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What the World Needs Now: An Intervention for Promoting Prosocial Behavior

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ABSTRACT

Prosocial behavior benefits individuals and society. Thus, the purpose of this study was to develop a new, integrative intervention for fostering prosocial behavior. The intervention combines activities such as watching an elevating video, enacting prosocial behaviors, and reflecting on how those behaviors relate to one's values. An experiment with 116 adolescents and young adults indicated that the intervention was efficacious in enhancing prosocial behavior and related constructs (e.g., empathy) and that these effects were maintained 1 month later. These results have important implications for understanding and promoting prosocial habits.

What characterizes a healthy person or a flourishing society? One factor that contributes to both is prosocial behavior. Prosocial behavior refers to voluntary actions aimed at advancing the welfare of other people (Batson & Powell, 2003; Eisenberg & Spinrad, 2014). This includes a wide range of behaviors such as sharing personal resources, assisting others with small tasks, and volunteering in one's community. Prosocial behavior represents a form of contribution to the world beyond oneself, and therefore is socially valued (e.g., Szreter & Woolcock, 2004). For example, people who volunteer to read to children can elicit joy and facilitate intellectual development among those children. Some acts, such as donating blood, even save lives. In addition to advancing the welfare of others, prosocial behavior also benefits the helper. In the moment, prosocial behavior often evokes positive emotions (e.g., Aknin, Dunn, & Norton, 2012) and reduces stress (Poulin & Holman, 2013). Furthermore, people who help others across time tend to exhibit higher physical health, including lower rates of disease and greater longevity (Okun, Yeung, & Brown, 2013; Whillans et al., 2016), and demonstrate higher psychological well-being, including a sense of meaning and life satisfaction (Auhagen & Holub, 2006; Caprara & Steca, 2005; Pashak & Laughter, 2012). Taken together, there is robust evidence that prosocial behavior contributes to multiple dimensions of positive development.

Although some benefits of prosocial behavior (e.g., positive emotions) arise from single acts, many of its benefits (e.g., life satisfaction, longevity) result from ongoing patterns of behavior. Consequently, it is valuable to foster *prosocial habits*, or a tendency to help others regularly across contexts (Carlo, Crockett, Randall, & Roesch, 2007; Penner, Fritzsche, Craiger, & Freifeld, 1995).

The central goal of the current work was to use the extant literature to develop a tool for promoting prosocial behavior and prosocial habits more generally. The following sections describe the optimal developmental timing for intervening, the processes that predict prosocial behavior, and existing strategies for promoting prosocial behavior.

Developmental timing of interventions

Fostering prosocial behavior is likely to be valuable at any age. Nonetheless, several factors make adolescence and early adulthood a particularly optimal time to intervene. First, as individuals enter the teen years, they develop the capacity to think abstractly (Steinberg, 2005). As adolescents reflect more deeply about issues such as values and meaningful goals, they are more likely to empathize with more distant others and more rigorously consider their moral principles (Steinberg, 2005). Because of advances in cognitive and physical abilities, adolescents are granted greater

autonomy and social power than children, which affords them additional opportunities for prosocial behavior (Carlo et al., 2007). For instance, when teenagers obtain driving licenses, they can provide rides to friends and family members and can access more distant volunteering sites. These cognitive, physical, and social developments enable adolescents to engage in activities—such as community service—that could contribute to their prosocial development.

A second factor that influences prosocial behavior is identity development, which is the process of exploring and committing to a set of values, beliefs, roles, and behaviors that characterize a person (Erikson, 1968). Identity development is crucial to prosocial habit development because people who view prosocial values and behaviors as central to their identities are more likely than others to behave prosocially across situations (Aquino & Reed, 2002). Identity development tends to emerge around middle to late adolescence (around ages 16–20). For many people in the United States and other industrialized countries, this process continues to age 25 or even 30, depending on the individual and his or her contexts (Arnett, 2004). During this time, people tend to be especially open to trying out new behaviors and incorporating new content into their identities. Indeed, adolescents and young adults tend to be more likely than people of other ages to integrate prosocial qualities into their identities, which predicts long-term patterns of prosocial behavior (Blasi, 2004).

In addition to the reasons just described (and, perhaps, because of them), prosocial habits established during adolescence and young adulthood tend to endure (e.g., Arnett, 2004; Hart, Donnelly, Youniss, & Atkins, 2007). For instance, an examination of moral exemplars traced many of those individuals' prosocial commitments to influential experiences that occurred during adolescence (e.g., Matsuba & Walker, 2004). Similarly, longitudinal work reveals significant intrapersonal stability in prosocial responding between ages 20 and 32 (Eisenberg, Hofer, Sulik, & Liew, 2014). A larger longitudinal study of 6,925 individuals showed that high school students who performed community service—either voluntarily or compulsorily—were more likely than their peers to vote and volunteer 8 years after high school (Hart et al., 2007). These findings support the notion that adolescence and young adulthood is a time when people are especially open to receptive to considering new ideas and behaviors—including those related to helping others. Consequently, this age group is an ideal target population for promoting prosocial behavior.

Target outcomes

The literature implicates several characteristics that contribute to habitual prosocial behavior. The first step is to notice when others are in need (Eisenberg et al., 2002). A person who is other-orientated pays more attention to people and therefore is more likely to recognize when they need help (Narvaez & Lapsley, 2009). The next antecedent of prosocial behavior is empathy, which is the ability to understand other people's experiences. To empathize is to *feel* another person's pain. When people better understand others' suffering, they are more likely to make efforts to help relieve it (Davis, 2015; Hoffman, 2000). There is a similar link between prosocial behavior and social responsibility; people are more likely to behave prosocially when they feel that caring for others is their personal duty (De Cremer & Van Lange, 2001).

Even if someone is concerned about others, empathizes with their suffering, and feels compelled to help, they are unlikely to act unless they believe that their actions will be effective in changing the other person's experiences. Accordingly, a fourth antecedent of prosocial behavior is agency, which refers to a person's perception of control over their surroundings. Agency is critical in motivating and reinforcing prosocial behavior; when people believe they can make a difference, they are more likely to take action (Caprara & Steca, 2005; Penner et al., 1995). As mentioned above, another quality that influences prosocial behavior is the extent to which that behavior corresponds to values core to one's identity. People who have strong prosocial identities believe that helping others is not just an act; rather, it represents who they are at their core. Prosocial identity is especially useful in predicting prosocial behavior across contexts (Aquino & Reed, 2002; Hardy & Carlo, 2011).

A final factor that predicts ongoing patterns of prosocial behavior is discrete acts of prosociality. Several factors contribute to this pattern. First, repeating any action across time diminishes the amount of cognitive energy required to plan and execute the behavior, so it becomes more automatic (Shiffrin, & Schneider, 1977). Second, there is a well-documented "positive feedback loop" between prosocial behavior and positive emotions: Helping others tends to put people in a good mood, which in turn makes them more likely to help others (Aknin et al., 2012; Layous, Nelson, Kurtz, & Lyubomirsky, 2017). Furthermore, these actions alter people's relationships with their contexts, which could make the contexts themselves more conducive to prosocial behavior. For example, if a young person chooses to volunteer in a homeless shelter, then he or

she will meet people who run the shelter, learn the shelter's schedule, and may be invited to return to volunteer again. Changing the way that individuals interact with their contexts is critical for enacting sustainable behavioral changes (Bolier et al., 2013).

Intervention content

The most explicit and successful approach for fostering prosocial behavior thus far is service learning. Service learning is an educational practice in which students perform community service as a part of a course (Astin, Vogelgesang, Ikeda, & Yee, 2000). The key elements for making these experiences conducive to habit formation are to relate the activity to the course curriculum, to allow students to choose an activity that appeals to their strengths and values, to address a real community need, to engage in that activity for at least 3 months, and to ask the students to critically reflect on what they learned from their experience (Astin et al., 2000; Lyubomirsky & Layous, 2013). This approach has demonstrated efficacy in promoting prosocial behavior in the short-term as well as up to a decade later (Astin et al., 2000).

Given the efficacy of service learning, it would be useful to include the main components (prosocial behavior and reflection) in future interventions. At the same time, there are several opportunities for extending this work. One such opportunity is to expand the range of target prosocial behaviors. Although service learning focuses on fostering prosocial behaviors in formal contexts (i.e., volunteering), most prosocial behaviors occur in informal contexts (e.g., comforting a friend, driving a neighbor to the airport). Therefore, it would be useful to create an intervention that promotes a tendency to behave prosocially across contexts. A second direction is to investigate dosage: In its current form, service learning requires considerable time (usually at least 3 months) and resources, such as a trained facilitator. If it is possible to promote prosocial behavior in less time and with fewer resources, it could be applied in a wider variety of contexts.

Another promising avenue for extending work on service learning is to integrate activities that foster thoughts and emotions that precede prosocial behavior. For example, reflecting on good things in one's life can effectively draw one's focus outward toward others (Emmons & McCullough, 2003), imagining other people's thoughts and emotions can enhance feelings of empathy (Claypoole, Moody, & Peace, 2000), reflecting on interpersonal relationships can

elicit feelings of social responsibility (Pavey, Greitemeyer, & Sparks, 2011), and setting goals and then carrying out those behaviors can boost one's sense of agency (Cheavens, Feldman, Gum, Michael, & Snyder, 2006). In addition, given that reflecting on one's life and imagining goals for the future can help people derive meaning (McAdams & McLean, 2013), it is likely that encouraging someone to think about his or her values, behaviors, and overall identity through a prosocial lens could strengthen prosocial identity. Incorporating these strategies into an intervention could help elicit more extensive changes in people's prosocial functioning and general development.

A final noteworthy consideration for promoting prosocial behavior is motivation. According to the person–activity fit model (Lyubomirsky & Layous, 2013), people who are intrinsically motivated to participate in interventions experience stronger effects—presumably because they engage more deeply with the activities. If this is true, then convincing participants that helping others is interesting and worthwhile could enhance intervention effects. One potential method for accomplishing this is to share research on how prosocial behavior contributes to individual well-being (e.g., a sense of meaning; Auhagen & Holub, 2006). Another strategy is to induce moral elevation, which is a positive emotion described as feeling “warm” and “uplifted” by witnessing another person engaging in an unexpected act of kindness toward a third party (Haidt, Algoe, Meijer, Tam, & Chandler, 2000). Experiments demonstrate that inducing elevation increases prosocial intentions and behavior (Haidt et al., 2000; Schnall & Roper, 2012; Thomson & Siegel, 2013). Motivating participants to want to engage in prosocial behavior could lead them to engage more deeply in the intervention and, therefore, to experience greater change.

Present study

The goal of the present study was to test the efficacy of an intervention designed to promote prosocial behavior among adolescents and young adults. I hypothesized that, in comparison to a control group, participants who completed the intervention would exhibit increased prosocial behavior between the pretest and lagged posttest; the experimental group would be more likely to behave prosocially 1 month after completing the intervention; and the experimental group would demonstrate increases in antecedents of prosocial behavior (prosocial intentions, concern for

others, empathy, agency, social responsibility, and prosocial identity), which would persist for at least 1 month. I also explored participants' experiences of completing the intervention to gain insight into how it influenced prosocial behavior.

Method

Participants

The sample included 116 high school and college students from Southern California. Participants' ages ranged from 16 to 25 ($M=21.55$, $SD=1.93$, $Mode=21$). The majority of the sample was female (77%), whereas 22% were male and 2% identified as nonbinary. The sample was largely Hispanic/Latino (52%), and others were Asian (17%), Caucasian (11%), mixed ethnicity (11%), African American (3%), Middle Eastern (3%), Pacific Islander (2%), and Native American (<1%).

Materials

Prosocial intervention

Prior to the main study, a pilot study with 63 Amazon Mechanical Turk (MTurk) workers (ages 21–68, 46% male, 54% female) was conducted to evaluate the unique effects of each component of the prosocial intervention. Participants were randomly assigned to complete one of the activities and then reported their responses through rating scales and open-ended questions. The results of this study are used to describe the following activities.

Introductory video. Participants watched a brief video (<3 min) that showed a speaker defining prosocial behavior, explaining its value, and encouraging participants to put effort into the activities as a way of helping themselves. This video was expected to boost participants' motivation to engage deeply with the subsequent activities.

Elevation video. Participants watched a brief video clip (<3 min) that showed high school softball players helping someone on the opposing team walk around the bases to score a run after she sustained an injury. This clip has demonstrated efficacy in evoking moral elevation in previous work (Lai, Haidt, & Nosek, 2014). In the pilot study, people who watched the elevation video reported that they felt warm, uplifted, and inspired. When asked to explain, participants reported, "After watching the video I felt more happy and helpful and even hopeful. Just warm and full," "The video was awesome, it really had an impact. It changed my mood and made me think deeply about

the world and its people," and "I feel so much better having watched that. I feel this lightness in my heart and like the things I was worrying about before are so insignificant in the grand scheme of things."

Identity warm-up. This activity asked people to write about their strengths, interests, and people for whom they are grateful. Writing prompts included questions such as, "Who do you admire, and why?" and "If you could change anything about the world, what would it be?" Respondents were instructed to write down whatever came to mind, spending no more than 30 s per question. In the pilot study, participants who completed this study reported feeling inspired to help others and be a better person. When asked to describe the effects of the activity, participants shared, "[It] made me feel good about who I am and what I have to be grateful for," "This made me sit and think about what I really value in my life and what it is I am working towards," "It reaffirmed me of my closest relationships and reminded me of their value," and "It always helps to stop and take stock in your life and remind yourself of everything you have."

Values identification. In this activity, people were asked to write down three to five personally meaningful values. They could generate their own values or select them from a list of 36 values, which included courage, independence, and discipline. They were then asked to explain why these values are important to them. Participants from the pilot study reported that this activity helped them think about the things they care about and how they define themselves. Participants explained that the activity "made me remember what I stand for," "It made me reflect on what makes me, me," and "It reminded me that I need to work on my core values and make sure I'm living my life like I want to be."

Best possible selves. In this activity, participants imagined themselves 5 years in the future, assuming that everything went well, and then wrote about that future—what they are like, what they are doing, and activities they are involved in. This procedure replicated best possible selves interventions that have been used in previous work (e.g., Layous, Nelson, & Lyubomirsky, 2013) but incorporated an additional prompt that asked people to write about how they hope to make a positive impact on the world. This activity was expected to lead people to think about their values and goals—which could make their subsequent prosocial behavior more meaningful, and to provoke future thinking—which has been found to inspire prosocial intentions and behavior (Baumsteiger, 2017). In the pilot study, participants

who completed this activity reported that it encouraged “big picture” future thinking and inspired them to want to be a better person. For instance, people relayed, “Writing what I wanted for the future helped me realize how lucky I truly am in this life,” and “It made me want to pursue my dreams.”

Helping plan. Participants were asked to describe how they could do more to help other people each day for the next 10 days in as much detail as possible. They were given the freedom to select their own behaviors which, based on self-determination theory, should increase their intrinsic motivation to perform them (Ryan & Deci, 2000). The goal of this activity was to encourage people to make specific plans for enacting prosocial behavior, which could increase the likelihood that they would perform those actions (Pham & Taylor, 1999). In addition, it was expected that this activity, in combination with the later reflection, would enhance agency (Feldman & Dreher, 2012). Findings from the pilot study indicated that creating a plan for helping others inspired people to want to help others. For example, participants explained, “It made me more positive because by thinking about what I could do for others it made me think of everything I have and how blessed my life is,” “It helped me focus for a bit and get out of ‘myself’ and think how I can do things differently for a more positive impact overall,” and “It made me want to set a good example for my kids by being a good person.”

Daily prosocial behaviors. Participants were asked to perform prosocial behavior each day for 10 days. This time frame was selected to allow enough time for the behaviors to become regular while keeping participant fatigue reasonably low, and because it resembles those used in interventions with similar daily assignments (e.g., Lyubomirsky, Tkach, & Sheldon, 2004; Seligman, Steen, Park, & Peterson, 2005). Participants took notes at the end of each day to explain what they did, how it made them feel, and how it impacted the other person. This aimed to increase participants’ attention to the consequences of helping behavior for themselves and other people. Similar daily reflections have been used in previous work to enhance the effects of behavior on how people think and feel (e.g., Emmons & McCullough, 2003).

Humor (control) activities

The control group completed a modified version of the “three funny things” activity (Wellenzohn, Proyer, & Ruch, 2016). This activity asks people to spend 10 min each day describing three humorous experiences that occurred that day and to explain why those

experiences were funny. Three additional components were added to this activity to make it match the length and format of the prosocial activities. First, participants watched a video that described the benefits of humor. Second, they completed an activity in which they identified content they considered humorous. Finally, after completing the daily reflections (just described) for 10 days, participants were asked to write an essay on the ways that humor impacts their lives. In previous studies, the “three funny things” activity was rated as pleasant and increased people’s happiness for up to six months (Wellenzohn et al., 2016). There was no theoretical reason to believe that this intervention (including the “three funny things” and the activities added to mirror the prosocial intervention) would enhance prosocial behavior. Furthermore, similar humor-related activities did not engender prosocial behavior in prior studies (Bartlett & DeSteno, 2006; Piff, Dietze, Feinberg, Stancato, & Keltner, 2015).

Measures

Prior to the main study, a second pilot study with 100 MTurk workers (ages 19–65, 48% male, 52% female) was conducted to (a) reduce the number of items included in longer measures (empathy and social responsibility) and (b) to collect validity information on measures that were modified or created for this study (prosocial identity and prosocial agency). The results of this study are reported in the following descriptions of new or modified measures.

Prosocial behavior—Self-report. The Past Prosocial Behavior Scale (PPBS; Baumsteiger & Siegel, n.d.) was used to measure prosocial behavior. Respondents reported how frequently they “comforted someone,” “helped a stranger find something they lost,” “helped care for a sick friend or relative,” and “assisted a stranger with a small task” in the past month. Each item was rated from 1 (*never/almost never*) to 7 (*always/almost always*). Data from studies with MTurk samples suggest that this measure is internally consistent ($\alpha = .79-.81$); is positively related to prosocial intentions ($r = .70, p < .001$), meaning in life ($r = .26, p < .01$), life satisfaction ($r = .25, p < .01$), positive affect ($r = .41, p < .01$), and social support ($r = .42, p < .01$); and is negatively correlated with negative affect ($r = -.27, p < .01$). In these studies, volunteers scored higher on the PPBS ($M = 4.98, SD = 1.21$) than nonvolunteers ($M = 4.24, SD = 1.37$), $t(81) = 2.24, p < .05, d = .57$. Similarly, organ donors scored significantly higher on the PPBS ($M = 5.17, SD = 1.03$) than nonorgan donors ($M = 4.48,$

$SD = 1.33$), $t(90) = 2.77$, $p < .01$, $d = .57$ (Baumsteiger & Siegel, n.d.).

Prosocial behavior—Behavioral. As a behavioral measure of prosociality, participants were asked to answer additional questions for no payment. The instructions read, “The next question is completely optional. If you are willing to answer it, then it would help me out with my other research.” The word *optional* was highlighted and bolded. The writing prompt was, “Who are you closest to and why?” Similar methods have been used in previous work to evaluate prosocial behavior through surveys and yielded a nearly equivalent split between people who did and did not respond (e.g., Baumsteiger, 2017).

Prosocial intentions. The Prosocial Behavioral Intentions Scale (Baumsteiger & Siegel, 2018) was used to assess people’s intentions to behave prosocially in the future. Items included “comfort someone,” “help a stranger find something they lost,” “help care for a sick friend or relative,” and “assist a stranger with a small task.” Each item was rated from 1 (*definitely would not do this*) to 7 (*definitely would do this*). This measure has exhibited good internal consistency ($\alpha = .80, .82$); convergent validity with moral identity ($r = .50, .55$), past prosocial behavior ($r = .43, .51$), and materialism ($r = -.20, -.30$); and predicted who voluntarily answered additional questions at the end of the survey for no payment ($r = .22-.32$; Baumsteiger & Siegel, 2018).

Concern for others. The Altruistic Attitudes Scale (Kahana, Bhatta, Lovegreen, Kahana, & Midlarsky, 2013) was used to assess the extent to which individuals felt concerned for other people. Respondents rated their agreement with four statements such as “I try to help others, even if they do not help me” from 1 (*strongly disagree*) to 7 (*strongly agree*). This measure has demonstrated adequate internal consistency ($\alpha = .66$). Scores on this scale are correlated with volunteering ($r = .27$, $p < .01$) and informal prosocial behavior ($r = .27$, $p < .01$; Kahana et al., 2013).

Empathy. A modified version of Toronto Empathy Questionnaire (Spreng, McKinnon, Mar, & Levine, 2009) was used to assess the extent to which people understood and experienced other people’s emotions. The eight items with the highest factor loading in its original publication (Spreng et al., 2009) were selected for this study. These included statements such as “I enjoy making people feel better” and “I am usually ‘in tune’ with other people’s moods.” Each statement was rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The original measure is internally consistent ($\alpha = .85$) and correlates with

other measures of perspective taking and empathic concern (Spreng et al., 2009). In the pilot study, the modified scale demonstrated adequate internal consistency ($\alpha = .88$) and was positively correlated with prosocial intentions ($r = .67$, $p < .001$) and past prosocial behavior ($r = .60$, $p < .001$).

Interpersonal social responsibility. Items from the Youth Social Responsibility Scale (Pancer, Pratt, Hunsberger, & Alisat, 2007) were used to assess individuals’ beliefs that people have a responsibility to help others and society at large. I selected the four items that focused directly on attitudes toward one’s responsibility for helping other people, which was most relevant for this study. These items include statements such as “People should help one another without expecting to get paid or rewarded for it.” Participants were asked to rate their agreement with each statement from 1 (*strongly disagree*) to 7 (*strongly agree*). The original measure is internally consistent ($\alpha = .88$) and is positively correlated with perceived social support, optimism, and identity development (Pancer et al., 2007). In the pilot study, the modified scale was internally consistent ($\alpha = .81$) and was positively correlated with prosocial intentions ($r = .70$, $p < .001$) and past prosocial behavior ($r = .66$, $p < .001$).

Prosocial identity. The Internalization subscale of the Self Importance of Moral Identity Scale (Aquino & Reed, 2002) was adapted to assess the extent to which people considered prosocial characteristics to be central to their identities. Respondents were instructed to imagine a person who is caring, compassionate, friendly, generous, helpful, and kind and to rate their agreement with three statements, such as “Having these characteristics is an important part of who I am,” from 1 (*strongly disagree*) to 7 (*strongly agree*). The original scale is internally consistent ($\alpha = .73-.82$) and predicts donation behavior and volunteering (Aquino & Reed, 2002). In the pilot study, the modified version had good internal consistency ($\alpha = .93$) and positive correlations with prosocial behavioral intentions ($r = .75$, $p < .001$) and past prosocial behavior ($r = .62$, $p < .001$).

Prosocial agency. A six-item scale was created for this study to assess people’s beliefs that they *can* help others. Based on recommendations for creating domain-specific measures of self-efficacy (Bandura, 2006), and evidence that the greatest distinction in helping intentions is the recipient of help (Eisenberg & Spinrad, 2014), this scale instructed respondents to rate their confidence that they could make a positive impact on friends, family members, people in their

school, people in their community, strangers, and the world from 1 (*very unconfident*) to 7 (*very confident*). In the pilot study, this scale demonstrated good internal consistency ($\alpha = .90$) and had a moderate positive correlation with past prosocial behavior ($r = .47, p < .001$).

Qualitative descriptions. Two open-ended items were included to gain deeper insight into people's experiences of completing the intervention. At the posttest, participants were asked, "What, if anything, did you learn about yourself from doing these activities?" At the lagged posttest, they were asked, "In your opinion, do you believe that these activities had a lasting impact on you? (It's okay if not.) Please explain."

Attention checks. One item was included in each survey to gauge whether participants were paying attention. For example, on the pretest, participants were asked, "Please select '1' to indicate that the survey is displayed correctly." This item was embedded in the prosocial identity measure. This strategy aligns with recommendations for assessing data quality (Berinsky, Margolis, & Sances, 2014).

Procedure

A between-subjects pretest–posttest experimental design was employed. Instructors posted an advertisement for the study on their course websites. Students who signed up for the study received study instructions, their condition, and links to the corresponding surveys and activities, which were all hosted on Qualtrics.com. The first person was assigned to the experimental condition, the second person to the control condition, and so on. Participants who followed the first link were directed to a pretest survey where they provided consent and then completed measures of prosocial behavior and its antecedents and demographics (age, gender, and ethnicity). They also completed measures of motivation, personality, religiosity, political beliefs, and well-being, which were not reported on in this study.

Next, participants completed the first set of activities, which included watching an introductory video about prosociality or humor and writing about their values or sense of humor. Participants in the experimental group were then instructed to behave prosocially each day for 10 days and write a daily log describing these behaviors. Meanwhile, participants in the control group were asked to complete a daily log about humorous activities each day for 10 days. On the final day, participants wrote a reflection on prosocial behavior or humor.

Because of an error with survey links, a third group of people received links to the first set of humor activities (the two introductory videos and description of one's own humor style) and links to the second part of the prosocial activities (writing daily logs about helping behavior and reflecting on those behaviors at the end of the 10 days). Because this third group was theoretically interesting, it was also included in the analyses. From this point forward, this group is referred to as the "daily behaviors" group. To distinguish the experimental conditions, the group of people who completed all of the prosocial activities are referred to as the "full prosocial" group.

All activities were submitted electronically. After the last activity, participants completed the posttest survey, which included measures of prosocial behavior antecedents and questions about the experience of completing the activities. Finally, participants were asked to complete a lagged posttest survey 1 month later. This survey included the measures of prosocial behavior and its antecedents. It also included measures of well-being as a part of a larger investigation. Students who completed all activities surveys received course credit.

Data analyses

After cleaning the data and computing composites, descriptive statistics were computed to evaluate differences in prosocial behavior across time (pretest and lagged posttest) and condition (full prosocial, daily prosocial, and control), as well as differences in the antecedents of prosocial behavior (prosocial intentions, concern for others, empathy, agency, identity, and social responsibility) across time (pretest, posttest, and lagged posttest) and condition (full prosocial, daily behaviors, and control). Descriptive statistics were also used to examine group differences in the posttest-only measures of prosocial behavior. Qualitative responses were evaluated using conventional content analysis, which is a systematic process of identifying themes in written text (Hsieh & Shannon, 2005).

Results

Preliminary analyses

Surveys were matched across time points based on participants' identification numbers. Next, I removed 89 blank entries, eight people who missed at least one attention check, and one person who completed all three surveys on the same day. An additional 20 cases

Table 1. Baseline distributions of main variables by condition.

Variable	Condition	Minimum–maximum	<i>M</i>	<i>Mdn</i>	<i>SD</i>	Skew-ness	Kur-tosis
Prosocial behavior (self-report)	Full prosocial	1.50–6.75	4.08	4.00	1.28	–18	–.53
	Daily behaviors	1.25–7.00	4.62	5.00	1.54	–.45	–.76
	Control	2.50–7.00	5.32	5.50	1.32	–.70	–.43
Prosocial intentions	Full prosocial	4.50–7.00	6.16	6.25	.74	–.61	1.56
	Daily behaviors	3.00–7.00	5.79	6.25	1.08	–1.05	.23
	Control	4.50–7.00	6.16	6.25	.74	–.61	–.53
Prosocial identity	Full prosocial	4.00–7.00	6.24	6.67	.97	–1.10	–.06
	Daily behaviors	3.67–7.00	6.29	6.33	.81	–1.36	1.84
	Control	4.00–7.00	6.57	7.00	.73	–2.01	4.03
Concern for others	Full prosocial	3.50–7.00	5.40	5.50	.82	–.21	–.224
	Daily behaviors	3.00–7.00	5.55	5.75	.97	–.77	.48
	Control	3.00–7.00	6.02	6.25	.97	–1.43	2.24
Empathy	Full prosocial	3.60–7.00	5.43	5.40	.86	–.41	–.33
	Daily behaviors	3.00–7.00	5.30	5.40	.98	–.43	.15
	Control	3.80–7.00	5.88	6.10	.83	–.93	.39
Social responsibility	Full prosocial	2.33–7.00	6.04	6.33	1.04	–1.53	2.92
	Daily behaviors	2.33–7.00	6.23	6.33	.96	–1.99	5.5
	Control	4.00–7.00	6.37	6.50	.75	–1.39	1.85
Agency	Full prosocial	1.80–7.00	4.58	4.60	1.27	–.33	–.61
	Daily behaviors	1.00–7.00	4.74	5.00	1.53	–.71	.19
	Control	2.60–7.00	5.05	5.00	1.19	–.08	–.34

Table 2. Correlation matrix—all conditions.

	1	2	3	4	5	6	7
1. Prosocial behavior	.74						
2. Prosocial intentions	.51	.75					
3. Prosocial identity	.45	.51	.82				
4. Concern for others	.44	.55	.52	.69			
5. Empathy	.46	.57	.46	.63	.72		
6. Social responsibility	.41	.39	.56	.37	.46	.76	
7. Agency	.48	.46	.35	.37	.22	.28	.88

Note. Correlations are based on baseline scores. Alpha coefficients for each measure are listed in the diagonals for measure composites.

were filtered out an additional 20 participants who were older than 25 years of age. The remaining sample included 116 people with a pretest and posttest and 100 who completed all surveys. All participants with the relevant time points were included in each analysis. Approximately one third of participants were assigned to each condition (full prosocial $n = 43$, daily behaviors $n = 41$, control $n = 32$). Composite scores on each measure were relatively normally distributed and with no apparent outliers. See Table 1 for more information on the distributions of scores by condition. See Tables 2–5 for correlation matrices of pretest scores on prosocial behavior and its antecedents across all conditions (Table 2) and within each condition (Tables 3–5).

Main effects on prosocial behavior

Scores on prosocial behavior and its antecedents across condition (full prosocial, daily behaviors, control) and time point (pretest, posttest, lagged posttest) are reported in Table 6. Visual depictions of these changes in mean scores are displayed in Figures 1–7. In these figures, scores were adjusted to account for

Table 3. Correlation matrix—prosocial condition.

	1	2	3	4	5	6	7
1. Prosocial behavior	.69						
2. Prosocial intentions	.31	.77					
3. Prosocial identity	.38	.42	.84				
4. Concern for others	.32	.54	.47	.47			
5. Empathy	.41	.57	.45	.50	.65		
6. Social responsibility	.49	.37	.57	.21	.41	.81	
7. Agency	.25	.45	.27	.38	.26	.34	.87

Note. Correlations are based on baseline scores. Alpha coefficients for each measure are listed in the diagonals for measure composites.

Table 4. Correlation matrix—daily behaviors condition.

	1	2	3	4	5	6	7
1. Prosocial behavior	.77						
2. Prosocial intentions	.64	.74					
3. Prosocial identity	.43	.63	.67				
4. Concern for others	.28	.53	.61	.63			
5. Empathy	.50	.58	.55	.62	.71		
6. Social responsibility	.30	.32	.63	.48	.54	.77	
7. Agency	.63	.47	.32	.29	.17	.27	.91

Note. Correlations are based on baseline scores. Alpha coefficients for each measure are listed in the diagonals for measure composites.

Table 5. Correlation matrix—control condition.

	1	2	3	4	5	6	7
1. Prosocial behavior	.74						
2. Prosocial intentions	.48	.75					
3. Prosocial identity	.56	.45	.74				
4. Concern for others	.61	.57	.44	.83			
5. Empathy	.35	.48	.29	.73	.64		
6. Social responsibility	.40	.60	.39	.39	.43	.84	
7. Agency	.42	.38	.49	.41	.16	.13	.87

Note. Correlations are based on baseline scores. Alpha coefficients for each measure are listed in the diagonals for measure composites.

baseline differences, and the Y-axis scales were magnified to display differences more clearly. See Table 7 for the percentage of participants who increased in each outcome for each condition.

Table 6. Prosocial behavior and its antecedents across conditions and time points.

Variable	Condition	Pretest <i>M</i> (<i>SD</i>)	Posttest <i>M</i> (<i>SD</i>)	Lagged posttest <i>M</i> (<i>SD</i>)
Prosocial behavior (self-report)	Full prosocial	4.08 (1.28)	—	4.80 (1.41)
	Daily behaviors	5.32 (1.32)	—	4.82 (1.42)
	Control	4.62 (1.54)	—	4.84 (1.49)
Prosocial intentions	Full prosocial	5.86 (.86)	6.26 (.73)	6.08 (.86)
	Daily behaviors	6.16 (.74)	6.08 (.88)	6.09 (.84)
	Control	5.79 (1.08)	5.98 (.98)	6.04 (.99)
Prosocial identity	Full prosocial	6.24 (.97)	6.53 (.77)	6.32 (1.05)
	Daily behaviors	6.57 (.73)	6.24 (1.01)	6.45 (.98)
	Control	6.29 (.81)	6.30 (.96)	6.23 (1.05)
Concern for others	Full prosocial	5.40 (.82)	5.89 (.86)	5.78 (.76)
	Daily behaviors	6.02 (.97)	5.73 (1.24)	5.88 (1.02)
	Control	5.55 (.97)	5.68 (1.04)	5.63 (1.09)
Empathy	Full prosocial	5.43 (.86)	5.67 (.71)	5.77 (.71)
	Daily behaviors	5.88 (.83)	5.66 (.91)	5.76 (.90)
	Control	5.30 (.98)	5.49 (.99)	5.51 (.95)
Social responsibility	Full prosocial	6.04 (1.04)	6.48 (.69)	6.30 (.74)
	Daily behaviors	6.36 (.75)	6.14 (1.05)	6.29 (1.00)
	Control	6.23 (.96)	6.19 (1.16)	6.03 (1.09)
Agency	Full prosocial	4.58 (1.27)	5.19 (1.28)	5.16 (1.24)
	Daily behaviors	5.05 (1.19)	5.21 (1.35)	5.20 (1.52)
	Control	4.74 (1.53)	5.24 (1.33)	4.96 (1.50)

Note. Prosocial behavior was not assessed at the posttest.

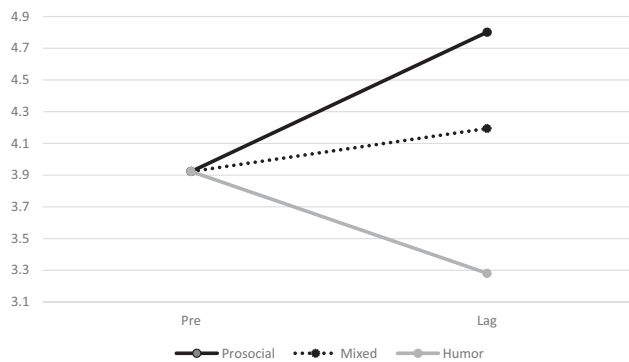


Figure 1. Changes in prosocial intentions across condition and time point.

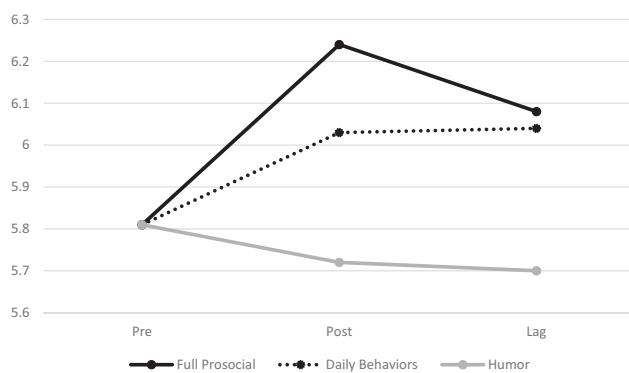


Figure 2. Changes in prosocial identity across condition and time point.

Pretest-lagged posttest changes in prosocial behavior. Within the full prosocial group, prosocial behavior increased between the pretest and lagged posttest ($M_{\text{change}} = .88$, $d = .53$). Participants in the daily prosocial group also increased in prosocial

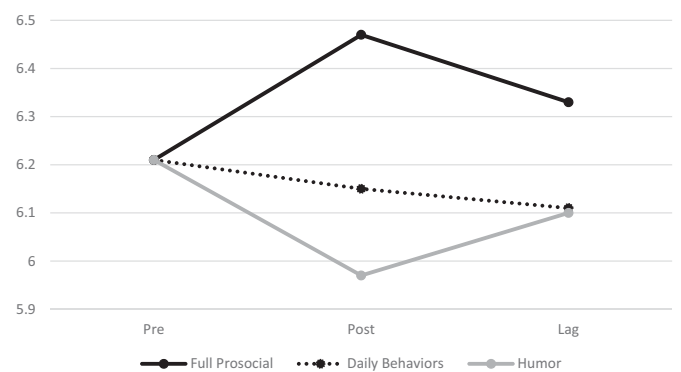


Figure 3. Changes in concern for others across condition and time point.

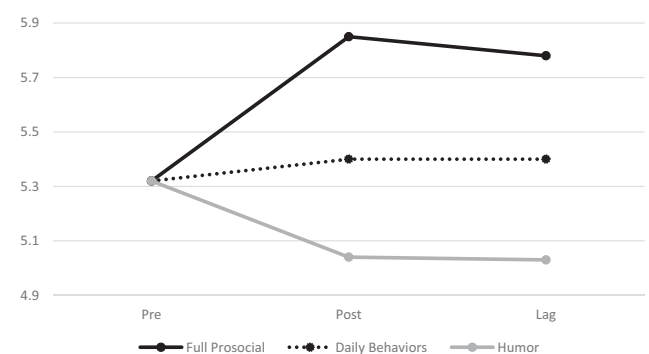


Figure 4. Changes in empathy across condition and time point.

behavior from the pretest to the lagged posttest, although this increase was smaller ($M_{\text{change}} = .27$, $d = .37$). In contrast, the control group decreased in prosocial behavior ($M_{\text{change}} = -.64$, $d = .15$).

Lagged-only differences in prosocial behavior. A higher percentage of people in the full prosocial group

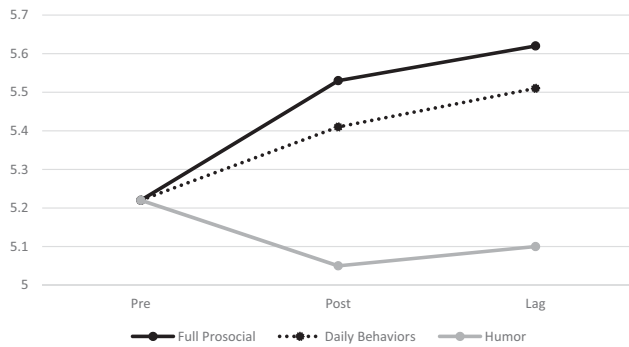


Figure 5. Changes in social responsibility across condition and time point.

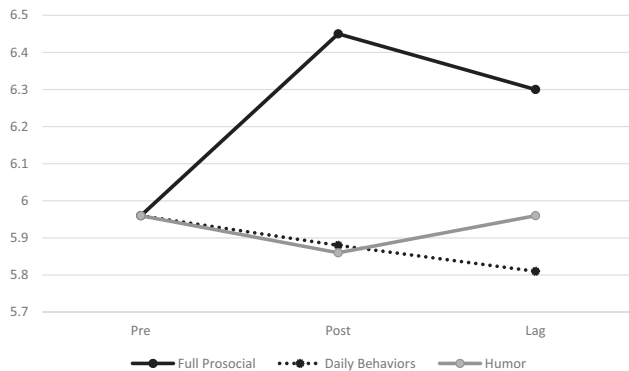


Figure 6. Changes in prosocial agency across condition and time point.

Table 7. Percentage of participants who increased in each outcome by condition.

	Full prosocial	Daily behaviors	Control
Prosocial behavior	74.36	50.00	27.27
Prosocial intentions	68.57	52.78	34.48
Prosocial identity	37.50	44.74	4.17
Concern for others	66.67	54.05	30.77
Empathy	50.00	48.57	37.93
Social responsibility	55.56	27.78	20.69
Agency	66.67	55.88	44.44

Note. Changes in prosocial behavior reflect mean changes between the pretest and lagged posttest. All other changes reflect mean changes between the pretest and posttest.

(79.49%) answered an additional question for no payment at the lagged posttest than people in the daily behaviors (51.35%) or control groups (65.22%), Cramer's $V = .26$.

Qualitative descriptions of main effects. The most prominent theme from the qualitative responses was that participating in the intervention enhanced short-term and long-term prosocial behavior. For example, people mentioned that they felt more compelled to help others, both in a general sense (“I am more encouraged to help others”; “It gave me the urge to help people more”) and in terms of their life goals: (“It really made me think about what I am meant to

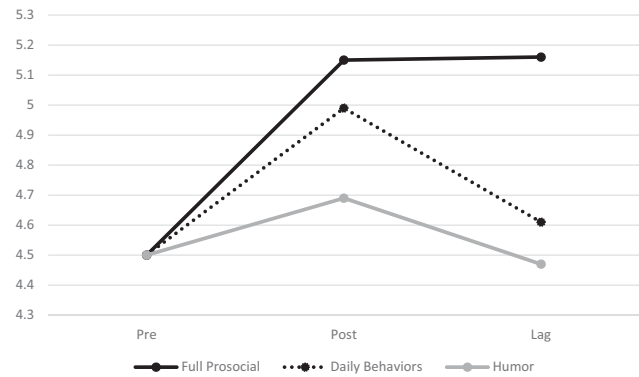


Figure 7. Changes in prosocial behavior across condition and time point.

do with my life and how I can shape my future to incorporate helping others”). It also led people to engage in more prosocial behavior in the short term (“I found myself looking for ways to help someone else”; “I learned that I really enjoy helping people and I really want to make an impact on others in a positive way”). Furthermore, several people noted that they found themselves behaving prosocially up to 1 month after completing the intervention: “[After completing the study] I always had helping others in the back of my head”; “I found myself still offering to help others after I had already completed the daily logs/it’s almost a natural reaction”; “I found myself helping people without even realizing it because it’s become a habit”).

Pretest–posttest changes in prosocial behavior antecedents. On average, participants in the full prosocial group increased in all antecedents of prosocial behavior from the pretest to the posttest, including concern for others ($M_{\text{change}} = .56$, $d = .57$), prosocial agency ($M_{\text{change}} = .72$, $d = .56$), social responsibility ($M_{\text{change}} = .43$, $d = .49$), prosocial intentions ($M_{\text{change}} = .41$, $d = .41$), prosocial identity ($M_{\text{change}} = .32$, $d = .35$), and empathy ($M_{\text{change}} = .31$, $d = .31$).

On average, participants in the daily prosocial group increased in some of the antecedents of prosocial behavior from the pretest to the posttest, including empathy ($M_{\text{change}} = .25$, $d = .22$), prosocial agency ($M_{\text{change}} = .37$, $d = .15$), and prosocial intentions ($M_{\text{change}} = .14$, $d = .10$; $M_{\text{change}} = .06$, $d = .26$). On the other hand, they decreased in social responsibility ($M_{\text{change}} = -.15$, $d = .24$) and prosocial identity ($M_{\text{change}} = -.02$, $d = .38$).

On average, participants in the control group decreased in some of the antecedents of prosocial behavior from the pretest to the posttest, including concern for others ($M_{\text{change}} = -.32$, $d = .13$), prosocial identity ($M_{\text{change}} = -.22$, $d = .01$), and empathy

($M_{\text{change}} = -.13$, $d = .19$). They did not exhibit large pre-post changes in prosocial intentions ($M_{\text{change}} = .03$, $d = .18$), agency ($M_{\text{change}} = .02$, $d = .35$), or social responsibility ($M_{\text{change}} = -.06$, $d = .04$).

Themes in participants' experiences

Participants' qualitative descriptions revealed several themes in their experiences of the intervention. First, several people reported that it increased their concern for other people ("I was more aware of what others were experiencing"; "The activities/made me be more aware of the people around me and consider that they might need help"). Other participants relayed that completing the daily behaviors led them to realize that helping others is easier than they previously thought ("It doesn't take that long to do something nice for someone"; "I actually HAVE the time to do nice things for others; actions like these do not require an unreasonable amount of time or money"). Similarly, some people wrote that the activities showed them that their actions have a larger impact than expected ("I became more aware of how my actions affect others"; "I learned that the smallest things I do can make a HUGE impact for someone else"). Finally, many participants expressed that helping others made them feel good ("I learned how easily my mood changes when helping others"; "I am in a much more positive mood when I put others first").

Discussion

The central finding from this study was that the 11-day intervention was efficacious in promoting prosocial behavior and related outcomes such as empathy and prosocial identity. More specifically, the experimental group exhibited increased self-reported rates of prosocial behavior and its antecedents after completing the intervention; they were more likely to behave prosocially (helping the researcher by answering additional questions) 1 month after completing the intervention, and people in the experimental group spontaneously reported that participating in the intervention led them to make prosocial behavior a habit. All changes within the intervention groups were compared against a control group that completed activities that were similar in format and dosages and that were also presented as well-being activities. This procedure suggests that these findings were not due to placebo, testing, historical, or maturation effects. Taken together, this study provides compelling evidence that

the intervention successfully fostered prosocial behavior.

Findings from this study also provide insight into experiences that occurred during the intervention. For instance, one of the most consistent themes in the qualitative data was that behaving prosocially helped people realize that they are capable of making a difference in other people's lives, that their actions have a much larger impact than they expected, and that executing these behaviors was less difficult than they believed. Combined with previous studies that had similar findings (Caprara & Steca, 2005; Penner et al., 1995), this indicates that a crucial step for fostering prosocial behavior is to help people understand the relative inputs and outputs involved in behaving prosocially. This sentiment also points toward a potential barrier to prosocial behavior: People may not help because they believe doing so is too difficult or unlikely to have much impact. This attitude change could represent another reason why short-term prosocial behavior facilitates prosocial habits.

Additional experiences included positive thoughts and emotions. For example, on the daily logs, the most frequently cited outcomes of prosocial behavior for the helper were positive feelings or shifting into a better mood. In terms of specific positive emotions, many people described feeling proud for helping others. Similarly, several people reported that helping others and reflecting on those behaviors helped them cultivate a more positive view of themselves as caring, helpful people. These results bolster previous findings that prosocial behavior can enhance positive thoughts and emotions such as pride (Nakamura, 2013) and self-worth (Klein, 2017), which reinforced prosocial behavior, thereby increasing the likelihood that people would perform similar behaviors in the future (Aknin et al., 2012; Klein, 2017; Layous et al., 2017).

This study yields valuable information for practice. First, it indicates it is possible to cultivate prosocial behavior in as few as 11 days. Given that prosocial behavior is largely self-reinforcing (Aknin et al., 2012; Layous et al., 2016), it is likely that the most critical task for encouraging the development of prosocial habits is to initiate those behaviors. In other words, giving people a "push" to behave more prosocially is essential to facilitating the development of new habits. The current findings suggest that this new intervention is a viable tool for delivering such a push. Because the intervention is relatively brief and does not require excessive resources, there are numerous contexts in which it could be implemented. For instance, educators could offer the intervention in

high school and college classrooms as a special topic or integrated into existing lessons such as those on writing, health, and civics. Similarly, it could be offered by after-school programs, youth groups, workplaces, volunteer groups, and other community organizations. It could also be shared with individuals as a self-improvement strategy in contexts such as counseling sessions and self-help books.

Although discrete interventions can be useful in helping particular groups, intervening at the institutional level has the potential to reach a larger number of individuals. Practitioners and policymakers who are interested in promoting positive development could use the underlying principles of this intervention to modify existing institutions. Namely, the current findings and the broader literature suggest that tangible changes in prosocial behavior result from altering the ways that individuals interact with contexts across time. For instance, encouraging teenagers to find ways to help their classmates on a daily basis is more likely to be effective in cultivating prosocial habits than asking them to simply reflect on prosocial values or perform a single act of kindness. This work also indicates that the same activities that are effective for one person may have no impact on another if the second person is not engaged. Thus, motivating people to engage in a program is vital to its success. Practitioners could use strategies from this study—such as conveying the value of prosocial behavior, allowing people to complete activities in ways that are personally meaningful, and showing acts of moral goodness that evoke positive emotions like gratitude and moral elevation—to foster prosocial motivation.

Study limitations and future directions

Findings generated from this study should be interpreted in light of its limitations. First, the prosocial behaviors that participants reported were not verified. Given the substantial differences across people who did or did not report that they engaged in the daily behaviors, it seems likely that people did enact them. Nonetheless, it is possible that participants fabricated their reports of helping. Second, although the aim was to change long-term patterns of prosocial behavior, this outcome was only measured up to 1 month after the intervention. This time frame was selected as a starting point because it was more feasible to maintain a high response rate for 1 month than it would be for a longer time, and because it resembled time frames used in studies of positive interventions that have similar dosages (e.g., Bolier et al., 2013; Wellenzohn

et al., 2016). Given that the current data are promising, additional work could be done to test whether the intervention effects persist across multiple months or years.

Findings from this investigation illuminate several directions for future research. One such direction is to determine the most essential features of the intervention. Although the qualitative feedback did not point to any specific activities as not working well, it is possible that not every piece of the intervention was necessary, or the most effective way to reach that goal. Future studies could test each intervention component individually to identify which components most effectively cultivate prosociality. For example, there could be a video that would more effectively evoke elevation. A similar issue is the dosage; as prior studies indicate, determining the correct dosage for an intervention is critical to maximizing its efficacy (e.g., Lyubomirsky & Layous, 2013). Accordingly, it would be useful to examine whether the time frame for the daily logs (10 days) is optimal, or whether completing these acts more or less frequently and for more or fewer days would lead to stronger effects. Along similar lines, it is possible that variations in the implementation could enhance the efficacy of the intervention. For instance, completing the daily logs via pen-and-pencil rather than through an online platform might be advantageous because it could allow people to review what they wrote on previous days and help them process the implications more deeply. Pursuing each of these questions could help refine the intervention, thereby maximizing its efficacy.

A second promising direction for extending this research is to investigate the extent to which findings generalize beyond the current sample. For instance, it would be valuable to examine whether this intervention could foster prosocial habits among younger or older individuals. Although this intervention was designed to target 16- to 25-year-olds, it is likely that it would have similar effects for mature 14- and 15-year-olds or people in their mid- to late twenties who are still in the midst of identity exploration. At the same time, given that contextual influences such as history, culture, and communities can deeply influence the way people view themselves and their relationships to others (e.g., Jensen, 2011; Wenner & Randall, 2016), it is possible that this intervention may work differently based on people's contexts. It would also be useful to evaluate the efficacy of the intervention for people of different cultures, socioeconomic statuses, and social classes to determine whether the effects extend across diverse individuals.

Finally, the factors identified in analyses of participants' experiences—such as feelings of pride and an increased awareness of others' needs—could be tested as mediators in an experimental design. This would provide further insight into the processes through which prosocial habits develop. Continuing this line of research could both extend the literature on prosocial behavior and provide concrete steps for creating a more caring, helpful society.

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