



# Getting off the hedonic treadmill, one step at a time: The impact of regular religious practice and exercise on well-being

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## Abstract

Many studies have shown that few events in life have a lasting impact on subjective well-being because of people's tendency to adapt quickly; worse, those events that do have a lasting impact tend to be negative. We suggest that while major events may not provide lasting increases in well-being, certain seemingly minor events – such as attending religious services or exercising – may do so by providing small but frequent boosts: if people engage in such behaviors with sufficient frequency, they may cumulatively experience enough boosts to attain higher well-being. In Study 1, we surveyed places of worship for 12 religions and found that people did receive positive boosts for attending service, and that these boosts appeared to be cumulative: the more they reported attending, the happier they were. In Study 2, we generalized these effects to other regular activities, demonstrating that people received boosts for exercise and yoga, and that these boosts too had a cumulative positive impact on well-being. We suggest that shifting focus from the impact of major life changes on well-being to the impact of seemingly minor repeated behaviors is crucial for understanding how best to improve well-being. © 2007 Elsevier B.V. All rights reserved.

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## 1. Introduction

Understanding the determinants of subjective well-being has important implications for economics. At the micro level, well-being has been shown to affect the behavior of individuals. For example, some studies have found that there is a positive relation between worker's stable happiness and their work performance (Wright & Staw, 1999). People in positive moods have also been shown to be more creative problem solvers, more likely to attain a mutually favorable outcome while bargaining, and more willing to seek variety among positive choices (Isen, 2000).

At the macro level, policymakers must often decide among various programs that differ in the advantages they provide to the public. Understanding what factors truly improve well-being can guide such decisions, and help avoid choosing programs that bring expensive and non-lasting benefits. In contrast to models in which utility is inferred from people's choices, recent economic conceptualizations of utility include people's subjective feelings of utility – their reports of their subjective well-being – as an important input in determining overall utility. These reports of subjective well-being are increasingly a factor in determining the overall utility of some public policy decisions (e.g., Di Tella & MacCulloch, 2006; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004b). As a result, the scientific study of subjective well-being has received increased attention from economists (see Frey & Stutzer, 2002; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004a).

The literature on subjective well-being offers a paradox, however, that must be resolved before the construct can be fruitfully applied to improve people's lives: most studies have shown that people's overall level of happiness seems stubbornly impervious to change. While people accumulate experiences that most predict would affect their well-being, subjective well-being appears to be surprisingly stable. Indeed, if major life events such as winning a lottery fail to have a substantial lasting impact on well-being (Brickman, Coates, & Janoff-Bulman, 1978), it is hard to imagine that any single event could accomplish the feat. Therefore, it would seem that any policy geared towards maximizing subjective well-being would be doomed to fail from the outset. We believe, however, that it is possible to make lasting changes in subjective well-being if one focuses on the right types of behaviors. In this paper, we shift from a focus on the impact of single major life events toward a focus on the impact of seemingly minor behaviors such as exercising or attending religious services on well-being. We suggest that while single major events may be unlikely to have a lasting impact, smaller minor behaviors provide small boosts to well-being that can lead to real changes in overall well-being, especially if they are repeated with sufficient frequency over time: one cannot win the lottery every day, but one can exercise or attend religious services regularly, and these repeated behaviors may be enough to increase well-being over time.

### 1.1. *Adaptation and the stability of well-being*

Brickman and Campbell (1971) coined the term “hedonic treadmill” to describe the now widely accepted notion that though people continue to accrue experiences and objects that make them happy – or unhappy – their overall level of well-being tends to remain fairly static. The logic behind this argument stems from adaptation level theory (Helson, 1964), which argues that people perceive objects not in any absolute sense, but rather relative to a level established by previous experiences. Therefore, when people experience a

positive event, two effects take place: in the short run, well-being increases; in the long run, however, people habituate to their new circumstances, which diminishes the positive effect of that event. In the most famous demonstration of this course of events, [Brickman et al. \(1978\)](#) interviewed a sample of lottery winners, as well as a sample of accident victims who had become paralyzed. The sample was chosen such that the major life event had happened to them within the previous year and a half, but at least a month before the interview, to allow for adaptation to occur. Their results showed that the lottery winners did not rate themselves as happier than the control group, and while the accident victims rated themselves as less happy than the other groups, they still rated themselves above the mid-point of the scale. Similarly, [Suh, Diener, and Fujita \(1996\)](#) showed that while major life events that had occurred within the previous 3 months predicted wellbeing, those occurring further back in time did not. Other studies have shown that there is no difference in well-being between people who had recently experienced a romantic break up versus those who had not, between assistant professors who had been denied tenure and those who had attained it, or between those whose preferred gubernatorial candidates had won or lost ([Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998](#)). Taken together, these results suggest that most events have no lasting impact on our well-being (see [Diener, Lucas, & Scollon, 2006](#); [Frederick & Loewenstein, 1999](#); [Frey & Stutzer, 2002](#)).

Worse still, of those investigations that have demonstrated a lasting impact of major events on well-being, most have been in negative domains. [Dijkers \(1997\)](#) conducted a meta-analysis of 22 studies that looked at the relationship between spinal cord injury and quality of life, and found that degree of disability had a negative effect on quality of life. [Lucas, Clark, Georgellis, and Diener \(2003\)](#) examined the effects of marital status over time with a large representative sample. Although marriage had a strong initial positive effect, this effect disappeared after just one year. People who had been widowed, on the other hand, never fully adapted and remained less happy than their baseline before the event occurred.

What then does account for people's positive levels of well-being, if not major life events? Many studies have shown that there are strong effects of both genetic predisposition and stable personality traits on well-being. [Lykken and Tellegen \(1996\)](#) found that half of the variance associated with well-being was associated with genetic variation, and that this accounted for 80% of the stable component of the subjective well-being measure (see also [Suh et al., 1996](#)). Indeed, [Headey and Wearing \(1989\)](#) suggested that rather than life events causing changes in well-being, life events are to some degree endogenously caused by personality. Personality models of well-being thus suggest that though there may be short-lived effects of external shocks on well-being, people return to their baseline in the long run, a baseline which is determined primarily by their personalities and the events that those personalities cause them to pursue.

### *1.2. Can well-being be improved?*

All of the previously cited research paints a rather discouraging picture about people's ability to increase their own well-being. Although some major negative events seem to be able to create lasting changes ([Dijkers, 1997](#); [Lucas, 2005](#); [Lucas, Clark, Georgellis, & Diener, 2004](#)), there seems to be little people can do to improve their well-being. At most, people may hope for temporary lifts from major life events (such as marriage, or winning the lottery) which quickly fade as they return to their usual baseline predetermined by genes

and personality – requiring them to ever peruse the hedonic treadmill in the hope of finding some temporary increase in happiness. Given the frequency of winning the lottery or getting married (which for most people is a few times at most), the odds of improving well-being seem low. Of course, this is not as tragic as it sounds, since most people’s equilibrium state is somewhat happy (Diener & Diener, 1996). Nonetheless, it seems as though people generally should not even bother to pursue goals that make them happy (and not try as hard to avoid many of the activities that they expect to cause them unhappiness), as achieving them will not have any lasting impact. It also appears as though any economic policy aimed at improving people’s welfare is just a waste of time and money, since it will have no long-term effect. But is there truly nothing that people can do to improve their well-being?

We suggest that shifting from a focus on the impact of major life events to a focus on *minor* life events – the kinds of small activities people partake in every day – offers insight into how people might increase their well-being. Indeed, in contrast to the research reviewed above, some studies have shown that particular behaviors (such as religion and exercise) are related to higher levels of well-being. Importantly, these kinds of behaviors are *repeated* behaviors, rather than single-shot life events. We suggest that the cumulative impact of repeating minor but positive life events in the short-term – such as choosing to attend religious services each week or to work out several days a week – may be sufficient to increase well-being in the long-term.

We chose religious practice and exercise as our initial behaviors because both have been linked to well-being, and are precisely the kinds of minor repeated behaviors we propose may improve well-being. Indeed, religiosity and religious involvement have overwhelmingly been found to correlate with many measures of well-being. Myers (2000) reports data from a national sample showing that those who are most involved with their religion are almost twice as likely to report being “very happy” than those with the least involvement (see also Ferris, 2002). In a large cross-sectional national sample, Ellison (1991) found that religious variables accounted for 5–7% of the variance in life satisfaction (see also Witter, Stock, Okun, & Haring, 1985). Religious involvement has also been found to be positively related to more objective measures of well-being such as mental and physical health (e.g., Hackney & Sanders, 2003; Larson et al., 1992; Seybold & Hill, 2001). While not as widely studied, physical exercise is known to generate endorphins that improve mood (Thoren, Floras, Hoffmann, & Seals, 1990), regular engagement in exercise has been shown to have a positive impact on well-being (Biddle, 2000), and of course countless studies demonstrate the benefits of exercise for physical well-being (see Penedo & Dahn, 2005; Ross & Hayes, 1988).

### 1.3. How might repeated minor events lead to increased well-being?

How is it that religious involvement and exercise improve subjective well-being when most other factors – including events that seem to dwarf these in significance – seem to matter little? Why don’t people adapt to religion and exercise, behaviors that most people have been engaged in their entire life, as they do to most other things? We suggest that these behaviors have a causal effect on well-being because they give regular and reliable, albeit small, boosts to well-being each time a member participates in one of these activities. Though each boost is not large and fades over time, both religion and exercise encourage

regular participation, which might cause these small boosts to aggregate over time, leading to increased well-being.

Some evidence for the impact of small repeated events comes from the finding that commuting, a regular daily activity, is rated as a highly negative experience (Kahneman et al., 2004a), and commuting time correlates negatively with subjective well-being (Stutzer & Frey, 2004). In addition, Lyubomirsky, Sheldon, and Schkade (2005) suggest that intentional activities, discrete actions in which people choose to engage, can lead to higher levels of well-being because they draw attention to positive events, thus preventing them from fading into the background. However none of these studies have documented whether these activities cause small boosts in well-being every time they are performed, as we propose.

#### 1.4. Overview

In order to test whether people in fact do get small boosts from engaging in religious activity, we measured the subjective well-being of people as they entered and exited religious services (Study 1), and as they entered and exited the gym and yoga (Study 2). We expected to observe increases in well-being from before to after such behaviors. In both studies, we also assessed people's reported frequency of such behaviors, to investigate whether increased frequency of engaging in these behaviors (and thus more frequent small boosts) was related to overall higher well-being.

## 2. Study 1

### 2.1. Method

*Participants.* Teams of undergraduate research assistants surveyed places of worship for 12 religions in the Boston/Cambridge area (see Table 1 for religions represented, number of places of worship surveyed, and number of members of each religion who participated). In total, 2095 people participated (1032 male, 1063 female), with a mean age of 36.7.

*Procedure.* Participants were approached either before services or after services. We were concerned that approaching the same participants both pre- and post-service would

Table 1  
Number of participants and places of worship surveyed for 12 religions (Study 1)

Religion	Number of places of worship surveyed	Number of participants
Baha'i	1	39
Baptist	8	499
Catholic	4	120
Christian	6	161
Congregational	3	263
Episcopalian	5	438
Greek Orthodox	1	99
Lutheran	2	109
Methodist	3	208
Mormon	1	57
Quaker	2	42
Unitarian	1	60

create strong demand effects, with participants being motivated to report increased mood in order to justify their attendance. Therefore, we ensured that surveyors did not question the same participant twice, making this a true between-subjects design and minimizing these demand effects.

Participants were asked to rate, on a scale from 1 (very bad) to 100 (very good), “How do you feel right now?” “How satisfied are you with your life in general?” and “How satisfied are you with your spiritual and religious life?” While the limitations of doing field research limited us to just these three questions, previous research has suggested that even single item measures of well-being correlate well with more intensive surveys (e.g., Sandvik, Diener, & Seidlitz, 1993). Participants also reported how many times they had attended services in the last month and their age; surveyors recorded their gender.

## 2.2. Results

Since our three measures of well-being were highly correlated, we averaged them to create a composite measure of well-being (Cronbach’s  $\alpha = 0.80$ ). The average well-being reported in our sample was 81.2 (SD = 13.0); in line with previous research, people in our sample tended to be happy (Diener & Diener, 1996).

We next looked at the effect of attending a religious service on well-being by comparing the composite measure of participants surveyed before services and the different set of participants who were surveyed after services. As Fig. 1 shows, attending a religious service provided a small and positive boost to reported well-being, and this was true across all of the surveyed religions. Collapsing across all religions, those surveyed after their religious service ( $M = 82.8$ ,  $SD = 12.0$ ) reported a significantly higher level of well-being than those surveyed before ( $M = 79.6$ ,  $SD = 13.8$ ),  $t(2093) = 5.67$ ,  $p < .001$ .

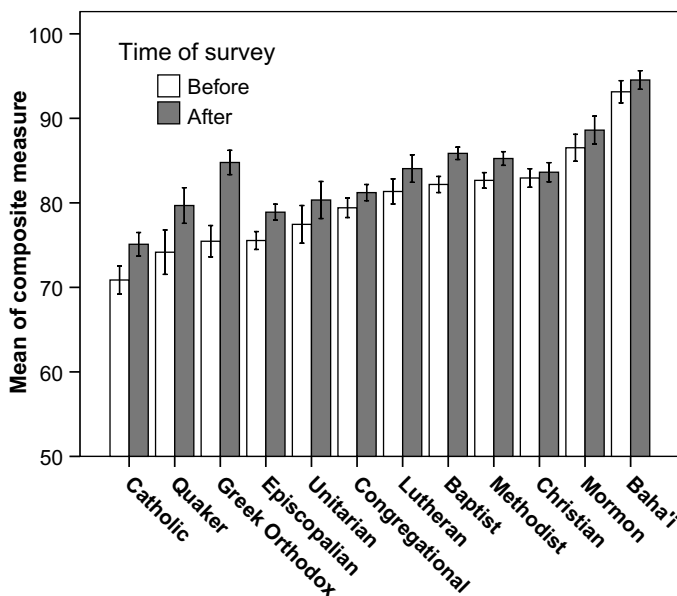


Fig. 1. Well-being of 12 religions before and after religious services (Study 1). Error bars indicate standard error.

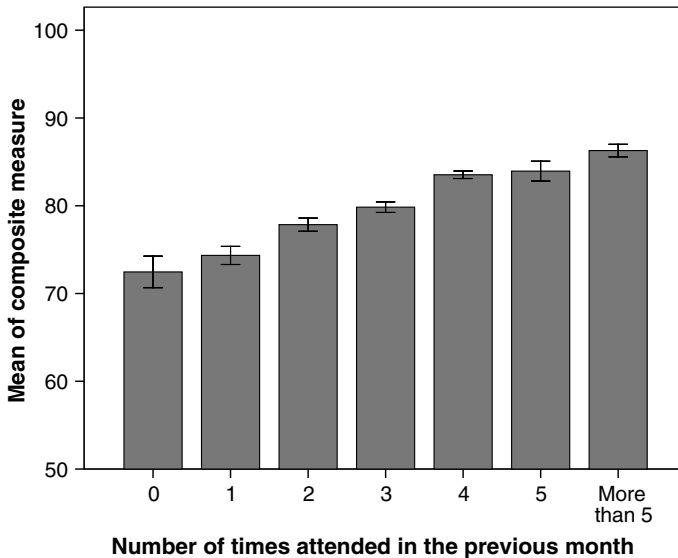


Fig. 2. The impact of frequency of attendance of religious services on well-being (Study 1). Error bars indicate standard error.

Our first result showed that people tend to get a small positive boost in well-being from attending a specific religious service. We suggest that it is the aggregation of these small boosts over time that contributes to the positive relationship between religiosity and well-being. If this is the case, we would expect people who had attended more services in the previous month to report a higher level of well-being at baseline (before they had received a positive boost from attending the service). We therefore explored the relationship of our composite measure of well-being to the number of times participants reported attending services in the previous month. On average, participants indicated that they had attended services 4.0 ( $SD = 3.7$ ) times in the previous month, and as expected, the frequency of attendance was positively related to well-being,  $\beta = 0.75$ ,  $t(2048) = 9.97$ ,  $p < .001$ : for every extra time a person had attended a religious service in the previous month, their baseline well-being was 0.75 points higher. As can be seen in Fig. 2, this effect is close to linear – the more people attend, the happier they are.

### 2.3. Discussion

These data offer an account for the relationship between religion and well-being, and help to explain why it is that religious people tend to be happier than non-religious people. While previous studies have shown that religious involvement is correlated with well-being, that correlation could have been caused by happier people being more religious, or some third factor. In Study 1, participants were randomly surveyed either before or after services, thus allowing us to conclude that religious adherents in fact report a higher level of well-being after participating in a religious service than before. Those actively involved in religion get small boosts to their well-being every time they attend a religious service, and when people attend religious services frequently enough, these boosts seem to



lead to overall higher levels of well-being.<sup>1</sup> While this second result is purely correlational, there is good reason to believe that attending services frequently causes higher levels of well-being, rather than the other way around. As we have shown, people get boosts from attending religious services, showing that attending a service can cause a single-shot improvement to well-being. If people choose activities in order to maximize their well-being, one would expect the least happy people to attend the most often, since they would benefit most from these boosts, leading to a negative correlation rather than the positive one we found. In addition, Litwin (2007) found that after controlling for covariates such as social involvement and physical health, religious involvement only improved mortality risk for those who attended services regularly, consistent with our theory that lasting change only occurs with frequent involvement.

### 3. Study 2

Study 1 showed that religion is a behavior in which people can engage in to get off the hedonic treadmill. Every time people attend a service they get small boosts, which over time seem to lead to a permanent change in their baseline level of well-being. While the relationship of religion and well-being is among the most-studied, there is no reason to think that the regular practice of religion is privileged in its positive impact. In Study 2, we investigate another set of behaviors which involve frequent discrete events: physical activity, which has also been found to provide long-term benefits for well-being. We explore whether two activities – going to the gym and practicing yoga – provide small boosts to well-being with each iteration, and whether the frequency of engaging in these activities (and thus of getting these boosts) predicts baseline well-being.

#### 3.1. Method

*Participants.* Teams of undergraduate research assistants surveyed a gym and two yoga classes in the Boston/Cambridge area. In total, 224 people participated (122 male, 102 female), with a mean age of 39.1. 164 were surveyed outside of the gym, while 60 were surveyed outside of a yoga class.

*Procedure.* As in Study 1, participants were approached as they were either entering or exiting their gym or yoga classes, and surveyors again did not question the same participant twice. Participants completed the same survey as in Study 1, which included the three measures of well-being, as well as the frequency with which they had attended their gym or yoga class in the previous month.

#### 3.2. Results and discussion

As in Study 1, we computed a composite measure by averaging the three well-being scales (Cronbach's  $\alpha = 0.74$ ). The mean reported level of well-being in our sample was of 76.2 (SD = 13.8), indicating that overall most of the people in our sample were happy.

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<sup>1</sup> An alternative explanation for our results (which may resonate with non-religious readers who were forced to attend religious services as children) is that rather than benefiting from attending religious services, the upward change merely reflects relief that they are over. This is unlikely, however, because participants reported very high levels of well-being before services had begun.



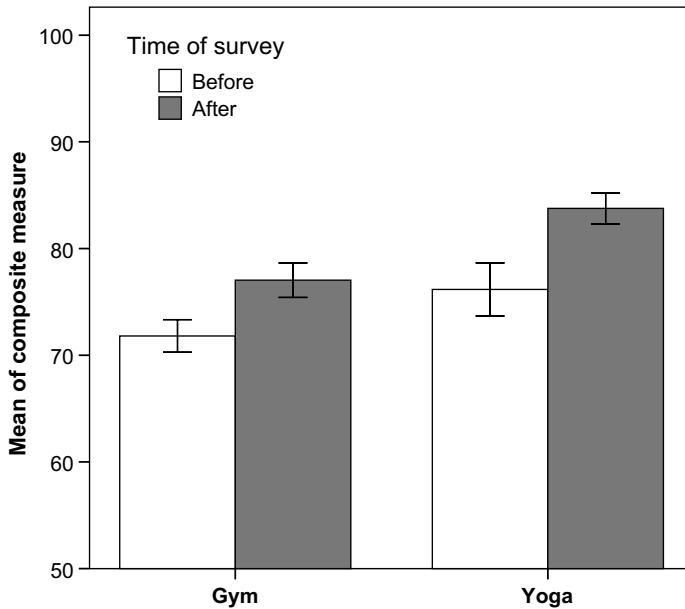


Fig. 3. Well-being before and after attending the gym or yoga class (Study 2). Error bars indicate standard error.

Was there an effect of engaging in physical activity similar to the one we observed with religious participation? As can be seen in Fig. 3, engaging in physical activity also provided a positive boost to well-being. Averaging across both groups, people who were surveyed after they engaged in physical activity reported significantly higher levels of well-being ( $M = 79.2$ ,  $SD = 13.4$ ) than those surveyed before they engaged in physical activity ( $M = 72.7$ ,  $SD = 13.4$ ),  $t(222) = 3.65$ ,  $p < .001$ . As with people who attended religious services, we found that people who engaged in physical activity received a small positive boost to their well-being.

We next examined whether the frequency with which people had engaged in these activities in the previous month predicted their baseline well-being. On average, our participants indicated that they had attended the gym or a yoga class 12.0 ( $SD = 10.3$ ) times in the previous month. We again found a positive relation between our composite measure of well-being and frequency of attendance,  $\beta = 0.33$ ,  $t(99) = 2.25$ ,  $p < .05$ : for each extra time they had attended their gym or yoga class in the previous month, participants experienced an increase in their well-being of about a third of a point. As in Study 1, there seems to be a cumulative effect of the small boosts of engaging in these behaviors, such that greater frequency was associated with greater well-being.

#### 4. General discussion

The data reported here address a seeming paradox: despite the many studies showing that very few events can have a lasting impact on subjective well-being because people adapt to their circumstances, some research suggests that certain behaviors are positively related to well-being. We posited that the reason that behaviors such as religious involve-

ment and physical activity have a lasting effect on well-being is that these involve frequent small boosts to well-being, with a non-activity period preceding each activity, and are quite different from the infrequent large changes provided by major life events. We further suggested that while the effect of each one of these boosts might be small, people who engage in these activities often enough will end up with higher well-being. Using a paradigm in which we surveyed some participants before they attended religious services or exercised and others as they left these activities, Study 1 showed that people reported higher well-being after religious services, while Study 2 showed a similar effect for attending the gym or a yoga class. Equally important, frequency of engaging in these activities was a positive predictor of people's baseline well-being, suggesting that these small boosts have a cumulative positive effect on well-being.

Our findings imply that, in contrast to the notion of an inescapable hedonic treadmill, it is not pointless for people to seek to improve their well-being. However, improvement may not come from major events such as winning the lottery, despite the seemingly life-changing nature of such examples. Rather, it seems like the key for long lasting changes to well-being is to engage in activities that provide small and frequent boosts, which in the long run will lead to improved well-being, one small step at a time. In light of our results, we think it not coincidental that Karl Marx called religion the "opium of the masses", while athletes frequently refer to the "runner's high" that comes with strenuous exercise. In some sense, both attending religious services and exercising work like a drug in their impact on well-being; while the benefits of the former may be more psychological and the latter more physiological in nature, the two seem to have similar positive effects. If people are engaged in a rational pursuit of higher well-being, it is not surprising that people pursue these activities more and more to continue to receive the cumulative benefits. While it is possible that not everyone would benefit from these two activities, we suggest that everyone can and should find an activity with similar characteristics in order to create lasting improvements in their well-being.

Our findings also suggest that policies aimed at improving welfare are not a pointless endeavor, as the hedonic treadmill suggests. However, one must be careful when choosing these policies. Single-shot events such as a one time tax refund will probably have little lasting impact on the well-being of the country, while policies that lead to small but repeated gains are likely to succeed. Future research should explore what are the best policies for achieving lasting change.

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