to a knowledge gap, rather than a systematic bias. For example, though people underestimate how happy paraplegics are, people who personally know a paraplegic are less subject to this error. Specifically, participants who had never known a paraplegic estimated they were in a

good mood 32% of the time, while those with a paraplegic friend or family member estimated they spent 53% of the time in a good mood, leading the authors to conclude that “the less you know about paraplegics, the worse off you think they are” (Schkade & Kahneman, 1998). Thus, mental simulations about other people’s quality of life given a particular life circumstance are more biased when people need to rely on their own intuitions without directly observing other people in a similar life context.

Just as with intensity and durability biases, projection biases result in inaccurate affective forecasts. In contrast, however, errors in projection also result in underestimating (rather than mainly overestimating) others’ feelings in several domains.

Animal suffering and longtermism are two cause priorities that are clearly hampered by empathy gaps. It is impossible for humans to accurately simulate the feelings of non-human animals, so it is highly likely that affective forecasts towards non-humans are inaccurate. The direction of this inaccuracy is presently unclear, and there are obvious methodological constraints that make this difficult to understand better through research.

In the case of future people, they presumably have similar minds. However, we likely heavily discount the feelings of unborn people both because they cannot be asked to report their feelings directly and because imagining future people is more vague and abstract such that we underappreciate the magnitude of their feelings. In both cases, we lack direct reports of their feelings.

Drug addiction may be another global priority that is underexamined because of issues with projection. As summarised by Loewenstein (2005), “someone who is not currently craving drugs will not be able to appreciate the grip that such craving could have over their behavior”. It is very difficult to simulate the negative psychological (and physiological) impact of addiction, such as feelings of craving and withdrawal. But these feelings are likely more intense and enduring than non-addicts can appreciate. As a result, social stigmas about addiction are persistent, such as oversimplified beliefs about addicts’ autonomy to simply stop using drugs, that may lead people to underestimate the pressing need for public health interventions for treatment and prevention.

Lastly, the projection bias has implications for interpreting effectiveness metrics, specifically related to health and aging. Lacey, Smith, & Ubel (2006) found that self-reports of happiness increase with age, but people mistakenly predict the opposite. Because physical health declines with age while happiness does not, measures used to estimate the cost-effectiveness of an intervention (e.g., QALYs) may be incorrect in assuming that health is a proxy for wellbeing. When accounting for wellbeing, a year of life at an older age is likely more valuable than these metrics assume.

## 6. Limitations

While there is robust evidence for the affective forecasting biases discussed in this report, there are several key limitations worth addressing.

First, people are not equally susceptible to these biases, as they are subject to several individual differences (for a review, see Kurtz, 2018; c.f., Christophe & Hansenne, 2021). For example, people who tend to engage more in ‘emotional processing’ coping strategies are more prone to the intensity bias, presumably because their affective predictions fail to account for their greater ability to hedonically adapt in response to a negative event (Hoerger, et al., 2009).

In the domain of mental health, symptoms of social anxiety are associated with greater affective and empathic forecasting errors (Hall et al., 2018). There are also age differences in affective forecasting, with older adults generally demonstrating greater accuracy in predicting their own feelings than younger adults (Nielsen, Knutson, & Carstensen, 2008).

Cultural differences may contribute to affective forecasting as well. Specifically, Canadian university students of European descent showed an intensity bias while Asian students studying in Canada did not. This difference was explained by the Asian students’ tendency to think more holistically than Westerners, which made them less prone to focalism (Lam et al., 2005).

Second, this research area uses different measurement tools. Most commonly, the scales ask about happiness and range from 1 to 7 or 1 to 9. Some work, however, measures life satisfaction or perceived quality of life, and use scales such as 0 to 100, 0 to 10, and -5 to +5 (for more discussion on measuring affective forecasting accuracy, see: Dolan & Metcalfe, 2010; Levine et al., 2012; Mathieu, & Gosling, 2012; Wilson & Gilbert, 2013). As a result, particular attention should be paid to which aspect of wellbeing is being assessed and the comparability of scales when interpreting results.

Third, there are certain contexts and conditions in which forecasts may be relatively accurate. For instance, Americans were extremely accurate in forecasting the intensity of their feelings in response to the September 11th attacks at prediction intervals of up to seven years (Doré et al., 2016).

People may also be more accurate with one aspect of an affective forecast than another. Participants asked to predict their feelings about the outcome of a college exam and a presidential election overestimated how frequently they would experience feelings about the event, but were more accurate in forecasting emotion intensity (Lench et al., 2019).

In certain contexts, forecasting biases may occur in the opposite direction than is typically found (e.g., Christophe & Hansenne, 2021). Events that are more important and nearer in time lead to the typical overestimation of future feelings that this report has focused on. Meanwhile, underestimating future feelings is more likely for events that are perceived as less important and take place further away in time (Buechel, Zhang, & Morewedge, 2017). Because certain properties of the event people are forecasting can flip the direction of the bias, it is important to consider if a given cause area is more likely to lead to an overestimation or underestimation of future feelings (e.g., future anhedonia and longtermism).

In the case of focalism, people typically overestimate the intensity of their future feelings because they focus too narrowly on one future event rather than the full context of their lives. However, thinking about the broader context can actually increase the attention people pay to the event, which leads to an underestimation of future feelings. For instance, people overestimated how badly they would feel following a breakup, demonstrating the classic intensity bias, but *underestimated* how badly they would feel about the breakup on Valentine's Day (Lench, Safer, & Levine, 2011). Because the context of Valentine's Day made their breakup more salient, it heightened negative feelings more than people anticipated.

## 7. Conclusion

This report has reviewed the research on affective forecasting and suggested several implications for global priorities research. This includes a number of overlooked global priorities (mental health and chronic pain) as well as fruitful opportunities and methodological considerations for future research.

In sum, people frequently overestimate the intensity and duration of their own and others' feelings, particularly for circumstances that are easier to mentally simulate. This leads to counterintuitive conclusions about which global issues are currently overlooked by effective altruists and which issues may be overestimated. For example, physical illnesses that are mildly painful and debilitating may seem, by definition, less important than those that are severely so. But, after accounting for the magnitude and duration of their effects on wellbeing (as well as their prevalence), it may be the case that mild health problems are a more pressing problem than many severe ones.

If wellbeing is ultimately what matters, then it is essential to uncover the gaps between expected and actual changes in subjective quality of life. This motivates the use of subjective wellbeing measures and relying on those data to inform cause prioritisation, rather than relying on our intuitions. The next steps for applying the ideas in this report are to quantify the impact of the potentially overlooked cause areas on wellbeing and assess the cost-effectiveness of specific interventions that address them.

## 7.1 Practical takeaways

Mental health is a more important global priority than expected. Mental illnesses (e.g., depression) are more difficult to imagine than other problems such as physical illnesses. Because mental illnesses are enduring and command near-constant attention, they are extremely detrimental to wellbeing.

Mild physical health problems are another cause area that should be prioritised more highly. People mistakenly assume that the intensity of suffering is directly proportional to its importance, but mild health issues such as migraines and chronic pain are more common and persistent relative to many health issues that are considered more severe.

Researchers can mitigate the influence of affective forecasting errors by directly measuring the wellbeing of people experiencing the problem of interest, rather than assuming that people living without that problem can accurately predict what it would be like to be in that condition. These wellbeing measures should ask people about their feelings in general, rather than how they feel specifically about the problem or intervention being studied, and avoid retrospective reports when possible.

Researchers should measure wellbeing of the recipients of an intervention multiple times over long time scales to account for hedonic adaptation. They should also measure the wellbeing of non-recipients to include potential spillover effects.

## 7.2 Recommended reading

Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. *Well-being: The Foundations of Hedonic Psychology*, 85-105.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology*, Vol. 35, pp. 345–411). New York: Elsevier.

Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science*, 14(3), 131-134.

## 8. References

Agerström, J., Björklund, F., & Carlsson, R. (2012). Emotions in time: Moral emotions appear more intense with temporal distance. *Social Cognition*, 30(2), 181-198.

Ayton, P., Pott, A., & Elwakili, N. (2007). Affective forecasting: Why can't people predict their emotions?. *Thinking & Reasoning*, 13(1), 62-80.

Birkjær, M., Kaats, M., Rubio, A. (2020). Wellbeing Adjusted Life Years. Happiness Research Institute.

Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative?. *Journal of Personality and Social Psychology*, 36(8), 917.

Buechel, E. C., Zhang, J., & Morewedge, C. K. (2017). Impact bias or underestimation? Outcome specifications predict the direction of affective forecasting errors. *Journal of Experimental Psychology: General*, 146(5), 746.

Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. *Personality and Social Psychology Bulletin*, 27(11), 1480-1493.

Christophe, V., & Hansenne, M. (2021). Negative Valence Effect in Affective Forecasting: The Unique Impact of the Valence Among Dispositional and Contextual Factors for Certain Life Events. *Europe's Journal of Psychology*, 17(2), 117-130.

Diener, E., Lucas, R. E., & Scollon, C. N. (2009). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. In *The Science of Well-Being* (pp. 103-118). Springer, Dordrecht.

Dolan, P. (2011). Using happiness to value health. Monographs, Office of Health Economics, number 000176.

Dolan, P., & Metcalfe, R. (2010). 'Oops... I did it again': Repeated focusing effects in reports of happiness. *Journal of Economic Psychology*, 31(4), 732-737.

Dolan, P., & Metcalfe, R. (2012). Valuing health: a brief report on subjective well-being versus preferences. *Medical Decision Making*, 32(4), 578-582.

- Doré, B. P., Meksin, R., Mather, M., Hirst, W., & Ochsner, K. N. (2016). Highly accurate prediction of emotions surrounding the attacks of September 11, 2001 over 1-, 2-, and 7-year prediction intervals. *Journal of Experimental Psychology: General*, 145(6), 788.
- Dunn, E. W., Wilson, T. D., & Gilbert, D. T. (2003). Location, location, location: The misprediction of satisfaction in housing lotteries. *Personality and Social Psychology Bulletin*, 29(11), 1421-1432.
- 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(3), 800-807.
- Flynn, E., Hovasapian, A., & Levine, L. J. (2021). Affective forecasting. In K. Sweeny & M. L. Robbins (Eds.), *The Wiley encyclopedia of Health Psychology: The social bases of health behavior* (Vol. II). Hoboken, NJ: John Wiley & Sons, Inc.
- Frederick, S., & Loewenstein, G. (1999). 16 Hedonic adaptation. Well-Being. *The foundations of Hedonic Psychology*/Eds. D. Kahneman, E. Diener, N. Schwarz. NY: Russell Sage, 302-329.
- Fredrickson, B. L., & Kahneman, D. (1993). Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology*, 65(1), 45.
- Gilbert, D.T. (2006). *Stumbling on Happiness*, Alfred A. Knopf.
- 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.
- Gilbert, D. T., Lieberman, M. D., Morewedge, C. K., & Wilson, T. D. (2004). The peculiar longevity of things not so bad. *Psychological Science*, 15(1), 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(3), 617.
- Gilbert, D. T., & Wilson, T. D. (2007). Prospection: Experiencing the future. *Science*, 317(5843), 1351-1354.

Gilbert, D. T., & Wilson, T. D. (2009). Why the brain talks to itself: Sources of error in emotional prediction. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1521), 1335-1341.

Gilbert, D. T., Driver-Linn, E., & Wilson, T. D. (2002). The trouble with Vronsky: Impact bias in the forecasting of future affective states. In L. Feldman-Barrett & P. Salovey (Eds.), *The wisdom of feeling* (pp. 114-143). New York: Guilford.

Graham, C., Higuera, L., & Lora, E. (2011). Which health conditions cause the most unhappiness?. *Health Economics*, 20(12), 1431-1447.

Graham, L., & Oswald, A. J. (2010). Hedonic capital, adaptation and resilience. *Journal of Economic Behavior & Organization*, 76(2), 372-384.

Greene, E., Sturm, K. A., & Evelo, A. J. (2016). Affective forecasting about hedonic loss and adaptation: Implications for damage awards. *Law and Human Behavior*, 40(3), 244.

Hall, K. A. A., Joormann, J., Siemer, M., & Timpano, K. R. (2018). The impact bias in self and others: Affective and empathic forecasting in individuals with social anxiety. *Behaviour Research and Therapy*, 106, 37-46.

Hoerger, M., Quirk, S. W., Lucas, R. E., & Carr, T. H. (2009). Immune neglect in affective forecasting. *Journal of Research in Personality*, 43(1), 91-94.

Igou, E. R. (2008). "How long will I suffer?" versus "How long will you suffer?" A self-other effect in affective forecasting. *Journal of Personality and Social Psychology*, 95(4), 899-917.

Kahneman, D., (2011). "What Scientific Concept Would Improve Everybody's Cognitive Toolkit?" Edge.org, [www.edge.org/response-detail/11984](http://www.edge.org/response-detail/11984).

Kahneman, D., Fredrickson, B. L., Schreiber, C. A., & Redelmeier, D. A. (1993). When more pain is preferred to less: Adding a better end. *Psychological Science*, 4(6), 401-405.

Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. A. (2006). Would you be happier if you were richer? A focusing illusion. *Science*, 312(5782), 1908-1910.

Kassam, K. S., Gilbert, D. T., Boston, A., & Wilson, T. D. (2008). Future anhedonia and time discounting. *Journal of Experimental Social Psychology*, 44(6), 1533-1537.

- Katsarava, Z., Mania, M., Lampl, C., Herberhold, J., & Steiner, T. J. (2018). Poor medical care for people with migraine in Europe—evidence from the Eurolight study. *The Journal of Headache and Pain*, 19(1), 1-9.
- Kemp, S., Burt, C. D., & Furneaux, L. (2008). A test of the peak-end rule with extended autobiographical events. *Memory & Cognition*, 36(1), 132-138.
- Kurtz, J. L. (2018). Affective forecasting. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of Wellbeing*. Salt Lake City, UT: DEF Publishers.
- Lacey, H. P., Smith, D. M., & Ubel, P. A. (2006). Hope I die before I get old: Mispredicting happiness across the adult lifespan. *Journal of Happiness Studies*, 7(2), 167-182.
- Lam, K. C., Buehler, R., McFarland, C., Ross, M., & Cheung, I. (2005). Cultural differences in affective forecasting: The role of focalism. *Personality and Social Psychology Bulletin*, 31(9), 1296-1309.
- Lau, T., Morewedge, C. K., & Cikara, M. (2016). Overcorrection for social-categorization information moderates impact bias in affective forecasting. *Psychological Science*, 27(10), 1340-1351.
- Lench, H. C., Levine, L. J., Perez, K., Carpenter, Z. K., Carlson, S. J., Bench, S. W., & Wan, Y. (2019). When and why people misestimate future feelings: Identifying strengths and weaknesses in affective forecasting. *Journal of Personality and Social Psychology*, 116(5), 724–742.
- Lench, H. C., Safer, M. A., & Levine, L. J. (2011). Focalism and the underestimation of future emotion: When it's worse than imagined. *Emotion*, 11(2), 278.
- Levine, L. J., Lench, H. C., Kaplan, R. L., & Safer, M. A. (2012). Accuracy and Artifact: Reexamining the Intensity Bias in Affective Forecasting. *Journal of Personality and Social Psychology*, 103, 584–605.
- Loewenstein, G. (2005). Projection bias in medical decision making. *Medical Decision Making*, 25(1), 96-105.
- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *The Quarterly Journal of Economics*, 118(4), 1209-1248.

Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. *Well-being: The Foundations of Hedonic Psychology*, 85-105.

Loewenstein, G., & Ubel, P. A. (2008). Hedonic adaptation and the role of decision and experience utility in public policy. *Journal of Public Economics*, 92(8-9), 1795-1810.

Lucas, R. E. (2007a). Adaptation and the set-point model of subjective well-being: Does happiness change after major life events?. *Current Directions in Psychological Science*, 16(2), 75-79.

Lucas, R. E. (2007b). 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(4), 717.

Luhmann, M., & Intelisano, S. (2018). Hedonic adaptation and the set point for subjective well-being. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of Well-Being*. Salt Lake City, UT: DEF Publishers.

Lyubomirsky, S. (2011). Hedonic adaptation to positive and negative experiences. In S. Folkman (Ed.), *Oxford Handbook of Stress, Health, and Coping* (pp. 200–224). New York: Oxford University Press.

Martin, S. M., Gerhart, J. I., Rochefort, C., Perry, L., & Hoerger, M. (2020). Affective forecasting in health psychology. *The Wiley Encyclopedia of Health Psychology*, 293-300.

Mata, A., Simão, C., Farias, A. R., & Steimer, A. (2019). Forecasting the duration of emotions: A motivational account and self-other differences. *Emotion*, 19(3), 503.

Mathieu, M. T., & Gosling, S. D. (2012). The accuracy or inaccuracy of affective forecasts depends on how accuracy is indexed: A meta-analysis of past studies. *Psychological Science*, 23(2), 161.

McGuire, J., Kaiser, C., & Bach-Mortensen, A. (2020). The impact of cash transfers on subjective well-being and mental health in low-and middle-income countries: a systematic review and meta-analysis. Happier Lives Institute.

McPherson, K., Myers, J., Taylor, W. J., McNaughton, H. K., & Weatherall, M. (2004). Self-valuation and societal valuations of health state differ with disease severity in chronic and disabling conditions. *Medical Care*, 1143-1151.

- Mukuria, C., & Brazier, J. (2013). Valuing the EQ-5D and the SF-6D health states using subjective well-being: a secondary analysis of patient data. *Social Science & Medicine*, 77, 97-105.
- Nielsen, L., Knutson, B., & Carstensen, L. L. (2008). Affect dynamics, affective forecasting, and aging. *Emotion*, 8(3), 318.
- Perez-Truglia, R. (2012). On the causes and consequences of hedonic adaptation. *Journal of Economic Psychology*, 33(6), 1182-1192.
- Plant, M. (2019). Doing Good Badly? Philosophical Issues Related to Effective Altruism.
- Plant, M. (2020). A Happy Possibility About Happiness (And Other Subjective) Scales: An Investigation and Tentative Defence of the Cardinality Thesis.
- Pollmann, M. M., & Finkenauer, C. (2009). Empathic forecasting: How do we predict other people's feelings?. *Cognition and Emotion*, 23(5), 978-1001.
- Rayo, L., & Becker, G. S. (2007). Evolutionary efficiency and happiness. *Journal of Political Economy*, 115(2), 302-337.
- Read, D., & Loewenstein, G. (1999). Enduring pain for money: Decisions based on the perception and memory of pain. *Journal of Behavioral Decision Making*, 12(1), 1-17.
- Redelmeier, D. A., & Kahneman, D. (1996). Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain*, 66(1), 3-8.
- Riis, J., Loewenstein, G., Baron, J., Jepson, C., Fagerlin, A., & Ubel, P. A. (2005). Ignorance of hedonic adaptation to hemodialysis: a study using ecological momentary assessment. *Journal of Experimental Psychology: General*, 134(1), 3.
- Robinson, M. D., & Clore, G. L. (2001). Simulation, scenarios, and emotional appraisal: Testing the convergence of real and imagined reactions to emotional stimuli. *Personality and Social Psychology Bulletin*, 27(11), 1520-1532.
- Sackett, D. L., & Torrance, G. W. (1978). The utility of different health states as perceived by the general public. *Journal of Chronic Diseases*, 31(11), 697-704.

Sayette, M. A., Loewenstein, G., Griffin, K. M., & Black, J. J. (2008). Exploring the cold-to-hot empathy gap in smokers. *Psychological Science*, 19(9), 926-932.

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.

Schroeder, J., & Epley, N. (2020). Demeaning: Dehumanizing others by minimizing the importance of their psychological needs. *Journal of Personality and Social Psychology*, 119(4), 765.

Shields, M. A., & Price, S. W. (2005). Exploring the economic and social determinants of psychological well-being and perceived social support in England. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 168(3), 513-537.

Sieff, E. M., Dawes, R. M., & Loewenstein, G. (1999). Anticipated versus actual reaction to HIV test results. *The American Journal of Psychology*, 112(2), 297.

Smith, D. M., Loewenstein, G., Jankovic, A., & Ubel, P. A. (2009). Happily hopeless: adaptation to a permanent, but not to a temporary, disability. *Health Psychology*, 28(6), 787.

Smith, D., Loewenstein, G., Jepson, C., Jankovich, A., Feldman, H., & Ubel, P. (2008). Mispredicting and misremembering: patients with renal failure overestimate improvements in quality of life after a kidney transplant. *Health Psychology*, 27(5), 653.

Suh, E., Diener, E., & Fujita, F. (1996). Events and subjective well-being: Only recent events matter. *Journal of Personality and Social Psychology*, 70(5), 1091.

Van Boven, L., Loewenstein, G., & Dunning, D. (2005). The illusion of courage in social predictions: Underestimating the impact of fear of embarrassment on other people. *Organizational Behavior and Human Decision Processes*, 96(2), 130-141.

Van Boven, L., Loewenstein, G., Dunning, D., & Nordgren, L. F. (2013). Changing places: A dual judgment model of empathy gaps in emotional perspective taking. In *Advances in Experimental Social Psychology* (Vol. 48, pp. 117-171). Academic Press.

Van Dijk, W. W. (2009). How do you feel? Affective forecasting and the impact bias in track athletics. *The Journal of Social Psychology*, 149(3), 343-348.

Walker, C., Donaldson, C., & Plant, M. (2021). Problem area report: mental health. Happier Lives Institute.

Walsh, E., & Ayton, P. (2009). What would it be like for me and for you? Judged impact of chronic health conditions on happiness. *Medical Decision Making*, 29(1), 15-22.

Whitehead, S. J., & Ali, S. (2010). Health outcomes in economic evaluation: the QALY and utilities. *British Medical Bulletin*, 96(1), 5-21.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology*, Vol. 35, pp. 345–411). New York: Elsevier.

Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current directions in Psychological Science*, 14(3), 131-134.

Wilson, T. D., & Gilbert, D. T. (2013). The impact bias is alive and well. *Journal of Personality and Social Psychology*, 105, 740–748.

Wilson, T. D., Gilbert, D. T., & Centerbar, D. B. (2003). Making sense: The causes of emotional evanescence. *The Psychology of Economic Decisions*, 1, 209-233.

Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axson, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 78(5), 821.

Woodzicka, J. A., & LaFrance, M. (2001). Real versus imagined gender harassment. *Journal of Social Issues*, 57(1), 15-30.