

Emotion

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Do Unto Others or Treat Yourself? The Effects of Prosocial and Self-Focused Behavior on Psychological Flourishing

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When it comes to the pursuit of happiness, popular culture encourages a focus on oneself. By contrast, substantial evidence suggests that what consistently makes people happy is focusing prosocially on others. In the current study, we contrasted the mood- and well-being-boosting effects of prosocial behavior (i.e., doing acts of kindness for others or for the world) and self-oriented behavior (i.e., doing acts of kindness for oneself) in a 6-week longitudinal experiment. Across a diverse sample of participants ($N = 473$), we found that the 2 types of prosocial behavior led to greater increases in psychological flourishing than did self-focused and neutral behavior. In addition, we provide evidence for mechanisms explaining the relative improvements in flourishing among those prompted to do acts of kindness—namely, increases in positive emotions and decreases in negative emotions. Those assigned to engage in self-focused behavior did not report improved psychological flourishing, positive emotions, or negative emotions relative to controls. The results of this study contribute to a growing literature supporting the benefits of prosocial behavior and challenge the popular perception that focusing on oneself is an optimal strategy to boost one's mood. People striving for happiness may be tempted to treat themselves. Our results, however, suggest that they may be more successful if they opt to treat someone else instead.

Keywords: psychological flourishing, positive emotions, negative emotions, prosocial behavior, self-focused behavior

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If you have not often felt the joy of doing a kind act, you have neglected much, and most of all yourself.

—A. Neilen

When it comes to the pursuit of happiness, popular culture encourages a focus on oneself and on one's needs. Mounting evidence, by contrast, suggests that being kind to others (i.e., engaging in prosocial behavior) consistently leads to increases in happiness (Aknin, Hamlin, & Dunn, 2012; Alden & Trew, 2013; Chancellor, Jacobs Bao, & Lyubomirsky, 2015; Layous, Lee, Choi, & Lyubomirsky, 2013; Lyubomirsky, Sheldon, & Schkade, 2005; Mongrain, Chin, & Shapira, 2011; Nelson et al., 2015; Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006; Pressman, Kraft, & Cross, 2015; Sheldon, Boehm, & Lyubomir-

sky, 2012; Weinstein & Ryan, 2010). Yet little research has directly compared focusing on others versus focusing on self (for an exception, see Dunn, Aknin, & Norton, 2008). In the current study, we examine the well-being outcomes of prosocial versus self-oriented behavior.

What Is Happiness?

Philosophical approaches to happiness date back more than 2,000 years (McMahon, 2006). More recently, psychological scientists have been theorizing about the meanings, causes, and consequences of happiness (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Lyubomirsky, 2001; Ryan & Deci, 2001; Ryff, 1989). Traditionally, theorists distinguished between hedonic well-being (i.e., the experience of pleasure) and eudaimonic well-being (i.e., fulfilling one's meaning and purpose in life; Ryan & Deci, 2001). Recent work, however, suggests that hedonic and eudaimonic well-being represent two different ways of pursuing happiness rather than two different types of happiness (Kashdan, Biswas-Diener, & King, 2008). Other researchers have also recognized the multidimensional nature of well-being (Coffey, Wray-Lake, Mashek, & Branand, in press; Kashdan & Steger, 2011; Keyes, Shmotkin, & Ryff, 2002; Ryff & Keyes, 1995), as well as the numerous ways to conceptualize its structure (Busseri & Sadava, 2011). In the current study, we conceptualize well-being

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with this multidimensional approach, encompassing both eudaimonic and hedonic well-being, by examining psychological flourishing. Throughout this article, we use the terms *happiness*, *well-being*, and *flourishing* interchangeably.

Psychological flourishing is a state of optimal mental health that extends beyond merely the absence of mental illness (Keyes, 2007). Flourishing entails the experience of positive emotional well-being (i.e., positive emotions and high life satisfaction), positive psychological functioning (i.e., self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, positive relations with others), and positive social functioning (i.e., social acceptance, social actualization, social contribution, social coherence, and social integration). We focused on psychological flourishing rather than subjective well-being because flourishing encompasses both affective and social components of well-being, suggesting that flourishing is not only good for the individual, but good for society as well. For example, people who reported relatively greater flourishing missed fewer work days and experienced fewer limitations in daily activities (Keyes, 2005).

Prosocial Behavior

Prosocial behavior is any act with the goal of benefitting another person, and may include everyday kindnesses (e.g., bringing food to an elderly relative), as well as larger efforts to improve the world (e.g., volunteering regularly at a local nursing home; Penner, Dovidio, Piliavin, & Schroeder, 2005). Substantial evidence suggests that helping others leads to boosts in happiness (Chancellor et al., 2015; Layous et al., 2013; Lyubomirsky, Sheldon, et al., 2005; Nelson et al., 2015; Otake et al., 2006; Sheldon et al., 2012; Weinstein & Ryan, 2010). For example, when Japanese participants were assigned to take note of the kind things they did for others, they demonstrated increases in happiness over the course of 1 week, relative to a control condition (Otake et al., 2006). In addition, U.S. and S. Korean students who were randomly assigned to perform acts of kindness each week for 6 weeks demonstrated greater improvements in happiness than those who focused on their academic work (Nelson et al., 2015).

Notably, the majority of these studies operationalize prosocial behavior as everyday kindnesses for others and do not consider the influence of broader acts to improve the world. To enhance the generalizability of our findings and to better understand both types of prosocial behavior, we implemented two prosocial behavior conditions in the current study. In the first condition, participants were instructed to perform acts of kindness for others, and in the second condition, participants were instructed to perform acts of kindness to improve the world.

In addition, the majority of previous studies compare prosocial behavior to a neutral control condition (e.g., keeping track of daily activities) that is not expected to promote well-being. However, when people are offered an alternative method to improve their moods (such as focusing on themselves), they will opt for that activity instead of engaging in prosocial behavior (Cialdini & Kenrick, 1976). Surprisingly, however, little research has directly compared the mood- and well-being boosting effects of these two methods to improve well-being. The one exception involves prosocial spending.

Several studies have now examined the effects of spending money on others (i.e., prosocial spending) relative to spending

money on oneself (i.e., personal spending). These studies consistently find that prosocial spending leads to greater happiness than personal spending (Aknin et al., 2013; Aknin, Dunn, Whillans, Grant, & Norton, 2013; Aknin, Sandstrom, Dunn, & Norton, 2011; Dunn, Aknin, & Norton, 2008). For example, in one experiment, participants were given \$5 or \$20 and were randomly assigned either to spend that money on themselves or on someone else by the end of the day. In this study, regardless of the amount, people who spent their money on others reported higher levels of happy mood at the end of the day than those who spent their money on themselves (Dunn et al., 2008). Such emotional benefits of prosocial spending have been demonstrated by Aknin and colleagues (2013) in multiple cultures. Indeed, prosocial spending is correlated with greater happiness worldwide. Moreover, these associations appear to be causal. In one study, for example, Canadian, Ugandan, and Indian participants who were randomly assigned to reflect on a previous instance of prosocial spending reported greater subjective happiness than participants who reflected on personal spending.

The work on prosocial spending suggests that focusing on others may lead to greater gains in happiness than focusing on oneself. However, these studies exclusively target monetary spending, and do not test whether general prosocial versus self-oriented behavior follow a similar pattern. In addition, the effects of prosocial spending are typically only examined after one purchase and over a relatively short period of time (usually from 1 day to 1 week). Studies examining the influence of prosocial spending and personal spending typically compare their effects to one another and do not include a neutral control condition, so it remains unclear whether focusing on the self (in spending or in behavior) results in shifts in well-being. In the current study, we sought to disentangle the effects of prosocial and self-focused behavior over the course of several weeks by comparing their effects to an alternative control condition, as well as to each other.

Self-Focused Behavior

Although substantial evidence suggests that focusing on others promotes well-being, many people appear to prioritize their own needs and feelings as the best way to feel good (e.g., Cialdini & Kenrick, 1976). Just as prosocial behavior involves a variety of actions, such as buying a friend a cup of coffee, watching a neighbor's children for a few hours, or volunteering for a local organization, self-focused behaviors also likely entail a variety of actions. For example, when instructed to focus on herself, a young woman might choose to buy herself a treat, enjoy a massage, or exercise. In the current study, we compared the well-being benefits of prosocial behavior relative to self-focused behavior. To equalize both participants' levels of autonomy and behavioral similarity across the two types of behaviors, we operationalized self-focused behaviors as acts of "self-kindness," such as enjoying a favorite meal or spending time on a hobby. Specifically, we sought to hold constant the types of behaviors people performed (e.g., buying a cup of coffee), while altering only the target of those actions (i.e., others vs. oneself).

An emerging line of research touts the benefits of self-compassion for psychological well-being (Neff, 2003). Drawing on Eastern traditions of compassion, self-compassion involves maintaining a kind orientation toward the self (i.e., self-

kindness), perceiving one's experiences in the context of the larger human experience (i.e., common humanity), and maintaining a balanced perspective on negative emotions (i.e., mindfulness; Neff, 2003). Perhaps not surprisingly, studies indicate that self-compassion is linked to greater psychological well-being (Neff, Kirkpatrick, & Rude, 2007; Neff & McGehee, 2010; Neff, Rude, & Kirkpatrick, 2007). The majority of work on self-compassion has been correlational, but a small pilot experiment showed that training participants in self-compassion leads to increases in self-reported self-compassion, mindfulness, and well-being, relative to a no-treatment control (Neff & Germer, 2013). Thus, preliminary evidence suggests that, with training, being kind to oneself may improve well-being; however, it remains untested whether people's initial attempts to engage in self-focused behavior (or self-kindness) would improve well-being over and above an active control condition.

Mechanisms of Change: The Role of Positive and Negative Emotions

In the present study, we tested the degree to which prosocial behavior leads to increases in psychological flourishing over the course of 6 weeks. In addition, we sought to test potential mechanisms by which prosocial behavior might improve psychological flourishing—namely, by increasing positive emotions and decreasing negative emotions.

Recent theory suggests that positive activities (i.e., simple behaviors such as kindness and gratitude) improve well-being in part by promoting increases in positive emotions and decreases in negative emotions (Lyubomirsky & Layous, 2013). As people perform acts of kindness for others, such as visiting an elderly relative, they may enjoy more opportunities to experience positive emotions, such as love and trust, within that relationship (Dunn & Schweitzer, 2005). In addition, they may feel grateful as they recall other times when someone has done something nice for them, or proud of themselves for helping someone in need. By focusing on the needs of others, they may feel fewer negative emotions, such as anxiety, guilt, or sadness. By contrast, although doing acts of self-kindness, such as visiting a spa for a massage, may be relaxing and enjoyable, it may not offer opportunities to experience a range of positive emotions, such as love, gratitude, trust, and pride. In addition, self-focused behavior may feel selfish and undeserved, leading people to feel guilty that they should be doing something other than focusing on themselves.

Substantial evidence supports the relation of positive and negative emotions to overall well-being (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson, 2001, 2013; Fredrickson & Joiner, 2002; Liu, Wang, & Lü, 2013), in part because positive emotions function to broaden thinking and build psychological resources, such as flourishing and resilience, over time (Fredrickson, 2013). For example, in one study, daily positive emotions predicted increases in life satisfaction and resilience over the course of a month (Cohn et al., 2009). In another investigation, the experience of more positive emotions and fewer negative emotions explained the association between resilience and life satisfaction (Liu et al., 2013). In addition, people high in psychological flourishing have been shown to experience relatively bigger boosts in positive emotions in response to everyday events, which leads to subsequently greater flourishing over time (Catalino & Fredrick-

son, 2011). Finally, one study found that prosocial spending leads to increases in subjective happiness via increases in positive emotions (Aknin et al., 2013). Accordingly, we predicted that prosocial behavior would lead to increases in flourishing via increases in positive emotions and decreases in negative emotions.

Current Study

We investigated the effects of prosocial and self-oriented behavior in a 6-week longitudinal experiment. Two types of prosocial behavior were implemented in the current study—(a) kindness to directly benefit another person and (b) kindness to benefit humanity or the world more broadly. These operationalizations stem from theory suggesting that prosocial behavior can be understood from multiple levels of analysis, including mesolevel prosocial behavior (i.e., specific cases of prosocial behavior in the context of helper-recipient dyads) and macrolevel prosocial behavior (i.e., prosocial behavior that occurs in a broader context, such as community service; Penner et al., 2005). Moreover, these two types of prosocial behavior differ on several dimensions, including that helping specific individuals is more socially oriented and more likely to trigger reciprocal kindness. In the current study, we tested this possibility by coding participants' acts of kindness for the degree to which they involved others (i.e., for their social orientation). We hypothesized that acts of kindness for specific others would be the most socially oriented, followed by acts of kindness for the world, and that self-focused behavior would be the least socially oriented.

We hypothesized that participants who performed acts of kindness for the world or for others would show greater improvements in psychological flourishing than those who performed acts of kindness for themselves or those who completed a neutral control activity. Because acts of kindness for others and for the world are both other-oriented, we anticipated these two types of kindness to be similarly rewarding. In addition, we tested a potential mechanism to explain the link between types of kindness and improvements in flourishing. Namely, we hypothesized that prosocial behavior would lead to flourishing via increases in positive emotions and decreases in negative emotions.

Method

Participants

Participants ($N = 472$; 60% female) were recruited from a community sample of adults ($n = 154$), the psychology department subject pool at a diverse public university in California ($n = 152$), and from Amazon Mechanical Turk (mTurk; $n = 166$) in exchange for \$50 (community members), course credit and \$10 (students), and \$25 (mTurk workers). Prior to data collection, we decided to recruit approximately 160 participants from each sample to increase the demographic diversity and representativeness of the sample, and to maximize power. Data collection continued until all participants completed the study.

A plurality were White (41.9%), followed by Asian American (21.6%), other or more than one (16.3%), Latino(a) (15.9%), and African American (4.2%). Participants' ages ranged from 17 to 67 ($M_{age} = 29.95$, $SD = 11.47$). Of the 472 participants who began the study, eight did not complete all baseline well-being measures

and were excluded from subsequent analyses. An additional 65 participants did not complete posttest or follow-up measures. Across time points, attrition was distributed across conditions, $\chi^2(3) < 6.27$, all $ps > .10$ (see Supplemental Materials). All participants who completed at least one time-point were included in analyses using multilevel growth curve modeling ($n = 464$), and those who completed measures at two time points or more were included in mediation analyses (analyses for posttest flourishing $n = 360$; follow-up $n = 347$). No other participants were excluded from analyses.

Procedure

Participants volunteered to take part in an online study involving happiness-enhancing activities. They were directed to a website where they provided consent, completed baseline measures,¹ and then were randomly assigned to one of four conditions: to perform acts of kindness for others (i.e., *other-kindness*; $n = 120$), to perform acts of kindness for humanity or the world (i.e., *world-kindness*, $n = 118$), to perform acts of kindness for themselves (i.e., *self-kindness*, $n = 118$), or to complete a neutral control activity (i.e., *control*, $n = 116$).² Specifically, participants in the *other-kindness* condition were instructed to perform three nice things for others the following day; participants in the *world-kindness* condition were instructed to perform three nice things to improve the world the following day; participants in the *self-kindness* condition were instructed to perform three acts of kindness for themselves the following day; and participants in the *control* condition were instructed to keep track of their activities the following day (see Supplemental Materials for complete instructions and examples of participants' reported actions). As a manipulation check, after returning the following week, participants were instructed to list their actions relevant to their assigned conditions. They performed these activities weekly for 4 weeks after baseline, and completed a 2-week follow-up (yielding six total time points).

Measures

Psychological flourishing. At baseline, posttest, and follow-up, participants completed the Mental Health Continuum–Short Form, which assesses psychological flourishing as the combination of emotional well-being, psychological well-being, and social well-being (Keyes, 2002; Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011). Participants responded to 14 items on a scale from 0 (*never*) to 5 (*every day*) reflecting their well-being over the past week. Examples of items include “How often did you feel happy?” (emotional well-being), “How often did you feel that you liked most aspects of your personality?” (psychological well-being), and “How often did you feel that you belonged to a community/social group?” (social well-being). Scores were averaged to reflect overall well-being. Cronbach's α s ranged from .92 to .95 across measurements in this study.

Positive and negative emotions. Each week, participants completed the nine-item Affect-Adjective Scale (Diener & Emmons, 1984), which taps a range of positive emotions (i.e., happy, pleased, joyful, enjoyment/fun) and negative emotions (i.e., worried/anxious, angry/hostile, frustrated, depressed/blue, unhappy). Participants rated the extent to which they experienced the emo-

tions in the past week on a 7-point scale (0 = *not at all*, 6 = *extremely much*). Across measurements in this study, Cronbach's α s ranged from .86 to .89 for negative emotions, and .91 to .93 for positive emotions.

Coding. Each week, participants were prompted to list their actions relevant to their assigned conditions (i.e., participants in the *other-* and *world-kindness* conditions listed their acts of kindness; participants in the *self-kindness* condition listed their acts of self-kindness; and participants in the *control* condition listed their activities). Three independent judges read the participants' responses in the three kindness conditions to determine whether participants adhered to their assigned activities, indicating the number of actions each participant performed (ranging from 0 to 3). Across time points, reliability was high: intraclass correlation coefficients (ICCs; I,k) $> .91$. Participants largely adhered to instructions and completed their assigned actions, with the average number of actions ranging from 2.61 to 2.77 across time points.

In addition, the written responses were also coded for the degree to which participants' actions were social. To code this information, three independent judges rated whether or not each action listed in the *world-kindness*, *other-kindness*, and *self-kindness* conditions involved other people.³ These codes were then summed for each rater, resulting in a value ranging from 0 to 3 representing the number of social actions participants performed each week. Interrater reliability was high, ICCs (I,k) $> .85$. We then averaged across raters to reflect average number of social actions each week.

Results

Overview and Preliminary Analyses

We analyzed changes in positive emotions, negative emotions, and flourishing using multilevel growth curve modeling to account for repeated measurements nested within individuals (Singer & Willett, 2003). Given that participants were no longer asked to perform acts of kindness after the fifth week of the study, their shifts in well-being may have diminished, which would result in quadratic changes over time. Thus, we tested both linear and quadratic changes over time. We began with an unconditional growth curve model, specifying linear and quadratic changes over time, and then compared the baseline unconditional quadratic model with hypothesis-testing models.

$$\text{Composite model: } Y_{ij} = \gamma_{00} + \gamma_{10}\text{Time}_{ij} + \gamma_{20}\text{Time}_{ij}^2 + (\varepsilon_{ij} + \zeta_{0i} + \zeta_{1i}\text{Time}_{ij} + \zeta_{1i}\text{Time}_{ij}^2)$$

¹ Participants also completed measures of life satisfaction, subjective happiness, single-item measures of weekly affect and satisfaction, psychological need satisfaction, meaning in life, weekly hassles and uplifts, and physical symptoms. These alternative measures of well-being followed a similar pattern as those presented here. A multivariate analysis of variance predicting change in life satisfaction, subjective happiness, and psychological flourishing was significant, $F(6, 664) = 2.23$, $p = .04$.

² These were the only conditions administered in the current study.

³ Because participants in the control condition listed all of their activities on a given day rather than just three activities, coding the number of social activities would have been on a different scale. Accordingly, responses to the control condition were not coded. Moreover, participants in the control condition were given explicit instructions not to focus on whom they were with as they listed their activities.

$$\text{Level 1 model: } Y_{ij} = \pi_{0i} + \pi_{1i}\text{Time}_{ij} + \pi_{2i}\text{Time}_{ij}^2 + \epsilon_{ij}$$

$$\text{Level 2 models: } \pi_{0i} = \gamma_{00} + \zeta_{0i}, \pi_{1i} = \gamma_{10} + \zeta_{1i}$$

$$\text{and } \pi_{2i} = \gamma_{20} + \zeta_{2i}$$

Time was centered on the fifth time point (posttest). Preliminary analyses revealed that the *world-kindness* and *other-kindness* trajectories did not significantly differ, $\gamma_{11} = 0.03, SE = 0.05, t(732) = 0.62, p = .53, d = 0.19$.⁴ Accordingly, in hypothesis-testing models, we include a variable representing kindness for others or the world (dummy-coded, collapsing *world-* and *other-kindness*) to represent prosocial behavior as a between-subjects predictor in the second level models. We then ran our analyses twice, first comparing prosocial behavior (and control) to self-focused behavior, and next comparing prosocial behavior and self-focused behavior to control.

Preliminary analyses revealed that the four conditions did not differ in baseline flourishing, positive or negative emotions, or in demographic composition, including recruitment sample, sex, ethnicity, and age, $F_s < 1$. Our recruitment samples demonstrated some baseline differences in well-being (see Table 1); however, these differences were scattered across conditions. Because the community sample reported significantly greater flourishing at baseline, we initially included recruitment sample as a covariate of baseline well-being in preliminary analyses. However, the pattern of results was identical in models excluding sample as a covariate. Moreover, recruitment sample did not predict trajectories of change over time for any condition, $\gamma_s < 0.08, ps > .42$. Accordingly, we excluded this covariate from our final models presented below.

Moreover, to better understand the context surrounding acts of kindness for self, others, and the world, we examined differences in the degree to which these behaviors were social. At each time point, all three conditions differed significantly from one another, with *other-kindness* rated as most social, followed by *world-kindness* and *self-kindness*, respectively, $F_s > 282.55, ps < .001$ (see Supplemental Materials for example behaviors by condition).

Changes in Positive and Negative Emotions

Prosocial behavior led to marginally greater quadratic, but not linear, changes in positive emotions, $\gamma_{21} = -0.03, SE = 0.02,$

Table 1
Means (Standard Deviation) for Baseline Well-Being by Recruitment Sample

Variable	Students (n = 149)	Community (n = 154)	mTurk (n = 164)	One-way ANOVA	
				df	F
Flourishing	3.88 (.89) ^a	4.20 (.94) ^b	3.82 (1.04) ^a	459	7.2 ^{**}
Positive emotions	3.53 (1.07) ^a	3.68 (1.17) ^a	3.01 (1.42) ^b	464	13.10 ^{***}
Negative emotions	2.19 (1.13) ^a	1.78 (1.05) ^b	1.81 (1.35) ^b	464	5.72 ^{**}

Note. mTurk = Amazon’s Mechanical Turk; ANOVA = analysis of variance; *df* = degrees of freedom within groups and vary due to missing data. Superscripts represent differences between specific groups according to Tukey’s honest significant difference tests.

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

$t(1,933) = -1.89, p = .06, d = -0.52$, relative to control (see Table 2, Figure 1). In addition, participants who practiced prosocial behavior reported greater positive emotions than control at posttest, $\gamma_{10} = 0.39, SE = 0.14, t(466) = 2.73, p = .007$, but only marginally greater positive emotions at the 2-week follow-up, $\gamma_{10} = 0.31, SE = 0.17, t(466) = 1.84, p = .07, d = 0.25$. Prosocial behavior did not lead to greater linear or quadratic changes in positive emotions relative to self-focused behavior, $|t| < .06, ps > .22$.

By contrast, prosocial behavior did not lead to greater linear or quadratic changes in negative emotions relative to control or self-focused behaviors, $|t| < .02, ps > .23$, but people who engaged in prosocial behavior did report fewer negative emotions than control at posttest, $\gamma_{10} = -0.36, SE = 0.13, t(466) = -2.82, p = .005, d = -0.36$, and at the 2-week follow-up, $\gamma_{10} = -0.33, SE = 0.14, t(466) = -2.30, p = .02, d = -0.33$.

Self-focused behavior did not lead to greater linear or quadratic changes in positive emotions or negative emotions relative to control, nor was it associated with differences in positive or negative emotions compared to control at posttest or follow-up (see Table 2, Figure 1).

Changes in Psychological Flourishing

Prosocial behavior led to greater linear, but not quadratic, changes in psychological flourishing relative to both self-focused behavior, $\gamma_{11} = 0.09, SE = 0.05, t(730) = 1.86, p = .06, d = 0.29$, and control, $\gamma_{11} = 0.09, SE = 0.05, t(730) = 1.93, p = .05, d = 0.31$. By contrast, self-focused behavior did not lead to linear improvements in psychological flourishing relative to control, $\gamma_{12} = 0.01, SE = 0.05, t(730) = 0.09, p = .93, d = 0.02$. Self-focused behavior led to marginally greater quadratic change in psychological flourishing relative to control, $\gamma_{22} = 0.14, SE = 0.09, t(730) = 1.67, p = .096, d = 0.35$, such that participants who engaged in self-focused behaviors reported a slight decline in psychological flourishing, followed by a return to baseline levels. See Figure 2 and Table 3 for parameter estimates and model fit indices. These findings suggest that prosocial behavior improves well-being over and above self-focused or neutral behavior.⁵

We also examined effects of prosocial and self-focused behavior on each subcomponent of psychological flourishing (psychological well-being, social well-being, and emotional well-being). We found that prosocial behavior led to greater linear and quadratic changes in psychological well-being relative to self-focused behavior (linear: $\gamma_{11} = 0.11, SE = 0.06, t(733) = 1.96, p = .05, d = 0.30$; quadratic: $\gamma_{21} = -0.18, SE = 0.09, t(733) = -2.05, p = .04, d = -0.34$), and greater linear, but not quadratic, improvements in psychological well-being relative to control, $\gamma_{11} = 0.13, SE = 0.06, t(733) = 2.29, p = .02, d = 0.36$. By contrast,

⁴ Effect size d was calculated with this equation: $\gamma_{11}/SD_{\text{change}}$ (Feingold, 2009). This effect size represents the magnitude of the difference in average growth rates between the two conditions.

⁵ Gender predicted baseline levels of negative emotions, $\gamma_{01} = 0.84, SE = 0.21, t(456) = 4.04, p = .001$, indicating that women reported relatively greater negative emotions at baseline, but gender did not predict baseline levels of psychological flourishing or positive emotions, $|t| < .14, ps > .54$. Moreover, gender did not moderate the effects of prosocial or self-focused behavior on psychological flourishing, positive emotions, or negative emotions, $|t| < .10, ps > .32$.

Table 2
Model Parameters (Standard Errors) and Goodness-of-Fit for Linear and Quadratic Changes in Positive and Negative Emotions by Prosocial Behavior and Self-Focused Behavior Relative to Control

Effect	Parameter	Positive emotions		Negative emotions	
		Model 1: Unconditional quadratic growth	Model 2: Prosocial and self-focused behavior vs. control	Model 1: Unconditional quadratic growth	Model 2: Prosocial and self- focused behavior vs. control
Fixed effects					
Status at posttest, π_{0i}					
Intercept	γ_{00}	3.60*** (.06)	3.34*** (.12)	1.59*** (.05)	1.82*** (.11)
Prosocial behavior	γ_{02}		.39** (.14)		-.36** (.13)
Self-focused behavior	γ_{03}		.26 (.17)		-.16 (.15)
Linear rate of change, π_{1i}					
Time	γ_{10}	-.03 (.02)	-.002 (.05)	.01 (.02)	.01 (.04)
Prosocial behavior	γ_{11}		-.06 (.06)		.02 (.05)
Self-focused behavior	γ_{12}		.001 (.07)		-.04 (.06)
Quadratic rate of change, π_{2i}					
Time ²	γ_{20}	-.02*** (.01)	-.001 (.01)	.02*** (.01)	.02 (.01)
Prosocial behavior	γ_{21}		-.03* (.02)		.01 (.02)
Self-focused behavior	γ_{22}		-.01 (.02)		-.01 (.02)
Random effects					
Variance components					
Level 1	σ_{ϵ}^2	.52	.52	.51	.51
Level 2	σ_0^2	1.34	1.31	1.02	1.00
	σ_1^2	.04	.04	.002	.001
	σ_2^2	.004	.003	.001	.001
Goodness-of-fit					
Deviance		6,703.18	6,692.50	6,424.12	6,413.91
$\Delta\chi^2$			10.68 ⁺		10.21
Δdf			6		6

Note. All p values in this table are two-tailed. In Model 1, the intercept parameter estimate (γ_{00}) represents the average positive or negative emotions score at posttest across the sample. In Model 2, the intercept parameter estimate (γ_{00}) represents the average positive or negative emotions score in the control condition at posttest, γ_{01} represents the difference at posttest between the prosocial behavior conditions and the control condition, and γ_{03} represents the difference at posttest between the self-focused behavior condition and the control condition. γ_{10} represents the average linear rate of change in the control condition, γ_{11} represents additional effects of prosocial behavior on linear rate of change, and γ_{12} represents additional effects of self-focused behavior on linear rate of change. Finally, γ_{20} represents the average quadratic rate of change in the control condition, γ_{21} represents additional effects of prosocial behavior on quadratic rate of change, and γ_{22} represents additional effects of self-focused behavior on quadratic rate of change. In all models, the intercept, linear slope (Time), and quadratic slope (Time²) were free to vary.

⁺ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

prosocial behavior did not lead to linear or quadratic changes in social or emotional well-being relative to self-focused behavior or control, $|\gamma_{11s}| < .08$, $ps > .19$.

Indirect Effects

Next we investigated the mechanisms by which prosocial behavior might improve psychological flourishing. Using Hayes' (2013) recommended procedures, we estimated path coefficients, as well as bootstrap bias-corrected confidence intervals (with 5,000 bootstrapped samples) for the indirect effects of prosocial behavior relative to control on psychological flourishing at posttest and follow-up through positive and negative emotions (averaged across Week 2 through Week 5), controlling for baseline flourishing, as well as baseline positive and negative emotions.

Posttest. Analyses revealed direct effects of prosocial behavior on positive emotions, $b = 0.23$, $p = .02$, but not negative emotions, $b = -0.13$, $p = .18$ (a paths). In addition, the direct effects of positive emotions, $b = 0.42$, $p < .0001$, and negative emotions, $b = -0.16$, $p = .003$, on psychological flourishing at posttest were also significant (b paths). Furthermore, the bias-corrected 95% confidence intervals (CIs) for the indirect effects of prosocial behavior through positive emotions [0.02, 0.19] did not contain zero. These findings suggest that the immediate improvements in flourishing as a result of prosocial behavior may be explained in part by increases in positive emotions (see Figure 3).

Follow-up. Analyses revealed a direct effect of prosocial behavior on positive emotions, $b = 0.23$, $p = .02$, but not negative emotions, $b = -0.14$, $p = .18$ (a paths). The direct effect of

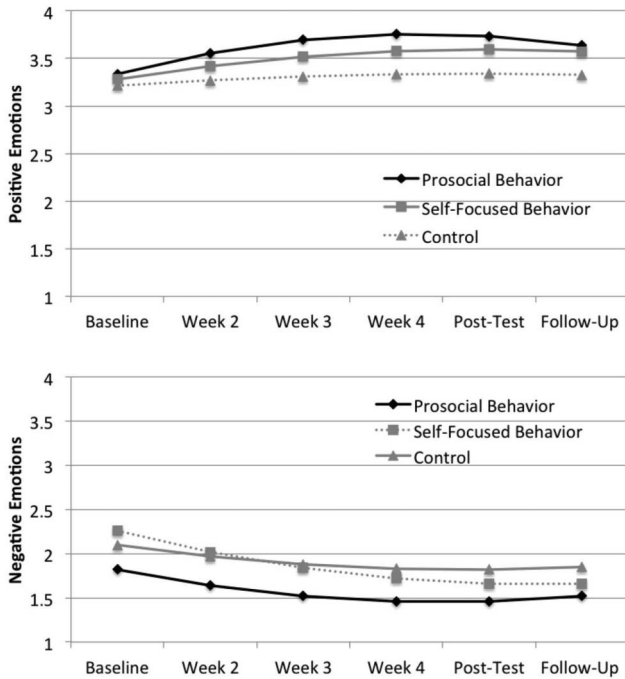


Figure 1. Model-predicted changes in positive (top) and negative (bottom) emotions by prosocial behavior, self-focused behavior, and control.

positive emotions, $b = 0.44, p < .001$ on psychological flourishing at follow-up was also significant, but the parallel path for negative emotions was not significant, $b = .003, p = .96$ (b paths). Furthermore, the bias-corrected 95% CI for positive emotions [0.02, 0.21] did not cross zero. This indicates that only positive emotions predicted enduring effects of the intervention on flourishing. Mediation analyses for each subcomponent of psychological flourishing followed a similar pattern (see Supplemental Materials).

Discussion

Across a diverse sample of participants, prosocial actions in this study led to greater increases in psychological flourishing than self-focused actions and neutral behaviors. In addition, we provide evidence for a mechanism explaining the relative improvements in psychological flourishing—namely, increases in positive emotions.

Prosocial Behavior

This study builds on a growing body of work supporting the psychological benefits of prosocial behavior (e.g., Weinstein & Ryan, 2010). The findings presented here are consistent with previous evidence suggesting that spending money on others leads to greater happiness than spending money on oneself (Dunn et al., 2008). Moreover, this study indicates that one of the explanations for the well-documented effect of prosocial behavior on increases in well-being is that such behavior leads people to experience more positive emotions.

Changes in positive emotions followed a nonlinear pattern over the course of the study, such that prosocial behavior led to in-

creases in positive emotions through posttest, followed by a slight decline. Participants likely felt fewer positive emotions as they were engaging in less prosocial behavior. By contrast, participants demonstrated a continued rise in psychological flourishing 2 weeks after they were no longer instructed to engage in prosocial behavior. One possibility is that the positive emotions felt during the course of the study triggered an upward spiral of greater well-being (cf. Fredrickson & Joiner, 2002). In other words, as people do nice things for others, they may feel greater joy, contentment, and love, which in turn promote greater overall well-being and improve social relationships and so on. Indeed, substantial evidence indicates that experiencing frequent positive emotions leads people to be more trusting of others (Dunn & Schweitzer, 2005), to form more inclusive social groups (Dovidio, Gaertner, Isen, & Lowrance, 1995; Isen, Niedenthal & Cantor, 1992), and to include others in their sense of self (Waugh & Fredrickson, 2006). In this way, prosocial behavior may actually propagate across one’s social network, as people improve their social relationships and inspire others to pay it forward and pay it back (Layous et al., 2012; see also Chancellor et al., 2015).

By contrast, doing nice things for themselves does not appear to lead individuals to feel greater positive emotions and fewer negative emotions, perhaps because the hedonic benefits are short-lived and/or are neutralized by hedonic costs (like guilt). In addition, self-focused behaviors in the current study were often solitary and may have offered fewer opportunities to improve relationships. Indeed, including others in one’s experiences appears to be an important component for such experiences to improve well-being (Caprariello & Reis, 2013).

Notably, only higher levels of positive emotions, but not lower levels of negative emotions, predicted greater flourishing at post-test and the 2-week follow-up among participants who engaged in prosocial behavior. This finding is consistent with previous evidence suggesting that the experience of frequent positive emotions influences well-being more strongly than the experience of infrequent negative emotions (Coffey, Warren, & Gottfried, 2015; Cohn et al., 2009; Kuppens, Realo, & Diener, 2008), and that positive emotions lead people to build psychological resources (Fredrickson, 2013). Perhaps, as mentioned earlier, the greater positive emotions felt as a result of being kind to others generate an upward spiral of well-being (Fredrickson & Joiner, 2002). For

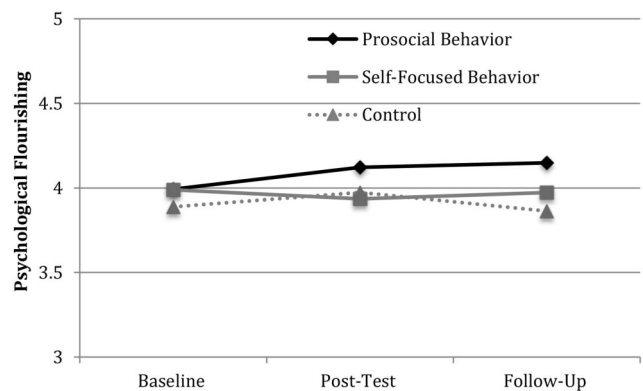


Figure 2. Model-predicted increases in psychological flourishing by prosocial behavior, self-focused behavior, and control.

Table 3
Model Parameters (Standard Errors) and Goodness-of-Fit for Linear Changes in Psychological Flourishing by Prosocial Behavior Relative to Self-Focused Behavior (Model 2) and Control (Model 3)

Effect	Parameter	Model 1: Unconditional quadratic growth	Model 2: Prosocial behavior vs. self-focused behavior	Model 3: Prosocial behavior vs. control
Fixed effects				
Status at Posttest, π_{0i}				
Intercept	γ_{00}	4.04*** (.05)	3.94*** (.11)	3.97*** (.10)
Prosocial behavior	γ_{02}		.19 (.13)	.15 (.13)
Self-focused behavior	γ_{03}			-.04 (.15)
Control	γ_{04}		-.04 (.15)	
Linear rate of change, π_{1i}				
Time	γ_{10}	.04 ⁺ (.02)	-.01 (.03)	-.01 (.04)
Prosocial behavior	γ_{11}		.09 ⁺ (.05)	.09 ⁺ (.05)
Self-focused behavior	γ_{12}			.01 (.05)
Control	γ_{13}		.04 (.15)	
quadratic rate of change, π_{2i}				
Time ²	γ_{20}		.05 (.05)	-.10 (.06)
Prosocial behavior	γ_{21}		-.09 (.07)	.05 (.07)
Self-focused behavior	γ_{22}			.14 ⁺ (.09)
Control	γ_{23}		-.14 ⁺ (.09)	
Random effects				
Variance components				
Level 1	σ_{ϵ}^2	.08	.09	.09
Level 2	σ_0^2	1.10	.98	.98
	σ_1^2	.09	.09	.09
	σ_2^2	.18	.17	.07
Goodness-of-fit				
Deviance		2,706.08	2,695.98	2,695.98
$\Delta\chi^2$			10.10	10.10
Δdf			6	6

Note. All p values in this table are two-tailed. In Model 1, the intercept parameter estimate (γ_{00}) represents the average well-being (WB) score at posttest across the sample. In Model 2, the intercept parameter estimate (γ_{00}) represents the average WB score in the self-kindness condition at posttest, γ_{01} represents the difference at posttest between the prosocial behavior conditions and the self-kindness condition, and γ_{03} represents the difference at posttest between the self-focused behavior condition and the control condition. γ_{10} represents the average linear rate of change in the self-kindness condition, γ_{11} represents additional effects of prosocial behavior on linear rate of change, and γ_{12} represents additional effects of control on linear rate of change. In Model 3, the intercept parameter estimate (γ_{00}) represents the average WB score in the control condition at posttest, γ_{01} represents the difference at posttest between the prosocial behavior conditions and the control condition, and γ_{03} represents the difference at posttest between the self-focused behavior condition and the control condition. γ_{10} represents the average linear rate of change in the control condition, γ_{11} represents additional effects of prosocial behavior on linear rate of change, and γ_{12} represents additional effects of self-kindness on linear rate of change. In all models, the intercept, linear slope (Time), and quadratic slope (Time²) were free to vary.

⁺ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

example, feeling delighted by the expression on a loved one's face after serving their favorite meal may foster greater warmth and closeness within that relationship, which in turn may provide more opportunities to share uplifts and successes with that person (cf. Gable, Gonzaga, & Strachman, 2006). Moreover, the expression of gratitude by the target of one's kindnesses may also serve to nurture greater relationship quality (Algoe, Fredrickson, & Gable, 2013).

We also found no differences between the well-being-enhancing effects of performing acts of kindness to improve humanity (i.e., world-kindness) and those of performing acts of kindness to directly benefit another person (i.e., other-kindness). One possibility

is that the specific behaviors engaged in by these two groups were not distinct enough. For example, one participant in the world-kindness condition reported that he "helped an old lady with groceries," and a participant in the other-kindness condition wrote that she "helped an elderly person with using their ATM at a kiosk." These two acts are remarkably similar and may represent a broader similarity among the behaviors reported by participants in these two conditions. To the extent that the acts actually performed by participants in these conditions were overlapping, any differences between these conditions would be minimized. However, even if the two groups' behaviors were distinct, given previous evidence from separate studies suggesting that both direct

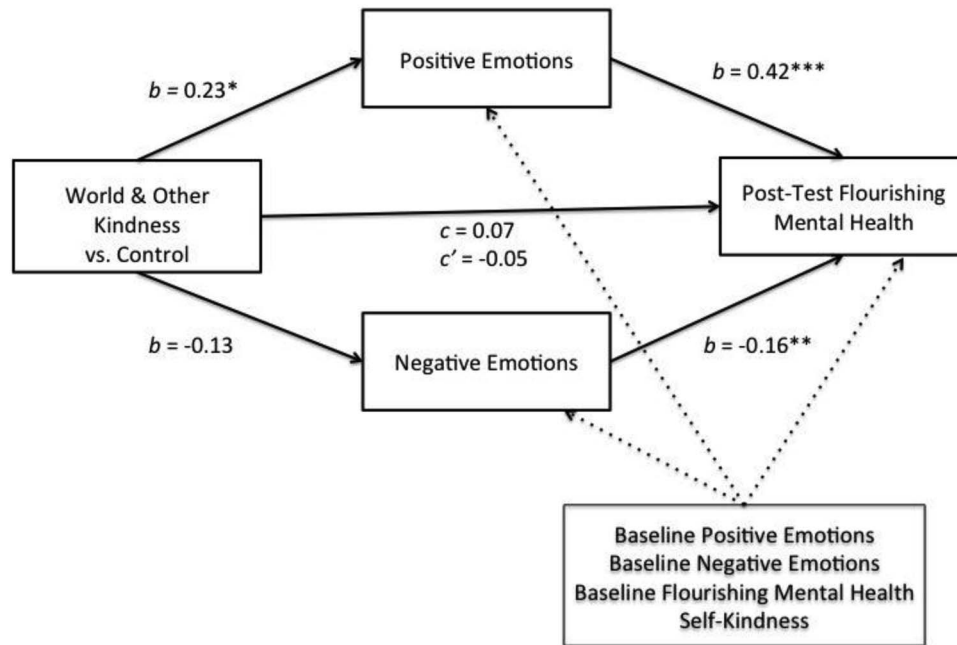


Figure 3. Indirect effects of world-kindness and other-kindness via positive and negative emotions on posttest psychological flourishing.

prosocial behavior (Chancellor et al., 2015) and volunteering (Borogovi, 2008) have well-being benefits, any differences between these two types of prosocial behavior may be negligible in terms of influencing well-being.

Self-Kindness and Self-Compassion

By contrast, engaging in self-focused behaviors (or acts of self-kindness) neither improved psychological flourishing nor led to increases in positive emotions or decreases in negative emotions, relative to a control activity. This null finding for self-kindness may appear to conflict with previous evidence regarding the benefits of self-compassion for psychological well-being (Neff & Germer, 2013; Neff, Kirkpatrick, et al., 2007); however, theories of self-compassion suggest that self-kindness involves “extending kindness and understanding to oneself rather than harsh judgment and self-criticism” (Neff, 2003, p. 89), which represents a pattern of thinking rather than a pattern of behaving. Self-kindness as conceptualized by self-compassion theorists is likely markedly different than the acts of self-kindness completed by participants in the current study. Indeed, many participants’ acts of self-kindness were focused on pleasure and may have been mildly maladaptive over the long-term (e.g., skipping class, indulging in desserts). Although the findings presented here warrant replication, self-kindness from the tradition of self-compassion may require training and effortful practice, while people’s attempts toward self-kindness (as they were instructed in the current study) may not necessarily promote happiness. Future studies examining the differences between different types of self-focused behaviors (e.g., self-compassion, self-care, self-indulgence) would be informative.

Methodological Contributions

In addition to contributing to the understanding of prosocial behavior, the current work also provides three methodological insights—namely, regarding participant recruitment, designing appropriate control conditions, and examining potential mechanisms for the effects of prosocial behavior. First, in recent years, psychological scientists have capitalized on the ease and availability of participants from Amazon’s mTurk service. Indeed, some researchers have suggested that mTurk participants may improve the diversity of samples used in psychological research, without compromising the data quality (Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013), but others have greeted this advance in technology with skepticism (Goodman, Cryder, & Cheema, 2013). In the current study, mTurk participants demonstrated slightly higher attrition than undergraduate or community participants. However, the overall pattern of results was largely consistent across the three recruitment samples, further supporting the use of mTurk participants in research on prosocial behavior and psychological well-being.

Second, one of the great challenges in conducting a well-designed psychological experiment involves creating an appropriate comparison condition that controls for demand characteristics, behavioral involvement, and other factors, while still maintaining the integrity of the experimental condition. Many interventions examining the effects of prosocial behavior or other positive activities on well-being often include a control condition in which participants are asked to write about their days (e.g., Layous, Nelson, & Lyubomirsky, 2013). Although participants are usually provided a cover story (to reduce demand characteristics) that writing about their days is “an organizational task” aimed to

improve their well-being, this cover story is undoubtedly less convincing than a cover story that acts of kindness improve well-being. Notably, performing acts of self-kindness requires similar amounts of behavior and planning as performing acts of other-kindness, while also eliciting similar expectations regarding its potential to boost well-being. Yet we found that this activity does not actually lead to improvements in well-being. Accordingly, assigning participants to practice self-kindness may represent an appropriate alternative comparison activity for future researchers wishing to study the effect of prosocial behavior on a variety of psychological outcomes.

Third, although theoretical accounts postulate the mechanisms by which positive activities improve well-being (Lyubomirsky & Layous, 2013), few studies have actually tested these predictions (for an exception, see Nelson et al., 2015). The current study advances this literature by testing one mechanism by which prosocial behavior promotes well-being—namely, by increasing positive emotions.

Limitations and Future Directions

Although the current study is one of the first to directly compare the effects of prosocial and self-focused behavior, the findings should be considered in light of a few limitations. First, the effects of prosocial behavior on well-being were medium in size ($d = 0.31$), suggesting that engaging in kind acts does not have a particularly strong influence on well-being. This effect size is relatively unsurprising, given the diversity of the sample in the current study, as well as the many other contributors to well-being that are operating at any single moment. Moreover, the intervention in the current study was relatively minor, requiring approximately 30 to 60 min of participants' time each week. Compared to the amount of time people might spend pursuing their career or fitness goals, for example, 30 min is quite brief. Previous research has indicated that relatively minor changes may initiate a recursive process or upward spiral, leading to long-term improvements (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Fredrickson & Joiner, 2002). Finally, the effect size found here is comparable to the effect sizes of other positive activity interventions (Bolier et al., 2013; Sin & Lyubomirsky, 2009).

Second, participants in the current study were directly assigned to perform acts of kindness, which may not accurately reflect how people choose to engage in prosocial behavior in their everyday lives. Although they had the freedom to choose when, where, and how they performed their kindnesses, they may not have been hugely motivated to perform these acts. Indeed, previous work suggests that autonomously motivated prosocial behavior leads to relatively larger well-being gains (Nelson et al., 2015; Weinstein & Ryan, 2010). Accordingly, our results may represent a conservative estimate of the effects of prosocial behavior, as acts of kindness that are mandated by others may have a limited effect on well-being.

Future work could build on this study in a number of ways. It would be informative to compare self-compassion approaches to self-kindness with lay approaches to self-kindness (as in the current study). Although self-kindness did not produce any benefits for psychological well-being here, we would predict that, with training in self-compassion, individuals may learn how to engage

in the types of self-kindness that lead to relatively better psychological health (cf. Neff & Germer, 2013).

Moreover, although we posit that prosocial behavior improves positive emotions and psychological flourishing in part because it improves social relationships, we did not directly test the role of social relationships in the current study. In supplementary analyses (see Supplemental Materials), we found that positive emotions remained a significant indirect effect over and above feelings of connectedness with others, and that prosocial behavior did not predict increases in connectedness. These supplementary analyses appear to indicate that prosocial behavior improves psychological well-being due to increases in general positive emotions, such as joy, happiness, and pride, rather than solely social emotions, such as love, gratitude, and compassion. Future work unpacking the role of different types of positive emotions in the effects of prosocial behavior on psychological flourishing would be informative.

In the current study, participants used self-report scales to rate the degree to which they experienced a variety of positive and negative emotions over the course of the week; these ratings were then averaged into composites of overall positive and negative emotions for each week. Future work could build on these findings by implementing a more nuanced approach to emotion. For example, researchers might examine whether prosocial behavior fosters specific positive emotions (e.g., joy), whether these emotions are only experienced on certain days (e.g., days when engaging in prosocial behavior), or whether these emotions are singular or diverse (e.g., Quoidbach et al., 2014).

Moving beyond self-report would also be illuminating. For example, behavioral measures could be included to assess the degree to which prosocial behavior spreads through social networks, as people make more friends, thus widening their networks, and galvanizing others to act kindly as well. Furthermore, as prosocial behavior increases people's happiness, those feelings of happiness may spread through social networks as well (Chancellor et al., 2015).

Concluding Remark

People who are striving to improve their own happiness may be tempted to treat themselves to a spa day, a shopping trip, or a sumptuous dessert. The results of the current study suggest, however, that when happiness seekers are tempted to treat themselves, they might be more successful if they opt to treat someone else instead.

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