

Upward and downward social comparisons can decrease prosocial behavior

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Abstract

This experiment addressed whether upward or downward social comparisons can affect people's prosocial behavior toward the comparison targets. Undergraduates ($N = 123$) completed an inkblot test and then were randomly assigned to conditions in which they were told that their performance was either inferior or superior to their peers. A control group was given no performance feedback. Participants' self-reported prosocial behaviors were measured 2 days later. Results indicated that both the upward and downward comparison groups engaged in significantly less prosocial behavior than did the control group and that empathy toward their peers mediated this effect. Our findings suggest that upward or downward comparison can make people feel less empathic toward the targets and thus less inclined to help them.

People spend a great deal of time assessing where they stand relative to others in a process called *social comparison* (Festinger, 1954). In fact, drawing self-focused social comparisons has been estimated to account for approximately 7% of people's daily thoughts (Summerville & Roese, 2008). Social comparison is hypothesized to be an evolutionarily adaptive process that occurs not just in humans but in other species as well (Gilbert, Price, & Allan, 1995). Moreover, people can engage in it as an automatic unconscious process. For example, participants in one study who were primed with the name of a person representing a moderately high standard of aggressiveness, as compared with those primed with the name of a less aggressive person, rated themselves as more aggressive (Mussweiler, Rüter, & Epstude, 2004).

There are two distinct forms of social comparison: upward and downward (see Wood, 1989). Upward comparison occurs when the target of comparison is someone who is either better than an individual on some construct (e.g., intelligence or athletic ability) or has outperformed the individual in some activity or task (e.g., higher test scores or faster time completing the Boston marathon). Downward comparison, by contrast, is comparison to an inferior target. Note that even without an identifiable target, individuals can compare themselves to a generalized sense of someone "better" or "worse" (Buunk & Gibbons, 2007). Additionally, individuals can create an inferior target through derogating another, a process called active downward comparison. In contrast,

passive downward comparison involves individuals simply responding to information that a target is worse off (Buunk & Gibbons, 2007).

Three common motivations for social comparison have been identified as self-evaluation, self-enhancement, and self-improvement (Taylor, Wayment, & Carrillo, 1996). These are comparisons with others made in an effort to improve the accuracy of self-evaluations (Radloff, 1966), boost self-views (Pyszczynski, Greenberg, & LaPrelle, 1985), or evaluate and provide an impetus for self-improvement (Collins, 1996), respectively. When people are motivated to self-enhance, a downward comparison often serves as the necessary boost (Pyszczynski et al., 1985). However, when reparative or self-improvement motives dominate, they might choose an upward comparison target (Gibbons, Blanton, Gerrard, Buunk, & Eggleston, 2000). In the following paragraphs, we briefly review the research on the effects of downward and upward social comparisons.

Effects of downward comparisons

Research has demonstrated that downward comparisons can improve one's mood, particularly when the person is in need of a boost in self-esteem (Aspinwall & Taylor, 1993; Gibbons & Boney McCoy, 1991; Pyszczynski et al., 1985; Wills, 1981). However, even participants who are in a relatively happy mood may prefer to make downward

comparisons to maintain or improve their mood (Wood, Michela, & Giordano, 2000).

Downward comparisons also can have an effect on non-mood-related constructs. One study showed that partners in an unhappy couple induced to compare their relationship to even less satisfactory relationships demonstrated an enhancement in relationship satisfaction (Buunk, Oldersma, & de Dreu, 2001). Moreover, studies have shown that the presence of a physically handicapped individual in the room can boost participants' self-ratings of life satisfaction as well as their satisfaction in the physical domain (Gibbons, 1999). Furthermore, in cancer and rheumatoid arthritis patients, an increase in health problems has been found to predict an intensification of interest in social comparison, especially with patients whom participants perceive as having worse problems (Tennen & Affleck, 1997). In addition, another study demonstrated that as participants' health distress increased, they showed an increased desire to obtain information about those who performed worse than they did (Van Der Zee, Oldersma, Buunk, & Bos, 1998). Finally, a study of college students showed that the greatest predictor of their health satisfaction was the degree to which they perceived their health status to be superior to that of others (Michalos, 1980).

Some researchers have suggested that shifting one's comparison levels downward after a failure situation might represent an emotion-focused coping strategy (Gibbons et al., 2002). Downward comparison can act as a motivational tool by representing a potential future for an individual if change is not enacted. Thus, comparing oneself to a poor performing student might spark the individual to work harder to avoid such a negative fate. Supporting this idea, Lane and Gibbons (2007) studied students who were dissatisfied with their performance on an exam and performed a downward comparison to students who performed even worse than they did. These students making the comparison actually improved their test scores across the semester.

Effects of upward social comparison

Just as downward social comparison often increases positive affect, upward social comparison often increases negative affect (see Emmons & Diener, 1985; Wheeler & Miyake, 2002). In fact, after inducing participants to engage in either a downward or an upward social comparison, Klein (2003) used increases in their positive or negative affect as manipulation checks for the downward and upward comparisons, respectively.

Upward social comparison not only can induce negative affect, it also can deflate people's views of themselves. For instance, upward comparison to physically attractive others has been shown to cause participants to lower their ratings of their own attractiveness (Brown, Novick, Lord, & Richard,

1992; Cash, Cash, & Butters, 1983; Thornton & Moore, 1993). Likewise, naturalistic research has shown that students of similar academic potential who attend higher ability, as compared with lower ability, secondary schools have lower academic self-concepts (Huguet et al., 2009; see also Marsh et al., 2008). There is evidence that these lower self-concepts are the result of students' comparisons with their class (Huguet et al., 2009).

In those cases when upward comparison is too threatening to a person's sense of self, certain upward comparison targets may simply be avoided (Brickman & Bulman, 1977). One experiment showed that participants who were led to believe that they did poorly on a task, as compared with those who were led to believe that they did well, demonstrated less interest in how the successful others might have performed (Smith & Insko, 1987). Similarly, children who were given false feedback that they did poorly, as compared to those who were told they did well, were less interested in finding out about others who had done well, but more interested in comparing themselves to others who had done poorly (Levine & Green, 1984).

Even though upward social comparison typically has negative effects, a number of moderating variables on its effects have been observed. These moderators include the self-relevance of (Salovey & Rodin, 1984; Tesser, Millar, & Moore, 1988) and sense of control over the factor(s) being compared (Testa & Major, 1990), and preexisting self-esteem (Reis, Gerrard, & Gibbons, 1993). Thus, comparisons with superior others, although potentially damaging to self-esteem, can provide a goal to reach or even enhance self-esteem by acknowledging, then diminishing the distance between the self and the superior target (Collins, 1996; Wheeler, 1966). Noting another person's superior skills where one might be weak may provide important knowledge about improving one's own performance (Buunk & Ybema, 1997). Numerous studies also have shown that information about or interaction with someone coping well with a similar problem (e.g., adjustment to college or cancer) can instill a measure of positivity (Aspinwall & Taylor, 1993; Buunk, Collins, Taylor, Dakof, & Van Yperen, 1990; Molleman, Pruyn, & van Knippenberg, 1986).

In addition, a smoking cessation study showed that people who compared themselves to or wished to affiliate with other smokers who were successful at quitting had a better chance of quitting themselves (Gerrard, Gibbons, Lane, & Stock, 2005). Similarly, students who made upward social comparisons to high-performing classmates subsequently showed increases in grade point average within a single semester (Blanton, Buunk, Gibbons, & Kuyper, 1999) and several years later (Gibbons et al., 2000). Thus, although there often are negative intrapersonal consequences of drawing an upward comparison, there are some instances in which it can have positive effects.

Social comparison and prosocial behavior

As demonstrated in the research just reviewed, the social comparison literature is rich with studies assessing how people view themselves or how they perform on a given task after having compared themselves to superior or inferior targets. However, a gap in the literature exists concerning the interpersonal consequences of social comparison. In particular, a question remains regarding whether social comparison causes people to engage in more or less prosocial behavior toward the targets. One reason this question is so important is that previous findings on the *intrapersonal* consequences of social comparison—even the observed positive changes in emotions and self-views following downward social comparisons—may be interpreted differently if social comparisons cause a reduction in prosocial behavior.

Social psychologists have had a long-standing interest in studying the circumstances under which and why people engage in helping or prosocial behavior (e.g., Latane & Darley, 1970; Weinstein & Ryan, 2010; Zdravko, Greenglass, Struthers, & Faye, 2009; see Piliavin, 2009, for a review). Recent research has focused on empathy as a key predictor of helping (e.g., Anker, Feeley, & Kim, 2010; Graziano, Habashi, Sheese, & Tobin, 2007; Stocks, Lishner, & Decker, 2009; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007; Wilhelm & Bekkers, 2010). Empathy is defined as the “identification with and understanding of another’s situation, feelings, and motives” (American Heritage Dictionary, 1993, p. 450). Experiments and correlational studies have supported the notion that empathy both causes, and is linked to, helping behavior. For example, Batson, Eklund, Chermok, Hoyt, and Ortiz (2007) demonstrated that valuing the welfare of the person in need was an important antecedent of empathic concern, which was in turn a predictor of helping. Twenge et al. (2007) found that being rejected left participants less inclined to help others afterward, and that feelings of empathy toward those others mediated how helpful the participants were.

We suspect that being compared to their peers—whether upward or downward—might cause people to help them less because being socially compared makes people less empathic toward those comparison targets. Along these lines, Fiske (2010) recently reviewed evidence that upward social comparison can cause feelings of envy toward the comparison targets and that downward social comparison can cause feelings of scorn, which can cause a person not to think about those targets. She argued that a solution for offsetting the negative effects of both envy and scorn on relationships was to empathize with the targets. A decade earlier, Brandstätter (2000) had suggested that being in a positive relationship with the social comparison target can cause empathic feelings toward the target, as opposed to feelings of malicious joy in

the case of a downward comparison and malicious envy in the case of an upward comparison.

At the same time, being close to a social comparison target can intensify competitive reactions. Pemberton and Sedikides (2001) found that participants were less likely to give close others (as opposed to unfamiliar others) helpful advice on areas where clear diagnostic information was available. The researchers suggested that this reticence to give help was out of a concern that the participants could be outperformed by those familiar others in the future. In essence, participants behaved in a less prosocial manner toward friends out of a fear of a future negative social comparison.

Only a handful of studies have examined how social comparison influences subsequent prosocial behaviors. Two studies suggest that downward comparison could boost prosocial actions. For example, Isen (1970) showed that participants who were told that they had performed well above average on two face-valid measures of perceptual-motor ability, as compared with those who were told they had performed very poorly, were more likely to donate money to a charitable fund. Likewise, Klein (2003) found that participants in a downward comparison condition (e.g., given feedback that the participant scored better than another on a laboratory task) were more likely than those in an upward comparison condition to give assistance to another participant on the same task that they had just completed. However, we suggest that participants in the downward comparison conditions in those studies might have been conforming to the demand characteristics inherent in the experimenter’s giving them the opportunity to help needy or weaker people and that this experimental artifact is what motivated participants in the downward comparison group to engage in the prosocial behavior.

In a study of prosocial behavior and group social comparison, Shipley (2008) induced an upward social comparison by providing cues to participants that the food banks in their particular city, county, or state were less well stocked as compared to other municipal food banks. These cues, as compared with the absence of such cues, led participants to donate more to a local food drive, indicating that upward comparison can increase prosocial behavior. However, the social comparison in that study was a group comparison to another group, as opposed to a comparison to individuals, and donations to the food drive directly benefited participants’ own group. Thus, it remains to be seen whether increases in prosocial behavior occur when people are told that they are inferior to individuals whom they are later given the opportunity to help.

The present experiment

The current experiment was designed to address the gap in the literature concerning how a social comparison on impor-

tant personal characteristics can impact an individual's level of prosocial behavior. This experiment addressed two of the design limitations of the previous studies. First, whereas Isen (1970) and Klein's (2003) studies were conducted entirely in the laboratory, this experiment examined the impact of social comparison on prosocial behavior outside the laboratory. We suggest that our design removed the demand characteristics involved in asking participants to help those weaker than they in the same experimental session as the manipulation. Second, the current design assessed prosocial behaviors in the 2 days following the manipulation, permitting some conclusions to be drawn about the effects of social comparison on prosocial behavior over time.

In this experiment, we first asked undergraduate participants to give responses to ambiguous inkblot cards. We then gave them prefabricated feedback about three personal qualities that previous researchers have used to represent traits that are relevant to college students and that span the achievement and interpersonal domains (e.g., Brown & Smart, 1991): intelligence, sincerity, and creativity. We selected these relevant characteristics because studies have shown that affective reactions to social comparisons can be stronger when the comparisons are made on dimensions that are relevant to the participants (e.g., Brandstätter, 2000). Moreover, we used traits in which participants' standing relative to their peers would be ambiguous, so that we could manipulate feedback regarding their relative standing. The participants were unlikely to have received previous feedback about their relative standing on creativity and sincerity. And even though participants knew their previous grades and SAT scores, lay conceptions of intelligence are much broader than those captured by traditional measures of achievement (see Sternberg et al., 2000).

In the upward comparison condition, participants were told that they scored in the bottom quartile of their peers tested at their own university on these characteristics. In contrast, participants in the downward comparison condition were told they scored in the 96th or 97th percentile among their peers. A control condition received no feedback. Two days after the manipulation, participants were asked to report on the extensiveness of their prosocial behaviors since being in the laboratory. Thus, this design permitted the dissection of the effects of both upward and downward comparisons, as compared with no social comparison, on prosocial behavior directed at the comparison targets (i.e., peers at the same university). Based on our review of the social comparison and helping behavior literatures (e.g., Fiske, 2010), we predicted either type of comparison would cause participants to feel less empathy toward their peers and thus to help them less. Our specific hypotheses were the following:

Hypothesis 1. Relative to control participants, participants in both the upward and downward comparison

conditions will report less empathy and fewer prosocial behaviors toward the comparison targets in the days following the manipulation.

Hypothesis 2. Mediation analyses will offer evidence that the effect of the social comparison manipulation on prosocial behaviors is mediated by participants' self-reported empathy toward the comparison targets.

Method

Participants

The sample consisted of a total of 123 undergraduate students (48 men and 75 women) from a large private Midwestern university, who were compensated for their time with course credit. In this sample, 68% was White, 10% was identified as Latino or Hispanic, 15% was Asian, and 6% was identified as Black, while 1 person (<1%) chose other. The mean age for this sample was 19.02 ($SD = 1.23$) years. Originally, there were seven more participants, but due to incomplete data, they were removed from the analyses. Of these seven, four were in the control condition, two were in the downward comparison condition, and one was in the upward comparison condition.

Measures

The Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) asks participants to rate the strength of 20 possible positive and negative emotions (e.g., "irritated" or "alert") on a 5-point Likert-type scale where 1 = *very slightly or not at all* and 5 = *extremely*. Watson et al. (1988) observed internal reliability scores that ranged from .86–.90 for the Positive Affect subscale and ranged from .84–.87 for the Negative Affect subscale. The validity of the two distinct subscales of the PANAS has been established in a large sample (Crawford & Henry, 2004). We used these subscales as manipulation checks of the upward and downward social comparison manipulations. Specifically, we expected participants in the downward comparison condition to report greater positive affect relative to those in the upward comparison condition (e.g., Aspinwall & Taylor, 1993; Pyszczynski et al., 1985; Wills, 1981). We also expected participants in the upward comparison condition to report greater negative affect relative to those in the downward comparison condition (as previously found by Emmons & Diener, 1985; Wheeler & Miyake, 2002). Cronbach's alphas for positive and negative affects in this sample were .88 and .78, respectively.

The Prosocialness Scale for Adults (PSA; Caprara, Steca, Zelli, & Capanna, 2005) is a 16-item instrument that measures common prosocial behaviors and attitudes in adults and adolescents. Sample items include: "I spent time with

those friends who felt lonely” and “I was available for volunteer activities to help those who were in need.” For the purposes of this study, item stems were preceded by “in the last two days.” Participants rated themselves on these items on a 5-point Likert-type scale, from 1 = *never/almost never true* to 5 = *always/almost always true*. Internal reliability estimates have been established at .91 (Caprara et al., 2005), with the current sample demonstrating an alpha of .89. Convergent and discriminant validity was established in a study of 724 Italian adults (Caprara, Capanna, Steca, & Paciello, 2005). Scores in this sample ranged from 28 to 72.

We chose two of the items from the PSA that had excellent face validity to measure participants’ empathy in the 2 days post manipulation. The first was “in the last two days, I was empathic with those in need”; and the second was “in the last two days, I immediately sensed my friends’ discomfort even when it was not communicated to me.” Note that we had added “in the last two days” to each of these. Participants’ empathy scores were an average of their responses to these two items and ranged from 1.5 to 5.0. Note also that we elected not to use all the same items that the creators had used for their 3-item empathy subscale of the PSA. We made this decision because our key empathy item that did come from their empathy subscale (i.e., “I was empathic with those in need”) was strongly correlated ($r = +.48$) with the second PSA item we chose to use to measure empathy. But this key empathy item was only moderately correlated ($r = +.35$) with their empathy item from the PSA, “I intensely felt what others felt,” which we did not use to measure empathy because that item more precisely measures sympathy, defined as “sharing the feelings of another” (American Heritage Dictionary, 1993, p. 1375).

Another measure, the Prosocial Behavior Measure (PBM), was generated by members of the research team to tap into 25 occurrences of prosocial behavior common to the undergraduate experience. Some examples include: “Let people cut in front of you in line at the dining hall,” “listened to someone vent,” “given a friend a spontaneous hug,” and “changed your plans or schedule to help someone else.” Participants recorded the number of times they performed each behavior in the day of and 2 days following the manipulation. Cronbach’s alpha in this sample for this measure was .86. As for evidence of its validity as a measure of prosocial behavior, the PBM did significantly positively correlate with the PSA ($r = .43, p < .05$). We used the sum of their responses, and these ranged from 0 to 349.

Two additional items assessed participant’s views of the experimenter and the explicit feedback: “How accurate did you feel your printed feedback was?” (rated from 1 = *extremely accurate* to 9 = *not at all accurate*), and “how believable did you find the person who gave you the inkblot test?” (rated on a scale from 1 to 9 where 1 = *not at all believ-*

able and 9 = *very believable*). Even though the control group was not given any feedback, all three groups were asked both of these questions.

Procedure

Participants were recruited by phone or voluntarily signed up on psychology experiment boards online for a study that was titled “Inkblot Validation Study.” Once in the laboratory, the participants were randomly assigned to conditions. All participants were seated at a desk and given their first research credit, then given a consent form to sign. Participants were informed that their responses were to be kept completely confidential, that they would place their forms into a sealed envelope, and that they would place them in a locked box to which only the primary investigators would have access.

The experimenter then explained that the participant would be involved in a national project to re-norm an inkblot test. As part of that larger project, they were going to give responses to five ambiguous inkblot cards and take a number of additional personality measures that would help the researchers establish the validity of a new inkblot test. Finally, participants were told that they would need to complete a follow-up online session 2 days later to give additional data that would be used in the validation study. In actuality, although participants were given real inkblot stimulus cards, the experimenters were not accurately coding any sort of response to the inkblot cards, and these data were not used in any analyses.

After answering any questions, participants were asked to give approximately two responses to five inkblot stimulus cards (culled from the obsolete Holtzman Inkblot test). Experimenters recorded their oral responses and wrote down a nonsensical code for each response. Following the administration of the inkblot cards, participants were given a battery of measures that included several filler measures.

This battery of tests also provided a cover story for the manipulation, as participants were told that their responses would be entered into a computer-scoring program to provide their results. To create the social comparison conditions (upward and downward), participants were given specific feedback about their ranking on a hierarchy on an important personal construct (see Gibbons et al., 2002, and Klein, 2003, for similar comparison inductions). Participants were provided with a two-page printed and seemingly personalized (with the correct sex of the participant and a participant number) output of their results on three dimensions—intelligence, sincerity, and creativity. The experimenter then provided the appropriate prefabricated oral feedback. For the downward comparison (feedback that the participant had performed better than others) condition, participants were told:

Here are the results for the various dimensions we are studying in this project . . . You did very well; especially when I compared your responses to the other students I've given this to here. As you can see, you scored high across the board, which is really rare. On the intelligence subscale, you scored in the 97th percentile. On Sincerity, you scored similarly high at the 96th percentile. Creativity was also very high at the 97th percentile. I'm not actually that surprised that you scored this high: not only did you have some fairly unique and sophisticated responses, but you also showed an excellent blend of using the whole card and little details.

In the upward comparison (feedback that the participant had performed worse than others) condition, participants were told:

Here are the results for the various dimensions we are studying in this project. Your results as compared to other students here are on the second page. Keep in mind that your responses were compared to all the other students we've given this test to. As you can see, you scored a bit below the median across the board, which is fine. On the intelligence subscale, you scored in the 25th percentile. On Sincerity, you scored higher, at the 29th percentile. Creativity was also at the 26th percentile. Just to let you know, people who score high on this test generally have really unique and sophisticated responses, and are excellent at providing a blend of forms, movement and the use of details.

Those participants in the control group were told nothing about their responses to the inkblot stimuli. All participants were given one more set of questionnaires to complete that included the affect measure (PANAS). They were then thanked and given the necessary information for them to log in to the online portion of the experiment in 2 days for the follow-up session, as well as a reminder notice. Participants were also sent a reminder e-mail the day they were to take the online session.

At the follow-up online session 2 days later, participants were given the empathy and prosocial measures and the manipulation checks. Participants were then redirected to a page that thoroughly debriefed them about all aspects of the experiment, and e-mail and telephone contact information for the lead experimenters to address any remaining questions. Credit was given subsequent to the experiment to any participant who logged into the Web site and initiated the survey, regardless of actual completion.

Results

Manipulation checks

The mean ratings of perceived believability of the experimenter for the downward comparison, upward comparison,

and control groups were 4.41 ($SD = 2.78$), 4.24 ($SD = 2.30$), and 6.00 ($SD = 1.62$), respectively. Note that participants in the control group were only just above the midpoint on this scale, even though there was no reason to disbelieve the experimenter. Considering the cynicism that simply being asked about the experimenter's believability might engender, even those who received the most negative results still rated the experimenter as being moderately believable. Participants from all three groups also rated how accurate their printed feedback was, with lower scores indicating greater confidence in the accuracy of their results. The mean scores for participants in the control and downward comparison groups were similar at 3.59 ($SD = 1.55$) and 3.51 ($SD = 2.54$), respectively. However, participants in the upward comparison condition rated the feedback as significantly less accurate ($M = 5.79$, $SD = 2.02$) than either group, $p < .05$. These results indicate that although those participants in the upward comparison condition felt that their results on the inkblot test were less accurate, participants overall did find the manipulation to be reasonably believable. The finding that the control and downward comparison groups did not significantly differ in their ratings of accuracy is noteworthy given how extreme the feedback was (e.g., that they were in the 97th percentile in intelligence compared to their peers at a premier university).

We examined both positive and negative affects immediately after participants received (or did not receive) the feedback in order to check that the manipulation did indeed induce social comparison. As previous studies have demonstrated (Gibbons & Gerrard, 1991; Wills, 1981), a downward social comparison can lead to positive affect, whereas an upward comparison can lead to negative affect (Emmons & Diener, 1985; Klein, 2003; Wheeler & Miyake, 2002). Results from two separate one-way analyses of variance (ANOVAs) on positive and negative affects revealed significant differences across the conditions in the expected directions. For positive affect, $F(2, 120) = 6.42$, $p = .002$, participants in the downward comparison condition showed a significantly higher level ($M = 31.41$, $SD = 7.60$) than did participants in the upward comparison condition ($M = 25.35$, $SD = 7.10$), $t(120) = 3.63$, $p < .001$. The mean ($M = 28.27$, $SD = 8.57$) for control participants was halfway between the means of the other two groups, but not statistically significantly different from them. For negative affect, $F(2, 120) = 3.23$, $p = .04$, participants in the upward comparison condition showed a significantly higher level ($M = 17.79$, $SD = 6.87$) than did participants in the downward comparison condition ($M = 14.85$, $SD = 4.13$), $t(120) = 2.65$, $p = .009$. The mean ($M = 16.07$, $SD = 4.30$) for control participants was in between the means of the other two groups, but not statistically significantly different from them. These results overall supported the idea that the social comparison manipulation was effective.

Table 1 Prosocialness, Empathy, and Prosocial Behavior Scores Across Groups at 2 Day Follow-Up

	<i>n</i>	Prosocialness scale for adults		Empathy		Prosocial behavior measure	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Downward comparison	42	50.99 _{a,b}	(7.60)	3.68 _c	(.77)	42.95 _e	(23.20)
Upward comparison	38	49.66 _a	(10.28)	3.45 _c	(.91)	44.04 _e	(25.44)
Control	43	54.13 _b	(8.00)	4.07 _d	(.75)	61.72 _f	(61.84)

Note. Those means in a column not sharing a common subscript are statistically different from each other at the $p < .05$ level. Both prosocial measures used a summed score for each participant.

Primary analyses

To test Hypothesis 1 that both the upward and downward social comparison groups, as compared with the control group, would report less empathy and fewer prosocial behaviors in the 2 days following the manipulation, we conducted planned comparison tests on the three conditions (upward comparison, downward comparison, and control condition) on the key prosocial dependent measures (PSA and PBM) and on empathy scores. These tests supported Hypothesis 1, as we explain next.

On the PSA, those in the control condition scored highest—significantly higher than did those in the downward comparison, $t(120) = 2.3$, $p = .02$, and higher than those in the upward comparison condition, although this latter finding did not achieve significance, $t(120) = 1.68$, $p = .09$. As expected, there was no significant difference between the upward and downward social comparison conditions, $t(120) = .69$, $p = .49$. Refer to Table 1 for means and standard deviations.

On the average of the two empathy items taken from the PSA, planned comparisons showed those in the control condition scored significantly higher than did those in the downward comparison, $t(120) = 2.22$, $p = .03$, and than did those in the upward comparison condition, $t(120) = 3.47$, $p = .001$. There was no significant difference between the upward and downward social comparison conditions ($p > .10$). Refer to Table 1 for means and standard deviations.

Participants' scores on the PBM were also compared across the various conditions. In comparing the two social comparison conditions to the control condition, both contrasts achieved significance, $p < .05$, supporting Hypothesis 1. As expected, participants in the control group had the highest number of prosocial behaviors. They reported significantly more than did those in the downward comparison condition, $t(120) = 2.09$, $p = .04$, and than did those in the upward comparison condition, $t(120) = 1.92$, $p = .05$. Furthermore, as expected, these contrasts did not reveal a significant difference between the two social comparison conditions ($p > .10$). See Table 1 for means and standard deviations. Note that the data obtained from participants in the control condition had a large standard deviation. Despite the large variation in that group, we argue that this result is valid for two reasons: First,

ANOVA has been shown to be robust against violations of normality (Maxwell & Delaney, 2004). Second, the results using the PBM are practically identical to the results from the PSA, which did not have the added variance in any of the conditions.

One simple correlation and an additional pair of contrasts were conducted to test Hypothesis 2 and provide evidence that participants' empathy scores would mediate the relation between the experimental manipulation and participants' reports of their prosocial behavior, as measured by the PBM. We found that empathy and PBM scores were moderately positively correlated, $n(122)$ $r = .31$, $p = .001$. Then we entered empathy scores as a covariate in the simple-effects tests conducted on the PBM and found that the significant difference between the downward comparison and control groups dropped to nonsignificance, $t(120) = 1.49$, $p = .14$, and that the significant difference between the upward comparison and control groups also dropped to nonsignificance, $t(120) = .96$, $p = .34$. We suggest that these findings—combined with the fact that participants in both comparison conditions reported feeling significantly less empathy toward their peers than did the control group in the days following the manipulation—support the notion that social comparison can cause less prosocial behavior because it reduces empathy.

Follow-up analyses

As described earlier, we used participants' affect scores assessed immediately after the social comparison manipulation to support the effectiveness of the manipulation, just as previous researchers have done (e.g., Klein, 2003). However, one might argue that our findings that both upward and downward social comparison participants engaged in less prosocial behavior were driven by mere changes in affect associated with the two kinds of social comparison. Thus, to ensure that our results were not simply due to an induction of positive or negative affect, two additional analyses were conducted. First, we entered positive affect as a covariate in the simple-effects tests conducted on the two prosocial measures. Second, we entered negative affect as a covariate in the simple-effects tests conducted on the two prosocial measures. We found no significant changes in the results after adding

either positive or negative affect as a covariate in the analyses of either prosocial measure. Thus, the findings from these analyses support the notion that the observed effects of social comparison on prosocial behavior were not driven by changes in the participants' affects as a result of the manipulation.

Discussion

The current study examined how both upward and downward social comparisons can influence prosocial behaviors. Participants completed an inkblot test and were randomly assigned to conditions in which they were given prefabricated feedback that they scored in the 96th or 97th percentile (downward comparison) or scored in the 25th or 26th percentile (upward comparison) relative to their peers on three constructs: intelligence, sincerity, and creativity. A control group was given no feedback about their performance. Follow-up measurements were taken of their prosocial behaviors at 2 days post manipulation. As predicted, results indicated that participants in both the upward and downward social comparison groups reported having engaged in significantly fewer prosocial behaviors than did the control group in the 2 days following the manipulation.

Why did this pattern occur? Our results also showed that participants in both the upward and downward social comparison groups reported feeling significantly less empathy toward their peers than did the control group in the days following the manipulation. We suggest that this lack of empathy might have caused participants to engage in less prosocial behavior toward their peers. After all, a number of studies have shown a positive link between empathy and prosocial behavior (e.g., Anker et al., 2010; Batson et al., 2007; Graziano et al., 2007; Stocks et al., 2009; Twenge et al., 2007; Wilhelm & Bekkers, 2010). Moreover, when we statistically controlled for participants' empathy scores in analyzing the contrasts between the control group and each of the two social comparison groups on the key prosocial behavior measure (i.e., PBM), we found that the significant differences between the control and the comparison groups dropped to nonsignificance. In a nutshell, the results not only showed that social comparison caused participants to report feeling less empathy toward their peers, but the results also supported the notion that this lack of empathy is what caused the participants to help their peers less.

Our findings are consistent with Fiske's (2010) notion that upward social comparison can cause feelings of envy and downward social comparison can cause scorn—neither of which prompts one to feel particularly empathic toward the comparison targets. As demonstrated by Pemberton and Sedikides (2001), even individuals who are close friends may withhold helpful information (a non-prosocial act) in order to avoid the threat of a potential upward comparison. The

current experiment offers empirical support for a potential corollary to those findings. That is, actually drawing an upward or downward social comparison on such qualities as intelligence and sincerity can lead individuals to avoid helping the comparison targets because both kinds of comparisons can make them feel less empathy toward targets. Simply put, being pitted against peers through social comparison did not make participants feel especially inclined to give them a nice compliment, let them cut in line, lend them lecture notes, or give them a ride across campus.

One might argue that an equally viable explanation for our pattern of results is that social comparison made participants more self-focused, as opposed to other focused, and thus less inclined to help. However, Abbate, Isgro, Wicklund, and Boca (2006) found that increasing self-awareness by having students hold up a mirror to their faces actually increased the students' prosocial behaviors. Those findings point to the idea that if our participants did indeed become more self-focused as a result of the social comparison, this self-focus would not make them oblivious to the needs of others and thus would not account for our findings regarding their prosocial behaviors.

Our experiment represents an important clarification of the effect of social comparison on prosocial behavior. As mentioned earlier, although previous researchers (Isen, 1970; Klein, 2003) found that downward social comparison increased prosocial behavior, their assessments of prosocial behavior in the laboratory might have been particularly vulnerable to the demand characteristics inherent in helping weaker people. In contrast, the current experiment assessed self-reported prosocial behaviors outside the laboratory in the days following the manipulation, which we argue were not subject to those demand characteristics.

Social comparison has been studied at great length, with benefits such as mood enhancement (Pyszczynski et al., 1985) and positive motivation (Collins, 1996), and potential drawbacks such as envy, anger, or guilt (White, Langer, Yariv, & Welch, 2006) being well documented. Even in cases where there are positive intrapersonal consequences associated with social comparison, the findings from this experiment suggest that there may be negative interpersonal consequences resulting from simply being pitted against the comparison targets.

One additional alternative explanation for these results that must be addressed is the potential impact of positive and negative affects. It might make sense that the feedback created an affective response in the participants which could alter prosocial behavior. After all, several studies have linked positive affects with prosocial behaviors (e.g., Baumann, Cialdini, & Kenrick, 1981; Rosenhan, Salovey, & Hargis, 1981; see Salovey & Rosenhan, 1989, for a review). However, our analyses indicated that the statistically controlling for participants' self-reported positive or negative affect levels did not significantly alter the effects of the manipulation on

prosocial behavior. Thus, participants' affect levels induced by the manipulation did not explain how social comparison led to a decrease in prosocial behavior. We suggest these findings are noteworthy because once researchers control for the affective response behind social comparison, all that remains is the cognitive comparison of self to other. Our results support the idea that both upward and downward cognitive social comparisons may cause people to help their peers less.

Limitations and future directions

One limitation of this experiment is that we used a short (i.e., 2-item) measure of empathy because it offered excellent face validity for how we defined empathy as identification with and understanding of another person's feelings and points of view. However, definitions of empathy vary, with some researchers defining it as feeling what the other person is feeling, which is what we would call sympathy (see American Heritage Dictionary, 1993). Perhaps future studies could use separate measures of empathy and sympathy to try to clarify their potentially different roles in offsetting any negative effects of social comparison on prosocial behavior.

Another limitation is that we examined the effects of social comparisons on prosocial behaviors, but did not parse the targets of these acts. There very well may be different paths of behavior directed at those with whom the participant was in competition (e.g., their peers) than at various others (e.g., off-campus volunteers). The current experiment may be viewed as one of the seminal studies examining the relationship between prosocial behavior and social comparison, leaving this question about the targets of the helping behavior to future research.

Future studies also could examine the effects of drawing comparisons on constructs besides intelligence, sincerity, and creativity, such as kindness and generosity. In particular, it would be interesting to have participants engage in social comparison on prosocial behavior to ascertain how competition on the dependent measure would impact behavior.

Alternatively, studies could address the impact of real-life (e.g., outside the laboratory) comparisons that might lead to an increase or reduction in prosocial behaviors. Additional objective measures of prosocial behaviors over the same and also lengthier time period might also help clarify the picture.

It remains to be seen how long social comparisons can affect an individual's prosocial actions.

Finally, we suggest that the findings from this experiment and our explanation for them offer heuristic values for future studies aimed at enhancing charitable donations. Many charities rely on messages or images of disenfranchised individuals, starving children, or countries wracked by natural disasters. Our findings, combined with Fiske's (2010) recent work, suggest that this downward comparison may be a double-edged sword. On the one hand, to the extent that these messages enhance empathy, they could enhance contribution. On the other hand, as Fiske puts it, the scorn that downward social comparisons can engender could actually reduce people's prosocial inclinations and behaviors. Although this study did not address the impact of drawing social comparisons from these composed pleas for aid, it may prove worthwhile to reconsider and study the rationale behind and impact of these messages. Perhaps future researchers could attempt to tease apart the circumstances when describing the plight of other persons elicits an empathic reaction versus eliciting one of scorn and low levels of sensitivity to that plight. Such studies have the potential to enable charities to obtain the greatest amount of help possible for those in need.

Conclusion

Social comparison is a frequent, everyday psychological process (Summerville & Roese, 2008) that has a plethora of potential outcomes, both positive and negative. The current experiment provided a seminal test of the idea that social comparison, whether upward or downward in nature, can influence prosocial behaviors outside the laboratory. The results showed that both types of social comparison caused a reduction in self-reported prosocial behaviors in the days following the manipulation. Moreover, participants in both social comparison groups reported feeling significantly less empathy toward their peers than did the control group in the 2 days following the manipulation. We suggest that the driving mechanism behind these participants being less helpful was this reduction in empathy toward their peers. Overall, these findings are quite remarkable given that the manipulation was conducted in the laboratory and the self-reported prosocial behaviors were assessed 2 days later outside the laboratory.

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