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Surprisingly Happy to Have Helped: Underestimating Prosociality Creates a Misplaced Barrier to Asking for Help

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Abstract

Performing acts of kindness increases well-being, yet people can be reluctant to ask for help that would enable others' kindness. We suggest that people may be overly reluctant because of miscalibrated expectations about others' prosocial motivation, underestimating how positively others will feel when asked for help. A pretest identified that interest in asking for help was correlated with expectations of how helpers would think and feel, but a series of scenarios, recalled experiences, and live interactions among adult participants in the United States (total $N = 2{,}118$) indicated that those needing help consistently underestimated others' willingness to help, underestimated how positively helpers would feel, and overestimated how inconvenienced helpers would feel. These miscalibrated expectations stemmed from underestimating helpers' prosocial motivation while overestimating compliance motivation. This research highlights a limitation of construing help-seeking through a lens of compliance by scholars and laypeople alike. Undervaluing prosociality could create a misplaced barrier to asking for help when needed.

Keywords

prosocial behavior, social cognition, prosocial motivation, egocentrism, kindness, well-being, open data, open materials, preregistered

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When 12-year-old Steve Jobs cold-called Bill Hewlett, cofounder of Hewlett-Packard, to ask for spare parts to use in a school project, Hewlett not only agreed to his request but also offered him a summer job (Silicon Valley Historical Association, 2011). Reflecting on this request, Jobs commented, "Most people don't get those experiences because they never ask. I've never found anybody who didn't want to help me when I've asked them for help."

Although Steve Jobs had many unique attributes, finding other people who want to help when asked does not seem especially unique. For instance, one observational study conducted in eight cultures around the world found that 88% of naturally occurring requests were fulfilled (Floyd et al., 2018). Indeed, helping others in need seems to be an intuitive response (Zaki & Mitchell, 2013) that tends to leave helpers feeling positive (Andreoni, 1990; Curry et al., 2018; Dunn et al., 2008; Harbaugh et al., 2007). More unusual may be Jobs's readiness to ask others for help because people often struggle with requesting help (Addis & Mahalik, 2003; Butler & Neuman, 1995; Lee, 2002; Nadler, 2015). This struggle may seem puzzling. If receiving help usually benefits recipients, and if providing help leaves helpers feeling positive, then what psychological barriers might keep people from making a request that could improve both their own and a helper's well-being?

Here, we advance existing research on one documented barrier: People misunderstand others' reactions to a direct request for help (Bohns, 2016). Specifically, we hypothesize that those in need of help underestimate the strength of others' prosocial motivation to help when asked directly—in Jobs's words, how much others "want" to help—consequently underestimating how

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willingly others will help and how positively others will feel about helping. Failing to fully appreciate how much others will genuinely want to help, and will feel positive for doing so, could then leave people overly reluctant to asking for help more often in daily life.

Our hypotheses are based on several existing findings. First, human beings are deeply social, being prosocially motivated to connect with others (Baumeister & Leary, 1995; Tomasello, 2009), to empathize with others' experiences (Decety & Jackson, 2004; Singer et al., 2004; Zaki, 2014), and to help when others are in need (Batson & Shaw, 1991; Slovic et al., 2017; Zaki & Mitchell, 2011). Being asked for help creates an opportunity for a positive social connection with the requester that also affirms the helper's own competency (Brooks et al., 2015). Agreeing to a request could therefore satisfy basic psychological needs for relatedness, autonomy, and competence (Deci & Ryan, 2000; Weinstein & Ryan, 2010), creating a positive experience to the extent that a request can be fulfilled (Dunn et al., 2014).

Second, emerging research suggests that people may systematically underestimate how positively others respond to one's own sociality, which creates a barrier to engaging with others more often. For instance, people may avoid talking with strangers because they underestimate others' interest in talking to them (Epley & Schroeder, 2014; Schroeder et al., 2022), stick to shallow conversations rather than deeper conversations because they underestimate others' interest in discussing meaningful content (Kardas et al., 2021), or be reluctant to express gratitude or share compliments because they underestimate how positively recipients will feel (Boothby & Bohns, 2021; Kumar & Epley, 2018; Zhao & Epley, 2021a, 2021b). In addition, people tend to assume others' behaviors are guided by self-interested motivation (Epley & Dunning, 2000; Kruger & Gilovich, 1999; Miller, 1999; Ratner & Miller, 2001), an inference that could lead people to underestimate the strength of others' prosocial motives in contexts where prosociality is prompted by a direct request for help.

Finally, experiments across a variety of contexts indicate that people reliably underestimate the likelihood that others will agree to their direct requests (Bohns, 2016). From requests for help such as borrowing a cell phone (Flynn & Lake, 2008) to unethical requests such as vandalizing a library book (Bohns et al., 2014), those making the request consistently believe others will say "no" more often than others actually do. This *underestimation-of-compliance effect* has been interpreted as a failure among requesters to fully appreciate the strength of compliance motivation among recipients, especially how uncomfortable it would be to say "no" to a request (Bohns, 2016).

Statement of Relevance

At some point, even the best of us needs help from others. Yet people often struggle to ask for help, partly because of concerns that others may be unwilling and unhappy to help. Six experiments contrasting the perspective of requesters with that of potential helpers showed that people's concern can be misplaced: When imagining, recalling, or actually engaging in live interactions in the field, people in need of help consistently underestimated how willing strangers—and even friends—would be to help them, underestimated how positive helpers would feel after helping, and overestimated how much helpers would feel inconvenienced. Such miscalibration at least partly arose from underestimating how much human prosociality could be prompted by a simple, direct request while overly attributing helpers' motivation to social compliance. Underestimating other people's prosociality can thus create a barrier to asking for help from others that would increase the well-being of both requesters and helpers.

However, construing requests for help as attempts to induce compliance may not be the way that potential helpers interpret their experience. Indeed, empirical support for this compliance mechanism is inconclusive because existing tests rely heavily on hypothetical scenarios (Flynn & Lake, 2008; Newark et al., 2014), utilize indirect measures that are open to alternative interpretations (such as culture or trait empathy moderating underestimation; Bohns et al., 2011; Bohns & Flynn, 2021), do not receive consistent support from mediation analyses (e.g., Bohns et al., 2016; Bohns & Flynn, 2021, Study 2), or do not always measure the helper's perspective to compare against requesters' expectations (Bohns et al., 2011, 2016; Deri et al., 2019).

In the only live-interaction experiment that did obtain evaluations from both requesters and helpers, requesters did not underestimate helpers' reported difficulty saying "no" (Roghanizad & Bohns, 2017, Study 2). In contrast, our theory that requests for help activate prosocial motivation also predicts that people underestimate others' likelihood of agreeing to requests but suggests a different mechanism that makes unique predictions about how requesters might misunderstand a recipient's experience. If helpers are more prosocially motivated than requesters expect, then this predicts that helpers would also have a more positive experience than requesters would expect. Instead of the presumably negative experience

that would follow from being coerced into compliance, helpers would report feeling more willing and happier to help than requesters would expect. Our theory predicts that people do not simply misunderstand the likelihood that others will agree to a direct request for help but that they misunderstand the psychological experience of those asked directly for help.

We believe that these hypotheses are important because they clarify theoretical mechanisms underlying prosocial behavior and also because expectations about helpers' experiences are likely to guide decisions to request help. To test the latter presumption, we conducted a pilot test (N = 75; see the Supplemental Material available at https://osf.io/j67c3/) in which participants imagined needing immediate help across six scenarios used in Experiment 1a. This pilot test indicated that people's reported willingness to ask for help was positively correlated with the potential helper's presumed willingness to help them, $\beta = 0.67$, and with how positive they expected the helper would feel after fulfilling their request, $\beta = 0.33$, but was negatively related to how inconvenienced and annoyed they expected the helper to feel, $\beta = -0.42$, $ps < .001$. These results suggest that people asking for help not only care about achieving agreement but also care about how positive the helper feels about helping. If people underestimate the extent to which helpers are prosocially motivated, and hence would feel positive after helping, then people could be overly reluctant to request help when needed.

We tested our hypotheses about requesters' miscalibrated expectations in six preregistered experiments that utilize different methodological approaches: hypothetical scenarios, memory recall, and live interactions. This multimethod approach enables convergent tests of our hypotheses that are not open to any single alternative interpretation. All experimental manipulations, survey measures, and data exclusions are described in this manuscript. All research protocols were reviewed and approved by the institutional review board of the University of Chicago. Study materials, data, analysis, preregistration forms, and experimental protocols are available on OSF (https://osf.io/j67c3/).

Experiment 1a: Can I Use Your Phone?

Method

Participants. In this and all subsequent experiments (except for Experiment 2), we targeted a sample size of 50 participants per condition. This sample size is sufficient to capture a small-to-medium effect size (d = 0.40) in a two-sample t test. For Experiment 1a, we targeted a total sample size of 200 participants and recruited through the end of our last scheduled shift as we approached that target. A total of 201 participants (age: M = 36.73 years, SD = 15.14; 50% female) completed the experiment in exchange for a small gift. We excluded five additional participants who reported being younger than 18 years old.

Design and procedure. As an initial test of our hypothesis, we adapted a commonly used scenario from prior research in which one person asks another to borrow a cell phone (e.g., Flynn & Lake, 2008). We recruited visitors at a public park and randomly assigned them to imagine either asking to borrow a cell phone from a stranger at that location (requester condition) or being asked the same request by a stranger (helper condition). In addition, we also introduced an exploratory manipulation on gratitude expression to examine how explicit appreciation might affect participants' expectations. This yielded a 2 (perspective: requester vs. helper) × 2 (gratitude: mentioned vs. not mentioned) between-participants design. To minimize the potential motivation for socially desirable responding in this and all subsequent experiments, we told all participants during the informed-consent process that their survey responses would be completely anonymous. We did not collect any identifying information at any point in the experiment, to be consistent with what was stated on the informed-consent sheet.

Participants received a tablet to read the study scenario and provided their responses in private. This scenario included two stages: the requester first making a request, and the helper then fulfilling the request (see https://osf.io/j67c3/ for the complete scenario). In the first stage, participants in the requester condition imagined that they were in need of a cell phone to handle an emergency and approached a stranger nearby and asked to borrow their phone, whereas participants in the helper condition imagined being approached by a stranger with the same request. After reading the request, participants reported their expectations—written from the perspective of either a requester or a potential helper—about how willing, and also how likely, the potential helper was to help on scales ranging from 0 (*not at all*) to 10 (*extremely*). Participants then answered four questions adapted from Flynn and Lake (2008), one asking participants to predict the percentage of people who would agree to this request (0%–100%) and three measuring the discomfort of declining a request (how difficult, awkward, or embarrassing it would be for the helper to say "no"; $\alpha = .82$) on scales ranging from 0 to 10.

In the second stage, participants imagined that the helper agreed to the request and offered help. Participants in the gratitude condition further imagined that the requester explicitly thanked the helper, whereas those in the no-gratitude condition did not receive this additional information. Participants then indicated how

positive/negative, pleased, inconvenienced, and annoyed they expected the helper (either oneself or another person, depending on perspective conditions) to feel after the interaction, using scales ranging from 0 (*not at all*) to 10 (*extremely*), except that the positive/negative item included a scale of −5 (*much more negative than normal*) to 5 (*much more positive than normal*), with 0 (*no different than normal*) as the midpoint, which we transformed from 0 to 10 prior to data analysis. Participants also reported their beliefs about the helper's motives—two items measuring the perceived strength of *prosocial motivation* (e.g., "they wanted to see me out of my trouble"; "they believed their small favor would mean a lot to me"), and two items measuring the perceived strength of *compliance motivation* (e.g., "they wanted to avoid saying 'no' to me"; "they were forced by the social pressure"). All motivation-attribution items were presented in a random order on scales ranging from −3 (*strongly disagree*) to 3 (*strongly agree*).

Results

To enable comparisons across studies on the same measures, we present the results of our primary measures across all six experiments in Figures 1 and 2, and our attempts to conceptually replicate two key constructs in Flynn and Lake (2008) in Figure 3.

Willingness to help. Estimates of how willing and how likely the helper would be to help were highly correlated ($r = .86$, $p < .001$), so we averaged them into a composite measure. As predicted, participants who imagined asking for help expected the other person to be significantly less willing and likely to offer help ($M = 5.16$, $SD = 2.38$) than participants who imagined being asked for help ($M = 6.66$, $SD = 2.56$), $t(199) = -4.30$, $p < .001$, $d = -0.61$.

Estimated percentage of agreement. In one experiment, Flynn and Lake (2008; Study 4) reported that participants who imagined seeking help expected a smaller percentage of people to agree to their request than those who imagined being asked for help across four scenarios (34.3% vs. 49.6%), including a cell-phone scenario similar to the version used here. Unlike this reported result, the estimated percentage of people who would agree to help in Experiment 1a did not differ significantly between those who imagined asking for help ($M = 50.3\%$, $SD = 21.7\%$) and those who imagined being asked for help ($M = 46.9\%$, $SD = 21.6\%$), $t(199) = 1.12$, $p = .26$, $d = 0.16$.

Discomfort rejecting request. Prior research suggests that those seeking help may underestimate how likely others were to agree to a request because they underestimated potential helpers' discomfort rejecting a request for help (Flynn & Lake, 2008). Unlike this result, the estimated discomfort of rejecting a request in Experiment 1a did not differ between those who imagined asking for help ($M = 4.74$, $SD = 2.34$) and those who imagined being asked for help ($M = 4.87$, $SD = 2.76$), $t(196) = -0.36$, $p = .72$, $d = -0.05$.

Helping experience. We observed a somewhat low Cronbach's α among the four items ($\alpha = .65$), indicating that they are measuring different components of helping experience. We therefore conducted a principal components analysis (PCA) and found that they loaded onto two separate components, one with two items measuring how positive and pleased the helper would feel ($r = .59$, $p < .001$) and the other with two items measuring how inconvenient and annoyed the helper would feel ($r = .51$, $p < .001$). We therefore averaged ratings of each pair of items to compute two composite scores, one referring to positive mood and the other to perceived inconvenience, which were only moderately correlated with each other ($r = -.26$, $p < .001$). We conducted separate analyses on these two composites.

Positive mood. A 2 (perspective) × 2 (gratitude) analysis of variance (ANOVA) on positive mood indicated a significant main effect of perspective, $F(1, 197) = 7.36$, $p = .007$, $\eta_p^2 = .036$, a significant main effect of gratitude expression, $F(1, 197) = 7.97$, $p = .005$, $\eta_p^2 = .039$, and a nonsignificant interaction, $F(1, 197) = 2.16$, $p = .14$. Participants who imagined asking another person for help expected the helper to feel less positive after the interaction ($M = 6.96$, $SD = 1.96$) than did participants who imagined being asked for help ($M = 7.67$, $SD = 1.86$). In addition, participants in both perspectives expected the expression of gratitude to increase the helper's positive mood ($M = 7.70$, $SD = 1.71$) compared with when the gratitude was not mentioned ($M = 6.95$, $SD = 2.08$).

Inconvenience. A 2 × 2 ANOVA on perceived inconvenience indicated only a significant main effect of perspective, $F(1, 196) = 51.29$, $p < .001$, $\eta_p^2 = .21$. Those who imagined asking for help expected the helper to feel more inconvenienced ($M = 4.04$, $SD = 1.79$) than those who imagined being asked for help ($M = 2.16$, $SD = 1.90$).

Motivation. We again observed a somewhat low Cronbach's α among the four motivation attribution items ($\alpha = .61$). We then conducted a PCA and confirmed that they loaded on two separate components, with two items primarily measuring prosocial motivation ($r = .54$, $p < .001$), and two items primarily measuring compliance motivation ($r = .56$, $p < .001$). We averaged each pair of items to

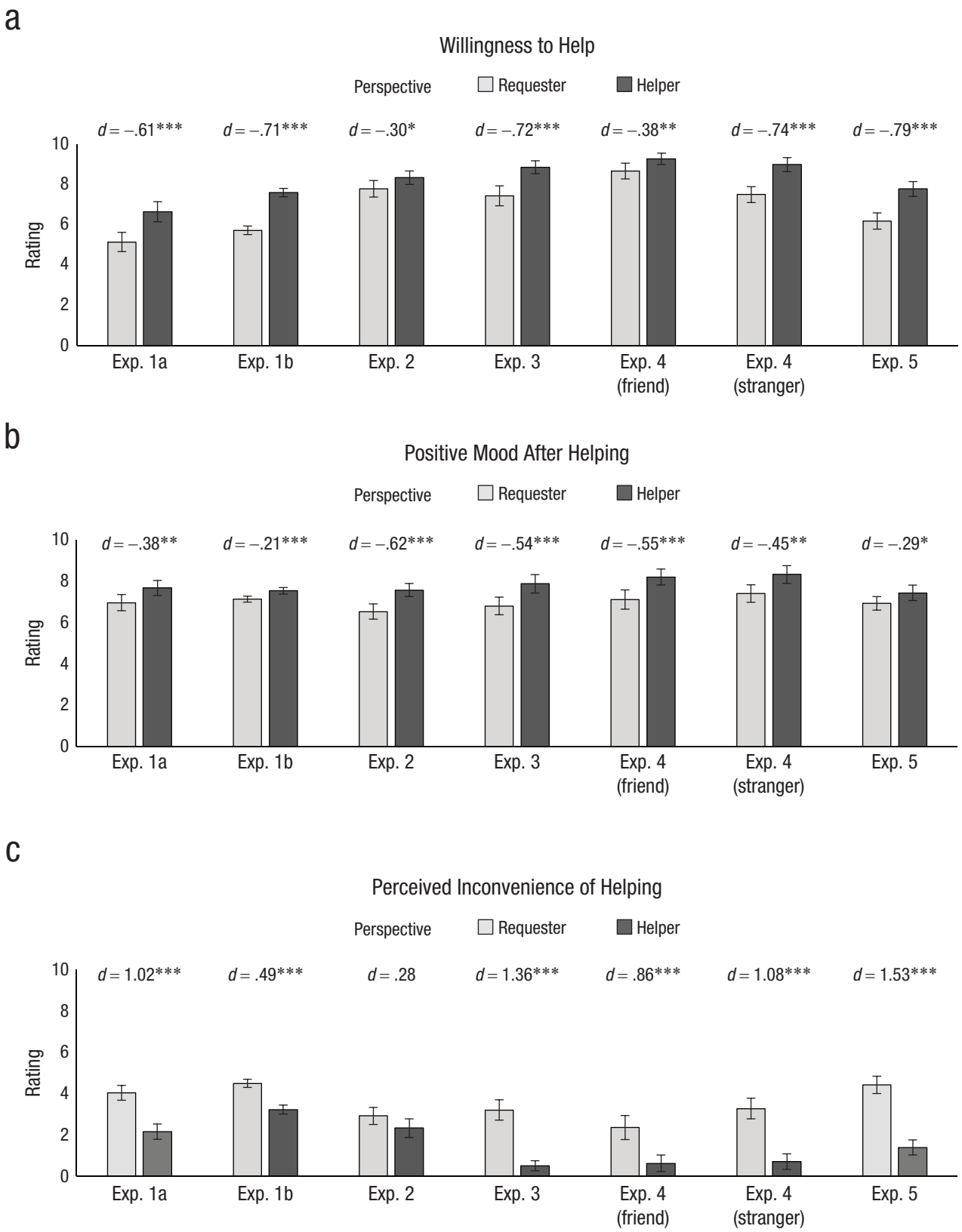


Fig. 1. Mean ratings for requesters' expectations and helpers' reported (a) willingness to help, (b) positive mood after helping, and (c) perceived inconvenience of helping in Experiments 1 through 5. Ratings were made on a scale from 0 (*not at all*) to 10 (*extremely*). Error bars represent 95% confidence intervals. Effect sizes (Cohen's *d*s) reflect the difference between requesters and helpers (*$p < .05$, **$p < .01$, ***$p < .001$).

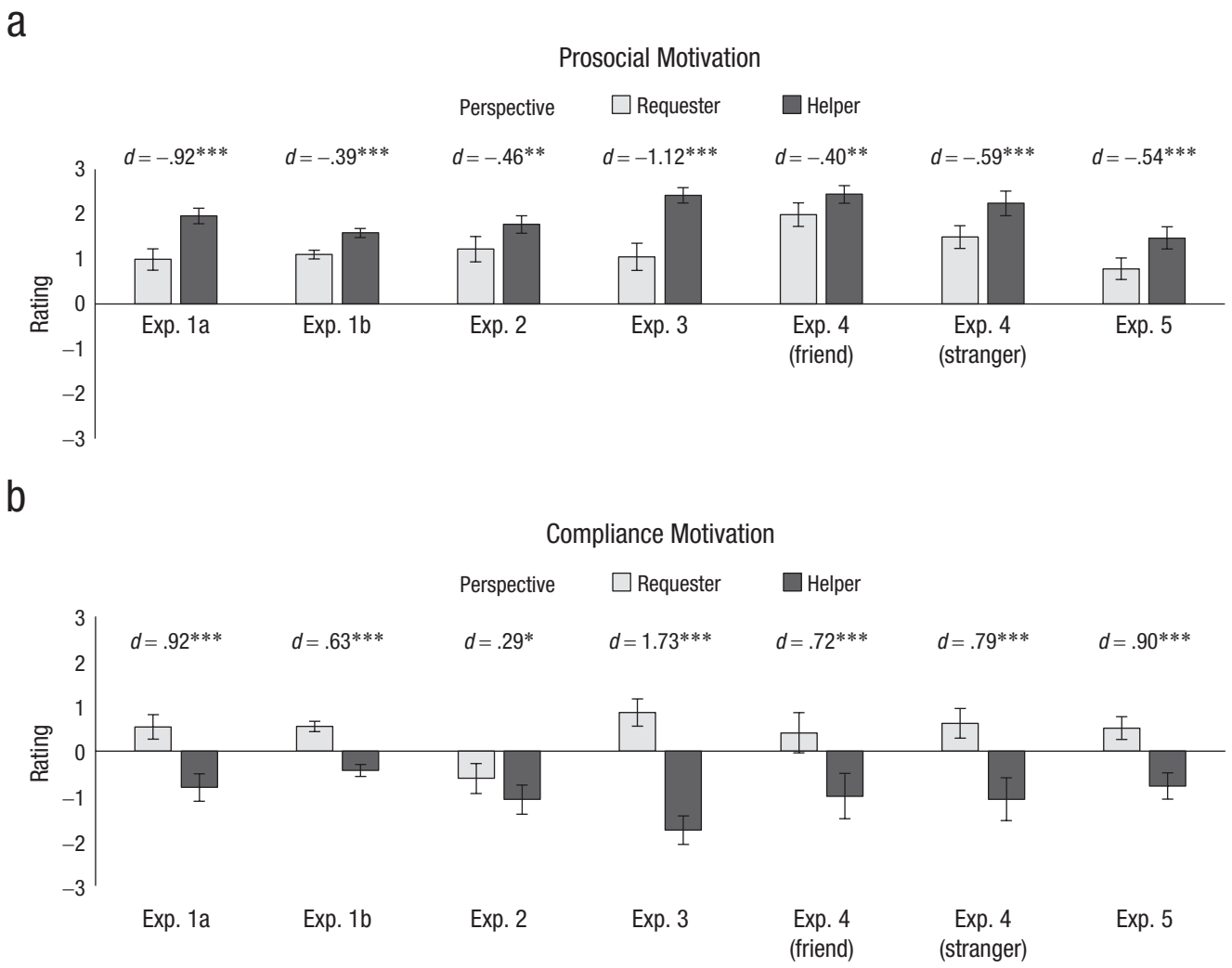


Fig. 2. Mean attributions of (a) prosocial motivation and (b) compliance motivation, separately for requesters and helpers in Experiments 1 through 5. Error bars represent 95% confidence intervals. Effect sizes (Cohen's *d*s) reflect the difference between requesters and helpers (*$p < .05$, **$p < .01$, ***$p < .001$).

calculate a composite score and confirmed that those two scores were only weakly correlated with each other ($r = -.20$, $p < .001$). We therefore analyzed these two composite scores separately.

A 2 × 2 ANOVA on prosocial motivation indicated only a significant main effect of perspective, $F(1, 194) = 42.13$, $p < .001$, $\eta_p^2 = .18$. As predicted, participants who imagined asking for help expected the potential helper to have weaker prosocial motivation ($M = 0.99$, $SD = 1.19$) than did participants who imagined being asked for help ($M = 1.96$, $SD = 0.88$).

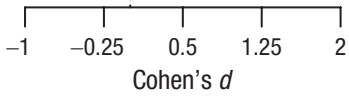
A 2 × 2 ANOVA on compliance motivation also indicated only a significant main effect of perspective, $F(1, 193) = 41.77$, $p < .001$, $\eta_p^2 = .18$. Again, participants who imagined asking for help expected the potential helper to have stronger compliance motivation ($M = 0.54$, $SD = 1.36$) than did those who imagined being asked for help ($M = -0.81$, $SD = 1.56$). Those who imagined asking for help expected others to be more motivated by compliance, whereas those who imagined being asked expected to be more motivated by prosociality.

Mediation analysis. Our theory predicts that those seeking help underestimate how positively helpers will react because they underestimate the extent to which asking for help can trigger prosocial motivation in a helper and overestimate the extent to which requests induce compliance motivation. To examine whether our results are consistent with this prediction, we conducted mediation analyses to examine the extent to which motivation attributions mediated perspective differences in helpers' (a) willingness to help, (b) positive mood from helping, and (c) perceived inconvenience of helping. For each outcome variable, we constructed a mediation

a

Expected Percentage of Compliance (Scales From 0% to 100%)

Study: Scenario/Condition	Requester	Helper	Type	*N*	Cohen's *d*
Exp. 1a: Cell phone (field)	50%	47%	Hypothetical	201	0.16 [–0.12, 0.44]
Exp. 1b: Cell phone	51%	50%	Hypothetical	200	0.03 [–0.25, 0.30]
Exp. 1b: Carrying boxes	60%	67%	Hypothetical	201	–0.35 [–0.63, –0.07]
Exp. 1b: Library kiosk	71%	75%	Hypothetical	199	–0.26 [–0.54, 0.02]
Exp. 1b: Walking escort	42%	46%	Hypothetical	200	–0.18 [–0.46, 0.10]
Exp. 1b: Subway seat	45%	56%	Hypothetical	202	–0.44 [–0.72, –0.16]
Exp. 1b: Spare change	63%	66%	Hypothetical	202	–0.18 [–0.46, 0.10]
Exp. 2: Recent life events	60%	73%	Recalled	189	–0.60 [–0.89, –0.31]
Overall estimate:					–0.23 [–0.43, –0.02]



b

Expected Discomfort of Rejecting Request (Scales From 0 to 10)

Study: Scenario/Condition	Requester	Helper	Type	*N*	Cohen's *d*
Exp. 1a: Cell phone (field)	4.74	4.87	Hypothetical	201	–0.05 [–0.33, 0.23]
Exp. 1b: Cell phone	5.15	5.34	Hypothetical	200	–0.07 [–0.35, 0.21]
Exp. 1b: Carrying boxes	5.21	6.89	Hypothetical	201	–0.65 [–0.93, –0.37]
Exp. 1b: Library kiosk	5.93	7.19	Hypothetical	199	–0.51 [–0.79, –0.23]
Exp. 1b: Walking escort	4.7	5.2	Hypothetical	200	–0.17 [–0.45, 0.10]
Exp. 1b: Subway seat	5.33	6.16	Hypothetical	202	–0.31 [–0.59, –0.04]
Exp. 1b: Spare change	6.43	6.84	Hypothetical	202	–0.15 [–0.42, 0.13]
Exp. 2: Recent life events	5.57	6.36	Recalled	189	–0.26 [–0.55, 0.03]
Exp. 3: Taking photo	6.74	4.78	Live	100	0.51 [0.08, 0.93]
Exp. 4: Photo (friend)	5.99	5.01	Live	100	0.22 [–0.17, 0.61]
Exp. 4: Photo (stranger)	5.92	5.46	Live	100	0.11 [–0.28, 0.50]
Exp. 5: Lab task (1st-person)	5.94	6.36	Live	122	–0.11 [–0.45, 0.24]
Exp. 5: Lab task (3rd-person)	5.54	6.08	Live	102	–0.14 [–0.50, 0.22]
Overall estimate:					–0.15 [–0.31, 0.02]

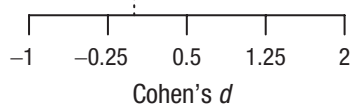


Fig. 3. Estimated percentage of people who would agree to a request (a) and potential helpers' discomfort rejecting a request (b) in Experiments 1 through 5. These two constructs reflect our attempts to conceptually replicate two key constructs of Flynn and Lake (2008). The percentages show mean ratings from each perspective. Effect sizes show the difference between requesters and helpers, along with 95% confidence intervals. The dashed vertical lines indicate no effect ($d = 0$). The size of each square represents the weight of individual studies. The overall effect sizes with 95% confidence intervals, provided on the bottom, were calculated in R following recommendations on multilevel meta-analysis by Harrer et al. (2021).

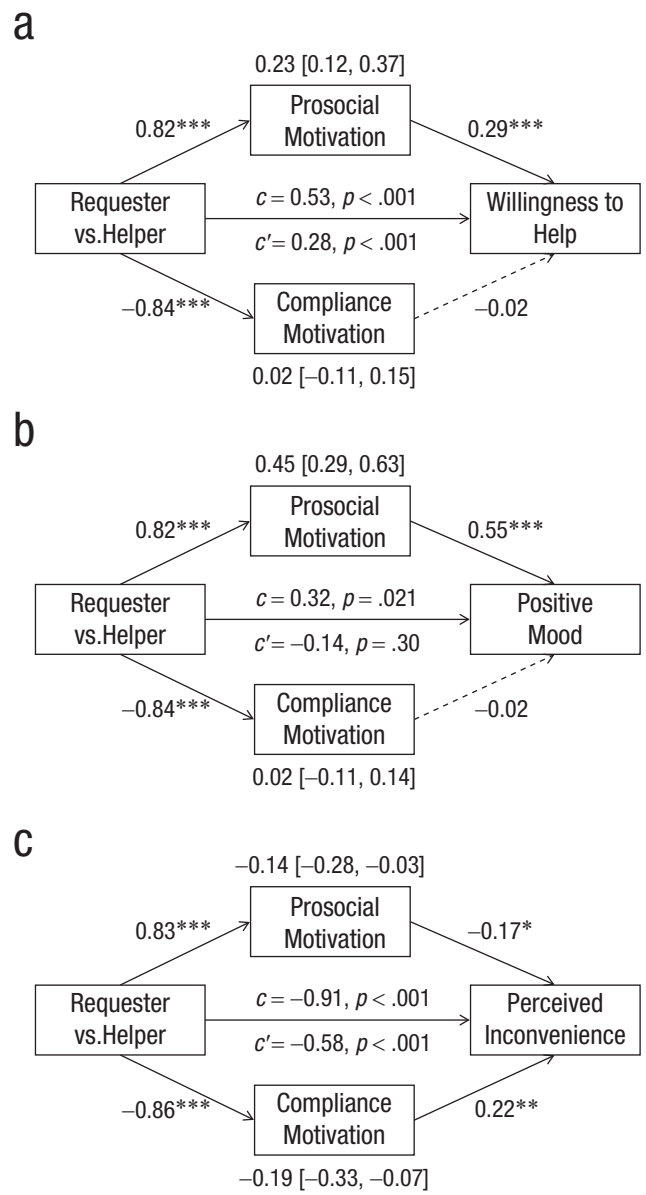


Fig. 4. Results of the mediation analysis in Experiment 1a: influence of perspective (requester vs. helper) on helpers' (a) willingness to help, (b) positive mood after helping, and (c) perceived inconvenience of helping, as mediated by attributions of prosocial and compliance motivations. Standardized path coefficients are shown; values in brackets are 95% confidence intervals. Solid arrows indicate significant paths (*$p < .05$, **$p < .01$, ***$p < .001$), and dashed arrows indicate nonsignificant paths.

model with perspective as the independent variable and prosocial and compliance motivations as simultaneous mediators using the PROCESS (Version 4.0) macro in SPSS (Model 4; Hayes, 2013).

As shown in Figure 4a, perspective differences in motivation attributions accounted for a statistically significant proportion of variance in the perspective difference on willingness to help. In particular, underestimating helpers' prosocial motivation—yet not overestimating helpers' compliance motivation—significantly mediated the perspective difference on willingness to help.

Motivation attributions also accounted for a statistically significant proportion of variance in the perspective gap on the helpers' experiences. Specifically, underestimating helpers' prosocial motivation significantly mediated underestimating positive mood (see Fig. 4b), whereas overestimating compliance motivation significantly mediated overestimating perceived inconvenience (see Fig. 4c).

Experiment 1b: Imagined Requests

Method

In order to examine whether the patterns of results obtained in Experiment 1a were robust across different helping scenarios, we conducted Experiment 1b, in which participants were randomly assigned to imagine either asking for help or being asked for help in one of six everyday scenarios.

Participants. A total of 1,204 participants with U.S. Internet protocol (IP) addresses, recruited via Amazon Mechanical Turk using TurkPrime (Litman et al., 2017) and who correctly answered a Qualtrics captcha at the beginning of our survey, completed this experiment in exchange for $1.00 (age: M = 35.64 years, SD = 11.23; 45% female). Another 19 participants distributed across conditions started the study but never finished. All participants were included in the following analyses.

Design and procedure. After providing their informed consent, participants read one of six scenarios from either the perspective of a requester or a helper in which the requester either mentioned being grateful or not, yielding a 2 (perspective: requester vs. helper) × 2 (gratitude: mentioned vs. not mentioned) × 6 (scenarios) between-participants design. These scenarios depicted requests of different sizes using gender-neutral language, including borrowing a stranger's cell phone (cell-phone scenario; same as Experiment 1a), giving away a subway seat (subway scenario), escorting someone to a specific destination (directions scenario), carrying boxes down a few flights of stairs (carrying-boxes scenario), demonstrating how to use a library kiosk (library-kiosk scenario), and giving away change at a food truck (food-truck scenario). We adapted the first four scenarios from Flynn and Lake (2008), changing the fourth from a gendered scenario

about carrying a woman's stroller to a gender-neutral scenario about carrying someone's boxes. We created the library-kiosk and food-truck scenarios to increase the variety of requests studied.

As in Experiment 1a, each scenario again included two stages: the requester first making a request, and the helper then fulfilling the request (see https://osf.io/j67c3/ for all scenarios). All measures were the same as in Experiment 1a, except that we also asked participants at the end of the survey to indicate how grateful and how indebted they expected the requesters to feel toward the helper after this interaction on scales ranging from 0 (*not at all*) to 10 (*extremely*). Participants concluded this study by reporting four demographic variables: gender, age, race/ethnicity, and education level.

Results

Willingness to help. As in Experiment 1a, we again averaged estimates of how willing and how likely the helper would be to help ($r = .92$, $p < .001$) into a composite measure. A 2 (perspective) × 6 (scenarios) factorial ANOVA indicated a significant main effect of perspective, $F(1, 1192) = 179.11$, $p < .001$, $\eta_p^2 = .13$, a significant main effect of scenario, $F(5, 1192) = 38.83$, $p < .001$, $\eta_p^2 = .14$, and a significant interaction between perspective and scenario, $F(5, 1192) = 5.26$, $p < .001$, $\eta_p^2 = .02$. As predicted, participants who imagined seeking help expected the potential helper to be less willing to help than those who imagined being asked for help (*M*s = 5.74 vs. 7.61; *SD*s = 2.63 vs. 2.61). The significant interaction indicated that the difference between perspectives varied in size across scenarios, ranging from the smallest gap in the cell-phone scenario, mean difference = 0.82, $F(1, 1192) = 5.75$, $p = .017$, to the largest gap in the subway scenario, mean difference = 3.17, $F(1, 1192) = 86.64$, $p < .001$.

Estimated percentage of agreement. A 2 × 6 factorial ANOVA on the estimated percentage of people who would agree to the request indicated a significant main effect of perspective, $F(1, 1192) = 15.52$, $p < .001$, $\eta_p^2 = .013$, a significant main effect of scenario, $F(5, 1192) = 51.95$, $p < .001$, $\eta_p^2 = .18$, and a nonsignificant interaction between perspective and scenario, $F(5, 1192) = 1.56$, $p = .17$, $\eta_p^2 = .006$. Overall, participants who imagined asking for help expected fewer people to agree than those who imagined being asked for help (*M*s = 55.2% vs. 60.0%; *SD*s = 24.6% vs. 22.2%; see Fig. 3 for results from each scenario). This overall result is consistent with the perspective gap reported by Flynn and Lake (2008), although the cell-phone scenario again yielded a nonsignificant perspective gap (*M*s = 50.7% vs. 50.1%, *SD*s = 23.0% and 22.3%), $t(198) = 0.19$, $p = .85$, $d = 0.03$, consistent with the null effect in a similar scenario observed in Experiment 1a.

Discomfort rejecting request. Somewhat consistent with the results of Flynn and Lake (2008), results of a 2 × 6 ANOVA on the composite score of potential helpers' discomfort indicated a significant main effect of perspective, $F(1, 1192) = 27.62$, $p < .001$, $\eta_p^2 = .023$, a significant main effect of scenario, $F(5, 1192) = 13.60$, $p < .001$, $\eta_p^2 = .054$, qualified by a significant interaction between perspective and scenario, $F(5, 1192) = 2.31$, $p = .042$, $\eta_p^2 = .010$. Overall, those who imagined seeking help expected their potential helper to feel less discomfort rejecting a request than those who imagined being asked for help (*M*s = 5.46 vs. 6.26, *SD*s = 2.56 vs. 2.87). The significant interaction indicated that this difference between perspectives was larger for some scenarios than for others. Simple-effects tests indicated that this gap was statistically significant in three of the six scenarios—carrying boxes: mean difference = 1.67, $F(1, 1192) = 20.07$, $p < .001$; library kiosk: mean difference = 1.26, $F(1, 1192) = 11.25$, $p < .001$; subway: mean difference = 0.83, $F(1, 1192) = 4.94$, $p = .026$—but was nonsignificant in the other three (*p*s > .21), including the cell-phone scenario—mean difference = 0.19, $F(1, 1192) = 0.26$, $p = .61$—used in multiple studies by Flynn and Lake.

Helping experience. As preregistered (and as in Experiment 1a), we created a composite of the two items measuring positive mood ($r = .62$, $p < .001$) and another of the two items measuring perceived inconvenience ($r = .72$, $p < .001$).

A 2 (perspective) × 2 (gratitude) × 6 (scenario) ANOVA on positive mood indicated a significant main effect of perspective, $F(1, 1180) = 14.16$, $p < .001$, $\eta_p^2 = .012$, a significant main effect of gratitude expression, $F(1, 1180) = 58.89$, $p < .001$, $\eta_p^2 = .047$, and a significant main effect of scenario, $F(5, 1180) = 6.64$, $p < .001$, $\eta_p^2 = .027$. All interactions were nonsignificant, *p*s > .11. As predicted, those who imagined seeking help underestimated how positive those who imagined being asked for help would feel (requester: $M = 7.13$, $SD = 1.80$; helper: $M = 7.53$, $SD = 1.99$). Participants in the gratitude condition also expected helpers to feel more positive than those in the no-gratitude condition (gratitude: $M = 7.74$, $SD = 1.70$; no gratitude: $M = 6.92$, $SD = 2.01$). Finally, we note that 20 participants in the requester's role and 19 in the potential helper's role indicated that they believed that either they or the potential helper would be completely unwilling or would not agree in the first stage of this study. For this and subsequent measures, we have included their responses to provide

an unbiased test of all participants. Excluding those 39 participants does not meaningfully alter the results.

A 2 × 2 × 6 ANOVA on inconvenience indicated a significant main effect of perspective, $F(1, 1180) = 77.12$, $p < .001$, $\eta_p^2 = .062$, a nonsignificant main effect of gratitude expression, $F(1, 1180) = 3.68$, $p = .055$, $\eta_p^2 = .003$, and a significant main effect of scenario, $F(5, 1180) = 17.02$, $p < .001$, $\eta_p^2 = .067$. All interactions were nonsignificant, ps > .34. Across scenarios, participants in the requester's perspective consistently expected that helping would make helpers feel more annoyed and inconvenienced than expected from those in the helper's perspective (requester: $M = 4.50$, $SD = 2.45$; helper: $M = 3.23$, $SD = 2.73$). The main effect of scenario indicated that some favors seemed more inconvenient from both perspectives than other scenarios, with the least inconvenient being showing another person how to use a library kiosk ($M = 3.13$, $SD = 2.58$) and the most inconvenient being escorting another person a few blocks to their destination ($M = 4.92$, $SD = 2.39$). The absence of significant interactions indicates that the difference between requesters and helpers did not vary significantly across requests.

Motivation attribution. We again calculated composite measures of prosocial motivation and compliance motivation after confirming the strong correlation within each pair of items (rs = .64 and .60, ps < .001, respectively). A 2 × 2 × 6 ANOVA on the composite measure of prosocial motivation showed only a significant main effect of perspective, $F(1, 1180) = 45.92$, $p < .001$, $\eta_p^2 = .037$. All other main effects and interactions were nonsignificant, ps > .33. As predicted, participants who imagined asking another person for help inferred weaker prosocial motivation among helpers than those who imagined being asked for help (Ms = 1.10 and 1.58, SDs = 1.21 and 1.26).

A 2 × 2 × 6 ANOVA on the composite measure of compliance motivation showed a significant main effect of perspective, $F(1, 1180) = 120.02$, $p < .001$, $\eta_p^2 = .092$, a significant main effect of scenario, $F(5, 1180) = 2.79$, $p = .016$, $\eta_p^2 = .012$, with the main effect of gratitude expression and all interactions being nonsignificant, ps > .40. As predicted, participants who imagined asking another person for help inferred stronger compliance motivation than those who imagined being asked for help (Ms = 0.55 and −0.43, SDs = 1.43 and 1.67).

Mediation analysis. Following the procedure used in Experiment 1a, mediation models with prosocial and compliance motivations as simultaneous mediators indicated that underestimating helpers' prosocial motivation played a significantly larger role than overestimating helpers' compliance motivation in the perspective difference on willingness to help, as shown by the nonoverlapping 95% confidence intervals (CIs) of the indirect effects between prosocial and compliance motivations. Similarly, underestimating helpers' prosocial motivation was also a stronger mediator for underestimating positive mood. Finally, both motivations mediated the perspective difference in perceived inconvenience of helping (see Table 1).

Indebtedness and gratitude. Finally, we conducted an exploratory analysis investigating whether helpers would fully anticipate how indebted and grateful requesters would report feeling. Because we predicted that requesters would expect helpers to view the request as more of an inconvenience than helpers actually did, we also predicted that requesters would report feeling more indebted and grateful than helpers would expect them to. Results supported our hypotheses, ps < .001 (see the Supplemental Material at https://osf.io/j67c3/ for full details).

Collectively, Experiments 1a and 1b indicated that those who imagined asking for help underestimated how willing others would report being to help them because they imagined that potential helpers would feel more compliance pressure and be less prosocially motivated than those who imagined actually being asked for help. In contrast, we found only weak and inconsistent evidence that people underestimated the discomfort potential helpers would feel saying "no" to a request (e.g., Bohns, 2016; Flynn & Lake, 2008) despite using scenarios similar to those reported in prior research.

Experiment 2: Remembered Requests

Method

We used a different methodology for testing our hypotheses in Experiment 2, examining people's memory of either asking for help or being asked for help in their everyday lives. This approach provides the benefit of measuring real instances of helping from everyday life and hence is higher on ecological validity.

Participants. We recruited participants from an online pool of people across the United States managed by a university research laboratory. Participants completed this 5-min experiment in exchange for $1.00. Because we anticipated that people would recall a wide variety of different events that could increase variance on our primary measures compared with a procedure that examines a single event, we decided to target a sample size of 200

Table 1. Results of Mediation Analyses Investigating the Influence of Perspective (Requester vs. Helper) on Willingness to Help, Positive Mood After Helping, and Perceived Inconvenience of Helping, as Mediated by Prosocial Motivation and Compliance Motivation in Experiments 1 Through 5

	Willingness to help		Positive mood after helping		Perceived inconvenience of helping	
Experiment and condition	Prosocial motivation	Compliance motivation	Prosocial motivation	Compliance motivation	Prosocial motivation	Compliance motivation
Experiment 1a	**0.23 [0.12, 0.37]**	0.02 [–0.11, 0.15]	**0.45 [0.29, 0.63]**	0.02 [–0.11, 0.14]	–0.14 [–0.28, –0.03]	**–0.19 [–0.33, –0.07]**
Experiment 1b	**0.15 [0.10, 0.20]**	0.03 [0, 0.07]	**0.20 [0.14, 0.26]**	0.04 [0, 0.07]	–0.09 [–0.12, –0.06]	**–0.25 [–0.31, –0.20]**
Experiment 2	**0.14 [0.05, 0.25]**	0.10 [0, 0.23]	**0.11 [0.03, 0.21]**	0.06 [0, 0.16]	–0.05 [–0.14, 0]	**–0.10 [–0.22, 0]**
Experiment 3	**0.30 [–0.03, 0.66]**	0.09 [–0.31, 0.53]	**0.69 [0.39, 1.00]**	–0.07 [–0.49, 0.39]	–0.27 [–0.56, –0.01]	**–0.35 [–0.72, 0.04]**
Experiment 4: friend	**0.87 [0.51, 1.23]**	–0.08 [–0.28, 0.13]	**0.44 [–0.09, 0.98]**	–0.09 [–0.39, 0.21]	**–1.16 [–1.59, –0.73]**	0.13 [–0.11, 0.37]
Experiment 4: stranger	**0.77 [0.38, 1.16]**	–0.20 [–0.45, 0.04]	**0.51 [0.09, 0.94]**	–0.15 [–0.41, 0.12]	**–0.55 [–1.06, –0.05]**	0.19 [–0.12, 0.51]
Experiment 5	**0.23 [0.10, 0.41]**	0.14 [0.01, 0.27]	**0.14 [0.04, 0.29]**	0.11 [–0.02, 0.26]	**–0.27 [–0.40, –0.14]**	–0.13 [–0.25, 0.02]

Note: The table shows standardized coefficients; values in brackets are 95% confidence intervals (computed from 5,000 bootstrap resamples). Between two simultaneous mediators, the stronger indirect effect is given in boldface.

participants. A total of 199 participants completed this experiment at the end of our last scheduled session. Following our preregistration, we excluded one participant in the helper perspective who failed to recall a situation in which a request for help was actually made. This yielded a final sample of 198 participants for data analysis (99 requesters and 99 helpers; age: $M = 27.57$ years, $SD = 11.06$, range = 18–73; 37% Asian, 35% Caucasian, 8% Hispanic, 6% Black, 10% mixed race or other, 3% undisclosed).

Procedure. Because manipulating requesters' expressions of gratitude in Experiments 1a and 1b did not yield theoretically informative results, we did not include that step in this or any of the following experiments. We first randomly assigned participants to either describe a time when they asked another person for help (requester perspective) or were asked for help by another person (helper perspective). Participants then reported how close they were to this other person (on a scale ranging from 0, *not at all close*, to 10, *very close*), the nature of their relationship with the other person, and whether the request was agreed to or rejected.

We then asked participants to complete the same measures in Experiments 1a and 1b: helper's willingness to help, estimated percentage of agreement, expected discomfort rejecting the request, positive mood after helping, perceived inconvenience of helping, prosocial motivation, and compliance motivation. We phrased items in the requester perspective in terms of their beliefs about their helper's mental states (e.g., "How willing do you think this person was to help you with your request?"), and phrased items in the helper perspective in terms of their own actual mental states (e.g., "How willing were you to help this person with their request?"). Finally, following a similar procedure as in Experiment 1b, we collected exploratory measures of how grateful and how indebted requesters felt (requester perspective) or helpers' beliefs about how grateful and indebted their requesters felt (helper perspective).

Results

Event characteristics. People recalled requests across a variety of relationships, including friends (34.3%), family members (24.2%), colleagues (13.6%), strangers (9.6%), acquaintances (7.1%), mentor/supervisors (4.5%), and other relationships (6.0%). On average, both requesters ($M = 6.79$, $SD = 3.14$) and helpers ($M = 6.77$, $SD = 3.32$) reported feeling relatively close to the other person and did not differ significantly from each other, $p = .96$. Nearly all requests that participants recalled were agreed to (95.4%, or 189 out of 198 requests). Analyzing the data with and without rejected requests, as outlined in our preregistration, produced comparable results. Because some of the items would make little sense with a rejected request, we report results below excluding the 4.6% rejected requests unless otherwise noted.

Finally, to ensure that requests recalled from two perspectives were of comparable sizes, we asked two independent coders unaware of our hypotheses to rate all favors in terms of their importance and the effort involved on scales ranging from 0 (*not at all*) to 10 (*extremely*). The coders' ratings were highly correlated for both importance ($r = .71$, $p < .001$) and effort ($r = .61$, $p < .001$). Averaged ratings from the two coders confirmed that events recalled from both perspectives were somewhat important ($M = 5.73$, $SD = 1.72$), required a moderate amount of effort ($M = 4.56$, $SD = 1.76$), and did not differ systematically across perspectives (ps = .35 and .99).

Willingness to help. Participants who recalled asking for help believed that their helpers were less willing to assist than those who recalled being asked for help (Ms = 7.80 vs. 8.35, SDs = 2.00 vs. 1.64), $t(187) = -2.06$, $p = .041$, $d = -0.30$.

Estimated percentage of agreement. Consistent with prior research (e.g., Flynn & Lake, 2008), results showed that people who recalled asking for help expected a smaller percentage of others to agree to their request ($M = 60.2\%$, $SD = 22.1\%$) than those who recalled being asked for help ($M = 73.4\%$, $SD = 21.7\%$), $t(187) = -4.13$, $p < .001$, $d = -0.60$.

Discomfort rejecting request. Participants who recalled asking for help believed it would be somewhat less uncomfortable to reject their request than did those who recalled being asking for help, although this difference was statistically nonsignificant regardless of whether we excluded the 9 rejected requests (Ms = 5.57 vs. 6.36, SDs = 2.92 vs. 3.13), $t(187) = -1.80$, $p = .074$, $d = -0.26$, or included them in the analysis (Ms = 5.49 vs. 6.20, SDs = 2.90 vs. 3.22), $t(196) = -1.64$, $p = .10$, $d = -0.23$.

Helping experience. As in Experiments 1a and 1b, participants who recalled asking for help believed that their helpers felt less positive than those who recalled actually being asked for help (Ms = 6.53 vs. 7.57, SDs = 1.80 vs. 1.56), $t(187) = -4.27$, $p < .001$, $d = -0.62$. Those who recalled asking for help also believed their helpers felt somewhat more inconvenienced than did those who recalled being asked for help (Ms = 2.92 vs. 2.33, SDs = 2.02 vs. 2.22), $t(187) = 1.93$, $p = .055$, $d = 0.28$.

Motivation attribution. As in Experiments 1a and 1b, those who recalled seeking help thought their helpers were less prosocially motivated than did those who recalled being asked for help (*M*s = 1.22 vs. 1.77, *SD*s = 1.38 vs. 0.96), $t(187) = -3.16$, $p = .002$, $d = -0.46$, and showed the opposite pattern on compliance motivation (*M*s = −0.61 vs. −1.08, *SD*s = 1.63 vs. 1.59), $t(187) = 2.01$, $p = .045$, $d = 0.29$.

Mediational analyses following the same procedures as in Experiments 1a and 1b confirmed that perspective differences between requesters and helpers on willingness to help, positive mood after helping, and perceived inconvenience were again mediated by perspective differences in the perceived strength of prosocial and compliance motivations (see Table 1). Compared with participants who recalled being asked for help, those who recalled asking for help expected their potential helper would be less motivated by a desire to actually help and more motivated by compliance pressure to agree. They also expected their helper to be less willing to help and to be less happy to have helped, compared with participants recalling actual experiences of offering help.

Gratitude and indebtedness. As in Experiment 1b, those who recalled asking for help reported feeling more grateful than those who recalled being asked for help expected their requesters to feel (*M*s = 8.50 vs. 7.90, *SD*s = 1.79 vs. 1.76), $t(187) = 2.30$, $p = .023$, $d = 0.33$. We observed the same pattern on requesters' feeling of indebtedness toward helpers (*M*s = 5.41 vs. 3.36, *SD*s = 3.30 vs. 2.97), $t(187) = 4.50$, $p < .001$, $d = 0.66$.

Experiment 3: Take My Picture?

Method

Although the procedure used in Experiment 2 is high in ecological validity because participants recalled actual experiences requesting or providing help, relying on memory also contains potential empirical weaknesses because memory for past events could be mistaken or people could selectively sample past behaviors from memory in a biased fashion. We therefore tested our hypotheses in live interactions in Experiments 3 through 5.

Participants. We targeted a total sample of 100 participants—50 unacquainted pairs of requesters and helpers after exclusions—and finished our final scheduled session with 110 participants who completed the experiment. Of these, we excluded four requesters whose helpers declined to fill out our survey after taking their requester's picture. We excluded three additional pairs who violated our experimental protocol, two because they completed the surveys at the wrong time and one because the requester was spontaneously helped by a passerby before being able to ask for help. Our final data set therefore included 100 participants (age: $M = 32.38$ years, $SD = 10.85$, range = 19–74; 62% females among requesters, 76% females among helpers). All participants completed all survey items except for one requester who could not take their postrequest survey because of a prescheduled departure, leaving only a prerequest survey in the following analyses.

Design. We conducted this field experiment in a free and public botanical garden located in an ethnically diverse neighborhood in a major U.S. city. With support from the park administration, we set up a table and chairs next to the entrance with two experimenters who recruited participants and conducted the experiment. To create a genuine need for help, we set out an instant camera (i.e., a Polaroid camera) on the table next to a sign encouraging participants to receive a "free instant photo." Critically, receiving this photo would require asking another visitor to take their photograph with the camera in front of a nearby attraction.

Procedure. After a visitor approached our table expressing interest in receiving a free photo, we automatically assigned them to the requester condition, obtained their consent (including reassuring them that all responses would remain confidential and anonymous), and informed them that they would need to ask another visitor whom they did not know to take a picture for them. We also recommended using a popular spot for taking pictures nearby. An experimenter then demonstrated how to operate the automatic mode of the camera before seating requesters at a bench and providing them with a tablet to fill out the prerequest survey in private.

At the beginning of the survey, requesters were asked to consider what would happen if they were to ask a stranger to take their picture. We provided a script that they could use when making the request to make sure they were actually imagining a situation similar to the one they would actually be experiencing (i.e., "Would you please help me/us take a picture in front of this pond with this instant camera?"). Requesters then answered questions similar to those in previous experiments, first reporting how willing and how interested they expected the person they approached would be in helping to take their picture ($r = .64$, $p < .001$), and then reporting how difficult, awkward, and embarrassed they expected this person would feel saying "no" to their request ($\alpha = .88$). As in the preceding

experiments, we then asked requesters to imagine that the person agreed to their request. They then responded to pairs of items measuring their expectations of the helpers' prosocial motivation ($r = .64$, $p < .001$), compliance motivation ($r = .55$, $p < .001$), positive mood (positive-negative/pleasant; $r = .60$, $p < .001$), and perceived inconvenience (inconvenient/annoyed; $r = .63$, $p < .001$). Finally, requesters answered two items measuring their own positive mood at that moment ("How positive/negative do you feel right now?," and "How pleased do you feel right now?"; $r = .72$, $p < .001$) and two items measuring their anxiety about asking for help ("How uncomfortable do you feel about asking a stranger to help you take a picture?" and "How anxious do you feel about asking a stranger to help you take a picture?"; $r = .71$, $p < .001$).

At this point, the survey indicated that it was time to ask another person for help and repeated the suggested script shown earlier in the survey. The requester then received the instant camera, headed to their preferred photo spot, and asked a stranger to take a picture of them or their group. An experimenter covertly followed the requester to observe from a distance and documented that the first stranger approached agreed to their request in all but four cases (the second person approached agreed in these four cases).

After taking the photo, the experimenter observing at a distance immediately approached the helper and asked if they would be willing to fill out a "2-minute survey study about social experience in the park." The experimenter explained to the helpers that that they were being asked to complete a survey because they had just helped another person in our study take a photo, and we were interested in their experience in this interaction. All but four helpers agreed to complete the survey. The experimenter led the helper to our table, gave the helper a tablet, and asked them to complete the survey on a bench in private to minimize any motivation for socially desirable responding. The helper's survey mirrored the requester's survey, including the informed-consent sheet that assured participants that all responses were anonymous and confidential. The only changes from the requester's survey were to the three items measuring their discomfort rejecting the request—these questions were placed toward the end, because they deviated from what actually happened and required counterfactual thinking. Helpers then indicated how much they thought their help meant to the requester, how grateful and indebted they thought the requesters would feel, whether the requester thanked them (yes/no/other), whether they knew the other person was participating in a research study (yes/no), and their age.

The experimenter also brought the requesters back to our study table to complete a survey (in private) on a tablet asking them to report their mood, how much the other person's help meant to them, and how grateful and how indebted they felt toward the helper. Finally, requesters reported the number of people they approached for help and their own age.

Results

Willingness to help. Consistent with Experiments 1a and 2, results showed that requesters significantly underestimated helpers' reported willingness to help (Ms = 7.45 vs. 8.87, SDs = 1.74 vs. 1.13), $t(49) = -5.08$, $p < .001$, $d = -0.72$.

Discomfort rejecting request. In contrast to previous research typically involving hypothetical scenarios (e.g., Flynn & Lake, 2008), requesters overestimated how much discomfort helpers would report feeling rejecting their request (Ms = 6.74 vs. 4.78, SDs = 2.27 vs. 2.92), $t(49) = 3.58$, $p < .001$, $d = 0.51$. Requesters' tendency to underestimate how willing and positive others would feel when asked for help could not stem, at least in this experiment, from underestimating helpers' discomfort saying "no" to a request.

Helping experience. Consistent with Experiments 1a and 2, results showed that requesters significantly underestimated how positive their helpers would feel after helping (Ms = 6.80 vs. 7.87, SDs = 1.50 vs. 1.57), $t(49) = -3.83$, $p < .001$, $d = -0.54$, and overestimated how inconvenienced helpers would feel (Ms = 3.21 vs. 0.51, SDs = 1.73 vs. 0.86), $t(49) = 9.61$, $p < .001$, $d = 1.36$, indicating that helpers had a more positive experience than requesters expected. This effect was large enough that our experimenters' field notes indicated observing it in plain sight. The experimenters frequently reported that requesters were slow to ask for help and often sounded apologetic when asking, whereas the strangers they approached usually responded "yes" immediately with a visible smile on their faces, indicating that they were happy to help.

Motivation attribution. Consistent with Experiments 1a and 2, results showed that requesters significantly underestimated helpers' reported prosocial motivation (Ms = 1.05 vs. 2.42, SDs = 1.06 vs. 0.60), $t(49) = -7.94$, $p < .001$, $d = -1.12$, and overestimated the compliance-oriented motive to avoid saying "no" to the request (Ms = 0.86 vs. −1.76, SDs = 1.07 vs. 1.12), $t(49) = 12.21$, $p < .001$, $d = 1.73$. In fact, 74% of the requesters attributed helping to compliance motivation to some extent (i.e., with a composite

score greater than 0), whereas only 2% of the helpers did so. Comparing the motivations directly against each other, we found that requesters expected that prosocial and compliance motivations would not differ in strength among helpers, mean difference = 0.19, 95% CI = [−0.27, 0.65], $F(1, 49) = 0.68$, $p = .41$, whereas helpers overwhelmingly indicated that prosocial motivation—wanting to help—was significantly stronger than concerns about saying "no" to a request from a stranger, mean difference = 4.18, 95% CI = [3.78, 4.58], $F(1, 49) = 451.17$, $p < .001$.

We next entered prosocial and compliance motivations as simultaneous mediators using the MEMORE (Version 2.1) macro in SPSS (Montoya & Hayes, 2017), which accounted for correlations between responses from requesters and helpers within pairs. As shown in Table 1, these results indicated that the perspective difference in the presumed strength of prosocial motivation significantly mediated requesters' tendency to underestimate helpers' willingness to help and that differences in the perceived strength of prosocial motivation and compliance motivation both significantly mediated requesters' tendency to overestimate the extent to which helpers would feel inconvenienced.

Indebtedness and gratitude. Consistent with Experiments 1a and 2, results showed that requesters reported feeling significantly more indebted than helpers expected them to feel (*M*s = 4.63 vs. 2.27; *SD*s = 2.98 vs. 2.29), $t(48) = 5.13$, $p < .001$, $d = 0.73$. Requesters also reported feeling somewhat more grateful than helpers expected (*M*s = 7.78 vs. 7.06, *SD*s = 2.10 vs. 1.97), $t(48) = 1.85$, $p = .07$, $d = 0.26$. In contrast, requesters did not report that the act meant significantly more to them than the helpers expected (*M*s = 7.43 vs. 7.20, *SD*s = 2.43 vs. 2.18), $t(48) = -0.45$, $p = .65$.

Expectations as barriers. We believe that people's miscalibrated expectations of others' willingness to help when asked creates a psychological barrier to asking others for help more often in daily life. Consistent with this possibility, results of an exploratory analysis indicated that requesters' reported anxiety before asking for help was negatively correlated with their expectations about helpers' willingness to help ($r = -.41$, $p = .003$) and was positively correlated with how inconvenienced they expected helpers to feel ($r = .42$, $p = .002$). However, requesters' reported anxiety was nonsignificantly correlated with their expectation of how uncomfortable the helpers would feel rejecting their request ($r = .12$, $p = .41$) or with the helpers' presumed positive mood after helping ($r = -.01$, $p = .94$). Finally, requesters reported being in a significantly more positive mood after receiving help than before receiving help (*M*s = 7.01 vs. 7.85, *SD*s = 1.73 vs. 1.83), $t(48) = -3.20$, $p = .002$, $d = -0.46$.

These results collectively suggest that failing to recognize how much others want to help when asked, rather than how much discomfort others would feel rejecting a request, could create a misplaced psychological barrier to asking for help that otherwise would leave both parties feeling more positive. Experiment 4 examined the extent to which asking for help affects the mood of both requesters and helpers. Experiment 4 also measured whether people's expectations are more calibrated when they anticipate asking a known friend for help compared with a stranger; we presumed that people would expect their friends to be more willing to offer help and to feel less inconvenienced by their request, because people expect others to be more prosocially motivated to help a friend than a stranger. Finally, Experiment 4 addressed a potential alternative interpretation of Experiment 3 by first identifying a potential helper and then asking requesters to report how they expected this specific person would react to their request, thereby eliminating the possibility that misunderstanding a helper's reaction comes from uncertainty about who they would ask for help.

Experiment 4: Requests to Friends Versus Strangers

Method

Participants. We conducted this experiment in the same location as Experiment 3, targeting 200 participants after exclusion (50 acquainted pairs and 50 unacquainted pairs) and ending our last scheduled session with 211 participants who completed our surveys. Of these, we excluded two pairs from analyses because the requesters completed the postrequest survey before requesting help, one pair because the helper did not take a photo because of confusion about the request, one pair because the helper struggled with English, one pair because the helper paid no visible attention to the survey and was presumed to not be reading it, and one pair because one of the people in an acquainted pair declined to participate. This left 200 participants in the following analyses (age: $M = 34.87$, $SD = 13.72$; 74% female among requesters, 58% female among helpers). According to the requesters, pairs in the friend condition were in a variety of relationship types including spouse or dating partner ($n = 27$), friend ($n = 17$), family ($n = 5$), and "other" ($n = 1$), who generally reported being very close to their study partner in the experiment ($M = 8.78$, $SD = 1.50$), on a scale ranging from 0 (*not at all close*) to 10 (*extremely close*).

Procedure. We randomly assigned participants who expressed interest in receiving a free photo to either the stranger condition or the friend condition. We used a

procedure similar to Experiment 3's with three exceptions: The requesters could see whom they would ask for help before reporting their expectations, the potential helpers were either strangers visiting the garden or companions visiting the garden with the requesters, and potential helpers completed a short prerequest survey that measured their mood before requesters approached them for help.

To implement these changes, we again used two experimenters to coordinate the experimental procedure. As soon as a visitor expressed interest in obtaining an instant photo by participating in our study (and was therefore assigned to the requester role), one experimenter would immediately start to recruit the potential helper—either another visitor nearby (stranger condition) or the requester's companion (friend condition)—by following a recruitment script that vaguely described our research as a very short study "about social experiences in the park." Once this person agreed to participate (and was therefore assigned to the helper role), they were seated at a bench approximately 30 feet away from the requester and received a tablet to begin their survey. This survey asked potential helpers three filler questions about the study location (e.g., "How did you hear about the conservatory?") and also asked for their age, gender, and mood ("How positive/negative do you feel right now?" responses were made on an 11-point scale).

During this time, a second experimenter discreetly identified the potential helper to the requester and explained that they would later be asking this person to take a picture of them with the instant camera. Requesters then began the survey asking them to imagine making their request and reporting their expectations of the helper's reactions on items identical to Experiment 3 with only minor adjustments (e.g., referring to the potential helper who was already present in this study as "this person" as opposed to "the person," and rephrasing the "pleased" item to "pleasant" because we felt this was more natural in this context).

After completing their prerequest survey, the requester received the instant camera and approached the potential helper to ask for help taking a picture at their preferred photo spot. All potential helpers agreed. After taking the photo, both participants returned to their previous locations to complete postrequest surveys identical to those in Experiment 3 (with the same minor adjustments made to the prerequest survey).

Results

Willingness to help. A 2 (relationship) × 2 (perspective) mixed-model ANOVA with perspective as repeated measures indicated a significant main effect of relationship, $F(1, 98) = 17.65$, $p < .001$, $\eta_p^2 = .15$, and a significant main effect of perspective, $F(1, 98) = 33.10$, $p < .001$, $\eta_p^2 = .25$, qualified by a significant interaction between relationship and perspective, $F(1, 98) = 5.81$, $p = .018$, $\eta_p^2 = .056$. As in Experiment 3, requesters again significantly underestimated how willing strangers would be to help them (*M*s = 7.51 vs. 9.00, *SD*s = 1.39 vs. 1.22), $F(1, 98) = 33.33$, $p < .001$, $\eta_p^2 = .25$. Requesters also significantly underestimated how willing their friends would report being to help them (*M*s = 8.68 vs. 9.29, *SD*s = 1.38 vs. 1.01), $F(1, 98) = 5.59$, $p = .020$, $\eta_p^2 = .054$, albeit to a significantly smaller extent. This difference in calibration comes from differences in requesters' expectations rather than from differences in helpers' reported willingness to help. Although requesters expected their friends to be significantly more willing to help than strangers, $F(1, 98) = 17.92$, $p < .001$, $\eta_p^2 = .16$, helpers did not differ significantly in their reported willingness to help a friend take a picture versus help a stranger take a picture, $F(1, 98) = 1.66$, $p = .20$.

Discomfort rejecting request. A 2 × 2 ANOVA on the expected discomfort of rejecting the request indicated nonsignificant main effects of relationship, $F(1, 98) = 0.19$, $p = .66$, and perspective, $F(1, 98) = 2.70$, $p = .10$, $\eta_p^2 = .027$, along with a nonsignificant interaction, $F(1, 98) = 0.35$, $p = .56$. Contrary to prior research (e.g., Flynn & Lake, 2008), requesters again did not underestimate helpers' discomfort in rejecting their request. In fact, the nonsignificant main effect of perspective was in the opposite direction, as observed in Experiment 3; requesters expected that rejecting their request would make the helpers feel nonsignificantly more uncomfortable ($M = 5.95$, $SD = 2.50$) than the helpers reported themselves ($M = 5.23$, $SD = 3.61$).

Helping experience. A 2 × 2 ANOVA on the composite measure of positive mood indicated only a significant main effect of perspective, $F(1, 98) = 24.81$, $p < .001$, $\eta_p^2 = .20$, suggesting that helpers felt more positive (*M*s = 8.26, $SD = 1.43$) than their requesters expected ($M = 7.25$, *SD*s = 1.64 and 1.56). The same 2 × 2 ANOVA on the composite measure of perceived inconvenience indicated a significant main effect of relationship, $F(1, 98) = 4.07$, $p = .046$, $\eta_p^2 = .040$, and a significant main effect of perspective, $F(1, 98) = 94.65$, $p < .001$, $\eta_p^2 = .49$, qualified by a nonsignificant interaction, $F(1, 98) = 3.61$, $p = .060$, $\eta_p^2 = .036$. Although requesters rather dramatically overestimated how inconvenienced the helpers would feel, this gap was somewhat larger in the stranger condition than in the friend condition. As with willingness to help, increased calibration stemmed not from differences in the experience of helping between friends and strangers but rather

from differences in expectations: Requesters expected strangers to feel significantly more inconvenienced than friends (*M*s = 3.28 vs. 2.36, *SD*s = 1.76 vs. 2.04), $F(1, 98) = 5.82$, $p = .018$, $\eta_p^2 = .056$, but neither strangers nor friends reported feeling consistently inconvenienced by the request (*M*s = 0.71 vs. 0.63, *SD*s = 1.41 vs. 1.32), $F(1, 98) = 0.085$, $p = .77$.

Motivation attribution. A 2 × 2 ANOVA on prosocial motivation yielded only significant main effects of relationship, $F(1, 98) = 7.62$, $p = .007$, $\eta_p^2 = .07$, and perspective, $F(1, 98) = 24.98$, $p < .001$, $\eta_p^2 = .20$. The interaction was statistically nonsignificant, $F(1, 98) = 1.56$, $p = .21$. Simple-effects tests showed that requesters expected their friends to be more prosocially motivated than strangers (*M*s = 1.99 vs. 1.49, *SD*s = 0.92 vs. 0.89), $F(1, 98) = 7.61$, $p = .007$, $\eta_p^2 = .072$, and helpers also reported being nonsignificantly more motivated when helping a friend than when helping a stranger (*M*s = 2.44 vs. 2.24, *SD*s = 0.69 vs. 0.96), $F(1, 98) = 1.42$, $p = .24$, $\eta_p^2 = .014$. Consistent with Experiment 3, the significant main effect of perspective indicated that requesters significantly underestimated how prosocially motivated both friends and strangers would be after being asked for help.

A 2 × 2 ANOVA on compliance motivation yielded only a significant main effect of perspective, $F(1, 98) = 57.18$, $p < .001$, $\eta_p^2 = .37$, indicating that requesters overestimated the reported strength of compliance motivation among helpers regardless of whether they were friends or strangers (*M*s = 0.51 vs. −1.03, *SD*s = 1.38 vs. 1.72).

Mediational analyses indicated that the perspective gaps in helpers' willingness to help, positive mood after helping, and perceived inconvenience were all significantly mediated by perspective gaps in the perceived strength of helpers' prosocial motivation (see Table 1). The less prosocially motivated helpers were presumed to be, the more requesters believed they were imposing an unwanted and somewhat inconvenient request on strangers, and even friends, who would not be as willing or happy to help as the helpers actually were.

Indebtedness and gratitude. Similar to previous experiments, 2 × 2 ANOVAs on indebtedness and gratitude yielded only significant main effects of perspective—indebted: $F(1, 98) = 6.78$, $p = .011$, $\eta_p^2 = .065$; gratefulness: $F(1, 98) = 11.89$, $p < .001$, $\eta_p^2 = .108$—indicating that requesters felt significantly more indebted (*M*s = 3.94 vs. 2.70, *SD*s = 3.22 vs. 3.04) and grateful (*M*s = 8.11 vs. 7.13, *SD*s = 2.07 vs. 2.19) than helpers expected. Unlike Experiment 3, requesters also indicated that the help meant significantly more to them than the helpers expected (*M*s = 7.82 vs. 6.74, *SD*s = 2.29 vs. 2.58), $F(1, 98) = 11.73$, $p < .001$, $\eta_p^2 = .11$.

Finally, to obtain some sense of the value participants placed on the help provided, and hence better understand requesters' experience after receiving help, we asked participants in Experiment 4 to report "how big of a deal" the request seemed from their perspective. A 2 × 2 ANOVA on this item yielded a significant main effect of perspective, $F(1, 98) = 29.83$, $p < .001$, $\eta_p^2 = .23$, a significant main effect of relationship, $F(1, 98) = 5.53$, $p = .021$, $\eta_p^2 = .053$, and a statistically nonsignificant interaction, $F(1, 98) = 2.33$, $p = .13$, $\eta_p^2 = .023$. Requesters perceived the help to be a bigger deal ($M = 2.49$, $SD = 2.50$) than the helpers did ($M = 0.88$, $SD = 1.64$).

Expectations as barriers. As predicted, requesters' anxiety about requesting help was negatively correlated with how willing they expected the helper would be to help ($r = -.38$, $p < .001$), and positively correlated with how inconvenienced they expected the helper to feel ($r = .60$, $p < .001$). Not surprisingly, given these correlations and the difference in perceived willingness of friends versus strangers to help that was reported earlier, requesters also felt more anxious asking a stranger for help than asking a friend (*M*s = 3.27 vs. 2.01, *SD*s = 2.17 vs. 2.28), $F(1, 98) = 7.98$, $p = .006$, $\eta_p^2 = .075$. Even when asking a friend, people felt more anxious asking someone they felt less close to, $r = -.33$, $p = .018$. These exploratory analyses again suggest that misunderstanding others' willingness to help when asked could create a psychological barrier to asking for help more often.

Positive mood from giving and receiving help. We tested the impact of giving and receiving help on participants' mood immediately before and after helping in a 2 (relationship: stranger vs. friend) × 2 (role: requester vs. helper) × 2 (time: before vs. after) mixed-model ANOVA with role and time as repeated measures. This analysis yielded significant main effects of relationship, $F(1, 98) = 9.98$, $p = .002$, $\eta_p^2 = .092$; role, $F(1, 98) = 38.38$, $p < .001$, $\eta_p^2 = .28$; and time, $F(1, 98) = 36.37$, $p < .001$, $\eta_p^2 = .27$. These main effects were qualified by significant interactions between role and time, $F(1, 98) = 23.78$, $p < .001$, $\eta_p^2 = .20$—suggesting that the mood increase was even greater for requesters than for helpers—and between role and relationship, $F(1, 98) = 7.21$, $p = .009$, $\eta_p^2 = .069$. We decompose these interactions by analyzing each role separately below.

As in Experiment 3, requesters again reported being significantly happier after receiving help than before, $F(1, 98) = 42.47$, $p < .001$, $\eta_p^2 = .30$. Interestingly, they also reported feeling happier in the stranger condition (before: $M = 7.18$, $SD = 1.84$; after: $M = 8.40$, $SD = 1.64$) than in the friend condition (before: $M = 5.92$, $SD = 1.88$; after: $M = 7.04$, $SD = 2.14$), $F(1, 98) = 15.66$, $p < .001$,

η_p^2 = .14, and we found no significant interaction between time and relationship, p = .78. However, this main effect of relationship should be interpreted with caution because there are multiple possible explanations. One possibility is that those in the stranger condition were often able to get a picture taken with their friends, whereas those in the friend condition had at least one person missing from a group picture. Another possibility is that people expect their friends and close others to be more likely to help them (see also McManus et al., 2020; Tomasello, 2020), whereas help from a total stranger may feel more like receiving an act of altruism, which can lead requesters to rejoice more. Future research is needed to test whether receiving help from a stranger feels better than from a friend.

Perhaps of more interest, and consistent with existing research on the positive experience of prosociality (e.g., Aknin et al., 2020; Curry et al., 2018; Dunn et al., 2008), our results showed that helpers were also significantly happier after helping both strangers (before: M = 8.32, SD = 1.87; after: M = 8.58, SD = 1.63) and friends (before: M = 8.04, SD = 1.41; after: M = 8.26, SD = 1.51), $F(1, 98) = 4.34$, p = .040, η_p^2 = .042, and neither the main effect of relationship nor the interaction effect was significant, ps > .32. Helpers' positive mood again did not seem consistent with being coerced into helping because of discomfort with saying "no" to a request but instead was consistent with a request eliciting one's prosocial motivation to happily help someone in need.

Although we believe the results of our experiments so far provide compelling tests of our hypotheses, we report one final experiment that addresses two potential limitations. First, Experiments 2, 3, and 4 all entailed the possibility of selective sampling, either of the memories participants recalled (Experiment 2) or of the helpers approached by either participants or experimenters (Experiments 3 and 4). Second, in all experiments involving actual helping rather than imagined helping (Experiments 2–4), helpers' reported motivations were collected after helping rather than before helping, and hence their reported motivation could be affected by their actual experience of helping. To test our hypotheses in a context without these limitations, we conducted a laboratory experiment in which participants were randomly assigned to their role, and evaluations from helpers were taken before they actually helped the requester. Experiment 5 also manipulated whether the request for help came from either the person needing help or a third party to examine whether the source of a request would alter helpers' motivations and hence their willingness to help and their positive experience after helping.

Experiment 5: Helping, by Random Assignment

Method

Participants. We targeted 200 participants after exclusion to achieve 50 pairs in each experimental condition. A total of 224 participants completed our experiment in exchange for $4 for participating and an opportunity to win a $1 bonus. We excluded one pair because of experimenter error implementing the procedure (mixing the two roles up and accidentally assigning more work to the helper than intended), two pairs because of confusion by the requester on whom to ask for help, and two pairs for starting on the task before they were allowed to. This left 107 pairs in the data analysis (214 participants; age: M = 34.87 years, SD = 13.72; 74% female among requesters, 58% female among helpers).

Procedure. We recruited unacquainted pairs in a university-based laboratory for a "counting study." The experimenter led each pair into a private room with two computer desks facing each other but separated by a narrow aisle, so that participants could see each other but not each other's computer screens. Once seated, the experimenter introduced the "counting task," which involved underlining every letter "e" in a printed academic article and writing down the number of e's counted in each line as quickly and accurately as possible. The experimenter gave each participant one practice sheet (all sheets were formatted to have approximately 11 lines and 100 words), allowed 1 min for practice, checked each participant's performance, and then announced how many lines each participant completed. The experimenter then left the study room to retrieve materials from another room, where they adjusted the number of sheets given to each participant on the basis of practice performance so that the participants randomly assigned to be the potential helpers received considerably less work than they could finish and would likely have extra time to complete their task, whereas the other participants (the requesters) received slightly more work than they could possibly finish and would likely run short of time. The experimenter then returned to the study room, handed out each participant's counting sheets in a folder, and announced that participants needed to make sure at least 90% of the materials assigned to them were completed within a 5-min window to receive their bonus. Participants could provide help by completing some of the other participant's materials, but the bonus payment was based only on their own respective assignment.

Before the request. The experimenter then mentioned that one of the participants might have received more

pages than they could possibly finish within 5 min. Pairs randomly assigned to the first-person-request condition were then told, "If you think this situation applies to you, *it is okay for you to reach out to the other person* in this room and see if they can help you on some of your materials." In contrast, pairs randomly assigned to the third-person-request condition were told, "if this situation applies to one of you in the room, *I will tell the other person to reach out to you* and work on some of your materials." This meant that the request for help would come from the participant directly in the first-person-request condition but would come from the experimenter in the third-person-request condition. After confirming that participants understood the instruction, the experimenter left the room (the experimenter was always absent from the room throughout this experiment to give participants privacy when completing surveys, completing the counting task, or interacting with each other).

Requesters then started completing their prerequest survey on their computers, first reporting how many lines they completed in the practice session and then how many sheets they received for the 5-min task. Requesters then read that they received more sheets than they could complete themselves within 5 min but that the other participant had less work and would likely have extra time. Requesters were then asked, through their survey, to imagine what would happen if they (first-person-request condition) or the experimenter (third-person-request condition) asked the other participant to help complete one sheet for them. The prediction items were identical to those used in Experiments 3 and 4, including expectations about the potential helper's willingness to help, discomfort rejecting the request, strength of prosocial and compliance motivations, and the potential helper's mood after helping and perceived inconvenience. Finally, requesters reported their own mood at that moment.

During this time, participants assigned to the helper role completed a 2-min filler task and reported their mood.

The request. Toward the end of the prerequest survey, requesters in the first-person-request condition received an instruction in their survey encouraging them to ask the other participant for help, and it provided the following script as a suggestion:

> Excuse me. I wonder if I could ask you for a favor. I have too many pages to finish. So I wonder if I could give you one of my pages, and you can work on it if you happen to finish early.

Requesters were also told to avoid framing the request as coming from the experimenter. In contrast, requesters in the third-person-request condition were directed to find the experimenter outside their room, who would then ask the other participant to help the requester.

Among the 107 pairs, six requesters did not actually ask for help, and one helper declined to help the requester when asked directly. We included data from those seven pairs (all in the first-person-request condition) in our analyses unless otherwise noted.

After the request (before helping). If helpers agreed to the request, they then received an overflow sheet from the requester. Both requesters and helpers then immediately completed a postrequest survey on their computers about the previous interaction. Specifically, requesters indicated whether the other participant had agreed to their request as well as their current beliefs about the other person's willingness to help and their discomfort with rejecting the request, whereas helpers reported their own willingness to help, expected discomfort from rejecting the request, and the strength of their prosocial and compliance motivations. The experimenter then started a 5-min timer for the actual counting task and left the room.

After helping. After 5 min, the experimenter returned and checked both participants' assigned sheets and then announced the results. Among the 100 pairs in which the helper was asked for help and actually provided help, both participants in 91 pairs completed at least 90% of their task and received their bonuses. Of the remaining nine pairs, seven helpers completed their own sheets but failed to complete the requester's sheet. The remaining two helpers completed their requester's sheet but did not complete their own. We included data from all pairs in the following analyses.

Finally, each participant completed a short posthelping survey. Requesters reported their mood, recorded how grateful and indebted they felt toward the helper, and then indicated their current beliefs about the helper's mood and how inconvenienced the helper would report feeling. Requesters also reported how many sheets their helper completed for them. In contrast, helpers reported their actual mood, how inconvenienced they actually felt, and then predicted how grateful and indebted their requester would report feeling. Helpers also indicated in an open-ended text box whether, and how, the requester thanked them. All participants finished the survey by providing their demographic information.

Results

Because this experiment measured helpers' experiences before they provided their help, we first tested whether

requesters' expectations were calibrated by comparing their expectations reported in the prerequest survey with the helpers' actual responses in the postrequest survey. Note that we initially preregistered our intention to run separate *t* tests for each request condition, but we recognized in hindsight that this was not the appropriate analytical approach for this experiment. We therefore deviated from our preregistration plan and instead conducted mixed-model ANOVAs, which allowed us to test for both main effects and interactions. We also preregistered hypotheses that the request type (first person vs. third person) would moderate some results, but these hypotheses were not supported, as all interactions with request type were nonsignificant.

Willingness to help. A 2 (request type: first person vs. third person) × 2 (perspective: requester vs. helper) mixed-model ANOVA with perspective as repeated measures revealed only a significant main effect of perspective, $F(1, 105) = 39.20$, $p < .001$, $\eta_p^2 = .15$, indicating that requesters significantly underestimated how willing and interested the helpers would report themselves to be (*M*s = 6.20 vs. 7.79, *SD*s = 2.10 vs. 1.92).

Discomfort rejecting request. A 2 × 2 mixed-model ANOVA yielded nonsignificant effects of request type, $F(1, 105) = 1.11$, $p = .29$; perspective, $F(1, 105) = 2.14$, $p = .15$; and the interaction, $F(1, 105) = 0.12$, $p = .72$. As in Experiments 3 and 4, requesters did not significantly underestimate helpers' reported discomfort rejecting the request (*M*s = 5.84 vs. 6.21, *SD*s = 2.74 vs. 2.87).

Motivation attribution. A 2 × 2 mixed-model ANOVA on prosocial motivation yielded only a significant main effect of perspective, $F(1, 105) = 16.59$, $p < .001$, $\eta_p^2 = .14$, indicating that requesters significantly underestimated potential helpers' reported prosocial motivation (*M*s = 0.78 vs. 1.47, *SD*s = 1.25 vs. 1.29). Similarly, a 2 × 2 mixed-model ANOVA on compliance motivation yielded only a significant main effect of perspective, $F(1, 105) = 45.15$, $p < .001$, $\eta_p^2 = .30$, indicating that requesters overestimated helpers' reported compliance motivation (*M*s = 0.51 vs. −0.78, *SD*s = 1.32 vs. 1.53).

Helping experience. For this and subsequent analyses, we included only the 100 pairs where a request was made and accepted, because the questions presumed an agreement.

Consistent with Experiments 1a through 4, results of a 2 × 2 mixed-model ANOVA on the helpers' mood after helping yielded only a significant main effect of perspective, $F(1, 98) = 5.00$, $p = .028$, $\eta_p^2 = .048$, indicating that requesters underestimated how positive helpers felt after helping (*M*s = 6.92 vs. 7.43, *SD*s = 1.64 vs. 1.88). Likewise, a 2 × 2 mixed-model ANOVA on helpers' perceived inconvenience yielded only a significant main effect of perspective, $F(1, 98) = 132.08$, $p < .001$, $\eta_p^2 = .57$, indicating that requesters significantly overestimated how inconvenienced helpers would find helping to be (*M*s = 4.42 vs. 1.40, *SD*s = 2.11 vs. 1.84).

Mediation analyses. As in the preceding experiments, mediational analyses were again consistent with our hypothesis that requesters underestimate helpers' willingness to help, underestimate their positive mood, and overestimate their perceived inconvenience because they underestimate helpers' prosocial motivation to help when asked (see Table 1).

Positive mood from giving and receiving help. As in Experiment 4, a 2 (request type) × 2 (role: requester vs. helper) × 2 (time: before vs. after) mixed-model ANOVA with role and time as repeated measures yielded only a significant main effect of time, $F(1, 98) = 184.78$, $p < .001$, $\eta_p^2 = .65$, qualified by a significant interaction between role and time, $F(1, 98) = 4.18$, $p = .044$, $\eta_p^2 = .041$. As in Experiment 4, both giving and receiving help increased positive mood, but requesters' moods increased significantly more (before: $M = 5.64$, $SD = 2.13$; after: $M = 7.80$, $SD = 1.76$) than did helpers' moods (before: $M = 5.84$, $SD = 1.94$; after: $M = 7.44$, $SD = 1.88$).

Indebtedness and gratitude. As in the preceding experiments, 2 × 2 mixed-model ANOVAs again indicated that requesters felt more grateful, $F(1, 98) = 29.24$, $p < .001$, $\eta_p^2 = .23$, and also more indebted, $F(1, 98) = 30.21$, $p < .001$, $\eta_p^2 = .24$, than helpers expected.

Exploratory analyses. We also examined whether requesters' beliefs about their helpers' experiences became more calibrated after their helpers had agreed to help. Paired-samples *t* tests indicated that requesters updated their beliefs about helpers' willingness to help after their request compared with before (before: $M = 6.20$, $SD = 2.10$; after: $M = 6.67$, $SD = 2.20$), $t(106) = -2.26$, $p = .026$, but still underestimated helpers' actual reported willingness ($M = 7.86$, $SD = 1.78$), $t(106) = -4.38$, $p < .001$.

Requesters' beliefs about helpers' discomfort rejecting the request did not change significantly before versus after the request, $p = .72$, and again did not differ significantly from the helpers' response, $p = .20$.

Finally, we examined whether requesters' beliefs about their helpers' experiences were more calibrated after receiving help. Requesters' beliefs about helpers' mood did not change significantly before versus after receiving help (before: $M = 6.92$, $SD = 1.64$; after: $M = 7.00$, $SD = 1.93$), $p = .66$, and they still somewhat underestimated how positive their helpers felt after helping ($M = 7.44$, $SD = 1.88$), $t(99) = -1.85$, $p = .067$. Finally,

requesters' beliefs about how inconvenienced helpers would feel significantly decreased after receiving help (before: $M = 4.42$, $SD = 2.11$; after: $M = 2.96$, $SD = 2.30$), $t(99) = 5.88$, $p < .001$, but requesters still significantly overestimated how inconvenienced helpers reported feeling after providing help ($M = 1.40$, $SD = 1.84$), $t(99) = 5.67$, $p < .001$. These results again confirm that those in need of help tend to underestimate how positively others will respond to requests for help, even in a context in which participants were randomly assigned to seek versus provide help and regardless of whether the request was made by participants themselves or by a third party.

General Discussion

Arguably the easiest way to get help when needed is to ask for it, but people can be reluctant to ask partly because they presume others do not want to help and hence fear inconveniencing another person or coercing uninterested help. And yet helping others can often leave helpers feeling relatively positive (Curry et al., 2018). A series of six experiments investigating imagined, recalled, and in-person requests for help demonstrated that those asking for help underestimated how willing helpers would report being to provide assistance, underestimated how positive helpers would feel about helping, and overestimated how inconvenienced and annoyed helpers would feel. These results suggest that people not only misunderstand the likelihood of others agreeing to a request (Bohns, 2016) but also that they more fundamentally misunderstand the experience of helping after a request, which can create a miscalibrated barrier to asking for help more often in daily life.

Underestimating how positive others would feel when asked for help seems to stem from failing to appreciate how much others would want to help: Requesters underestimated helpers' endorsement of prosocial motivation and overestimated their compliance motivation. Although skepticism is warranted when people are asked to explain their own mental processes (Nisbett & Wilson, 1977), we note that people's tendency to discount others' prosocial motivation is consistent with the deeply held belief in Western cultures that people are motivated by self-interest (Miller, 1999). Yet helpers' self-reported motivations were consistent with their reported willingness to help and positive experience of helping, which has also been reported in a multitude of studies using a variety of research methods among children (Aknin et al., 2012; Tomasello, 2009), in neuroimaging (Harbaugh et al., 2007; Moll et al., 2005), in physiology (Dunn et al., 2010), and also in measures of cardiovascular functioning (Whillans et al., 2016).

We believe these results are consistent with a broader tendency for people to underestimate how positive others will feel following prosocial interactions, thereby leaving people more reluctant to reach out and connect with others than might be optimal for both their own and others' well-being. Human beings are deeply social, with a strong motivation to connect with others (Baumeister & Leary, 1995), and a neural reward system that leaves people feeling happier and healthier after positive interactions (Diener & Seligman, 2004). People's expectations about social interaction, however, do not seem to fully reflect the positive impact of connecting with others (Epley et al., 2022). The present research suggests that people not only misunderstand how positive their own prosocial acts will make others feel but also misunderstand how positive enabling prosociality by asking for help can make others feel.

We also believe that our current experiments meaningfully enrich psychologists' understanding of the *underestimation-of-compliance effect* (Bohns, 2016), whereby requesters underestimate others' likelihood of agreeing to direct requests. As the name implies, requests in this literature are typically construed in terms of compliance, so that underestimating helping stems from failing to recognize the discomfort of saying "no" to a request. However, using similar scenarios, procedures, and self-report measures from this existing literature, our experiments generally replicated the tendency to underestimate agreement with a request (Fig. 3a) but found little evidence that it stemmed from underestimating potential helpers' discomfort of saying "no" to a request (Fig. 3b) or underestimating the strength of compliance motivation more generally (Fig. 2b). Helpers' positive experiences are also inconsistent with what would presumably be the negative experience of being coerced into helping. By construing requests for help as inducing compliance instead of prompting prosociality, researchers may have overlooked a more reliable and powerful source of cooperation.

Of course, not all requests prompt prosociality. One strength of our research is that we sampled participants from a number of different populations and locations, meaning that the patterns of miscalibration we observed are somewhat common and are unlikely to result from unusually prosocial people or unique contexts. One limitation of our research is that we primarily tested relatively simple requests that could be easily fulfilled. Although these may be the most common requests in daily life (Floyd et al., 2018), they are not the only type. More difficult, undesirable, or morally questionable requests (e.g., Bohns et al., 2014) that come from a person higher in power or status (e.g., Milgram, 1974) or that risk disturbing social harmony (Taylor et al., 2004) may feel more coercive and costly (Crocker et al., 2017) and hence prompt more compliance motivation

than the contexts we investigated. There may also be meaningful variability across cultures in the way requests for help are evaluated, which can create additional barriers to seeking help. Whether this contextual variability serves to calibrate requesters' expectations or magnify the misunderstandings we have documented here is a critical topic for future research. However, beliefs that encourage social avoidance, such a reluctance to ask for help, may be surprisingly persistent across contexts because they can keep people from having the very experience that would actually calibrate their expectations about other people. A person who believes that others do not want to help when asked might never learn the lesson that Steve Jobs did when he was young, which came only from actually asking for help and learning that pessimistic expectations can sometimes be misplaced.

Transparency

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Author Contributions

X. Zhao and N. Epley generated the ideas for the study and designed the experiments. X. Zhao collected, analyzed, and interpreted the data under the supervision of N. Epley. Both authors wrote the manuscript and approved the final version for submission.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

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Open Practices

All data and materials have been made publicly available via OSF and can be accessed at https://osf.io/j67c3/. The design and analysis plans for all the experiments were preregistered on AsPredicted (copies of the preregistration forms are available at https://osf.io/j67c3/). This article has received the badges for Open Data, Open Materials, and Preregistration. More information about the Open Practices badges can be found at http://www.psychologicalscience.org/publications/badges.

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References

Addis, M. E., & Mahalik, J. R. (2003). Men, masculinity, and the contexts of help seeking. *American Psychologist*, *58*(1), 5–14.

Aknin, L. B., Dunn, E. W., Proulx, J., Lok, I., & Norton, M. I. (2020). Does spending money on others promote happiness? A registered replication report. *Journal of Personality and Social Psychology*, *119*(2), e15–e26.

Aknin, L. B., Hamlin, J. K., & Dunn, E. W. (2012). Giving leads to happiness in young children. *PLOS ONE*, *7*(6), Article e39211.

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, *100*, 464–477.

Batson, C. D., & Shaw, L. L. (1991). Evidence for altruism: Toward a pluralism of prosocial motives. *Psychological Inquiry*, *2*(2), 107–122.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.

Bohns, V. K. (2016). (Mis)understanding our influence over others: A review of the underestimation-of-compliance effect. *Current Directions in Psychological Science*, *25*(2), 119–123.

Bohns, V. K., & Flynn, F. J. (2021). Empathy and expectations of others' willingness to help. *Personality and Individual Differences*, *168*, Article 110368.

Bohns, V. K., Handgraaf, M. J. J., Sun, J., Aaldering, H., Mao, C., & Logg, J. (2011). Are social prediction errors universal? Predicting compliance with a direct request across cultures. *Journal of Experimental Social Psychology*, *47*(3), 676–680.

Bohns, V. K., Newark, D. A., & Xu, A. Z. (2016). For a dollar, would you. . .? How (we think) money affects compliance with our requests. *Organizational Behavior and Human Decision Processes*, *134*, 45–62.

Bohns, V. K., Roghanizad, M. M., & Xu, A. Z. (2014). Underestimating our influence over others' unethical behavior and decisions. *Personality and Social Psychology Bulletin*, *40*(3), 348–362.

Boothby, E. J., & Bohns, V. K. (2021). Why a simple act of kindness is not as simple as it seems: Underestimating the positive impact of our compliments on others. *Personality and Social Psychology Bulletin*, *47*(5), 826–840.

Brooks, A. W., Gino, F., & Schweitzer, M. E. (2015). Smart people ask for (my) advice: Seeking advice boosts perceptions of competence. *Management Science*, *61*(6), 1421–1435.

Butler, R., & Neuman, O. (1995). Effects of task and ego achievement goals on help-seeking behaviors and attitudes. *Journal of Educational Psychology*, *87*(2), 261–271.

Crocker, J., Canevello, A., & Brown, A. A. (2017). Social motivation: Costs and benefits of selfishness and otherishness. *Annual Review of Psychology*, *68*, 299–325.

Curry, O. S., Rowland, L. A., Van Lissa, C. J., Zlotowitz, S., McAlaney, J., & Whitehouse, H. (2018). Happy to help? A systematic review and meta-analysis of the effects of performing acts of kindness on the well-being of the actor. *Journal of Experimental Social Psychology*, *76*, 320–329.

Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews*, *3*(2), 71–100.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268.

Deri, S., Stein, D. H., & Bohns, V. K. (2019). With a little help from my friends (and strangers): Closeness as a moderator of the underestimation-of-compliance effect. *Journal of Experimental Social Psychology*, *82*, 6–15.

Diener, E., & Seligman, M. E. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest*, *5*(1), 1–31.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, *319*(5870), 1687–1688.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2014). Prosocial spending and happiness: Using money to benefit others pays off. *Current Directions in Psychological Science*, *23*(1), 41–47.

Dunn, E. W., Ashton-James, C. E., Hanson, M. D., & Aknin, L. B. (2010). On the costs of self-interested economic behavior: How does stinginess get under the skin? *Journal of Health Psychology*, *15*(4), 627–633.

Epley, N., & Dunning, D. (2000). Feeling "holier than thou": Are self-serving assessments produced by errors in self- or social prediction? *Journal of Personality and Social Psychology*, *79*(6), 861–875.

Epley, N., Kardas, M., Zhao, X., Atir, S., & Schroeder, J. (2022). Undersociality: Miscalibrated social cognition can inhibit social connection. *Trends in Cognitive Sciences*, *26*(5), 406–418.

Epley, N., & Schroeder, J. (2014). Mistakenly seeking solitude. *Journal of Experimental Psychology: General*, *143*(5), 1980–1999.

Floyd, S., Rossi, G., Baranova, J., Blythe, J., Dingemanse, M., Kendrick, K. H., Zinken, J., & Enfield, N. J. (2018). Universals and cultural diversity in the expression of gratitude. *Royal Society Open Science*, *5*, Article 180391.

Flynn, F. J., & Lake, V. K. B. (2008). If you need help, just ask: Underestimating compliance with direct requests for help. *Journal of Personality and Social Psychology*, *95*(1), 128–143.

Harbaugh, W. T., Mayr, U., & Burghart, D. R. (2007). Neural responses to taxation and voluntary giving reveal motives for charitable donations. *Science*, *316*, 1622–1625.

Harrer, M., Cuijpers, P., Furukawa, T. A., & Ebert, D. D. (2021). *Doing meta-analysis with R: A hands-on guide*. Chapman & Hall/CRC Press.

Hayes, A. F. (2013). *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Kardas, M., Kumar, A., & Epley, N. (2021). Overly shallow? Miscalibrated expectations create a barrier to deeper conversation. *Journal of Personality and Social Psychology*, *122*(3), 367–398.

Kruger, J., & Gilovich, T. (1999). "Naive cynicism" in everyday theories of responsibility assessment: On biased assumptions of bias. *Journal of Personality and Social Psychology*, *76*(5), 743–753.

Kumar, A., & Epley, N. (2018). Undervaluing gratitude: Expressers misunderstand the consequences of showing appreciation. *Psychological Science*, *29*(9), 1423–1435.

Lee, F. (2002). The social costs of seeking help. *The Journal of Applied Behavioral Science*, *38*(1), 17–35.

Litman, L., Robinson, J., & Abberbock, T. (2017). TurkPrime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior Research Methods*, *49*(2), 433–442.

McManus, R. M., Kleiman-Weiner, M., & Young, L. (2020). What we owe to family: The impact of special obligations on moral judgment. *Psychological Science*, *31*(3), 227–242.

Miller, D. T. (1999). The norm of self-interest. *American Psychologist*, *54*(12), 1053–1060.

Milgram, S. (1974). *Obedience to authority*. Harper & Row.

Moll, J., Zahn, R., de Oliveira-Souza, R., Krueger, F., & Grafman, J. (2005). The neural basis of human moral cognition. *Nature Reviews Neuroscience*, *6*(10), 799–809.

Montoya, A. K., & Hayes, A. F. (2017). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*, *22*(1), 6–27.

Nadler, A. (2015). The other side of helping: Seeking and receiving help. In D. A. Schroeder & W. G. Graziano (Eds.), *The Oxford handbook of prosocial behavior* (pp. 307–328). Oxford University Press.

Newark, D. A., Flynn, F. J., & Bohns, V. K. (2014). Once bitten, twice shy: The effect of a past refusal on expectations of future compliance. *Social Psychological and Personality Science*, *5*(2), 218–225.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, *84*(3), 231–259.

Ratner, R. K., & Miller, D. T. (2001). The norm of self-interest and its effects on social action. *Journal of Personality and Social Psychology*, *81*(1), 5–16.

Roghanizad, M. M., & Bohns, V. K. (2017). Ask in person: You're less persuasive than you think over email. *Journal of Experimental Social Psychology*, *69*, 223–226.

Schroeder, J., Lyons, D., & Epley, N. (2022). Hello, stranger? Pleasant conversations are preceded by concerns about starting one. *Journal of Experimental Psychology: General*, *151*(5), 1141–1153.

Silicon Valley Historical Association. (2011, October 31). Steve Jobs on failure [Video]. *YouTube*. https://youtu.be/zkTf0LmDqKI

Singer, T., Seymour, B., O'Doherty, J., Kaube, H., Dolan, R. J., & Frith, C. D. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science*, *303*(5661), 1157–1162.

Slovic, P., Västfjäll, D., Erlandsson, A., & Gregory, R. (2017). Iconic photographs and the ebb and flow of empathic response to humanitarian disasters. *Proceedings of the National Academy of Sciences, USA*, *114*(4), 640–644.

Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., & Dunagan, M. S. (2004). Culture and social support: Who seeks it and why? *Journal of Personality and Social Psychology*, *87*(3), 354–362.

Tomasello, M. (2009). *Why we cooperate*. MIT Press.

Tomasello, M. (2020). The moral psychology of obligation. *Behavioral & Brain Sciences*, *43*, Article e56.

Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, *98*(2), 222–244.

Whillans, A. V., Dunn, E. W., Sandstrom, G. M., Dickerson, S. S., & Madden, K. M. (2016). Is spending money on others good for your heart? *Health Psychology*, *35*, 574–583.

Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin*, *140*(6), 1608–1647.

Zaki, J., & Mitchell, J. P. (2011). Equitable decision making is associated with neural markers of intrinsic value. *Proceedings of the National Academy of Sciences, USA*, *108*(49), 19761–19766.

Zaki, J., & Mitchell, J. P. (2013). Intuitive prosociality. *Current Directions in Psychological Science*, *22*(6), 466–470.

Zhao, X., & Epley, N. (2021a). Insufficiently complimentary? Underestimating the positive impact of compliments creates a barrier to expressing them. *Journal of Personality and Social Psychology*, *121*(2), 239–256.

Zhao, X., & Epley, N. (2021b). Kind words do not become tired words: Undervaluing the positive impact of frequent compliments. *Self and Identity*, *20*(1), 25–46.