

Social Exclusion Decreases Prosocial Behavior

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In 7 experiments, the authors manipulated social exclusion by telling people that they would end up alone later in life or that other participants had rejected them. Social exclusion caused a substantial reduction in prosocial behavior. Socially excluded people donated less money to a student fund, were unwilling to volunteer for further lab experiments, were less helpful after a mishap, and cooperated less in a mixed-motive game with another student. The results did not vary by cost to the self or by recipient of the help, and results remained significant when the experimenter was unaware of condition. The effect was mediated by feelings of empathy for another person but was not mediated by mood, state self-esteem, belongingness, trust, control, or self-awareness. The implication is that rejection temporarily interferes with emotional responses, thereby impairing the capacity for empathic understanding of others, and as a result, any inclination to help or cooperate with them is undermined.

Keywords: helping, prosocial behavior, social exclusion, social rejection, empathy

Prosocial behavior is performed to benefit others, rather than to benefit the self. It often entails risk or cost to the self, such as when one gives resources to others, waits in line, asks for or pays a fair price, or risks one's life in battle. Yet it is not irrational or self-destructive to perform such acts because, in the long run, belonging to the group provides immense benefits. There are no known societies in which most of the people prefer to live in social isolation, such as in solitary cabins in the woods. Instead, people always prefer to live with each other in social groups and within a cultural framework. Culture improves the biological outcomes (survival and reproduction) of individuals, so people do what is required to belong to it. Most cultures encourage and even require prosocial behavior because it is vital to the system.

Therefore, human beings often perform the prosocial acts that are encouraged by their culture because such acts enable them to belong to it and to enjoy its rewards. But what happens when belongingness is withdrawn or threatened? Prosocial behavior is not unlike delay of gratification (e.g., Mischel, 1974), in which current virtue is to be rewarded later—and if the delayed rewards are perceived as unreliable, there is much less reason to be good now. In the same way, a threat to one's sense of belongingness may reduce one's willingness to perform prosocial acts.

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Why Exclusion Might Reduce Prosocial Behavior

Prosocial behavior depends on believing that one is part of a community in which people mutually seek to aid, to support, and, occasionally, to love each other. Therefore, when people feel excluded, their inclination to perform such behaviors should be reduced or eliminated.

Correlational research has linked social rejection with decreased prosocial behavior, although it is unclear which one is the cause of the other. Numerous correlational studies have found that children who are rejected by their peers act less prosocially than do others (e.g., Asher & Coie, 1990; Gest, Graham-Bermann, & Hartup, 2001; Wentzel & McNamara, 1999). Many studies have found that prosocial actions are highly correlated with social acceptance (e.g., Parkhurst & Asher, 1992; Schonert-Reichl, 1999). Children and adolescents who are from stable, cohesive families and who have other sources of adult support are more likely to act in caring and prosocial ways (Cochran & Bo, 1989; Romig & Bakken, 1992).

Close relationships and prosocial behavior go together for adults as well. Married people are more likely than are single people to volunteer their time to help others (Dyer, 1980; Wright & Hyman, 1958). Married people are also more likely to drive safely and responsibly (Harano, Peck, & McBride, 1975; Harrington & McBride, 1970; Richman, 1985). Thus, having one stable social relationship (a marriage) seems to promote prosocial acts.

These findings make it plausible that exclusion simply makes people less motivated to act prosocially. Motivation, however, is not the only possible link between exclusion and prosocial behavior. Social exclusion may impair some inner responses that are needed for prosocial behavior. The inner state resulting from social exclusion may gear one to cope with threats rather than to be nice to others. Again, correlational findings lend credence to that idea. Children with fewer friends show deficits in major prosocial skills such as moral reasoning and empathic sensitivity to other people's

distress (Dekovic & Gerris, 1994; Schonert-Reichl, 1999). Children with low social support are also more likely to interpret other people's ambiguous actions as aggressive (Anan & Barnett, 1999). This suggests that rejected children may see the world as hostile and respond in kind. If their perceptions are wrong, poor empathic understanding of others may be a crucial link between interpersonal rejection and the failure to treat others prosocially.

These results could be explained by assuming that low empathy and low prosocial behavior lead to social rejection. However, recent laboratory studies have begun to illuminate the causal impact of social exclusion. When we began this work, we hypothesized that emotional distress would be the main inner response to social exclusion. However, ample findings since then have disconfirmed that theory. Emotional distress in response to laboratory manipulations of exclusion has generally been absent (for a review, see Twenge, Catanese, & Baumeister, 2003), and even when it has been found, it has not mediated behavioral responses (Buckley, Winkel, & Leary, 2004).

The absence of emotion may, however, reflect a natural coping mechanism—one with potential implications for prosocial behavior. MacDonald and Leary (2005) reviewed considerable evidence, mostly from nonhuman species, that showed that social exclusion causes animals to become less sensitive to pain. Recent laboratory work with human participants confirmed that exclusion causes a reduction in sensitivity to pain and a lack of emotional responses (DeWall & Baumeister, 2006). In particular, excluded people were less empathic toward a confederate who bemoaned either a recent romantic breakup or a physical injury. Apparently, the same physiological mechanisms respond to both physical injuries and social threats, producing an analgesia that numbs the person to both physical and emotional suffering. The emotion system is thereby rendered temporarily inoperative. Because people need their emotions to understand others, prosocial behavior could be impaired after exclusion.

Empathy is an important mediator of helping behavior and other prosocial behavior (Batson, 1991). But empathy relies on emotion: The empathic person must internally simulate the feelings of someone else. If the rejected person's emotion system shuts down, as a temporary coping mechanism, then he or she would be less able to share another's feelings, and that lack of empathy could well translate into a reduction in prosocial behavior.

Overview of Present Investigation

Our primary hypothesis was that social exclusion in the laboratory would cause a significant reduction in prosocial behavior, reflecting a wariness among individuals about being taken advantage of (e.g., making sacrifices or efforts that may not be repaid with belongingness) and a lack of empathy toward potential recipients of help. We tested this idea with multiple methods and multiple measures.

Samples

The total sample for the investigation consisted of 259 participants. Samples for some experiments were rather small because the generally large effect sizes enabled the comparisons between socially excluded and nonexcluded participants to reach signifi-

cance. Consistent replication with small samples is a statistically more conservative test than is significance in one large sample.

The samples in these experiments consisted of psychology students who participated for partial course credit. There were 126 male participants (49%) and 133 female participants (51%). The mean age was 18.9 years. Overall, the samples were 72% White and 28% American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, Black or African American, Hispanic or Latino, and other. Careful debriefings included telling participants about the other conditions and emphasizing that the social exclusion feedback was randomly assigned.

Manipulation Checks

The present manipulations have all been used repeatedly, and therefore, we did not provide extensive checks. However, Experiment 6 confirmed that the exclusion manipulation did alter participants' sense of belongingness, as intended.

Analyses and Mediation by Emotion

We included gender in all analyses of variance, but it yielded no significant main effects or interactions. Mediation analyses were conducted with the procedures outlined by Baron and Kenny (1986). We tested repeatedly for mediation by emotion, with multiple measures and strategies (including aggregated and single-item measures), but these mediational analyses consistently failed to show any signs of even partial mediation.

Experiment 1: Donating Money

Experiment 1 provided a direct test of the effect of social exclusion on prosocial behavior. Participants were randomly assigned to a manipulation of social exclusion. Those in the crucial condition were told that they were likely to be alone later in life (the future-alone condition; this method was used in Twenge, Baumeister, Tice, & Stucke, 2001; Twenge, Catanese, & Baumeister, 2002). Three other groups were told that they would enjoy a future rich in personal relationships (future belonging), were told that they would be accident prone (misfortune control), or heard nothing (no-feedback control). Prosocial behavior was measured by an experimenter asking participants to donate some of their experiment pay to the student emergency fund—an anonymous donation of money that would help support needy students in general rather than help support a particular individual. The experimenter asked for this help but was not the potential recipient and did not remain to see whether this help was given. It was thus a rather pure case of prosocial behavior, with a monetary cost to the helper but with no direct benefit (not even gratitude or admiration) in return.

Method

In this experiment, 34 participants completed a personality questionnaire (the Eysenck Personality Questionnaire; Eysenck & Eysenck, 1975). To gain credibility, the experimenter initially gave an accurate assessment of the participant's extraversion score. The experimenter used this to segue into reading a randomly assigned personality type description. People in the future-alone condition were told,

Table 1
Social Exclusion, Prosocial Behavior, and Possible Mediators

Experiment no.	Measure	Future alone or rejected		Future belonging or accepted		Misfortune control		No-feedback control	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Prosocial behaviors									
1	Money donated (dollars)	0.38	0.69	1.42	0.88	1.63	0.51	1.47	0.67
2	Experiments volunteered	0.30	0.68	1.70	0.82				
3	Pencils helped with	0.69	1.97	8.33	7.55	8.08	7.70	9.33	7.09
4	Cooperative moves	2.22	2.11	5.78	1.64	5.67	1.12		
5	Cooperative moves	3.40	2.80	7.00	2.75			6.45	2.07
6	Cooperative moves	4.13	1.74	5.33	1.27				
7	Money donated (dollars)	0.53	0.69	1.40	0.71	0.55	0.69		
Inner states: Significant differences only									
1	PANAS positive mood	29.13	6.13	32.22	8.03	22.63	5.10	30.33	6.78
6	Belongingness	16.87	2.49	18.30	2.04				
6	Trust	8.18	2.29	9.37	1.99				
7	Empathy	36.50	13.09	51.00	5.96	47.40	8.71		

Note. The omnibus *F* statistic for each study was significant at the $p < .05$ level. The differences in Positive and Negative Affect Schedule—Now (PANAS) positive mood failed to replicate in subsequent studies.

You're the type who will end up alone later in life. You may have friends and relationships now, but by your mid-20s most of these will have drifted away. You may even marry or have several marriages, but these are likely to be short-lived and not continue into your 30s. Relationships don't last, and when you're past the age where people are constantly forming new relationships, the odds are you'll end up being alone more and more.

In contrast, the future-belonging participants heard,

You're the type who has rewarding relationships throughout life. You're likely to have a long and stable marriage and have friendships that will last into your later years. The odds are that you'll always have friends and people who care about you.

A misfortune-control condition was also included, in which people were told,

You're likely to be accident prone later in life—you might break an arm or a leg a few times, or maybe be injured in car accidents. Even if you haven't been accident prone before, these things will show up later in life, and the odds are you will have a lot of accidents.

This condition was intended to describe a negative outcome that was not connected with social exclusion or relationships. Finally, one group of participants, the no-feedback-control group, did not receive any prediction about their future.

Immediately following the feedback, the participant completed the Positive and Negative Affect Schedule—Now mood scale (Watson, Clark, & Tellegen, 1988) and the State Self-Esteem Scale (Heatherton & Polivy, 1991). The participant then received \$2 in quarters (thus, 8 quarters) and was told that the money was his or hers to do with as he or she wished. The participant was told that the money was in quarters because participants in other conditions had the money doled out to them over the course of the experiment. At this point, the experimenter mentioned that she needed to

set up something in another room and said, "Before I go, I want to mention that we're taking up a collection for the Student Emergency Fund. It's a good cause. If you'd like to donate, that would be great. If not, that's totally fine too." As she was saying this, she pointed to the box on the table, which had a slit in the top, a sign reading "Student Emergency Fund," and a description detailing the purpose of the fund: helping undergraduates with unanticipated expenses. The experimenter then left the room for 2 min before returning to debrief the participant. After the participant had departed, the experimenter counted the money in the box; the amount donated by the participant was used as the measure of prosocial behavior.

Results and Discussion

Social exclusion led to a very large decrease in helping behavior, compared with the three control groups, $F(3, 30) = 5.27, p < .005$. Post hoc Tukey's honestly significant difference (HSD) tests demonstrated that the future-alone group was significantly different from the other three groups at $p < .05$ but that the future-belonging, misfortune-control, and no-feedback-control groups were not significantly different from each other. The difference between the future-alone group and the other three conditions was $d = 1.63$, double the criterion conventionally used to classify a difference as a large effect size ($d = 0.80$; Cohen, 1977). As Table 1 shows, nonexcluded participants, on average, gave about four times as much as excluded ones.

The unhelpfulness of the future-alone participants can also be appreciated by noting who gave nothing. Only 37% of the future-alone participants made any donation at all, whereas every single participant (100%) in the other three conditions gave at least \$0.25, and that difference is highly significant, $\chi^2(1, N = 34) = 16.94, p < .001$.

The decrease in helping behavior was not simply because the participant heard unpleasant news. Participants in the misfortune-control group were told that their future lives would be marred by accidents and injuries. These participants actually reported the least positive mood among the four conditions (see Table 1), but they were the most helpful. In other words, the prediction of future misfortunes was at least as unpleasant as the prediction of future aloneness (and apparently more so), but only the prediction of aloneness led to the reduction in helping behavior. In addition, those who received social acceptance feedback were not any more helpful or any less helpful than were those in the control groups.

Extensive analyses for mediation by mood (both the full scale and the individual items) failed. Likewise, state self-esteem did not mediate the results. For this experiment and those that follow, we reported only significant differences in possible mediator variables in Table 1.

Experiment 2: Helping by Volunteering

Experiment 2 provided a second test of the hypotheses linking social exclusion and prosocial behavior. To increase generality, we used a different manipulation of exclusion and different measures of mood and prosocial helping behavior.

Method

In this experiment, 20 participants took part in single-sex groups of 4–6 people. They were given name tags on which they wrote their first names. They were given both written and oral instructions to learn each others' names and to then talk for about 20 min, with a set of questions as a guide (the questions were taken from the relationship closeness induction task developed by Sedikides, Campbell, Reeder, & Elliot, 1999). After 20 min, the experimenter led the participants to separate rooms, where they filled out a demographic form. The participants then completed a page with the following instructions: "We are interested in forming groups in which the members like and respect each other. Below, please name the two people (out of those you met today) you would most like to work with." The experimenter collected these sheets and told the participants she would return with their group assignments.

Instead, participants were randomly assigned to be accepted or rejected by the group. The accepted participants were told the following: "I have good news for you—everyone chose you as someone they'd like to work with." The rejected participants, on the other hand, were told the following: "I hate to tell you this, but no one chose you as someone they wanted to work with." Participants then rated their mood on a scale with 7 numbers, ranging from 1 (*very negative*) to 7 (*very positive*).

The experimenter then explained that the participant could not do the next group task, either because no one chose him or her (in the rejected condition) or because there could not be a group of 4–6 people (in the accepted condition). Instead, the experimenter said,

You can either leave now and get the hour credit for the experiment, or if you think you can help out me and the other experimenters, you can do some other experiments for us—each takes about 15 min and you could do one, two, or three. Doing the other experiments won't affect the amount of credit you get. What you do is up to you.

The number of extra experiments volunteered for (between zero and three) served as the measure of helping behavior.

Results and Discussion

Participants who had just been rejected by their peers volunteered for significantly fewer experiments than did those who had just been accepted, $F(1, 18) = 17.29, p < .001, d = 1.87$ (a very large effect). 90% of accepted participants volunteered to help by doing at least one experiment, as compared with only 20% of rejected participants, and that difference was also significant, $\chi^2(1, N = 20) = 9.90, p < .002$. Mood failed to mediate.

It seemed plausible that rejected participants would want to seek the experimenter's favor by volunteering to help. Instead, the rejected participants were remarkably unwilling to provide any help, even in response to a direct request. In contrast, accepted participants were quite willing to volunteer their time.

It could be argued that the low helpfulness of the rejected participants stemmed from a desire to escape from an aversive or embarrassing situation. (Helping would have required staying in the laboratory, whereas refusing to help meant that they could leave almost immediately.) However, this alternative explanation does not account for the results of Experiment 1, in which excluded people donated less money. Taken together, the two experiments show that exclusion leads to a general decrease in prosocial behavior.

Experiment 3: Helping After a Mishap

The prosocial behavior in Experiment 3 involved helping the experimenter pick up some pencils that she had accidentally spilled onto the floor. This procedure was adapted from measures of spontaneous helping behavior used in bystander intervention studies (Latané & Dabbs, 1975). Helping would require some effort on the participant's part, but helping would clearly require less effort than would donating money or time, as in the first two experiments. Also, there was no direct request for help in this experiment, unlike in the first two experiments.

Method

In this experiment, 49 participants first completed the Eysenck Personality Questionnaire and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). They then were exposed to the same manipulation used in Experiment 1, with random assignment to future-alone, future-belonging, misfortune-control, or no-feedback-control conditions. Participants then completed the Brief Mood Introspection Scale (Mayer & Gaschke, 1988).

The experimenter then explained a creativity task to each participant. This task was inconsequential to the experiment and was used only to maintain the cover story. As the experimenter reached for the cover story questionnaire, she knocked a cup of 20 pencils off a shelf and onto the floor. She made a small exclamation and paused to see whether the participant would help pick up the scattered pencils. The experimenter noted the number of pencils (out of 20) picked up by the participant. This served as the measure of helping behavior. A very similar measure was effectively used in Dovidio and Morris (1975).

Results and Discussion

Participants who heard that they would be alone later in life were much less willing to help the experimenter after a mishap, $F(3, 45) = 4.83, p < .005$. The future-alone group barely helped at all: On average, they helped pick up less than one pencil. In contrast, participants in the other conditions helped by picking up between eight and nine pencils, on average. A post hoc Tukey's HSD test showed that the future-alone group was significantly different from the other groups at $p < .05$, whereas the other three groups did not differ from each other. Comparing the future-alone group with the other three conditions produced an effect size of $d = 1.32$. Only 15% of the future-alone participants helped pick up any pencils at all, compared with 64% of participants who helped in the other three conditions, $\chi^2(1, N = 49) = 8.99, p < .005$. In other words, most control participants helped, whereas most future-alone participants did not.

Follow-up analyses of variance found no significant effects for self-esteem, either as main effect or as an interaction with the exclusion condition, predicted helping behavior. The manipulations had no effect on mood valence and arousal.

Experiment 4: Cooperating in a Mixed-Motive Game

In Experiment 4, we turned to a familiar behavioral measure of prosocial action, namely cooperative responses to the prisoner's dilemma game (Rapoport & Chammah, 1965). This widely used research method involves a nonzero-sum game in which each player must choose between two responses. The first response option involves cooperation with the other person in the pursuit of maximum mutual gain but exposes the player to the risk of being exploited by the other person (Axelrod, 1980). The second response option protects the individual against exploitation and creates the possibility of maximum individual gain; however, if both players choose this option, both lose. Only by cooperating can both players achieve good outcomes, so cooperating is a prosocial behavior that also provides benefits to the self.

The prisoner's dilemma game has another advantage as a measure: The recipient of the prosocial behavior is another student, and cooperation (vs. defection) in the game does not involve the experimenter. Although the experimenter was not the direct beneficiary of the help in Experiments 1 and 2, one might argue that participants did not want to respond to a request made by someone who had just delivered bad news. (Then again, those who heard that they were accident-prone had also heard bad news from the experimenter, and they were nonetheless willing to help.) Even this small ambiguity was eliminated in this experiment because the experimenter neither requested nor received the prosocial benefit.

Method

In this experiment, 27 participants (plus 3 more who were discarded because of suspicion) completed a personality questionnaire and were given false feedback that was based on three of the conditions from the technique used in Experiments 1 and 3: future alone, future belonging, or misfortune control. The participants were told that they would play a strategy game (prisoner's dilemma) with a participant of the same sex who was in another room. The payoff matrix for the game was presented and explained

to each participant prior to the game. Points were awarded as follows: +4 points to each player, when both players cooperated; -2 points to each player, when both defected; and +8 points to the defector and -5 points to the cooperator, when one player defected and the other cooperated. No money was offered for points earned, although participants were told to try to earn as many points as they could for themselves, regardless of the other person's points. In reality, there was no other person, and participants played with a computer program. The program defected on the first, fifth, and ninth turns. These invariant responses were included to ensure that there would be some antisocial moves, thus preventing the easy and circular pattern of everyone cooperating on every round and requiring the participant to show some forbearance in order to be maximally prosocial and cooperative. On the other turns, the computer was programmed to play tit-for-tat, mimicking the real player's response on the preceding turn.

Results and Discussion

Social exclusion led to less cooperation with a fellow student, $F(2, 24) = 13.15, p < .001$. HSD tests confirmed that the future-alone condition was significantly different from the other two at $p < .05$ and that the future-belonging and misfortune-control conditions were not significantly different from each other. Thus, the rate of cooperative responses in the future-alone group was not simply because the participant heard bad news, as the misfortune-control participants were just as cooperative as the future-belonging group. The future-alone group also made their first noncooperative move sooner than did the other two groups, $F(2, 24) = 3.88, p < .04$. On average, participants in the future-belonging and misfortune-control conditions cooperated about 6 times in the 10-turn game, whereas future-alone participants cooperated only about twice (see Table 1). Comparing the future-alone group with the other two conditions produced a very large effect, $d = 2.16$.

A well-established feature of the prisoner's dilemma game is that when both players fall into a pattern of making the exploitative-defensive moves—a pattern that can easily develop when one player follows a tit-for-tat strategy, as in the present procedure—both players end up losing. In other words, prosocial behavior is rewarded in the long run, whereas antisocial behavior is often punished. Consistent with this pattern, we found that the future-alone group obtained lower final point scores in the game than did participants in the other two conditions, $F(2, 12) = 4.85, p < .02$. Uncooperativeness thus seems self-defeating, but this conclusion was tentative, as no real money was at stake. Experiment 5 rectified this.

Experiment 5: Prisoner's Dilemma for Real Money

In Experiment 4, we found that the anticipation of ending up alone in life made people less cooperative and less prosocial in their interactions with a fellow student in the prisoner's dilemma game. One possibly limiting factor in that experiment, however, was that the ostensible other person (actually the preprogrammed computer) always started off with an antisocial, uncooperative move. Therefore, the participant may have felt that he or she was playing against someone who was antagonistic. Although those results may be important in suggesting how socially isolated

people respond to a provocation, they cannot be generalized to all interactions, many of which normally start off with positive or prosocial gestures. Therefore, in Experiment 5, we investigated participants' behavior toward a partner who acted in a prosocial, cooperative way.

Also, crucially, we increased the benefit to the self in this experiment by offering money for points earned in the game. In Experiment 4, the benefit in having more points was purely symbolic. In Experiment 5, we offered \$0.20 per point earned at the end of the game. Winning more points (which in this situation was achieved by relatively cooperative play) therefore meant a financial gain for the participant.

Method

In this experiment, 31 participants (plus 2 more who were lost because of suspicion) completed a personality questionnaire and were given false feedback, as in Experiment 1. They were randomly assigned to the future-alone, future-belonging, or no-feedback-control conditions. They completed the PANAS mood measure, which again yielded no significant results.

Similar to the method used in Experiment 4, the participant then played the prisoner's dilemma game on a computer and believed that they were playing with another participant. In this experiment, however, the program cooperated on the first turn and defected on the fifth and ninth turns. On the other turns, the computer was programmed to play tit-for-tat. The payoff matrix for cooperating versus competing was the same as in Experiment 4. However, this time the experimenter explained that the participant would earn \$0.20 for each point they had at the end of the game.

Results and Discussion

Once again, the future-alone participants made fewer cooperative moves than did participants in other conditions, $F(2, 28) = 5.87, p < .01$. Tukey's HSD tests showed that the future-alone condition was significantly different from the other two conditions at $p < .05$ and that the future-belonging and no-feedback-control conditions were not significantly different from each other. Comparing the future-alone group with the other two groups yielded $d = 1.31$, again a large effect. These results suggest that socially excluded individuals are still less prosocial than are others, even when their ostensible partner starts off by cooperating. Put another way, the results of Experiment 4 were not dependent on having the partner start off by provoking the participant with an antagonistic, competitive-exploitative response. In addition, this experiment shows that future-alone participants were less cooperative, even when money was offered for points earned.

Also similar to the results in Experiment 4, the future-alone participants obtained a lower score at the end of the game ($M = 2.40$) compared with the other two groups: future belonging ($M = 15.40$) and no-feedback control ($M = 14.73$), $F(2, 28) = 5.56, p < .01$. In monetary terms, the future-alone participants went home with an average of less than \$0.50, whereas the participants in the other conditions averaged around \$3 each. The resort to less cooperative behavior was not part of some rational, self-interested response—in fact, people scored worse by virtue of their uncooperative behavior. Thus, the antisocial responses of socially ex-

cluded individuals actually cost them money, though they may not have realized this in advance.

In this experiment, the computer did not issue an unprovoked defection until the first 5 turns were played. Thus, the first 5 turns of the 10-turn game were played amid a spirit of cooperation and reciprocation, whereas the last 5 turns were played after the computer defected on the 5th turn (and later, on the 9th turn). The first 5 turns (when the computer cooperated or reciprocated) thus constituted the purest measure of whether rejected people are less cooperative, even toward someone who has seemingly treated them in a cooperative, prosocial manner. Although there was a trend for future-alone participants to be less cooperative on these 1st turns, the difference was not significant, $F(2, 28) = 2.37, p = .11$. The overall difference was mainly due to the last 5 turns. After the computer defected, future-alone participants were much less cooperative than were participants in the other conditions, $F(2, 28) = 6.47, p < .005$, averaging less than 1 cooperative move on those 5 turns, compared with 3 cooperative moves in the other conditions. This suggests that excluded people are not indiscriminately antisocial; they responded somewhat positively when someone else treated them prosocially. Rather, it may be more accurate to characterize them as wary and untrusting but open to the possibility of positive social interaction. Once the partner defected, the excluded (future-alone) participants almost never made another cooperative response, but up until that point, they were relatively cooperative.

Experiment 6: Trust and Other Possible Mediators

In Experiment 6, we had two goals. First, we sought to address an alternative explanation for the previous results. In the previous experiments, the experimenter delivered the exclusion feedback verbally to the participant, and so the experimenter was aware of the assigned condition. It is therefore possible that the experimenter subtly influenced the participants' behavior. In this experiment, the exclusion feedback was delivered on paper in a sealed envelope, so the experimenter was unaware of condition and was therefore unable to influence the results (wittingly or unwittingly). This refinement also helped ensure that the results were not driven by reactions to the experimenter because the feedback was described as computer-generated.

Second, we measured four additional possible mediators: belongingness, trust in others, sense of control, and state self-awareness. Belongingness and control are two of the outcomes featured in Williams' theory of ostracism (e.g., Williams, 2001; Zadro, Williams, & Richardson, 2004). Trust is essential to cultural life and prosocial behavior, as the individual trusts that his or her sacrifices and exertions will be compensated by the rewards of belongingness. Because social exclusion represents the threat that one's trust has been misplaced and means that rewards are not forthcoming, trust might well be reduced. Last, the avoidance of self-awareness might undermine self-regulation and thereby weaken the inner processes that often contribute to prosocial behavior (see Carver & Scheier, 1981; Twenge et al., 2003).

Method

In this experiment, 68 participants completed the Eysenck Personality Questionnaire that was used Experiment 1. Instead of

hearing the feedback directly from the experimenter (as in the previous experiments), participants received the feedback on a sheet of paper in an envelope, with the explanation that the feedback came from a computer analysis. The experimenter was blind to the experimental condition throughout the experiment. Participants were randomly assigned to either the future-alone or future-belonging conditions. The feedback was the same as in the previous experiments, but it was printed rather than spoken.

Participants then completed a short questionnaire measuring feelings of belongingness, trust in others, sense of control, and feelings of self-awareness. To help formulate the questionnaire, a separate pilot sample of 38 participants received the social exclusion feedback (or the misfortune-control feedback) and completed a longer questionnaire of items on trust, control, and ego shock (the ego shock items, measuring feelings of distance, numbness, and strangeness, were drawn from Campbell, Baumeister, Tice, & Dhavale, 2003). These results showed promising outcomes for trust and control items (but no significant effects for ego shock). Some of the trust and control items were then included in the short questionnaire for the primary experiment, along with additional items measuring belongingness and self-awareness. A subsample of this pilot group also played the prisoner's dilemma game. The results from this pilot experiment showed that the questionnaire interfered with game responses when it was too long; therefore, for the primary experiment, the questionnaire was kept very short.

All of the questions were answered on 7-point Likert-type scales. The questionnaire included two items measuring trust in others ("Most people can be trusted," and "Most people are basically honest."), $\alpha = .74$. There were also two items measuring feelings of control ("Do you feel that most of the things that happen to you are the result of your own decisions or of things over which you have no control?" and "What happens to me is my own doing."), $\alpha = .70$. These were based on items on the Internal-External Locus of Control Scale (Rotter, 1966). Three items measured feelings of belonging ("There are many people who care about me," "I feel very close and connected to other people right now," and "I feel very alone right now" [reverse scored]); $\alpha = .66$. There were three items measuring state self-awareness ("Right now, I am conscious of my inner feelings," "Right now, I am reflective about my life," and "Right now, I am aware of my innermost feelings."); $\alpha = .74$. These items were taken from the Situational Self-Awareness Scale (Govern & Marsch, 2001).

Each participant then played the prisoner's dilemma game, ostensibly with another same-sex participant. The game was administered with the same program as in Experiment 4, in which the computer defects on the first, fifth, and ninth turns and plays tit-for-tat on the other turns. Also following the procedure in Experiment 4, participants were not paid for earning points.

Results and Discussion

In a replication of Experiments 4 and 5 results, future-alone participants were again less cooperative, $F(1, 66) = 10.05, p < .01$. The effect size was large ($d = 0.77$), though not as large as in the preceding experiments, possibly because the computer feedback was less impactful than was the personal delivery.

Future-alone participants had lesser feelings of belongingness, $F(1, 66) = 6.01, p < .05$, and of trust, $F(1, 66) = 5.01, p < .05$, than did future-belonging participants (see Table 1). There were no

differences on feelings of control and self-awareness, both F s $< 1, ns$. Thus, trust and belongingness may be important feelings that are affected by social exclusion. However, neither mediated the effect with cooperative responses in a series of mediation analyses.

Experiment 7: Mediation by Interpersonal Empathic Concern

Empathy is an important contributor to prosocial behavior (e.g., Batson, 1991), but it depends on emotionally simulating another person's feelings. If social exclusion produces a protective emotional numbness, then people may well lose empathy toward others (DeWall & Baumeister, 2006). Because we hypothesized that social exclusion reduces social responsiveness to others, Experiment 7 was focused on a particular form of empathy: the experience of empathic concern. Empathic concern is aroused when someone experiences a close bond with another, and it motivates altruistic behavior, which is directed primarily at improving the other person's welfare (Batson, 1991). Could this reduction in empathic concern mediate the reduction in prosocial behavior? To provide the most conservative test and to separate empathic identification from ingratiation attempts, we measured empathic concern toward one person and prosocial behavior toward someone else. Specifically, cash donations to the student emergency fund constituted the measure of prosocial behavior.

Method

In this experiment, 30 participants received false feedback that was based on a personality questionnaire, as in Experiment 1. They were randomly assigned to the future-alone, future-belonging, or misfortune-control conditions. Participants were told that another experiment was in progress but that 1 participant had failed to arrive, and so the participant was asked to fill in. The participant would read and respond to a brief essay about a personal experience. Participants were then handed a manila folder that contained a handwritten essay (in a man's or a woman's handwriting, corresponding to the participant's own gender) and short questionnaire. The content of the essay was adapted from Batson, Klein, Highberger, and Shaw (1995). The essay described the very recent breakup of a treasured romantic relationship and the writer's difficulty getting over this.

Participants responded to several questions about how they felt toward the author of the essay. The measures of emotional response were all related to empathic concern. On a 12-point scale, participants reported how *sympathetic*, *warm*, *compassionate*, *soft-hearted*, and *tender* they felt toward the author. These adjectives have been used in previous research to measure empathy (Batson, 1987, 1991; Batson et al., 1995). The internal reliability for the empathy-related adjectives was high (Cronbach's $\alpha = .88$), so we added the five responses together to form an empathic concern index.

When participants had finished reading and responding to the essay, they handed the experimenter the manila envelope with the completed materials. The experimenter then gave the participant eight quarters (\$2) as payment for participation and explained the student emergency fund in the same way as in Experiment 1. Once again, the amount donated served as the measure of prosocial helping behavior.

Results and Discussion

In a replication of Experiment 1, social exclusion feedback led to smaller and fewer donations, $F(2, 27) = 6.38, p = .006, d = 1.36$, and pairwise comparisons confirmed that future-alone participants donated less than did participants in the other two conditions, at $p < .05$.

Exclusion also reduced empathic concern for another's misfortune, $F(2, 27) = 6.05, p < .01$. A 2-1-1 linear contrast confirmed that future-alone participants felt less *sympathetic, compassionate, warm, softhearted, and tender* toward the breakup essay author than did future-belonging and misfortune-control participants, $F(1, 27) = 11.41, p = .002$. Planned comparisons indicated that future-alone participants felt less empathy than was felt by future-belonging participants, $F(1, 27) = 11.15, p = .002$, and misfortune-control participants, $F(1, 27) = 6.30, p < .02$.

Most important, empathic concern mediated the link between social exclusion and prosocial helping behavior. Social exclusion predicted a lack of prosocial response, $t(28) = -3.58, \beta = -.56, p = .001$, and lack of empathic response, $t(28) = -3.40, \beta = -.54, p = .002$. The mediator, empathic response, was a significant predictor of prosocial behavior, $t(28) = 2.45, \beta = .42, p = .02$. The results of a modified version of the Sobel (1982) test indicated that the link between social exclusion and prosocial behavior was mediated by lack of empathy, $z = 1.99, p < .05$.

General Discussion

Prosocial behavior, such as helping and cooperating, is a vital source of social harmony and good relationships. Apparently, the other side of that coin is that prosocial behavior drops off sharply when people think they may be socially excluded from those harmonious relationships. Exclusion manipulations caused large and significant reductions in prosocial behavior. This finding was consistent across seven experiments in which we used four different ways of measuring prosocial behavior (donating money, volunteering time and effort, helping clean up after a mishap, and cooperating in a mixed-motive game), two different manipulations of social exclusion (feedback predicting a lonely future and rejection by a peer group), and four different recipients of help or cooperation (an anonymous category of needy students, graduate students, the experimenter, and a specific fellow student). The decrease in prosocial behavior was not moderated by trait self-esteem or by gender, and it was found with both spontaneous helping and responses to direct requests.

The effects were also very strong. Averaged over the seven experiments, the effect size for exclusion on prosocial behavior was $d = 1.49$. This is almost double Cohen's (1977) cutoff of .80 for a large effect. Across these experiments, the clear majority of control participants helped, whereas the clear majority of socially excluded ones did not.

Why? Empathy and trust were both significantly reduced by social exclusion. In our analyses, we did not find that the changes in trust mediated the reductions in cooperation on the prisoner's dilemma game, but conceivably, they could mediate some other prosocial outcomes. More important, the reduction in empathic concern succeeded in mediating the drop in prosocial behavior. Our focus was on a particular empathic response, empathic concern, because this seemed the most important for predicting be-

haviors such as helping and cooperating. We acknowledge that there are other types of empathic responses, such as personal distress, that elicit egoistic motivation (Batson, 1991). The high correlation between empathic concern and personal distress for another person suggests that personal distress (or in this case, the lack of it) might also have mediated the effect and led to a decrease in egoistic helping. Nevertheless, the current work revealed a vital connection among exclusion, empathic concern, and behavior that fills in a crucial part of the picture of how rejected people feel and act.

In a way, the empathy findings hark back to our original theory, which was that exclusion would cause emotional distress, which in turn would alter behavior. Rather than distress, however, social exclusion appears to cause a temporary absence of emotion, rendering the person relatively numb to both physical pain and emotion. DeWall and Baumeister (2006) found, with (among others) the same measure of empathic concern that was used in the present Experiment 7, that the physical analgesia following social exclusion was significantly and closely linked to the loss of emotional responsiveness. The shutting down of the emotional system may enable the rejected person to avoid feeling terrible, just as the analgesia after physical injury may allow the injured person to finish dealing with a crisis or fight without being sidetracked by intense pain. But the emotional shutdown can constitute a kind of temporary social handicap, not least because it prevents empathy. As empathy requires one person to reproduce or simulate another person's emotions, the emotionally numb (excluded) person will be relatively incapable of empathy. Because prosocial behavior is driven by empathic concern for others, excluded people will cease to act prosocially.

Taken at face value, the accumulated research findings might seem to suggest that social exclusion turns people into grumpy, heedless, antisocial misanthropes. They have, after all, been shown to be relatively aggressive (Buckley et al., 2004; Twenge et al., 2001; Warburton, Williams, & Cairns, 2006), self-defeating (Twenge, Catanese, & Baumeister, 2002), intellectually impaired (Baumeister, Twenge, & Nuss, 2002), and impulsive and under-controlled (Baumeister, DeWall, Ciarocco, & Twenge, 2005)—and now, with the present findings, unhelpful and uncooperative. But a closer look at these and other findings refutes that picture. For example, Williams and Sommer (1997) found that female (but not male) ostracized participants later exerted more effort in a group project. However, the gender differences in this experiment make it a less complete demonstration of a link between ostracism and cooperation. More notably, a recent investigation by Maner, DeWall, Baumeister, and Schaller (2007) found that excluded people typically desire to form new social bonds, as indicated by greater interest in interacting with potential partners, optimistic assessments of others as friendly, and the assignment of positive evaluations (with cash rewards) to people they expect to meet, although they did not assign positive evaluations to other people. In the present Experiment 5, excluded persons were fairly cooperative with a simulated partner, as long as that partner initiated and maintained a cooperative stance.

Instead of turning against people generally, then, the socially excluded person seems to adopt an attitude best characterized as wary. The excluded person may indeed be interested in developing new relationships, but having recently been burned, he or she is

reluctant to expose the self to the risk of being taken advantage of or the risk of being hurt.

Prosocial behavior provides crucial evidence of this wary attitude because, as we noted, in general, people will perform prosocial behaviors only if they trust that they will be rewarded with the benefits of belonging. It may be quite nice to live in a society in which everyone obeys the rules and treats everyone else well, but one can only enjoy these rewards if one acts prosocially first. In that context, social exclusion may be experienced as a betrayal of trust, as one thinks that one has been acting to earn the rewards of belongingness—but finds that those rewards have been abruptly withdrawn (or at least threatened). Prosocial behavior requires effort and sacrifice, and to continue to make those efforts and sacrifices when one does not anticipate the rewards of belonging would amount to foolishly allowing oneself to be exploited by others. As we found, trust is diminished in the wake of social exclusion.

The excluded person may therefore want to have some guarantees of at least a fair chance of social connection before taking such risks. Maner et al. (2007) found ample signs that socially excluded people were interested in making friends, but none of their measures involved sacrifice or risk to the self. The absence of social loafing found among ostracized female participants in Williams and Sommer (1997) also did not involve self-sacrifice. The present findings provide an essential counterpoint. When social interaction does involve risk or sacrifice, the recently excluded person may balk. The excluded person wants others to take the first steps.

The wariness of the recently rejected person may be most apparent in the response to any negative behavior by the other. As we noted, Experiment 5 had participants play prisoner's dilemma with a partner who started off behaving cooperatively, then reciprocated the participant's actions, and then, halfway through, made a unilateral antagonistic move. Participants who had previously had social exclusion feedback were almost as cooperative as others during the friendly first half of the game, but as soon as the partner made the one antagonistic move, their cooperation came to an abrupt and utter stop. Most participants in the future-alone condition did not make a single cooperative move after that point—very much unlike participants in the other conditions, who gave their partners second and third chances. This pattern is another sign that the excluded person's behavior is governed by a delicate balance between looking for new friends and protecting the self from being exploited or hurt.

Limitations and Levels of Exclusion

The present results should not be generalized uncritically to all manner of social exclusions and rejections, although it seems reasonable to assume that the similarities will generally outnumber the differences. Our manipulations might arguably be described as merely threatening, compared with actual harm or loss. That is, right after the manipulation, the participant's social world is essentially unchanged from what it was 30 min earlier, but the person has been confronted with the possibility that important, desired relationships may be refused at some future point. Indeed, it is intuitively plausible that the sadness, grief, and distress we had expected to find would actually occur, possibly at a delay, following the permanent loss of a valued

relationship. In that view, our participants were dealing with a threat rather than with an actual loss.

Still, laboratory experiments have much to offer. It would be neither ethical nor practical to administer exclusion manipulations with important relationships, such as by randomly assigning couples to divorce. Nonlaboratory studies on loneliness, divorce, and related phenomena are useful, but they cannot usually avoid the ambiguity of correlational data. As we noted in the introduction, if studies find less prosocial behavior among socially excluded people, people's lack of prosocial behavior may have contributed to their exclusion. Our results establish that laboratory-administered exclusion causes a reduction in prosocial behavior. A full understanding can only be reached by combining this sort of evidence with the correlational findings about the dearth of prosocial behavior among people who are socially excluded in their lives outside the laboratory.

Concluding Remarks

We began with the assumptions that exclusion would motivate people to seek new friends and that increasing prosocial behavior would be one way to make those new friends. Other work has confirmed that excluded people do want new friends (Maner et al., 2007). The present work shows, however, that prosocial behavior is not a strategy that rejected people use to find friends. The reduced ability to empathize with others undercuts the inclination to provide help, and reduced trust may also hamper any willingness to make the first move.

We have consistently found that emotion does not explain why social rejection leads to negative outcomes. Yet emotion has turned out to be important after all—just not in the way we expected. The behavioral consequences of rejection do not depend on emotional distress directly causing behavior. Instead, rejection may operate by temporarily derailing the emotion system. Under normal circumstances, emotion may operate as a tool for interpersonal understanding. That is, people use their emotions to connect with other people by simulating the other person's inner states, which causes them to care about the person. The resulting improvement in understanding can inform and motivate prosocial behavior, such as helping those in need.

Social exclusion apparently renders the prosocial behavior tool temporarily useless, possibly because going emotionally numb naturally protects the psyche from intense, debilitating distress. Without empathic emotion to understand the needs and suffering of others, people lose the inclination to help. The mistake in our original theory was to think of emotion as an exclusively intrapsychic process of action control. The present findings suggest that emotion's function in promoting interpersonal understanding is what matters for prosocial behavior.

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