ORIGINAL ARTICLE

Motivating prosocial behavior by leveraging positive self-regard through values affirmation

Claudia R. Schneider[1] | Elke U. Weber[2]

[1]Department of Psychology, Columbia University, New York, New York, USA

[2]Department of Psychology, Princeton School of Public and International Affairs, Andlinger Center for Energy and the Environment, Princeton University, Princeton, New Jersey, USA

Correspondence
Claudia R. Schneider, Department of Psychology, University of Cambridge, Downing Street, Cambridge, CB2 3EB, UK. Email: crschneider@psych.columbia.edu

Present address
Claudia R. Schneider, Department of Psychology, University of Cambridge, Downing Street, Cambridge, CB2 3EB, UK

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Abstract

Prosocial behavior is critical to address global social, environmental, and economic challenges. Yet humans often do not act with the benefit of others in mind, especially when those others are distant and unknown. We suggest that a failure to act prosocially may stem in part from cognitive and emotional capacity limitations. Hence an intervention that reduces worry about the self and thereby increases available resources may foster prosociality. Starting from self-affirmation theory which posits that affirming the self can establish self-integrity, we propose that a values affirmation intervention can motivate prosociality through fostering positive self-regard. Across two studies we find that, compared to control participants, affirmed participants display greater willingness to volunteer time and exhibit increased actual prosocial behavior by completing an unpaid study and donating real money to charity. As hypothesized, increases in positive self-regard mediate the effect of values affirmation on prosocial behavioral intentions as well as behavior.

1 | INTRODUCTION

Developing strategies that promote prosociality is of critical societal importance. Prosocial behavior can help to address pressing social, environmental, and economic challenges humans face, such as poverty and inequality, environmental sustainability, and intergroup conflict, through concern for the well-being of others (Grant & Berg, 2012; Schwartz & Bilsky, 1990). However, humans often do not behave with the benefit of others in mind, especially when those others are distant and unknown (e.g., Burnstein et al., 1994; Dawes et al., 1988; Maner & Gailliot, 2007; Neyer & Lang, 2003). An important factor limiting prosociality is that it can be costly to the self (Dovidio, 1984; Gneezy et al., 2012; Rand et al., 2012; Rand & Nowak, 2013; Simpson & Willer, 2008). Research on the effects of personal costs on helping behavior finds that as personal costs increase, helping decreases (see Dovidio, 1984, for a review). Personal costs can be psychological as well as material. Investing personal resources, such as money, time, effort, or worry about others decreases resources left to the individual, as humans have only finite physiological, cognitive, and social resources (Linville & Fischer, 1991). We only have a "finite pool of worry" (Weber, 2006), i.e., our capacity for worry and concern is limited. Therefore, as worry in one domain increases, it may decrease in another. Weber (2006) for instance suggests that increased concern about terrorism post 9/11 in the U.S. resulted in a decrease in concern in other areas, such as environmental degradation. More generally, findings in cognitive psychology show that humans have only finite attentional resources (Pashler, 1989, 1994, 1998; Pashler et al., 2001). Mani et al. (2013) argue that preoccupation with personal poverty reduces the cognitive and emotional resources of the poor, making them more myopic (see also Mullainathan & Shafir, 2013).

Humans need to divide their resources across the multiple goals and needs they have. In this process not all goals receive equal priority. Maslow (1943) describes human needs to be arranged in "hierarchies of pre-potency" (p. 370). He suggests that more prepotent, (i.e., pre-dominant) needs are satisfied before needs further down the hierarchy can be tackled. Costly prosociality, especially towards distant and unknown others, will undoubtedly rank lower than personal and self-related goals and needs. One fundamental self-directed human need is establishing and maintaining a positive self-image (Epstein, 1973; Heine et al., 1999; Leary et al., 1995; Maslow, 1943). Pursuing and fulfilling this important chronic goal

takes up resources. Yet, as outlined above, these limited resources are also needed for the capacity to worry about others and engage in prosociality. Therefore, a lack of prosociality may be in part explained by a lack of resources. If we worry about the self, we may not have resources left to worry about others. Support for this proposition can be found in research on the effects of one's psychological state on helping behavior. It has been shown that people who are in a positive self-state (e.g., "egocentric joy") are more likely to help others than people who are in a negative self-state (e.g., "egocentric sadness") (Rosenhan et al., 1981; see also Dovidio, 1984 for a review). Following this line of reasoning, people who are in a negative self-state, for example, depressed, and consumed with worry about the self, may not have the psychological resources to engage in prosocial action. We therefore propose that an intervention which allows people to satisfy the need for a positive self-image may foster prosociality by freeing up resources that can be dedicated to other uses, such as worry and care about others.

1.1 | Values affirmation to foster prosociality

Self-affirmation theory (Steele, 1988) may provide such an intervention. According to Steele (1988, p. 262) maintaining a much needed "phenomenal experience of the self" can be achieved through self-affirmation processes. Affirming the self has been described as an act that demonstrates one's adequacy and self-integrity to oneself (Cohen & Sherman, 2014; Steele, 1988), allowing to secure a sense of being good and self-determining (Nelson et al., 2014; Sherman & Cohen, 2006; Steele, 1988). One suggested way to achieve this sense of adequacy is by actively affirming an aspect of one's self-concept deemed important to oneself (McQueen & Klein, 2006). One of the most studied experimental manipulations to affirm the self is to have participants reflect on important personal values (Cohen & Sherman, 2014; McQueen & Klein, 2006; Steele & Liu, 1983). This way of affirming the self is referred to in the literature as values affirmation. Personal values are desirable personal qualities (Rokeach, 1973, p. 7). They are internalized standards which people use to evaluate their selves (Cohen & Sherman, 2014; Rokeach, 1973). Thus, affirming important personal values is intimately tied to the concept of maintaining a positive self-image. It is plausible that through the process of self-affirmation a person's mental resources can be reallocated. If the affirmation allows people to establish a positive self-image, thus fulfilling this crucial need, humans may have resources available to pursue other goals and behaviors, such as engaging in prosocial behavior.

Positive effects of self-affirmation interventions benefiting the individual have been demonstrated in various domains, such as increased performance in academic settings (Cohen et al., 2006, 2009), positive health behavior change (Cooke et al., 2014; Epton & Harris, 2008; Logel & Cohen, 2012; Sherman & Cohen, 2006), openness to opposing political views (Cohen et al., 2000), enhanced self-control (Schmeichel & Vohs, 2009), improved quality of an apology

(Schumann, 2014), and increased well-being (Nelson et al., 2014; Ryan & Deci, 2001).

While the positive effects of values affirmation on behavior benefiting the individual are well established, not much work has investigated its effects on prosocial behavior. The literature is sparse and mostly limited to prosocial behavioral intentions (Lindsay & Creswell, 2014; Van Prooijen et al., 2012; Sparks et al., 2010) and prosocial behaviors in close social settings and face-to-face interactions (Lindsay & Creswell, 2014; Thomaes et al., 2012). In the domain of pro-environmental motivation which involves prosocial considerations, such as preventing harmful consequences of environmental damage to others (Schultz & Zelezny, 1998) or preserving a healthy environment for future generations (Zaval et al., 2015), two studies provide insights. Sparks et al. (2010) showed that affirmed participants exhibited lower levels of climate change denial and increased perceptions of personal involvement, as well as increased intentions to recycle among low recyclers. Van Prooijen et al. (2012) reported more constructive pro-environmental motives among participants with positive ecological worldviews following an affirmation intervention. Outside the pro-environmental domain, Lindsay and Creswell (2014) reported that U.S. university students who were affirmed indicated that they would give more of their income to charities compared to control participants.

Two studies offer some preliminary insights into affirmation effects on actual prosocial behavior. In a study by Thomaes et al. (2012), teachers rated prosocial and antisocial behavior of students. Effects showed more prosocial behavior in affirmed students, but only among students who were relatively high in antisocial behavior at the baseline period. However, it is questionable whether teacher reports offer an unbiased measure of prosocial behavior. Furthermore, it is unclear whether observed effects are limited to the investigated close social setting of peer-interactions in schools or whether they would extend to broader settings. In a similar vein, Lindsay and Creswell (2014) showed a greater extent of helping behavior in in-person interactions, operationalized by helping the experimenter in a set-up shelf collapsing incident in the laboratory. While these studies provide important first insights into the potential of self-affirmation interventions to increase actual prosocial behavior, the question remains whether effects would extend beyond close, face-to-face situations or peer-group social settings to more broad measures of prosocial behavior towards distant others, such as donating money to charity or volunteering time to help unknown others.

The present research aims to close these gaps in the literature to shed light on the question of whether values affirmation interventions could be used to motivate prosocial behavior towards distant and unknown others. Following from self-affirmation theory (and our presented line of reasoning) we suggest that engaging in a values affirmation exercise may increase people's positive views of themselves (i.e., feeling connected to the self, good about the self, or at peace), and that such positive self-regard may in turn satisfy the need for a positive self-image, freeing up resources to engage in behaviors toward others. We therefore formally test whether positive self-regard acts as a mediator in observed affirmation effects on prosociality.

1.2 | The present study

The overall goal for the present research is two-fold. Firstly, we test whether a values affirmation intervention can motivate prosocial behavior towards unknown and distant others. Secondly, we formally test whether positive self-regard acts as a mediator in the affirmation effect in this context. We hypothesized that engaging in the values affirmation intervention task would lead to increased prosocial behavior compared to a control group. We furthermore hypothesized that engaging in the affirmation intervention would boost feelings of positive self-regard and that this triggered positive sense of self would translate into downstream prosocial action.

To test these hypotheses, we conduct two experiments. Study 1 ("Intention Study") expands on past work by testing whether a values affirmation intervention can shift prosocial behavioral intentions. It focuses on the domain of willingness to invest time to help others, as operationalized by completing an unpaid survey. Study 2 ("Behavior Study") extends the intervention and its effects to two measures of actual prosocial behavior: actual completion of the unpaid study and donation of real money to charity.

2 | METHODS

Both studies were approved by Columbia University's Institutional Review Board and conducted on the Amazon Mechanical Turk (MTurk) online labor market platform to sample from a wide range of members of the American adult public. Sample size was 482 participants for the Intention Study ($n_{treatment} = 241$, $n_{control} = 241$; 51.87% females, $M_{age} = 36.51$, $SD_{age} = 11.93$) and 1,045 for the Behavior Study ($n_{treatment} = 517$, $n_{control} = 528$; 45.17% females, $M_{age} = 35.12$, $SD_{age} = 10.84$; a table of the detailed demographic composition of both studies is provided in the supplementary materials). Sample size was determined before any data analysis. To determine sample size for the Intention Study, we examined prior studies that investigated self-affirmation effects in the prosocial domain (Lindsay & Creswell, 2014; Van Prooijen et al., 2012; Sparks et al., 2010; Thomaes et al., 2012). Since effect sizes in those studies varied substantially between experiments or were not reported, we approximately doubled the sample size of prior work. For the Behavior Study, our power analysis to determine sample size was informed by the observed effects in the Intention Study. Five hundred participants per condition provides more than 80% power to detect small effect sizes. Sensitivity power analyses were conducted for both the Intention as well as the Behavior studies (alpha-significance criterion = 0.05, power criterion = 0.8) showing sensitivity to detecting small effect sizes.

Participants were randomly assigned to either the treatment (values affirmation) or a control condition. Both conditions were identical apart from the content of the intervention component, i.e., a thinking and writing task. Participants who did not engage with the task were excluded from the sample. The only participants removed for not engaging did not complete the writing task but merely typed a string of random letters to fulfill the minimum character requirement

to move on with the study. No other data exclusion criteria were used. Based on the described exclusion criterion, one respondent was omitted from the Intention Study and four respondents from the Behavior Study.

Participants in the treatment group engaged in a values affirmation thinking and writing exercise (modeled after Cohen et al., 2006; Harris & Napper, 2005; van Prooijen et al., 2012; Sparks et al., 2010). Following the standard design of values affirmation interventions, participants were presented with a list of values (forgiveness, fairness, goodness, honesty, kindness, loyalty, sincerity, altruism, tolerance; adapted from van Prooijen et al., 2012; Sparks et al., 2010) out of which they were instructed to pick the one that was most important to them and then answer several questions related to the chosen value (e.g., "Why is this value important to you?", "How does this value guide your life?", "Describe an occasion when you had the opportunity to really express this value"). For a complete description of the intervention prompts used for the Intention Study and the Behavior Study, please refer to the supplementary materials.

Participants in the control conditions wrote about what they had eaten or drunk in the past 48 hr for the Intention Study (Cohen et al., 2000; van Prooijen et al., 2012) and described the layout and product placement of their most frequented grocery store for the Behavior Study (see Schnall & Roper, 2012 for a similar control task). We decided to change the control group writing task from the Intention Study to the Behavior Study, because: (a) we felt that describing a grocery store layout would be an even more emotionally neutral and hence more conservative control task and (b) because we wanted to ensure that our effects would not depend on one particular control task, but be robust across different tasks. For the initial Intention Study participants engaged in about 3 min of thinking and writing. For the Behavior Study participants did so for about 10 min. Both time frames lie within the range commonly used in the literature (e.g., 3 min in Lindsay & Creswell, 2014; 5–6 min in Schnall & Roper, 2012 and Schmeichel & Vohs, 2009; 10 min in Crocker et al., 2008; 15 min in Thomaes et al., 2012).

Immediately following the writing task, the mediator measure was administered. Participants were asked to indicate how they felt when they were thinking about the questions and when crafting their answers. Participants rated their feelings on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". Our measure of positive self-regard consisted of an average of three items, which included "I felt connected to myself", "I felt good about myself", and "I felt at peace" (Cronbach's α: Intention Study = 0.84; Behavior Study = 0.88).

Following this mediator assessment, participants were presented with the dependent measures. In the Intention Study, participants were asked whether they would be willing to complete a study for free helping us "pretest measures for a large-scale field intervention in Ecuador to reduce rainforest and wilderness habitat destruction". In the Behavior Study, participants were provided with a link to complete the additional, unpaid survey allowing us to examine actual prosocial behavior. We measured survey completion as our dependent variable. Additionally, participants also had the opportunity to donate

any amount of their choosing of a potential $10 bonus, which one of the participants who was randomly selected received, or to keep the money for themselves (adapted from Schneider et al., 2017; see also Schneider & Weber, 2020; Zaval et al., 2015). Participants were given the option to choose between three charitable organizations: the American Cancer Society, Amnesty International, and the World Wildlife Fund. Participants could also spread the bonus across two or three of these charities. The three possible organizations offered participants a range of donation options with varying beneficiaries and missions. Giving participants only one donation outlet could bias observed results, as not donating could either be an indicator of low prosocial motivation or could alternatively merely reflect a dislike of the chosen donation outlet. For analysis, each participant's donations across all three charitable organizations were summed and treated as an overall donation measure. For a breakdown of donations by charity, please refer to the supplementary materials. All measures, manipulations, and exclusions are reported for both studies. Data and materials are available at https://osf.io/dk6a4/.

3 | RESULTS

3.1 | Prosocial behavioral intentions

In the Intention Study, 46.47% of control group participants indicated to be willing to complete the unpaid survey, versus 55.60% in the affirmation group. Thus, more people in the affirmation group displayed willingness to invest time to complete the additional study for free. We use a logistic regression to model our binary choice outcomes and find a statistically significant difference between prosocial behavioral intention proportions in the affirmation versus control group ($b = 0.37$, $SE = 0.18$, $p = .045$, odds ratio = 1.44), supporting the descriptive findings (Figure 1). These results provide initial evidence that a values affirmation intervention can increase prosocial motivation.
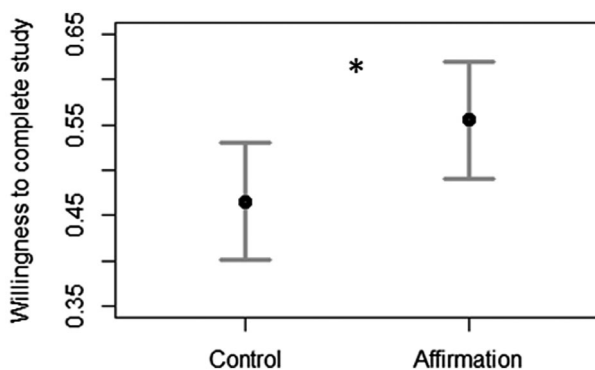
FIGURE 1 Proportion of respondents indicating willingness to complete the unpaid study in the control and affirmation groups (Intention Study). Error bars represent 95% confidence intervals. The difference in study completion intention proportions between control and affirmation groups is significant at the 0.05 level as indicated by *

3.2 | Prosocial behavior

In Study 2 (the Behavior Study), 42.05% of control group participants completed the unpaid survey versus 50.48% in the affirmation group. This 8.43 percentage points difference in actual study completion between control and affirmation groups was statistically significant (logistic regression: $b = 0.34$, $SE = 0.12$, $p = .006$, odds ratio = 1.41) (Figure 2, panel A). With regards to donation to charity we find that out of the $10 bonus, affirmed participants donated significantly more ($M = \$3.29$, $SE = 0.14$) than control participants ($M = \$2.74$, $SE = 0.14$; linear regression: $b = 0.56$, $SE = 0.20$, $p = .006$, Cohen's $d = 0.17$). Affirmed participants on average donated 55 cents more than control participants which translates into a 20.1% increase in donations due to the affirmation intervention (Figure 2, panel B).

3.3 | Mediation analysis

To test our hypothesis that engaging in the values affirmation exercise would increase feelings of positive self-regard and that positive self-regard would mediate the effect of the affirmation intervention on our prosocial outcome measures, we conducted formal mediation analyses for each of our dependent measures using the *mediation* package in R (Tingley et al., 2014). Parameter estimates are based on the bootstrapping method, which does not assume a particular sampling distribution for the indirect effect but generates a data-driven sampling distribution, allowing for an accurate and statistically powerful test of the significance of the indirect effect (Bolger & Amarel, 2007). All reported results are based on 5,000 bootstrapped samples. Results support our hypothesis: For all outcome measures we observe a significant mediation effect of positive self-regard. In the Intention Study, positive self-regard mediated the effect of the affirmation intervention on prosocial behavioral intent to complete the unpaid survey (indirect effect = 0.043, $p < .01$, 95% CI = [0.012, 0.081], proportion mediated = 0.47). In the Behavior Study, positive self-regard mediated the effect of the affirmation intervention on both study completion behavior (indirect effect = 0.046, $p < .001$, 95% CI = [0.018, 0.073], proportion mediated = 0.54) as well as donation behavior (indirect effect = 0.462, $p < .001$, 95% CI = [0.284, 0.661], proportion mediated = 0.83). In line with our hypothesis, our collective results suggest that increased feelings of positive self-regard, stemming from the affirmation intervention, mediate the observed effects on prosocial behavioral intentions and behavior.

4 | DISCUSSION

The present research investigated the potential of a values affirmation intervention to promote prosocial behavior toward distant and unknown others and tested the mediating role of positive self-regard in the affirmation effect. Across two experiments, we find evidence for the viability of a values affirmation intervention to motivate
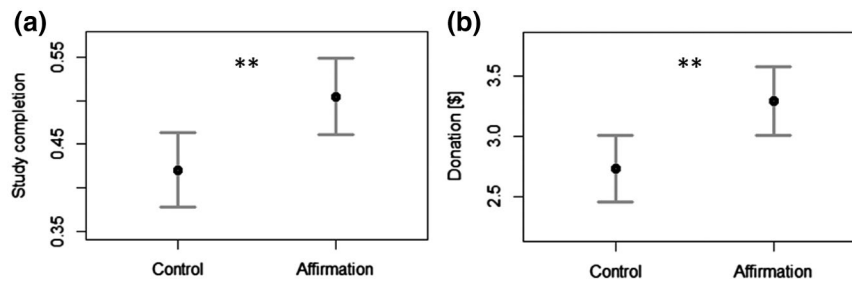
FIGURE 2 Proportion of respondents who completed the unpaid study (a) and mean amounts donated to charity in US dollars (b) in the control and affirmation groups (Behavior Study). Error bars represent 95% confidence intervals. The difference in study completion proportions and amount donated between control and affirmation groups is significant at the 0.01 level as indicated by **

prosocial behavioral intentions as well as actual prosocial behavior. Results of the Intention Study show that participants who engage in a values affirmation task report increased prosocial behavioral intentions, as measured through indicated willingness to complete an unpaid survey. The Behavior Study takes these findings one step further by measuring actual completion of the unpaid study. We find that a significantly higher percentage of participants completed the unpaid study in the affirmation condition compared to the control condition. Additionally, in the Behavior Study we show that effects also extend to the monetary domain, as measured via donation of real money. We find that participants in the affirmation group donate significantly more to charity compared to control group participants. The affirmation intervention increased donations by 20.1%, an intervention effect that is substantial and meaningful in real-world terms. These findings point to a promising potential application of the investigated intervention to foster prosociality. They suggest that affirming people's selves via values affirmation can translate into monetary contributions as well as contributions of personal time to assist others.

Our work extends prior research and knowledge on the motivating factors for prosocial human behavior in several important ways. We extend research on the positive effects of values affirmation on behavior benefiting the individual, such as in the well-studied domains of academic performance (Cohen et al., 2006, 2009), health behavior (Cooke et al., 2014; Epton & Harris, 2008; Logel & Cohen, 2012; Sherman & Cohen, 2006), self-control (Schmeichel & Vohs, 2009), or openness to opposing views (Cohen et al., 2000), to show that a values affirmation intervention can be effective in the prosocial domain benefiting unknown and distant others. While prior research in this domain has largely focused on pro-environmental motivation and attitudes (van Prooijen et al., 2012; Sparks et al., 2010), as well as prosocial behavioral intentions (Lindsay & Creswell, 2014), we show that a values affirmation intervention has the potential to shift real prosocial behavior. We thereby validate and extend Lindsay and Creswell's (2014) behavioral intention results, which found that affirmed university students intended to give more of their income to charities compared to control participants. We show that compared to control participants, affirmed participants indeed donate significantly more to charity using a real behavioral measure. With regards to actual prosocial behavior, we extend prior work that investigated

effects in peer group settings (Thomaes et al., 2012) or face-to-face interactions (Lindsay & Creswell, 2014) to show that a values affirmation intervention can successfully motivate prosocial action in situations in which the beneficiaries are distant and unknown.

As hypothesized, positive self-regard emerged as a significant mediator in the relationship between the affirmation intervention and observed prosocial behavioral intent and behavior. Our studies thus advance theory on human prosocial behavior by helping to shed light on an important motivating factor that underlies the expression of prosocial behavior. Our results suggest that engaging in the values affirmation intervention task increases positive self-directed feelings, such as feeling at peace with oneself, and that these feelings can translate into downstream positive intent and action towards others. We offer a line of theorizing to explain how such enhanced positive feelings about the self may translate into downstream prosocial action. As outlined in the introduction we propose that increased positive self-directed emotions may help to satisfy the need for a positive self-image and thus reduce worry about the self. This may free up cognitive and emotional resources which can be put to other uses, such as to attend to other goals and actions at hand, for instance engaging in prosocial behavior. A logical next step would be to empirically test our explanation of the affirmation effect regarding resource availability. Future cross-disciplinary studies, involving cognitive psychology and methods from neuroscience such as imaging, could provide deeper insights into the availability and allocation of resources during values affirmation and shed light on how exactly the involved processes give rise to observed behavioral outcomes.

Apart from the described theoretical contribution, our work also makes important applied contributions. Our findings provide evidence that values affirmation interventions could be used to motivate positive behavior change in the domain of prosocial motivation and behavior. The real-world application potential is extensive, ranging from motivating volunteer work for charitable causes to providing monetary donations to support those in need, either directly or through supporting advocacy efforts. Such prosocial actions have the potential to help address societal issues such as poverty and inequality, environmental sustainability, or intergroup conflict. Our studies constitute a first step toward investigating the applied potential of fostering prosociality by means of values affirmation interventions. Future work should assess

the impact of large-scale interventions in the field. Collaborations with external stakeholders may be particularly beneficial. It is conceivable for instance to build values affirmation into the recruitment process of volunteers for NGOs—such as through the use of communications and messaging which encourages self-affirmative reflection at the point of decision making. Ensuing contributions of personal time and other indicators of prosocial engagement could be measured and followed longitudinally over time, yielding both practically relevant applied insights as well as helping to provide empirical evidence of intervention effects in real-world settings. The scope could extend further to other domains as well, such as workplace settings to motivate employee engagement in corporate social responsibility projects. Recent work has furthermore provided evidence for the positive effects of values affirmation on discrimination reduction in conjunction with enhancing prosociality (Schneider & Weber, 2020). One could imagine these findings applied to for instance organizational or educational contexts for encouraging non-discriminatory work environments and fostering prosocial mindsets. Taken together, our research findings suggest that values affirmation has the potential to enhance prosociality in diverse contexts and addressing a range of issues.

Values affirmation as a potential lever for promoting prosocial behavior differs from other approaches that have been tested in the literature. These include for instance the priming of legacy concerns in the context of promoting pro-environmental action (Zaval et al., 2015), the anticipation of positive self-directed emotions about a prosocial action (Schneider et al., 2017), and the application of insights from Query Theory (Johnson et al., 2007) that query order can influence decision making to, for instance, boost organ donations through the use of defaults (Johnson & Goldstein, 2004). Other approaches have investigated the motivating power of social norms (Allcott, 2011; Cialdini, 2003; Goldstein et al., 2008; Schultz et al., 2007), particularly dynamic social norms (Loschelder et al., 2019; Mortensen et al., 2019; Sparkman & Walton, 2017), or exposure to media with prosocial content, such as music with prosocial lyrics or video games with prosocial content to foster prosociality (see Greitemeyer, 2011 for a review). These approaches tap into a variety of different mechanisms, such as exploiting memory processes or taking advantage of the fact that humans are motivated by legacy concerns. The approach investigated in this paper of using values affirmation to foster prosociality stands out as an additional, qualitatively different, and novel tool. It elicits prosocial behavior through boosting positive self-regard thereby, as we theorize, increasing the emotional and cognitive capacity of humans to act prosocially.

Our findings additionally offer insights into the nature of human prosocial behavior more generally. They indicate that people's values and the extent to which one feels positively about oneself are important aspects of human altruism. A sizeable body of research has investigated the role of positive emotions for prosociality (see for instance Schneider et al., 2021 for a recent review in the environmental domain). Research investigating real-world charitable giving via donations made on the online crowdfunding platform GoFundMe showed that people's top motivations reported for driving their donations were related to values (e.g., "recipient needed help") and positive emotions (e.g., "helping feels good", "felt empathy", "feel like better person"; Sisco & Weber, 2019). It is also important to note that in our research there was no recognition or personal benefit for the participants for completing the unpaid study or for donating—there was no monetary reward or follow up for those who completed the additional survey and donations were made anonymously by the research team on behalf of the participant, precluding for instance motivations of reciprocal altruism (Piliavin & Charng, 1990; Trivers, 1971). Our work thus highlights the important role that internal processes, such as feeling good about the self and having a positive self-image, play for human altruism over potential alternative motivations.

Our work is not without limitations. We haven't empirically tested our explanation of the affirmation effect with regards to resource availability. As outlined above, we encourage future research to investigate our proposition further. Another limitation of the current work is that we used online samples. Although research has suggested that online samples are not inferior to traditional psychological research samples such as university students (Buhrmester et al., 2011; Casler et al., 2013; Kees et al., 2017), and may even be of higher data quality (e.g., Hauser & Schwarz, 2016; Ramsey et al., 2016) our work cannot claim representativeness on a population level. We thus encourage future research using representative samples to test the generalizability of our observed effects. It should also be noted that observed effect sizes were fairly small, in line with what has been reported in prior work in this domain. However, even small effects can be meaningful and relevant when considering them scaled up to population levels. If values affirmation interventions were to be applied across a broad range of NGOs for instance, even small effects on outcomes would constitute impacts worth considering. A final limitation is the fact that the monetary donation measure used was based on a potential but not sure bonus (i.e., every participant had an equal chance to win the bonus, but only one received it in the end). The question is whether the probabilistic nature of the reward affected the observed effects. Research on gambling, positing that the "dream of hitting the jackpot" is one of the major motivations and drivers for gambling (Binde, 2013), suggests that even a chance of winning is real to people. We would therefore expect, given that there is a real possibility for participants to receive the bonus, that they take the decision of whether and how much of it to donate seriously and that they fully engage. Additionally, the fact that we observe an effect of the values affirmation intervention not just for the donation measure but also for the completion of the additional study measure—which had no probability element to it, with participants spending time which they already possessed—further suggests that observed effects should likely still be in the same direction if a different donation measure was used. To what exact extent the donation amounts might differ if the bonus was not probabilistic in nature but given to everyone is however an empirical question that would require further investigation.

5 | CONCLUSION

Our results point towards a potential avenue for encouraging prosocial behavior. Our findings suggest that a values affirmation intervention has the potential to foster prosocial motivation towards unknown others outside of one's close social network or in-person interactions. We show that engaging in values affirmation can positively affect the time spent helping others and financial contributions to the well-being of others. Both observed effects are of high relevance and potential in the real world. Additionally, we offer a line of theorizing regarding positive self-image needs and resource availability to explain observed effects on prosociality. We show that positive self-regard mediates the effect of the affirmation intervention on prosocial outcomes. Our studies advance both theory on human prosocial behavior, as well as provide evidence for a potential avenue for encouraging prosocial behavior in the real world.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

ORCID

Claudia R. Schneider [ID] https://orcid.org/0000-0002-6612-5186
Elke U. Weber [ID] https://orcid.org/0000-0002-1678-3631

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