Glad to Help Out: Grateful People Are More Likely to Engage in Costly Prosocial Action

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Abstract

Gratitude is not without its critics. Some have argued that it encourages system-justification, thereby discouraging efforts to challenge the status quo. Although gratitude has been shown to promote prosocial behavior, most studies have focused on actions with relatively minor costs. Gratitude's impact on costly prosocial actions aimed at advancing the greater good remains underexplored. To address this gap, we analyzed data from a 2017 U.S. nationally representative sample (Study 1; $N = 2{,}016$), and a longitudinal study of nationally representative samples across 22 countries conducted between 2022 and 2024 (Study 2; $N = 207{,}919$). We also conducted a field study in October 2024, surveying individuals at blood drives and flu shot clinics (Study 3; $N = 396$), and three experiments that manipulated feelings of gratitude (Studies 4a–4c; $N = 644$)—one online U.S. Prolific sample in July 2024 (4a), and two U.S. college student samples online (4b) and in-person (4c) in Spring 2025. We found robust evidence that dispositionally more grateful individuals are more likely to engage in costly prosocial actions. Manipulated state gratitude, however, did not have the same effect, although those who scored higher on trait gratitude in the three experiments examining the effect of both trait and state gratitude reported greater willingness to engage in costly prosocial actions. Together, our findings challenge claims that gratitude reinforces the status quo and undermines efforts to bring about societal change. Instead, we show that more grateful people are more likely to take on the hard, costly work of advancing the greater good.

Keywords: gratitude, altruism, costly prosocial behavior, greater good

"*All you have to do is to generate, within yourself, the good feelings associated with gratitude, and then bask in its warm, comforting glow. If there is any loving involved in this, it is self-love, and the current hoopla around gratitude is a celebration of onanism*."

– Barbara Ehrenreich, *The Selfish Side of Gratitude*

"The real conservativism of positive psychology lies in its attachment to the status quo, with all its inequalities and abuses of power."

– Barbara Ehrenreich, *Bright-sided: How the Relentless Promotion of Positive Thinking Has Undermined America*

Among the most reliable findings to emerge from over a quarter century of research on positive psychology is that "gratitude is good" (with apologies to *Wall Street's* Gordon Gecko). It is undeniably good to those who experience it, as individuals who are dispositionally prone to feeling grateful report more positive affect, greater well-being, lessened envy, and more resilience in the face of trauma (Emmons & Mishra, 2011; Fredrickson et al., 2003; McCullough et al., 2002; Wood et al., 2010). And those who are *induced* to consider what they have to be grateful for tend to be happier, feel more connected to others, sleep better, and need fewer visits to the doctor (Chaplin et al., 2019; Emmons & McCullough, 2003).

Gratitude also appears to be good for those in the grateful individual's orbit—and to society at large. That is, individuals who are led to experience gratitude tend to be more generous to others, both to those to whom they are grateful and to unaffiliated others (Bartlett et al., 2012; Bartlett & DeSteno, 2006). Indeed, a meta-analysis of 91 studies reported in 65 empirical papers found that gratitude is reliably related to engagement in prosocial action (Ma et al., 2017). It seems, then, that feeling grateful makes it easier for people to live up to their "best selves." It makes it easier to be happy, healthy, socially connected, and generous of spirit. It also makes it easier for people to forgo tempting but lesser rewards in the moment in order to achieve greater rewards down the road—i.e., to delay gratification (DeSteno et al., 2014; Dickens & DeSteno,

2016). In quite a number of ways, then, the experience of gratitude makes it easier for people to achieve the ancient Greeks' goal of *ethike arete,* or virtue of character.

So is there anything *not* to like about gratitude? The epigraphs above capture a not-uncommon concern that gratitude might make people too satisfied and complacent, and therefore blind to various societal problems that surround them. This concern sounds plausible, in part because it's easy to imagine that feeling grateful can make a person feel content, and contentment might make it hard to summon the energy necessary to combat injustice or exert much effort on the behalf of others. Indeed, Eibach, Wilmot, and Libby (2015) argue that "gratitude norms function to motivate people to express system-justifying beliefs and attitudes" (p. 348), although their focus is on feelings of gratitude toward societal institutions.

As plausible as it might seem that gratitude can serve to suppress the motivation to "man the barricades" and engage in costly action to advance the greater good, we think the worry is likely misplaced or overblown. For one thing, it's hard to be cynical and grateful at the same time, and few things undermine the will to engage in social action more than a cynical outlook (Zaki, 2024). Second, as the literature cited above suggests, there is a fair amount of work showing that gratitude promotes prosocial action. Grateful individuals donate more to charity (Paramita et al., 2020; Yost-Dubrow & Dunham, 2018) and are more willing to mete out third party punishment toward those who have transgressed against others (Vayness et al., 2020). And in the meta-analysis cited earlier, although roughly half of the studies reviewed focused on prosocial actions directed at individuals, a substantial number reported enhanced prosocial actions directed at groups (Ma et al., 2017).

Finally, theoretical accounts of the nature and functions of gratitude strongly imply that the emotion should typically promote rather than impede social action. Among the functions of

gratitude that McCullough et al (2001) lay out in their influential treatise on gratitude is its role as a "moral motive," encouraging grateful individuals to act prosocially both toward benefactors and to others more generally. Sara Algoe, in her "find, remind, and bind" account of gratitude and social relationships (2012), posits that gratitude activates communal relationship norms that can serve to promote prosocial action. Along similar lines, Steller and colleagues (2017) categorize gratitude, along with compassion and awe, as "self-transcendent emotions" that motivate actions to address social challenges, such as caretaking, cooperation, and group coordination.

The bulk of the prosocial actions that gratitude has been shown to promote, however, cannot be categorized as terribly costly. Many studies simply measure the amount of money participants are willing to give to another person or a cause, typically from a sum of money they have just received (which is therefore likely seen by some as an easy-come, easy-go bonus). It therefore remains an open question whether gratitude promotes costly prosocial action, as suggested by some prominent theories and existing research, or whether it inhibits it, as some have argued. We conducted the following analyses and studies in an effort to settle the matter.

Study 1: Secondary Data Analysis of a Nationally Representative Dataset

To examine the relationship between gratitude and engagement in costly prosocial behavior, we analyzed responses to the 2017 Inspirational Media Survey, which was administered by the Public Religion Research Institute (PRRI) in collaboration with researchers at Florida State University. PRRI is a nonprofit, nonpartisan organization that conducts research at the intersection of religion, culture, and politics. The 2017 Inspirational Media Survey features a large, nationally representative sample of U.S. adults. The data were collected through the AmeriSpeak panel, a probability-based platform managed by National Opinion Research Center (NORC) at the University of Chicago. Our analysis focused on survey questions related to gratitude and costly prosocial behaviors.

Method

Participants. The sample consisted of 2,016 adults ($M_{age} = 52.74$, $SD_{age} = 16.26$) drawn from a random subset of the 3,006 individuals who participated in an earlier (2016) nationally representative AmeriSpeak probability-based panel, also run by NORC. Most participants (n = 1,784) completed the survey online in a self-administered format, whereas others (n = 232) had discussions over the phone with professional interviewers. The sample consisted of 57.4% female and 42.5% male respondents, with 72.8% identifying as White, non-Hispanic, 11.9% as Black, non-Hispanic, and 7.9% as Hispanic. 10.2% of the participants self-identified as agnostic or atheist and 80.8% identified with a particular religion. These percentages are consistent with national trends in the United States reported by the Pew Research Center's Religious Landscape Study (Pew Research Center, 2015) and the Pew 2021 National Public Opinion Reference Survey (Pew Research Center, 2021). Administration of the 2017 Inspirational Media Survey was approved by the Institutional Review Board at Florida State University (HSC#2015.16301).

Procedure and Materials. Data collection took place between February 28 and March 29, 2017, in both English and Spanish. Our analysis focused on survey questions related to gratitude and costly prosocial behaviors. The latter involved questions about the frequency with which the participants engaged in a number of different prosocial actions (see Table 1). Specifically, they were asked, "*Thinking about the past month… Regardless of whether this is something you regularly do, please say how often you have done any of the following in just the past month…*" Response options were: "Have not done this in the past month", "Once in the past month", "A couple times in the past month", "Once a week", "A few times a week", "Nearly every day", and "Don't know/Refused." "Don't know/Refused" responses were treated as missing data, with the result that participants' responses corresponded to a six-point scale (1 = *Have not done this in the past month* to 6 = *Nearly every day*).

Participants were also asked about their voting behavior, another type of prosocial action, on a different scale. Specifically, they were told "*A lot of people have been telling us they didn't get a chance to vote in this election or they chose not to vote",* and were then asked, *"How about you… did things come up that kept you from voting, did you CHOOSE not to vote, OR did you happen to vote?*" Responses were coded as: "Yes, voted", "No, didn't get a chance to vote", "No, chose not to vote", "Not eligible to vote/not registered to vote", "Other", and "Don't know/Refused". "Don't know/Refused" (n = 12) responses were treated as missing data. The remaining responses were dichotomized, with "Yes, voted" coded as 1 and all other responses as 0.

Participants then answered a series of questions about themselves, presented in a randomized order for each participant. Included were two items adapted from the Gratitude Questionnaire Short-Form (GQ-6; McCullough et al., 2002): (1) "*If I had to list everything I felt*

grateful for, it would be a very long list"; and (2) "*I am grateful to a wide variety of people*." Participants were asked how well each of those statements described them, using the following scale: "Exactly", "Very well", "Somewhat well", "Not too well", "Not at all well", and "Don't know/Refused." Don't know/Refused responses (n = 22) were coded as missing data. Responses to both gratitude items were re-coded to create a 5-point scale with higher scores corresponding to stronger agreement—i.e., more grateful.

Transparency and Openness. We identified the dataset through the Cornell Roper Center archive, where this study is listed as part of a catalog of public opinion surveys. However, the dataset is not publicly available and was obtained through a direct request to one of the study's principal investigators. Information about each question in the survey can be found here: https://doi.org/10.25940/ROPER-31114687. Analyses for Study 1 were conducted in R (Version 4.4.1; R Core Team, 2024) using the cocor (1.1.4; Diedenhofen & Musch, 2015), dplyr (1.1.4; Wickham, François, et al., 2023), haven (2.5.4; Wickham, Miller, et al., 2023), lmtest (0.9.40; Zeileis & Hothorn, 2022), and psych (2.4.6.26; Revelle, 2024) packages. Our analysis script is available on Open Science Framework (OSF): osf.io/c3ezr?view_only=1dbc8931838f4d0ea3e439d0bddc2346. This study was not preregistered.

Results

We averaged participants' responses to the two gratitude items (Cronbach's alpha = .78) to create our measure of dispositional gratitude—the independent variable. As seen in Table 1, participants' level of dispositional gratitude was significantly correlated with their reported engagement in each of the 12 prosocial actions. Because the voting measure was dichotomous, it

allowed us to compute that a one-unit increase in the aggregate gratitude score is associated with a 19% increase in the odds of voting, χ^2 (1, n = 1997) = 16.215, p < .001, OR = 1.191, 95% CI [1.04, 1.36]. Thus, when it comes to all of these prosocial actions, including voting, dispositional gratitude is clearly associated with engaging in more prosocial action, not less.

To be fair, those who worry that gratitude might undermine people's willingness to engage in prosocial action are mainly concerned about whether it does so for *costly* prosocial action. And "thanking a stranger" or "paying a compliment to a coworker or colleague" can hardly be considered very costly. But note that there was a significant correlation between dispositional gratitude and the likelihood of engaging in every one of the 12 behaviors in the survey – and activities such as "volunteering at a charity, religious organization, or school," "donating to a church or other religious congregation or charity," or even "listening to someone talk about a personal problem" certainly incur a cost. Nevertheless, does gratitude have a bigger effect on the likelihood that people will engage in relatively low effort prosocial actions rather than more costly ones? To find out, we recruited a group of participants (n = 51) on Prolific to rate the costliness of each prosocial action other than voting (voting behavior was assessed on a different scale than the other items). Specifically, we asked these participants to "*rate how much of a burden they would be to do in terms of the amount of effort, time, and personal resources they would require from you if you were to do them, or how much stress or potential awkwardness they would elicit in you*" on a 1 (*Not at all costly*) to 7 (*Extremely costly*) Likert scale. We correlated these costliness ratings with the correlation between gratitude and prosocial engagement across these 11 prosocial actions and found that the mean correlation between dispositional gratitude and prosocial engagement for the five least costly actions (M = 0.21; SD = 0.09) did not differ from the mean correlation for the five most costly actions (M = 0.19; SD =

0.04), $t(4) = 0.85$, $p = .446$, 95% CI [-0.07, 0.13]. ("Listening to someone talk about a personal problem" had the median costliness rating and was therefore omitted from this comparison.)

Because this survey was commissioned by an organization (the PRRI) with a focus on the connections between religion, culture, and politics, we conducted a test of the robustness of our findings by examining whether the correlation between dispositional gratitude and prosocial action holds for both secular and religious individuals. Accordingly, we re-ran our analysis on the data from two subsets of participants: those who identified as atheist or agnostic, and those who identified as religious. Gratitude remained positively correlated with the frequency of volunteering among both atheists/agnostics, $r(200) = .154$, $p = .029$, 95% CI [.016, .286], and religious individuals, $r(1606) = .179$, $p < .001$, 95% CI [.131, .226]. To test whether the strength of these correlations differed between secular and religious individuals, we conducted a Fisher's *z-test* for independent correlations, which was not statistically significant, $z = -0.342$, $p = .732$, Zou's 95% CI [-0.17, 0.12].

Finally, it is important to note that we also replicated these effects in a supplementary, preregistered study designed to further assess the relationship between gratitude and prosocial action aimed at bringing about social or political change (see Supplementary Study 1).

Table 1

Pearson's Correlations Between Gratitude and Specific Prosocial Behaviors Along with Independent Ratings of Costliness

Prosocial Behavior	Pearson's Correlations	Mean (SD) Independent Rating of Costliness
Loaning a personal possession to someone not a family member	$r(1991) = .090$, $p < .001$, 95% CI [.046, .133]	4.31 (1.63)
Volunteering at a charity, religious organization, or school	$r(1995) = .173$, $p < .001$, 95% CI [.130, .215]	4.02 (1.70)
Donating to a church or other religious congregation or charity	$r(1991) = .174$, $p < .001$, 95% CI [.131, .217]	3.98 (1.59)
Doing a personal favor for a friend or coworker	$r(1993) = .199$, $p < .001$, 95% CI [.157, .241]	3.08 (1.51)
Sending a personal note expressing support	$r(1989) = .180$, $p < .001$, 95% CI [.137, .222]	2.88 (1.32)
Listening to someone talk about a personal problem	$r(1995) = .209$, $p < .001$, 95% CI [.166, .250]	2.75 (1.55)
Allowing someone to go ahead of you in line	$r(1995) = .112$, $p < .001$, 95% CI [.069, .155]	2.22 (1.43)
Praying for someone not a close friend or family member	$r(1994) = .320$, $p < .001$, 95% CI [.280, .359]	2.12 (1.53)
Paying a compliment to a colleague or coworker	$r(1988) = .236$, $p < .001$, 95% CI [.194, .277]	1.78 (1.22)
Thanking a stranger	$r(1994) = .181$, $p < .001$, 95% CI [.138, .223]	1.53 (1.12)
Holding the door or elevator for a stranger	$r(1998) = .118$, $p < .001$, 95% CI [.075, .161]	1.39 (0.92)
Voting in the 2016 United States Presidential Election	$r(1996) = .058$, $p = .009$, 95% CI [.015, .102]	---------

Study 2: Analysis of Nationally Representative Samples in 22 Countries

Study 1 established that people who are more dispositionally prone to feeling grateful are more likely to engage in prosocial action, not less. They are more likely to do so, furthermore, even for the more-costly prosocial actions examined in the survey in question. Does this pattern generalize beyond the United States? To find out, we analyzed data from the Global Flourishing Study (GFS), an ongoing, five-year, cross-national, longitudinal study of individuals in 20+ countries conducted by Gallup in collaboration with Harvard and Baylor Universities.

Method

Participants. The sample consisted of 207,919 adults ($M_{age} = 45.79$, $SD_{age} = 17.60$), 52.6% female and 47.0% male. Additional information about the sample's demographics can be found in the Global Flourishing Study's study profile paper: www.nature.com/articles/s44220-025-00423-5 (VanderWeele et al., 2025). The study protocol for the GFS was approved by the Institutional Review Boards of Gallup and Baylor University. We also obtained Institutional Review Board approval from Cornell University (IRB0148802) to access the restricted-use version of the GFS dataset.

Procedure and Materials. Participants in the GFS were recruited by Gallup in collaboration with their partners in each country. The goal was to enroll a nationally representative longitudinal panel in each country to be surveyed annually over five years. In most countries, recruitment involved face-to-face or telephone contact to enroll a representative panel of adults aged 18 and over. In a subset of countries, web panels were used as a supplement or replacement for in-person recruitment. Surveys were conducted in 36 languages. Respondents were initially contacted through multiple channels (e.g., phone, email, WhatsApp), with repeated contact attempts to maximize response rates. Participants completed the study either online in a

self-administered format, by telephone, or through face-to-face interviews with trained interviewers. We analyzed data from Wave 1 (Year 1, collected between 2022 and 2023) and Wave 2 (Year 2, collected in 2024), involving nationally representative samples from 22 countries and Hong Kong (listed as a Special Administrative Region by Gallup; see Figure 1 for the full list of countries). For more information about methodological procedures and validation efforts, see Padgett et al. (2025) and Ritter et al. (2025).

Our analyses focused on participants' responses to questions about the frequency with which they engaged in three different prosocial actions across two waves of data. Each question began with the prompt, "*In the past month, have you…*" followed by each of the following prosocial actions: donated money to a charity, volunteered your time at an organization, helped a stranger or someone you didn't know who needed help. Responses were recorded by the GFS as either "Yes", "No", "Saw, Skipped", "Don't know", or "Refused". We recoded the responses such that "No" was coded as 0, "Yes" as 1, and all other responses as missing. As preregistered, we first examined each of the three prosocial behaviors separately. Next, following our analysis plan, we created a composite score by averaging the first two items (donating, volunteering), anticipating that this would be consistent with our prior work where these items demonstrated high internal consistency (Cronbach's alpha = .84-.88). However, internal consistency was modest, with the highest observed inter-item correlation across any two- or three-item combination reaching .53. Given the weak inter-item correlations, we did not aggregate the items and instead analyzed each behavior separately.

Included in the GFS was one item from the Gratitude Questionnaire Short-Form (GQ-6; McCullough et al., 2002) assessing trait gratitude: (1) "*If I had to list everything I felt grateful*

for, it would be a very long list". Responses were given on a scale from 0 (*Strongly disagree*) to 10 (*Strongly agree*).

Transparency and Openness. Researchers can request the GFS data by following this link: cos.io/gfs. The non-restricted use dataset (Johnson et al., 2025) is scheduled to become publicly available in the Spring of 2026. Analyses for Study 2 were conducted in R (Version 4.4.1; R Core Team, 2024) using the broom.mixed (0.2.9.6; Bolker et al., 2024), dplyr (1.1.4; Wickham, François, et al., 2023), forcats (1.0.0; Wickham, 2023), haven (2.5.4; Wickham, Miller, et al., 2023), lme4 (1.1.35.5; Bates et al., 2015), psych (2.4.6.26; Revelle, 2024), and tidyr (1.3.1; Wickham et al., 2024) packages. The figure was created in R (Version 4.4.1; R Core Team, 2024) using the ggplot2 (3.5.1; Wickham, 2016) and patchwork (1.3.0; Pedersen, 2024) packages. ChatGPT (OpenAI, 2025) was used to assist in data wrangling, code debugging, and data visualization in R. All code was reviewed and checked by two members of the research team for accuracy. Our analysis script is available on OSF (osf.io/brsjg?view_only=1dbc8931838f4d0ea3e439d0bddc2346). The hypotheses and analytic approaches for Study 2 were preregistered on OSF (osf.io/8tkgv?view_only=1dbc8931838f4d0ea3e439d0bddc2346) prior to receiving the data from the GFS's data stewards at the Center for Open Science.

Results

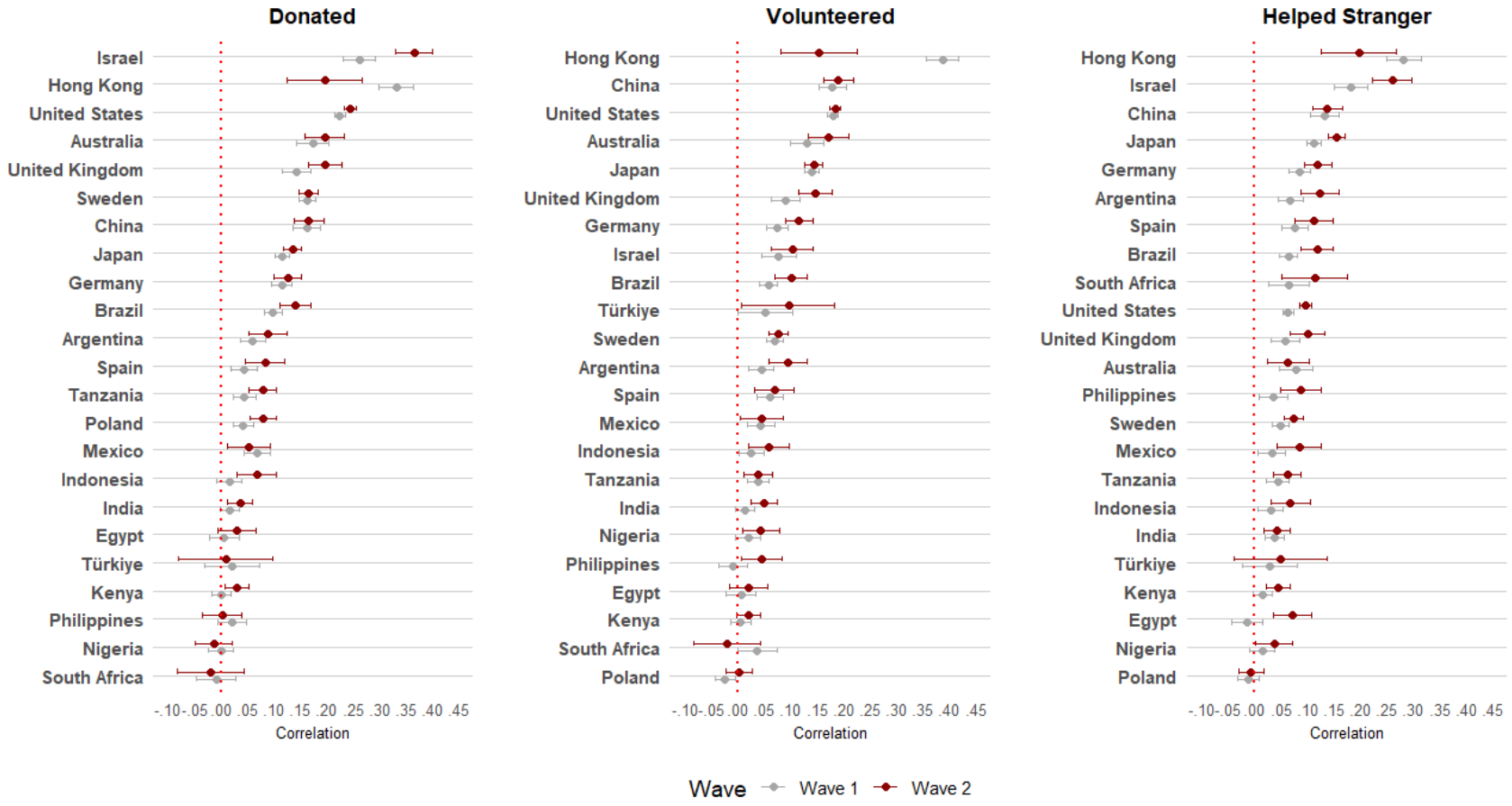
To examine whether individuals higher in gratitude are more likely to report engaging in costly prosocial behavior, we calculated point-biserial correlations between gratitude and each measure of costly prosocial behavior (i.e., donating, volunteering, and helping a stranger) separately at each wave. At Wave 1, there was a positive correlation between gratitude and donating ($r(203920) = .163$, $p < .001$, 95% CI [.158, .167]), volunteering ($r(203889) = .134$, p

<.001, 95% CI [.130, .138]), and helping a stranger (r(203574) = .154, p <.001, 95% CI [.150, .158]. At Wave 2, the same pattern emerged: gratitude was positively correlated with donating (r(127047) = .214, p <.001, 95% CI [.209, .220]), volunteering (r(127272) = .158, p <.001, 95% CI [.153, .164]), and helping a stranger (r(127275) = .173, p <.001, 95% CI [.167, .178].

Figure 1 presents the correlations between trait gratitude and each costly prosocial behavior (donating, volunteering, and helping a stranger) separately for each country and wave. For ease of interpretation, countries are ordered in each panel from the strongest to weakest correlation. Across both waves and all three behaviors (six correlations per location), all six correlations were statistically significant in Hong Kong, Israel, the United States, China, Australia, the United Kingdom, Japan, Germany, Spain, Argentina, Brazil, Sweden, Mexico, and Tanzania. These findings provide robust evidence that the relationship between gratitude and costly prosocial behavior spans diverse cultural, economic, and political contexts.

Figure 1

Correlations Between Trait Gratitude and Costly Prosocial Behavior in 22 Countries and Hong Kong



Note. Error bars reflect 95% confidence intervals. Within a given country, each point represents the correlation between trait gratitude and each action separately at Wave 1 (Year 1: 2022–2023) and Wave 2 (Year 2: 2024). For ease of interpretation, countries are ordered from the strongest to the weakest correlation averaged across the two waves.

To estimate how trait and state gratitude separately relate to costly prosocial behavior, we fit three generalized linear mixed-effects models (GLMMs) predicting each costly prosocial behavior (i.e., volunteering, donating, and helping a stranger) from two key predictors: mean gratitude for each respondent across the two waves (trait) and the difference between each respondent's gratitude in a given wave and the respondent's mean response across the two waves (measuring any uptick or downturn in gratitude, or state gratitude). Across all three costly prosocial behaviors, trait gratitude significantly (and positively) predicted participants' likelihood of engaging in costly prosocial action. That is, a one-point increase in trait gratitude was associated with a 17.6% increase in the odds of volunteering ($p < .001$), a 19.8% increase in the odds of donating ($p < .001$), and a 9.9% increase in the odds of helping a stranger ($p < .001$). Momentary changes in gratitude, or state gratitude, also predicted costly prosocial behavior, but the effects were much smaller and only significant for donating and helping a stranger, corresponding to a 1.2% ($p = .007$) and 1.8% ($p < .001$) increase in odds, respectively.

Does gratitude measured during the first wave predict participants' willingness to engage in costly prosocial behavior measured in the second wave roughly one year later? To find out, we fit three lagged GLMMs predicting each Wave 2 costly prosocial behavior from gratitude reported at Wave 1. Across all three actions, gratitude measured at Wave 1 significantly predicted an increased likelihood of engaging in costly prosocial action at Wave 2. More specifically, a one-point increase in gratitude at Wave 1 was associated with an 11.1% increase in the odds of volunteering ($p < .001$), a 13.0% increase in the odds of donating ($p < .001$), and a 7.9% increase in the odds of helping a stranger ($p < .001$) at Wave 2.

Together, these results provide evidence that having a relatively stable disposition to experience gratitude is associated with a stated willingness to engage in costly prosocial

behavior—in the moment, over time, and across cultures. Full model details and estimates are reported in the Supplementary Materials.

Study 3: Donating Blood vs. Getting a Flu Shot

We conducted a field study as a further test of whether those higher in trait gratitude are more likely to engage in costly prosocial actions. We reasoned that donating blood constituted a costly prosocial behavior due to the time and effort involved. Potential donors were required to schedule an appointment in advance and commit to a process that takes 30 to 45 minutes. According to the American Red Cross, only 3% of age-eligible people donate blood yearly, or roughly 6.8 million people in the United States (American Red Cross, 2024). We compared blood donation to receiving a free flu shot, which is arguably less costly and more self-focused. Both require a visit to a public location and the insertion of a needle, and both contribute to public health. Indeed, the American Red Cross argues that the "Flu vaccine…[and]…blood donation both help save lives" (American Red Cross, 2020). However, 75% of typically-stated motivations for vaccination are self-interested, such as reducing personal risk of illness, while only 25% reflect altruistic concerns, like preventing the spread of the flu to others (Shim et al., 2012). Moreover, receiving a flu shot is much more convenient. Flu shot recipients can walk in without an appointment and complete the process in just 5 to 10 minutes. (Indeed, the authors [XX] and [XX] received flu shots as walk-ins at one of these clinics during the conduct of this research).[1]

Method

Participants. Three hundred ninety-six participants (M_{age} = 25.13, SD_{age} = 11.36; *Range* = 18-70) completed the survey, of which 59.3% self-identified as female, 39.1% as male, and

[1] That said, receiving a flu shot for free could arguably lead to an increase in gratitude, given that it provides a health benefit at no cost to the individual.

1.0% as non-binary. In terms of racial and ethnic composition, 45.7% self-identified as White, 43.2% as Asian, 7.3% as Black, 8.3% as Hispanic or Latino, and 1.8% as Middle Eastern. Participants were not compensated for completing the study. We specified in our preregistration that we would limit our data collection to one month, with a target of at least 300 participants (if the response rate allowed). As specified in the preregistration, we excluded individuals who did not confirm giving blood in the blood drive condition or receiving a flu shot in the flu shot condition when they returned the survey, resulting in a final sample size of 375 participants ($n_{BloodDrive}$ = 75, $n_{FluShot}$ = 300). This study was approved by the Institutional Review Board at Cornell University (IRB0148802).

Procedure and materials. We collected data in October 2024 at six events: three blood drives organized by the American Red Cross and three flu shot clinics run by a large grocery chain's pharmacy. Data collection took place in three waves on five closely matched dates: October 3 (blood drive and flu shot clinic), October 17 (flu shot clinic) and October 21 (blood drive), and October 30 (flu shot clinic) and October 31 (blood drive). While all data collection occurred on the [University] campus, participation was not limited to [University]-affiliated individuals.

Research assistants approached people exiting the blood drive or flu shot clinic and said, "*Hi, I'm a student researcher here at [University]. Would you mind filling out a 1-page survey for us? It should take about one minute.*" If the potential participant agreed, we handed them a survey on a clipboard. Once participants returned the survey to us, we verbally confirmed that they gave blood or received the flu shot. We instructed research assistants to approach everyone who appeared to have donated blood or received a flu shot and emphasized the importance of engaging all potential participants, not just those who seemed likely to respond.

The one-page survey consisted of the same Gratitude Questionnaire Short-Form used in Study 2 (GQ-6; McCullough et al., 2002) and basic demographic questions (in that order). Cronbach's alpha for the GQ-6 was 0.75.

Transparency and Openness. All data, analysis code, and research materials for Study 3 are available on OSF (osf.io/6q5tn/files/osfstorage?view_only=1dbc8931838f4d0ea3e439d0bddc2346). Analyses were conducted in R (Version 4.4.1; R Core Team, 2024) using the dplyr (1.1.4; Wickham, François, et al., 2023), emmeans (1.10.4; Lenth, 2017), lme4 (1.1.35.5; Bates et al., 2015), lmerTest (3.1.3; Kuznetsova et al., 2017), and psych (2.4.6.26; Revelle, 2024) packages. The figure was created in R (Version 4.4.1; R Core Team, 2024) using the ggplot2 package (3.5.1; Wickham, 2016). The hypotheses, methods, and analytic approaches were preregistered prior to data collection on AsPredicted (#192488).

Results

As specified in our preregistration, we fit a mixed-effects model predicting GQ-6 scores by condition (blood drive vs. flu shot), with research assistant and date of data collection specified as random factors. Gratitude scores were significantly higher for participants in the blood drive condition (M = 6.13, SD = 0.70) than for those in the flu shot condition (M = 5.86, SD = 0.79), $t(16) = 2.651$, $p = .017$, 95% CI [0.06, 0.50].

Given that the variance accounted for by the random factors of research assistant (0.00065; 0.11%) and date of data collection (0.00165; 0.27%) was minimal, we followed this analysis with a simpler one. We conducted a Welch two-sample t-test that compared the gratitude scores in the two conditions, and found that they were significantly higher for

participants in the blood drive condition than for those in the flu shot clinic, $t(126.02) = 2.931$, $p = .004$, 95% CI [0.09, 0.46].

Figure 2

Mean Gratitude Scores For Blood Donors and Flu Shot Recipients

Note. Error bars reflect 95% confidence intervals. Participants were recruited in person immediately after donating blood or receiving a free flu shot in October 2024. Gratitude was measured using the GQ-6 (McCullough et al., 2002). A Welch's t-test revealed that blood donors reported significantly higher gratitude scores than flu shot recipients, $t(126.02) = 2.931$, $p = .004$, 95% CI [0.09, 0.46].

Studies 4a, 4b, and 4c: Does Experimentally Inducing Gratitude Affect Intentions to Engage in Costly Prosocial Action?

Having established that those high in dispositional gratitude are more, not less, likely to engage in personally costly action to advance the social good, it remains unclear whether this results from a lifetime of living gratefully or whether even transient feelings of gratitude increase the willingness to engage in costly social action. That is, does what we found for gratitude as a trait apply to state gratitude as well? To answer this question, we conducted three experimental studies that manipulated feelings of gratitude or another positive emotion and examined participants' willingness to engage in costly prosocial action. There are compelling reasons to predict either outcome—that state and trait gratitude have similar effects on prosocial engagement or that a lifetime of living gratefully is required for people to engage in such sacrifice—and so we could not confidently endorse either the null or alternative hypothesis.[2]

In Study 4a we used a standard gratitude induction manipulation to induce gratitude in half of the participants (DeSteno et al., 2014, 2019). Specifically, participants in the gratitude condition were given three minutes to recall and write about a time when they felt grateful, whereas those in the control condition recalled and wrote about the events of a typical day (see Supplemental Table 2 for a full report of the instructions). Studies 4b and 4c manipulated state gratitude by presenting participants with either a gratitude-inducing or control video. Participants in the gratitude condition watched a video depicting acts of excellence, beauty, communal triumph, and social connection, features known to elicit feelings of gratitude (Algoe, 2012; Algoe et al., 2020; Algoe & Haidt, 2009). After the manipulation in all three studies, we asked

[2] Wanting the greater good to be advanced, however, we were rooting for the alternative hypothesis and that is reflected in our preregistrations for Study 4a and Studies 4b/c.

participants about their willingness to engage in a series of costly prosocial actions within the next year.

Method

Participants. For Study 4a, 360 U.S. Prolific participants ($M_{age} = 36.03$, $SD_{age} = 11.95$) were recruited in exchange for $1. For Study 4b, 251 Cornell students ($M_{age} = 19.89$, $SD_{age} = 1.34$) were recruited in exchange for course credit, with 173 of them actually completing the survey. Finally, for Study 4c, 111 students ($M_{age} = 20.21$, $SD_{age} = 1.81$) who were passing by the Psychology Department at Cornell were recruited to participate in exchange for a $5 "Big Red Bucks" gift card, with 109 of them completing the study. Studies 4a, 4b, and 4c were approved by the Institutional Review Board at Cornell University (IRB0148802).

As specified in the preregistration for Study 4a, we conducted an *a priori* power analysis using G*Power 3.1 (Faul et al., 2009), which indicated that 346 participants would be needed to detect a small-to-medium effect (Cohen's $d = 0.35$) with 90% power ($\alpha = .05$, two-tailed). We preregistered that we would recruit 360 participants to account for possible exclusions, of which there were none. Data collection for Study 4a took place in July 2024. Studies 4b and 4c shared a single preregistration, as they tested the same hypothesis using identical stimuli with the same population. As preregistered, we collected data in Spring 2025. Study 4b was initially launched online, but after multiple participants asked about compensation, we checked for participant study completion and found several incomplete surveys, as well as participants who had signed up but did not begin the study. To improve data quality, we transitioned to in-person data collection, which led us to conduct 4c. Further demographic information about the participants in all studies is available in the Supplementary Materials.

Procedures. As noted above, participants in Study 4a were randomly assigned to write either about a time they felt grateful or about the events of a typical day, and were given three minutes to do so. Participants in both Studies 4b and 4c were randomly assigned to watch a video designed to elicit either gratitude or general positive affect. The gratitude video, tailored to elicit especially deep gratitude among this particular subject pool, consisted of scenes from a longer video celebrating Cornell's 150th anniversary, honoring the institution's unique history, its distinguished luminaries, inspiring moments of student life, and sweeping views of the campus and the surrounding area. The non-gratitude, general positive emotion video consisted of highlights from various Buster Keaton films, showcasing Keaton's physical comedy and elaborate stunts. Both videos were 7 minutes and 53 seconds long. See Figure 3 for representative frames from each condition. Further details about the cover story and procedures of all three studies are available in the Supplementary Materials.

Figure 3

Illustrative Frames from the Gratitude and General Positive Affect Videos

Note. This figure presents six representative frames from each condition, with gratitude frames on the left and general positive affect frames on the right.

In all three studies, after completing the independent variable manipulation, participants reported how willing they would be to engage in each of seven costly prosocial actions: (1) donating to a cause they believe in; (2) volunteering for such a cause; (3) displaying a symbol to support such a cause (a lawn sign, bumper sticker, pin, t-shirt); (4) participating in a community-level meeting; (5) contacting an elected official; (6) attending a protest, rally, or march to express support for a cause; and (7) verbally speaking up when doing so is costly or uncomfortable. Cronbach's alpha for the responses to the seven items in each study was high (α = .88, .84, and .86), so we average participants' responses as our measure of willingness to engage in costly prosocial action.

Participants in Study 4a also rated the importance of six social issues on a 5-point scale (1 = *Not important*, 5 = *Very important*): (1) poverty and homelessness; (2) affordable and accessible healthcare; (3) the increasing frequency of natural disasters; (4) immigration policies; (5) political corruption; and (6) care for veterans.

Transparency and Openness. All data, analysis code, and research materials for Study 4 are available on OSF (osf.io/6q5tn/files/osfstorage?view_only=1dbc8931838f4d0ea3e439d0bddc2346). Analyses were conducted in R (Version 4.4.1; R Core Team, 2024) using the car (3.1.3; Fox & Weisberg, 2019), dplyr (1.1.4; Wickham, François, et al., 2023), emmeans (1.10.4; Lenth, 2017), psych (2.4.6.26; Revelle, 2024), and tidyr (1.3.1; Wickham et al., 2024) packages. The hypotheses, methods, and analytic approaches were preregistered for Study 4a on AsPredicted (#183888) and Study 4b/4c on AsPredicted (#211687).

Results

Manipulation check. To determine whether our gratitude manipulations significantly increased state gratitude, participants rated how strongly they felt amused, angry, grateful, proud, and sad in the moment (1 = *Not at all*, 7 = *Very much*), with their responses to the grateful item serving as our measure of state gratitude. In Study 4a, participants completed this manipulation check measure immediately after the writing manipulation. The mean in the gratitude condition was significantly higher ($M = 6.47$, $SD = 0.93$) than that in the control condition ($M = 4.43$, $SD = 1.87$), $t(358) = 13.145$, $p < .001$, 95% CI [1.74, 2.35], $d = 1.39$. For Studies 4b and 4c, we checked the effectiveness of the manipulation in a separate study ($N = 55$; see Supplemental Materials). [3] In that study, the mean in the gratitude condition was significantly higher ($M = 5.52$, $SD = 1.42$) than that in the control condition ($M = 2.90$, $SD = 1.70$), $t(52) = 6.105$, $p < .001$, 95% CI [1.76, 3.49], $d = 1.67$. These results indicate that both the writing and video manipulations

[3] We wanted to avoid drawing participants' attention to their emotional state before asking them to report their willingness to engage in costly prosocial behaviors in Study 4b and 4c.

were effective in eliciting significantly more state gratitude among participants in the gratitude conditions than in the control conditions.

Unlike what we observed for trait gratitude, in none of the three studies in which we manipulated state gratitude did participants in the gratitude condition report a greater willingness to engage in costly prosocial actions than those in the control condition: Study 4a, (M = 3.82, SD = 1.48) vs. (M = 3.64, SD = 1.53), t(358) = 1.109, p = .268, 95% CI [-0.136, 0.489], d = .12; Study 4b, (M = 4.10, SD = 1.33) vs. (M = 4.15, SD = 1.25), t(159) = -0.254, p = .800, 95% CI [-0.455, 0.351], d = .04; and Study 4c, (M = 4.07, SD = 1.42) vs. (M = 4.11, SD = 1.24), t(103) = -0.156, p = .877, 95% CI [-0.56, 0.48], d = .03. Thus, unlike trait gratitude, a one-shot manipulation that demonstrably increased state gratitude is not sufficient to increase willingness to engage in costly prosocial action.

Some additional support for the importance of individual differences in gratitude and the willingness to engage in costly prosocial action was obtained in the form of a significant positive correlation between participants' gratitude ratings and our prosocial action measure in all three studies: r(358) = .20, p <.001, 95% CI [.10, .29] in Study 4a; r(159) = .22, p = .006, 95% CI [.06, .36] in Study 4b; and r(103) = .23, p = .019, 95% CI [.04, .40] in Study 4c.

Finally, recall that participants in Study 4a also rated how important they thought six different pressing social issues were (e.g., political corruption, affordable healthcare). On this measure as well, the ratings made by participants in the gratitude condition (M = 3.92, SD = 0.62) did not differ from those of participants in the control condition (M = 3.86, SD = 0.89), t(358) = 0.83, p = .407, 95% CI [-0.86, 0.21], d = 0.09. However, consistent with the idea that individual differences in gratitude shape the willingness to engage in costly prosocial action,

participants' gratitude ratings were positively correlated with the perceived importance of these social issues, $r(358) = .24$, $p < .001$, 95% CI [.14, .34].

Altogether, we obtained clear evidence from three studies using demonstrably effective manipulations that a passing boost to feelings of gratitude does not, unlike a general grateful disposition, lead people to be more inclined to engage in actions to try to advance the greater good. It appears that a more consistent grateful outlook, perhaps forged from an accumulation of grateful moments, is necessary for people to be more willing than others to do the hard and costly work necessary to advance the public good.

General Discussion

Taken together, our results should constitute good news for those who have touted the benefits of gratitude. Not only does gratitude tend to increase an individual's physical health and psychological well-being (Emmons & Mishra, 2011; Wood et al., 2010), it also makes people more disciplined (Boggio et al., 2020; DeSteno et al., 2014; Dickens & DeSteno, 2016), more generous (Bartlett et al., 2012; DeSteno et al., 2010; Locklear et al., 2021; Yost-Dubrow & and Dunham, 2018) and, as we have shown here, more willing to work to advance the greater good when doing so comes at a cost. Our respondents who scored high on a validated measure of trait gratitude were more likely, for example, to express a willingness to attend political rallies, to volunteer their time for prosocial causes, and to contact their elected officials. This finding was observed across the globe—from China to the United States; from Australia to Sweden; and from Argentina to Japan. The more grateful participants in these studies also rated a host of contemporary problems as more important, and were more likely to be found donating their blood to others than getting an inoculation to protect themselves. Critically, the link between trait

gratitude and costly prosocial action was not limited to measures taken at a single time point. Trait gratitude predicted the stated likelihood of engaging in costly prosocial actions a year later, reinforcing the idea that gratitude reflects a durable tendency to want to promote the greater good.

It might very well have turned out otherwise. There are compelling reasons to believe, as others have argued (Ehrenreich, 2009, 2015; Eibach et al., 2015), that gratitude can promote a sense of contentment which, in turn, might blind people to the need for societal change or undermine their desire to bring it about. Gratitude might dampen the fire needed to motivate individuals to enter the arena and fight for change. Our findings demonstrate quite clearly that that is not the case. Fears about a grateful orientation making people too contented to work for needed change appear to be misplaced. Rather than weakening moral resolve, dispositional gratitude seems to strengthen it, motivating people to act even when doing so is costly.

It's important to note in this regard that we found robust evidence for a connection between trait gratitude and the willingness to engage in costly prosocial action, but no such relationship for state gratitude—despite the fact that our gratitude manipulations produced robust effects on our manipulation checks and that similar manipulations have been shown to yield significant personal benefits (DeSteno et al., 2014, 2019) and to promote less costly prosocial action (Ma et al., 2017; see also He et al., 2025). Thus, the temporary uplift that comes with being encouraged to consider what there is to be grateful for does not appear to be sufficient to motivate people to do the hard work necessary to try to bring about societal change.

Constraints on Generality

Although the relationship between trait gratitude and costly prosocial action was robust across nationally representative populations in 22 countries, the null effects for state gratitude

were observed only in U.S.-based samples and with specific, brief interventions. We cannot assume these null results would generalize to other populations, or to interventions that are extensive, more extended over time, or socially embedded. Indeed, one has to wonder whether *self-initiated* contemplation of reasons to be grateful, or more sustained external encouragement, such as being assigned to keep a gratitude diary (Emmons & McCullough, 2003; Lyubomirsky et al., 2011; Seligman et al., 2005), might have a greater impact, leading to the kind of effects we observed for trait gratitude. Exercises like keeping a gratitude diary, after all, can start out as mere boosts to state gratitude, but over time might come to change a person's level of trait gratitude. This raises the question of whether some of the gratitude manipulations that have been successful in increasing state gratitude might be utilized or tweaked to increase trait gratitude, thereby increasing the willingness to engage in costly prosocial actions that advance the greater good. One thing to consider in this regard is that although momentary or state gratitude is often elicited by specific actions from a given individual, dispositional gratitude tends not to be (Walker et al., 2016). Future work might therefore explore how to cultivate this broader, more expansive form of gratitude and test whether the null effects for state gratitude we observed are specific to one-off gratitude manipulations or to U.S.-based samples.

One possibility would involve leveraging gratitude's potential to strengthen and expand social networks. Echoing Milan Kundera's (2002) imagery of the "grand march," Chang and colleagues (2012) propose that "positive emotions such as gratitude may diminish an individual's inclination to distinguish self-related from unrelated others, e.g. they would all be categorized as human beings." In this way, they argue, feelings of gratitude may prompt individuals to blur the boundaries between close and distant others. (Chang et al., 2012).

Also, although the find-remind-and-bind model of gratitude (Algoe, 2012) was originally formulated to explain how gratitude helps people identify and build dyadic relationships, it can be extended beyond dyads. One possibility would be to draw upon the details of the model to develop gratitude interventions that prompt reflection on privilege and relative advantage to help people "find" overlooked social issues and causes, "remind" them of social and financial advantages they may hold, and "bind" them to efforts that advance the greater good. Reflecting on one's relative advantage might thus be used to elicit state gratitude and foster a sense of moral obligation to others and to society more broadly.

Finally, future interventions might explore ways to counteract the tendency for people to be more attuned to obstacles they face (headwinds) than to advantages that support them (tailwinds). Although people do recognize some of the advantages they enjoy, those tend to be focused on support from specific people rather than broader, structural conditions that facilitated their success (Davidai & Gilovich, 2016; Smith et al., 2024). Interventions that redirect gratitude toward these overlooked systems of support may be more likely to broaden the scope of moral concern and inspire more costly forms of prosocial behavior (Laham, 2009).

Concluding thoughts

In an era marked by cynicism, those who are grateful seem to be the ones who are more likely to show up, give of themselves, and engage in costly prosocial behavior. Our findings thus challenge the claim that gratitude makes people feel satisfied and therefore less willing to work to bring about societal change, and unknowingly reinforcing the status quo. Instead, we show that more grateful people are more likely to take on the hard, costly work of donating, volunteering, and getting actively involved in democratic processes. As people the world over

continue to battle inequities, injustice, and abuses of power, it appears to be the grateful among us who are most likely to do something about it.

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