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If You Can't Join Them, Beat Them: Effects of Social Exclusion on Aggressive Behavior

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Social exclusion was manipulated by telling people that they would end up alone later in life or that other participants had rejected them. These manipulations caused participants to behave more aggressively. Excluded people issued a more negative job evaluation against someone who insulted them (Experiments 1 and 2). Excluded people also blasted a target with higher levels of aversive noise both when the target had insulted them (Experiment 4) and when the target was a neutral person and no interaction had occurred (Experiment 5). However, excluded people were not more aggressive toward someone who issued praise (Experiment 3). These responses were specific to social exclusion (as opposed to other misfortunes) and were not mediated by emotion.

Over the past several years, a series of shootings at American schools have demonstrated that young people who feel socially excluded sometimes turn violent. In fact, a careful study of the school shooting incidents found that almost all of the perpetrators experienced rejection and/or bullying by peers (Leary, Kowalski, Smith, & Phillips, 2001). These vivid incidents accurately reflect a more general pattern linking social exclusion with aggressive behavior. Garbarino (1999) found that many perpetrators of violence are young men who feel rejected by family members, peers, and society in general (see also Walsh, Beyer, & Petee, 1987). Developmental psychologists have shown that aggressive children have fewer friends and receive less acceptance from the peer group (Coie, 1990; Newcomb, Bukowski, & Pattee, 1993). Adults demonstrate this pattern as well: Single men commit more crimes than married men do, even when age is controlled (Sampson & Laub, 1990, 1993). Having at least one stable relationship (a marriage) seems to inoculate against criminal behavior.

A possible link between social exclusion and aggression may be important for understanding recent changes in American society. The past 35 years have seen parallel increases in rates of criminal, violent, and antisocial behavior, on the one hand, and rates of divorce, living alone, and other signs of social fragmentation, on the other (U. S. Bureau of the Census, 1998; see Twenge, 2000, in press, for discussion). Several authors have argued that these changes have led to a society in which people lack stable relationships and feel disconnected from each other. Putnam (1995, 2000) found that Americans are now less likely to join community organizations and visit friends than they once were. The proportion of the population living alone has nearly doubled in recent decades, from 13% in 1960 to 25% in 1997 (U. S. Bureau of the Census, 1998). In step with this rising tide of aloneness, violent crime has skyrocketed, property crime has increased, and people trust and help each other less than they once did (Fukuyama, 1999). In fact, Lester (1994) performed a time-series analysis and found that statistics measuring social integration (e.g., divorce, marriage, and birth rates) showed a nearly perfect correlation with homicide rates. Mental health professionals, educators, policy makers, law enforcement officers, and others who must deal with social problems may find it useful to know whether a loss of social bonds leads directly to aggressive and antisocial behavior.

Which way does the causal arrow point? Undoubtedly, violent and aggressive tendencies could cause rejection by others. Some eminent developmental psychologists, for example, have concluded that aggression elicits rejection by other children (e.g., Coie, 1990; Dodge, 1983; Newcomb et. al., 1993; Schuster, 2001). This principle might apply to adults as well. Aggressive, violent men might be less attractive marriage partners, and, in general, people do not want to associate with dangerous, law-breaking, and trouble-prone individuals. These patterns all suggest that aggression is a cause and aloneness a consequence.

Although aggressive tendencies may cause rejection, the reverse is also plausible: Perhaps rejection and social exclusion are potential causes of aggressive behavior. The school shooters apparently

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regarded their actions as responses to rejection by others; thus they believed that these rejection experiences elicited their violent actions. Writers sympathetic to disaffected youth have repeatedly proposed that feeling excluded by mainstream society causes young people to adopt a sweeping disregard for its conventions and expectations. This, in turn, produces a willingness to break its laws (and other rules) and even to engage in violent behavior (e.g., Jankowski, 1991; McCall, 1995; Shakur & Scott, 1994).

Ultimately, the observational, correlational, and anecdotal evidence cannot effectively establish whether rejection causes aggressive behavior. The present investigation was therefore designed to provide experimental tests. The central hypothesis was that rejection and exclusion increase aggressive behavior.

Thwarting the Need to Belong

The present work is based on the assumption that human beings are powerfully and deeply motivated to form stable, lasting connections with other people. On the basis of a broad literature review, Baumeister and Leary (1995) concluded that much human behavior is motivated by a "need to belong." Some authors have proposed that the need to belong is rooted in the evolutionary history of humanity. Social exclusion may have hampered reproductive success and often led to death due to lack of food sharing, the difficulty of hunting alone, and inadequate protection from animal and human enemies (e.g., Ainsworth, 1989; Axelrod & Hamilton, 1981; Barash, 1977; Bowlby, 1969; Buss, 1990, 1991; Hogan, Jones, & Cheek, 1985; Moreland, 1987). Social exclusion usually leads to negative emotional experiences such as anxiety, depression, loneliness, and feelings of isolation (Baumeister & Leary, 1995; Baumeister & Tice, 1990; Gardner, Gabriel, & Diekman, 2000; Gardner, Pickett, & Brewer, 2000; Leary, 1990; Leary & Downs, 1995; Williams, Cheung, & Choi, 2000).

Prosocial, nonaggressive behavior might therefore be linked to the fundamentally social nature of the human organism, which thrives primarily in a network of stable, supportive relations. Although maintaining good social relationships may benefit the self-interest of the individual generally, there are many specific situations in which salient, immediate self-interest is opposed to collective well-being. Perhaps for this reason, concepts of virtue and social desirability center on the need to do what is best for everyone even if it runs contrary to the immediate, selfish inclinations of the individual (e.g., Baumeister & Exline, 1999; Hogan, 1973). Freud (1930) proposed that the superego is an essential prerequisite to civilized life; it emerges as a capacity to thwart instinctual or selfish interests in order to pursue actions that are valued by the group. For example, some authors have argued that children must be socialized into helping others (e.g., Cialdini, Kendrick, & Baumann, 1981). Without the socializing influence of a group, prosocial behavior might fade, and aggressive behavior, the more instinctual and impulsive tendency, might emerge instead. Thus, exclusion from a group might lessen or overwhelm restraints against aggressive behavior. This would fit the evidence we review linking social disintegration to aggression, from the rising divorce rate to the school shootings.

A contrary prediction could also be made, however. If people have a need to belong and act logically to satisfy that need, social exclusion should cause behaviors designed to make the self more attractive to others. By this argument, social exclusion should decrease aggression against others and increase prosocial and appeasing behaviors. Williams and colleagues (Williams, 1997; Williams et. al., 2000; Williams & Sommer, 1997) have demonstrated that being ostracized by others leads to increased conformity and, at least for women, decreased social loafing. This seems to be an eminently rational strategy as well, especially if aggressive behavior causes social rejection; in that case, rejected people would refrain from aggressive behavior to avoid further rejection. Hence, we had to acknowledge the competing prediction that social exclusion would elicit less aggressive behavior.

The possible effects of mood and emotion must also be addressed. If social exclusion is linked to aggressive behavior, does negative mood mediate this effect? Negative affect has been connected to increases in aggression (e.g., Berkowitz, 1989). Hence, one could well predict that rejection causes negative affect, which in turn causes an increase in aggressive behavior.

Again, though, the opposite prediction is plausible. Bad moods and aversive emotional states may motivate an increase in prosocial behavior because such positive actions often produce an improvement in mood. The negative state relief model proposes that negative affect should lead to an increase in prosocial behavior, because the act of helping draws people (at least adults) out of bad moods (e.g., Cialdini & Fultz, 1990; Cialdini & Kendrick, 1976; for a dissenting view, see Carlson & Miller, 1987). Hence, several of our studies investigate the possible role of emotion in mediating aggressive behavior.

Present Research

We conducted a series of experimental studies to test the hypothesis that social exclusion and rejection cause behavior to become more aggressive. In these studies, we first manipulated people's perception of acceptance versus rejection. In three studies, this involved giving people feedback about their likely future relationships, ostensibly on the basis of a personality test. Some were told that they would likely end up alone for much of their adult lives (unlike others, who were told that their future would involve a rich network of personal relationships). In two other studies we manipulated social rejection more directly by telling participants that either no one in a group or everyone had chosen them as a desirable partner for a collaborative task. After these manipulations, we measured aggression in two different ways: giving someone a damaging negative evaluation (Experiments 1–3) or administering blasts of aversive, stressful noise (Experiments 4 and 5). We also sought to assess mediation by negative affect using two different affect measures.

Experiment 1

Experiment 1 provides a direct test of the hypothesis that social exclusion leads to aggressive behavior. Participants were first given bogus feedback on a personality test. In the crucial condition (the future alone condition), this feedback provided the basis for predicting that the person would end up alone in life. The comparison group was told that their personality profile indicated a future with a rich and strong network of interpersonal relationships (the future belonging condition). We also included three control conditions. The first (the misfortune condition) gave people a forecast of an unpleasant but not lonely future: Participants were

told that their personality profile predicted an adult life that would involve being accident prone. The second and third control conditions involved no forecast whatsoever regarding either future social relationships or future proneness to accidents (positive control and negative control conditions).

Next, most participants were provoked by receiving an ego threat. More precisely, they received feedback ostensibly written by another participant that described their writing and opinions as substandard, disorganized, and unpersuasive. Participants in one additional control group (the positive control group) received praise rather than criticism of their essay.

We measured aggression by giving participants the opportunity to damage another person's chances of getting a desirable job. This constitutes a measure of aggression because the evaluation has the potential to thwart the person's personal and career goals, a retaliation just as meaningful as physical harm. Similar techniques using job-relevant evaluations have been used to measure aggression in many previous studies (e.g., Kulik & Brown, 1979; Ohbuchi, Kameda, & Agarie, 1989; O'Neal & Taylor, 1989; for a review, see Baron & Richardson, 1994, pp. 64–66). If social exclusion causes aggressive behavior, then people who received the future alone manipulation should deliver the most negative ratings of the candidate.

Method

Participants. Participants were 47 undergraduate students participating to fulfill a course requirement in introductory psychology. There were 22 men and 25 women; the sample was 75% White and 25% racial minority. Average age was 18.9 years. Participants were randomly assigned among conditions, except that the negative control condition was run later than were the others. We include it here for the sake of presenting a complete design and to permit tentative comparisons with other conditions, but because it was run separately all such comparisons must be regarded with caution. Experiment 2 was conducted to replicate Experiment 1 with complete random assignment.

Materials and procedure. The participants signed up in single-sex groups of 2 and were placed in different rooms. They were first asked to fill out a personality questionnaire (the Eysenck Personality Questionnaire; Eysenck & Eysenck, 1975) and write an essay expressing their opinion on the abortion issue (they were required to choose one side on the issue). They then evaluated the "other person's" essay, always receiving an essay expressing views that were opposite to their own on abortion; these essays were actually written by the experimenter.

In three conditions, false feedback on the personality test then followed (participants in the positive control and negative control conditions were not given any feedback on their future outcomes). To gain credibility, the experimenter first gave an accurate assessment of the participant's extraversion score, providing correct feedback about whether the score was high, medium, or low on this scale. The experimenter used this as a segue into reading a randomly assigned "personality type" description. One of three descriptions was read. In the future alone condition, the participant was told,

> 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, people in the future belonging condition were told,

> 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.

Last, we included a misfortune control condition 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 relationships or social exclusion.

Participants then received (bogus) feedback that they believed came from the other participant. In the positive control condition they received positive feedback, with good ratings on the evaluation categories (e.g., organization, writing style) and the summary "A very good essay!" In the four other conditions (future belonging, future alone, misfortune control, negative control), the "other person" gave the participants poor ratings and wrote "One of the worst essays I've read!" This method has been used in several studies; the negative feedback conditions are designed to elicit aggression (e.g., Bushman & Baumeister, 1998).

All participants were told that the other participant (who had evaluated their essay) had applied to be a research assistant in the department. The experimenter explained that the position was very competitive, so the department was trying to get several evaluations of each candidate. Participants completed an evaluation form on which they rated the other participant on a scale ranging from 1 (*strongly disagree*) to 10 (*strongly agree*) on 10 statements. (e.g., "The applicant is friendly," "The applicant is open-minded," and "If I were in charge of hiring research assistants, I would hire the applicant"). Summed together, these responses formed a total evaluation with a possible range of 10–100. The internal reliability of this measure was high, with Cronbach's $\alpha = .90$. Because the items were phrased in a positive way, a low score indicates a negative evaluation and a high expression of aggression, whereas a high score shows a positive evaluation and a low expression of aggression. This evaluation score served as the dependent variable.

After participants completed the evaluation form, they were fully debriefed. They were told that the feedback about their extraversion score was true but that the further feedback was a randomly assigned description. They were also informed that they had not really received an evaluation of their essay and that the negative (or positive) feedback was randomly assigned. Particular care was taken to ensure that participants in the future alone group understood that the prediction was random and not true for them. No participant was permitted to leave the laboratory until he or she expressed aloud that he or she understood that the manipulations were assigned at random and thus had no basis in fact. The experimenter also apologized for giving the feedback.

Results and Discussion

Are people more aggressive and critical toward others when they believe they will be alone later in life, or do they attempt to remedy the situation by being more kind? The results suggest that social exclusion led to a marked increase in aggression toward the issuer of an insult. The dependent measure was the negativity of ratings of the other person in connection with his or her application for the job. Table 1 depicts the means. One-way analysis of variance (ANOVA) reveals significant variation among the five conditions, $F(4, 42) = 13.93$, $p < .001$. The future alone and positive control groups were significantly different from all of the other conditions at $p < .05$ or lower. Another ANOVA reveals that

Table 1
Aggressive Evaluations Given to Candidate, Experiment 1

Condition	Evaluation	
	M	*SD*
Future alone, negative feedback	25.78	13.94
Misfortune, negative feedback	56.30	16.52
Future belonging, negative feedback	51.56	18.53
Control, negative feedback	44.30	13.46
Control, positive feedback	78.56	9.18
$F(4, 42)$	13.93***	

Note. A lower rating is more negative and thus indicates more aggression. Range = 10–100.
*** $p < .001$.

there was also significant variation among the three conditions that received bogus feedback about the future, $F(2, 25) = 8.08$, $p < .002$.

The crucial prediction was that participants in the future alone condition would be the most aggressive (i.e., most negative in their evaluations of the job applicant who had offended them). As Table 1 shows, this was dramatically supported. Participants who believed they would be alone later in life evaluated the person who had provoked them very negatively, giving that person an average score of only 26 on the 10–100 scale. Those in the future belonging and misfortune conditions gave neutral evaluations close to the midpoint of 55 (these two conditions did not differ significantly in their evaluation scores, nor did they differ significantly from the negative control group, which gave a neutral to negative evaluation, with an average of 44). Thus, the future alone participants chose to retaliate against the person who insulted them, whereas those in the future belonging and misfortune conditions were neutral, not retaliating but not praising, either. Participants in the positive control condition received a favorable evaluation of their essay, and they reciprocated by rating the partner very positively, with a mean rating of 78.

The greater aggression of the future alone group was not due to simply hearing bad news: The future alone group was significantly more aggressive than the misfortune group, $t(17) = 3.89, p < .001$. They were also more aggressive than participants in the future belonging condition, $t(16) = 3.34$, $p < .005$, and those in the negative control group (who received a negative essay evaluation but no future prediction), $t(16) = 2.66$, $p < .02$.

When we compare the future alone and future belonging groups with each other, the effect size is $d = 1.59$. Cohen (1977) defined an effect size greater than 0.80 as large—and the present effect size is double that size. Thus, the difference in aggressive behavior between the low and high belongingness conditions was very large. Even though the manipulation consisted merely of giving people bogus and vague information about what would happen in the distant future, it appears to have had a very powerful impact on their responses to their immediate situation. Anticipating a lonely future made people sharply more harsh and aggressive toward someone who had recently criticized them.

Experiment 2

The findings of Experiment 1 provide encouraging evidence that social exclusion causes an increase in aggressive behavior. However, confidence and generalizability are reduced because one of the control groups (which received no forecast about the future but which was presented with an insulting provocation) was run separately from the others, violating the principle of random assignment. Given the importance of random assignment, we felt it necessary to conduct a partial replication of Experiment 1.

In this experiment, we included a future alone group and a negative control group, both of which received negative essay evaluations. This should demonstrate that the aggressive response was elicited by something more than simply being insulted by the target. The prediction was that aggression would be higher among people who were told they would end up alone in life, as compared with the other (control) participants.

Method

Participants. There were 16 undergraduate students (8 men, 8 women) who participated in the study to fulfill a course requirement in introductory psychology. The participants were 69% White and 31% racial minority, and their average age was 18.9 years. They were randomly assigned between the two conditions.

Materials and procedure. The procedure was identical to that used in the future alone and negative control conditions in Experiment 1. Participants completed a personality questionnaire, wrote an essay expressing their opinion on abortion, and read and evaluated an essay (ostensibly written by another participant) with the opposing view. At this point, participants in the future alone condition heard the prediction that they would likely face a lonely future devoid of meaningful personal relationships; those in the negative control group heard no prediction. All participants then received the other participant's evaluation of their essay, which (by design) gave negative ratings and the comment, "One of the worst essays I've read!"

Participants were then told that the other participant had applied to be a research assistant and that evaluations from different sources were needed. They were presented with a 10-item evaluation form with responses ranging from 1 to 10 (the same evaluation form used in Experiment 1). Because all of the questions were worded in the positive direction, lower evaluation scores indicate aggression toward the other participant (because a negative evaluation might prevent the other person from receiving a desired job).

Results and Discussion

Consistent with our prediction, the future alone participants ($M = 28.43$) were more aggressive than were those in the negative control group ($M = 45.33$), $F(1, 14) = 5.91$, $p < .03$. That is, participants who thought they would be alone later in life gave a very negative evaluation of the participant who had insulted them. Those who heard no feedback about their future gave a more neutral evaluation toward the target. The negative control group's mean evaluation was not significantly different from the midpoint of the scale (i.e., 55) if we assume the same sample size and standard deviation for a hypothetical group giving an evaluation of 55, $p > .10$. This result confirms the finding of Experiment 1, showing that a prediction of social exclusion led to aggression beyond that produced by an insulting evaluation. In this experiment we can be more confident of the effect because participants were truly randomly assigned to the future alone or negative control groups. The result represents an effect size of $d = 1.22$, again a large effect.

Experiment 3

Experiments 1 and 2 show that social exclusion caused a large increase in aggressive behavior after people received a highly critical, insulting evaluation. An insult, however, is a form of provocation, so it must be regarded as a potentially important cause contributing to the eventual aggression (see, e.g., Pedersen, Gonzales, & Miller, 2000, on the triggering effect of two provocations). Although both studies conclude that social exclusion leads to a stronger response to provocation than does the provocation alone, the aggression was nonetheless a response to provocation that came in the form of an insulting, critical evaluation.

Would the anticipation of ending up alone in life cause people to become more aggressive even if they were not provoked? Experiment 3 is a companion to Experiment 1, following the same design and procedures except that most participants received positive, flattering evaluations rather than negative ones. (A fourth condition sought to replicate the effect of the future alone condition from Experiments 1 and 2, with participants being told that they should expect to be alone later in life and then receiving the insulting provocation.) In addition, participants completed a mood measure after the social exclusion manipulation so that we could examine whether the misfortune and future alone conditions produced different amounts of negative affect, which might mediate and help explain the differences in aggression found in Experiment 1. If the misfortune control participants were not as emotionally distressed as the future-alone participants, this might explain why the future alone participants were more aggressive.

Method

Participants. Participants were 38 undergraduate students (22 men, 16 women) completing the experiment as part of a course requirement for introductory psychology. Two participants expressed suspicion about the social exclusion manipulation and/or the essay evaluation and were excluded from all statistical analyses (thus, there were originally 40 participants). The sample was 74% White and 26% racial minority; average age was 19.1.

Materials and procedure. As in Experiment 1, participants first completed a personality measure and wrote an essay expressing their opinion on abortion. They then evaluated an essay that they believed was written by another participant; the essay took the position opposite to their own on the abortion issue. They were given false feedback on the results of their personality test, consistent with the future alone, future belonging, or misfortune condition. In three of the conditions, participants received a positive evaluation of their essay (ostensibly from the other participant, but actually randomly assigned). (In the fourth condition, they received a negative evaluation after hearing the future alone prediction.) They then completed a one-item measure asking them to rate their mood on a scale ranging from 1 (*very negative*) to 7 (*very positive*). The dependent variable was the same as in Experiment 1: a job evaluation of the other participant. There were four conditions: future belonging with a positive essay evaluation, misfortune with a positive evaluation, future alone with a positive evaluation, and future alone with a negative evaluation. Thus, the first three conditions examined the effect of social exclusion on aggression without provocation from the other participant; the fourth condition attempted to replicate the results of Experiments 1 and 2, showing that participants in the future alone group would aggress against someone who had provoked them. After completing the evaluation, participants were carefully debriefed using the procedure outlined in Experiment 1.

Results and Discussion

The main measure of aggression was how the participant evaluated the other person who was applying for the research assistant job. The means are presented in Table 2. A one-way ANOVA confirmed that there was significant variation among the four conditions, $F(3, 34) = 34.56$, $p < .001$. Experiment 3 replicates the main finding of Experiments 1 and 2, which is the very high rate of aggression among people who had received a bad evaluation and then been told that they would likely end up alone in later life.

The most important question for Experiment 3 was whether the forecast of future aloneness would cause an increase in aggression even among people who received a positive evaluation. It did not. As Table 2 shows, the mean for that condition was nearly identical to the means for the misfortune control and future belonging conditions. Put another way, people who received praise tended to reciprocate it, regardless of what they had been told about their future lives. These results suggest that the future alone manipulation produced more aggression than the other manipulations only when people were provoked by an insult. When they received positive feedback, the future alone participants responded in the same way as the others, giving a positive evaluation of the other person: ANOVA found no hint of systematic variation among the three positive feedback groups, $F(2, 26) = .02$, *ns*.

There were significant differences in mood between the four groups, $F(3, 34) = 7.17$, $p < .001$ (see Table 2). Participants in the misfortune group were just as emotionally distressed as those in the future alone positive feedback group, $t(17) = .20$, *ns*; the misfortune group was also significantly more distressed than the future belonging group, $t(18) = 3.22$, $p < .005$. The future alone group receiving a negative essay evaluation reported a significantly more negative mood than the future belonging group, $t(17) = 4.42$, $p < .001$, but did not differ significantly from the misfortune control, $t(17) = 1.51$, *ns*, or future alone positive feedback groups, $t(16) = 1.28$, *ns*. These results suggest that the predictions about future life did have some impact on mood and emotional state, but the pattern does not resemble that found for aggressive behavior. Thus, the idea that mood mediates aggression seems less plausible. Bad news about one's future led to neutral (as opposed to good) moods, but these were equally neutral regardless of whether they pertained to being alone in life or being accident prone—whereas Experiment 1 found that those two conditions elicited quite different levels of reactive aggression (the future

Table 2
Aggressive Evaluations Given to Candidate, Experiment 3

Condition	Evaluation		Mood rating	
	M	*SD*	*M*	*SD*
Future alone, positive feedback	70.78	11.69	4.22	0.82
Misfortune, positive feedback	69.90	7.52	4.30	0.82
Future belonging, positive feedback	70.90	13.25	5.40	0.70
Future alone, negative feedback	28.00	10.56	3.67	1.00
$F(3, 34)$	34.56***		7.16***	

Note. A lower rating is more negative and thus indicates more aggression. Range = 10–100.
*** $p < .001$.

alone group was more aggressive than the misfortune control group). It is also interesting to note that the mood differences were small—only one point on a 7-point scale among those who received a positive essay evaluation. In addition, the moods of the misfortune and future alone groups were actually neutral (around 4 on a scale ranging from 1 to 7) rather than fully negative.

Experiment 4

The first three experiments provide evidence that social exclusion causes people to aggressively retaliate against someone who insulted them. However, several features of the design of those studies might limit the generalizability and confidence of the conclusion. Experiment 4 was designed to remedy those problems and provide converging evidence with different procedures.

A first change we made for Experiment 4 involved the measure of aggression. Some might object that providing a negative evaluation of another person is too far removed from violent behavior outside the laboratory (e.g., the school shootings we mentioned). In Experiment 4, therefore, we used a more common and traditional procedure for measuring aggressive behavior, namely, administering blasts of unpleasant noise to another person. Participants believed they were playing a game by computer with another person. In the game, the loser of each trial was punished by hearing a blast of noise delivered through headphones (see, e.g., Bushman & Baumeister, 1998). The participants were told that they could set the intensity and duration of the noise blast heard by the other person. Effectively, this meant that participants had a weapon with which they could hurt another human being.

A second procedural change adopted for Experiment 4 was the use of a different and more immediate manipulation of social exclusion. Experiments 1–3 used a bogus feedback procedure in which we manipulated social exclusion by telling people that they would eventually find themselves alone in life. Experiment 4 relied on rejection (vs. acceptance) by several peers. For this, we adapted a procedure used by Leary, Tambor, Terdal, and Downs (1995) and Nezlek, Kowalski, Leary, Blevins, and Holgate (1997). A group of people performed a get-acquainted task, and afterward all participants were asked to name the 2 people they would like to work with individually. By random assignment, half the people were told that no one had expressed an interest in working with them, which constituted a palpable and seemingly unanimous social rejection.

A third change involved our measurement of mood and emotion. Experiment 3 found only very weak effects of social exclusion on emotion, and these emotional patterns could not be tested for mediation (because there was no effect for exclusion after the praise on the essay). In addition, one might object that our one-item measure of emotion was too limited or too holistic to detect differences in emotional state. This is especially true because intuition (including our own) suggests that social exclusion produces strong emotional distress (e.g., see Baumeister & Tice, 1990, on anxiety). Experiment 4 uses a well-respected and widely used measure of emotion, namely the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The prediction for Experiment 4 was that being rejected by the group would increase aggressive tendencies toward someone who insulted the participant. It is important to note that the source of the insult (and the target of subsequent aggression) was not one of the people who had provided the social rejection but, instead, a new person. We expected that the pattern of rejection leading to aggressive response would be consistent with the findings of the first three experiments.

Method

Participants. Participants were 30 undergraduates (17 men, 13 women) participating to complete a course requirement in introductory psychology. Three participants expressed suspicion about the social exclusion manipulation and/or the computer setup. These participants were excluded from all statistical analyses (thus, there were originally 33 participants). Participants were 73% White and 27% racial minority; average age was 18.4 years. Participants were randomly assigned among conditions.

Materials and procedure. Participants arrived at the lab in single-sex groups of 4–6 people. They were given nametags, on which they wrote their first names. They were then given both written and oral instructions to learn each others' names and then talk for about 15 min using 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 15 min, the experimenter led the participants to separate rooms, where they completed a demographic form. They 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, telling the participants she would return with their group assignments. During this time, the participants wrote an essay expressing their opinion on abortion, similar to the method used in Experiments 1–3.

Participants were randomly assigned to be accepted or rejected by the group. The accepted participants were told, "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, "I hate to tell you this, but no one chose you as someone they wanted to work with." This procedure was adapted from Leary et al. (1995) and Nezlek et al. (1997).

The experimenter told all of the participants that they would be playing the computer reaction time game with a new person rather than with someone they met in the group. The experimenter explained that they would play with the new person because the groups could not be worked out otherwise, and the new person was making up an experiment and needed someone with whom to play the game. This person was always referred to as being the same sex as the participant. Participants then completed the PANAS mood measure (Watson et al., 1988), with written instructions to answer according to how they were feeling at the moment.

While the participants were completing the mood measure, the experimenter retrieved the evaluation of the participant's essay, which presumably came from the person they would compete against in the computer game (thus, the evaluation ostensibly came from the new person, not one of the group participants). All participants received a negative essay evaluation. (Unlike the procedure of Experiments 1–3, participants did not evaluate the other person's essay; they were told that they would perform this evaluation later. This also helped eliminate any possibility that the participants were aggressing against someone because they disagreed with that person's views on abortion.)

Participants then began the computer game, which they believed they were playing with another person. In actuality, the computer was programmed to mimic a person's responses. Participants were told that they would have to press a button as fast as possible on each trial; whoever lost the trial would hear a blast of white noise through the headphones attached to the computer. Each participant set in advance the noise that the other person would hear, including both the intensity (a level ranging from 0 to 10) and the duration (controlled by holding down the mouse button to set the length of time that the other person would hear the noise). Thus, the

participants were effectively given a weapon that could be used to blast the other person.

A Macintosh computer controlled the events in the reaction time task and recorded the participants' noise levels and noise durations for each of 25 trials. Previous research has shown that the first trial is the best measure of unprovoked aggression, because the participants have not yet received bursts of noise from their opponents (see, e.g., Bushman & Baumeister, 1998). Thus, the noise intensity and duration levels from the first trial were used here as the measure of aggression. The two variables (intensity and duration) were converted to *z*-scores and then summed to serve as a composite measure of aggression.

After they completed the computer game, participants were carefully debriefed. They were told that the rejection or acceptance by the group was randomly assigned. In the rejected condition, participants were reassured that they had indeed been chosen by some group members and that the feedback was untrue. They were informed that their essay had not actually been evaluated and told that they did not actually play the white noise game with another person (but instead with a computer programmed to mimic a person's responses). The experimenter also apologized for the deception.

Results and Discussion

Aggressive behavior. Were participants who were rejected by their peers more aggressive? As Table 3 shows, the answer is yes. Compared with accepted participants, rejected participants were considerably more aggressive toward someone who insulted them (even though he or she was not one of the people who had rejected them). Rejected participants chose a higher intensity of noise, $F(1, 28) = 16.83$, $p < .001$, tended to select a longer duration for the noise, $F(1, 28) = 3.75$, $p = .06$, and had a higher composite aggression score (combining the intensity and duration choices), $F(1, 28) = 12.76$, $p < .002$ (see Table 3). For the composite aggression score, this represents an estimated effect size of $d = 1.35$, which is conventionally regarded as a large effect.

Mood and emotion. Participants also completed the PANAS mood measure after the manipulation (and before the computer game measuring aggression). There were no significant differences between rejected and accepted participants on the PANAS scale of negative mood (see Table 3). There were also no significant differences on the positive mood scale.

It is still possible, however, that the relationship between social exclusion and aggression could have been mediated by mood. Bivariate analyses showed that social exclusion (i.e., experimental condition) and aggression were correlated, $r(28) = .56$, $p < .002$. If mood mediated the path between social exclusion and aggression, we would predict that the correlation between rejection (condition) and aggression would lose power when controlled for mood (Baron & Kenny, 1986). However, this was not the case. When controlled for negative mood, social exclusion (condition) was still significantly correlated with aggression, $r(27) = .55$, $p < .002$. Likewise, the correlation remained strong after we controlled for positive mood, $r(27) = .59$, $p < .001$. When controlled for both negative and positive mood, social exclusion and aggression were still correlated, $r(26) = .58$, $p < .001$. These correlations are almost identical to the original, bivariate correlation without the control for mood. Thus, the correlation between rejection/acceptance and aggression did not lose any power when we controlled for mood, contrary to a mood mediation hypothesis.

The other facet of the mood mediation hypothesis predicts that the correlation between mood and aggression should be significant when controlled for social exclusion. This part of the hypothesis was not supported either. In bivariate analyses, negative mood had only a weak correlation with aggression, $r(28) = .12$, *ns*, as did positive mood, $r(28) = .18$, *ns*. When controlled for social exclusion, negative mood correlated at $r(27) = .05$, *ns*, with aggression; positive mood correlated at $r(27) = .29$, *ns*. These results do not provide any support for the mood mediation hypothesis. That is, if mood were an important mediator, it would correlate significantly with the dependent variable of aggression, and the effect of experimental condition on the dependent variable would be eliminated by controlling for the mediator. Thus, our data speak against the view that differences in mood mediated the link between social exclusion and aggression.

Table 3
Aggression in Noise-Blasting Game, Experiment 4

Measures of aggression and mood	Accepted		Rejected		
	M	*SD*	*M*	*SD*	*F*(1, 28)
Aggression composite	−0.94	1.03	0.94	1.76	12.76**
Noise intensity	3.53	1.88	6.60	2.20	16.83***
Noise duration	771.20	745.84	1,658.80	1,610.36	3.75
Positive mood	27.27	9.11	25.73	7.19	0.26
Negative mood	13.27	3.01	14.33	4.72	0.55

** $p < .01$. *** $p < .001$.

Experiment 5

The findings presented thus far suggest that social exclusion causes an increase in aggressive behavior—but mainly toward someone who insulted and provoked the person. We did not find that rejected people became hostile and aggressive toward someone who praised them; in fact, socially excluded people responded quite positively to someone who was nice to them. These results show that social exclusion affects how people respond to praise as opposed to criticism—but they leave out a third category. Does social exclusion lead to an increase in aggression toward neutral persons who neither praise nor criticize?

The question about aggression toward neutral targets has important implications for understanding the link between social exclusion and aggressive behavior. It is already apparent that social exclusion does not increase aggression toward everyone, because someone who praises the rejected person tends to receive a positive, friendly response. This difference could mean one of two very different things. On the one hand, it could signify that social exclusion does not by itself increase aggressive behavior but merely puts a chip on the person's shoulder, in the sense of making the rejected person ready to react aggressively to a clear provocation (i.e., a trigger; Pedersen et al., 2000). Although this might contribute to violence and aggression under some circumstances, it does not bespeak a broad increase in aggressiveness. By this view, the praising person would be treated the same as anybody else, because the rejected person will only aggress if specifically provoked. If this view is correct, social exclusion will not lead to an increase in aggression toward neutral parties.

On the other hand, the findings of the first four studies could indicate a broad increase in aggressive tendencies among rejected people. In this view, the favorable treatment of the praiser is a rare

exception. The rejected person may develop a broadly hostile or aggressive outlook, and receiving praise may be a powerful antidote that elicits a positive response. If this view is correct, social exclusion will lead to increased aggression toward neutral persons.

Practical concerns accompany the theoretical issues. If social exclusion only makes the person more willing to respond aggressively to a hostile provocation, then neutral or innocent people are not at risk. In contrast, if social exclusion produces a broad increase in aggressive tendencies toward everyone (except someone who praises the excluded person), then the category of potential victims is much larger.

The design of Experiment 5 is quite similar to that of Experiment 4: People were accepted or rejected by all the other members of their group and later had an opportunity to aggress against a new person. The crucial difference is that in Experiment 4, the new person ostensibly provoked the participant by giving a bad evaluation of the participant's essay. In Experiment 5, there was no provocation. Participants did not receive either a good or a bad evaluation of their essay. In that way, the effects of the social rejection could be studied independently of any effects of receiving praise or criticism. Put another way, the target of aggression was not clearly a friend nor an enemy.

Method

Participants. Participants were 34 undergraduates (14 men, 20 women) participating to complete a course requirement in introductory psychology. Three participants expressed suspicion about the social exclusion manipulation and/or the computer setup and were excluded from all statistical analyses (thus, there were originally 37 participants). Participants were 79% White and 21% racial minority; average age was 18.4 years. Participants were randomly assigned among conditions.

Materials and procedure. As in Experiment 4, participants arrived at the lab in single-sex groups of 4–6 people. They talked for 15 min and were then led to separate rooms, where they nominated the 2 people with whom they desired further interaction. Participants then wrote an essay expressing their opinion on the abortion issue. In this experiment, however, they did not receive any evaluation of their essay.

Each participant was told either that everyone had picked him or her for the group task (accepted condition) or that no one had picked him or her (rejected condition). Participants were then told that they would play the reaction time game with a nongroup member. The game allows the participant to blast his or her opponent with white noise and thus provides an outlet for aggression. As in Experiment 4, we used the noise intensity and duration from the first trial as our measures of aggression. The two variables (intensity and duration) were converted to *z*-scores and then summed to serve as a composite measure of aggression.

As in Experiment 4, participants were carefully debriefed. They were told that the rejection or acceptance feedback was randomly assigned and that they were not actually playing the white noise game with another person but instead with a computer program.

Results and Discussion

Aggressive behavior. The crucial question for Experiment 5 was whether social exclusion would cause aggressive behavior even without an insulting provocation. It did. As shown in Table 4, rejected participants were more aggressive than accepted ones: They blasted their opponents with a higher intensity of noise, $F(1, 32) = 6.55$, $p < .02$, chose a longer duration for the noise, $F(1, 32) = 6.63$, $p < .02$, and had a higher composite aggression score, $F(1, 32) = 11.57$, $p < .002$. The composite aggression score produced an estimated effect size of $d = 1.17$, which is conventionally regarded as a large effect.

Table 4
Aggression in Noise-Blasting Game, Experiment 5

Measures of aggression and mood	Accepted		Rejected		
	M	*SD*	*M*	*SD*	*F*(1, 32)
Aggression composite	−0.81	1.27	0.81	1.52	11.57**
Noise intensity	3.65	1.62	5.06	1.60	6.55*
Noise duration	599.12	472.36	1,239.24	909.76	6.63*
Positive mood	29.41	4.65	24.41	6.51	6.64*
Negative mood	13.82	3.57	13.41	3.84	0.10

* $p < .05$. ** $p < .01$.

Experiments 1–4 confirm that rejected people were more aggressive than were accepted people toward someone who insulted them but not toward someone who praised them. Were the praisers or the insulters the exception? Experiment 5 suggests that the praisers were. The rejected, socially excluded people showed high levels of aggression toward innocent third persons who were not involved in the rejection and who had not provoked them in any way. This suggests that socially excluded people may feel broadly antisocial and be ready to aggress against a wide group of other people. Only someone who is specifically nice to them, such as by praising them, is spared this hostile treatment.

One might have anticipated the opposite result. Social exclusion might make people more interested in forming new friends and alliances, so excluded people might be expected to be extra nice to neutral persons in the hope that the neutral persons might befriend them. Yet we did not find this. On the contrary, rejected people were more hostile and aggressive toward the neutral person than were accepted persons.

It is instructive to compare the findings of Experiments 4 and 5, although comparison across different studies is inherently hazardous because people were not randomly assigned. Still, the two studies were run the same semester and from the same population, and the two procedures were identical in most respects, so there may be some justification for inspecting the differences. Interest in any differences arises because Experiment 4 used an aggressive target who provoked the participant, whereas Experiment 5 used a target who had not provoked the participant. Inspection of Tables 3 and 4 suggests that any difference in aggression was found in the rejected rather than the accepted participants (in particular, in noise intensity, which showed less variance than did noise duration). That is, the accepted people in Experiment 4 treated the insulting target about the same as the accepted people in Experiment 5 treated the neutral target. We used *t* tests to compare accepted participants receiving a negative evaluation with participants receiving no evaluation. These two groups were not significantly different on the aggression composite, $t(30) = 0.28$, *ns*; on noise intensity, $t(30) = 0.18$, *ns*; or on noise duration, $t(30) = 0.79$, *ns*. In contrast, the rejected participants in Experiment 4 treated the insulting target more aggressively than the rejected participants in Experiment 5 treated the neutral one—for the aggression composite, $t(30) = 1.85$, $p = .07$; for noise intensity, $t(30) = 2.29$, $p < .03$; for noise duration, $t(30) = 0.92$, *ns*.

Although these results must be regarded with caution because they compare across experiments, they do at least converge with other findings to suggest that rejection is more powerful and relevant than acceptance. Only the rejected persons distinguished between the neutral target and the insulting, provoking target. Accepted persons treated both targets the same.

Mood and emotion. Participants completed the PANAS mood measure after they were rejected or accepted but before playing the computer game. There were no differences in negative mood (see Table 4). There was a significant difference in positive mood, with accepted participants reporting more positive feelings than rejected participants. Thus, although rejection did not produce an increase in bad moods, it did cause a decrease in good moods.

This experiment is the first to show a significant difference in mood on the PANAS; thus, it presents an especially promising opportunity to look for evidence of mood mediation. Bivariate analyses show that social exclusion (experimental condition) and aggression were correlated, $r(32) = .52$, $p < .002$. If mood did mediate between exclusion and aggression, then the .52 correlation between condition and aggression would be substantially attenuated when mood was controlled (Baron & Kenny, 1986). However, this was not the case. When we controlled for negative mood, the correlation between condition and aggression remained essentially unchanged, $r(31) = .53$, $p < .001$. When we controlled for positive mood, the correlation between condition and aggression seemed, if anything, to gain power, $r(31) = .66$, $p < .001$. When we controlled for both negative and positive mood, social exclusion and aggression were again strongly correlated, $r(30) = .65$, $p < .001$. These findings clearly contradict any hypothesis that aggression was mediated by mood, at least as measured by the PANAS.

The mood mediation hypothesis also predicts that the correlation between mood and aggression should be significant when social exclusion is controlled for. Bivariate analyses showed no significant correlation between negative emotion and aggression, $r(32) = .15$, *ns*, nor did aggression correlate with positive mood, $r(30) = .17$, *ns*. When we controlled for social exclusion, negative mood was not significantly correlated with aggression, $r(31) = .21$, *ns*. Positive mood, on the other hand, was positively correlated with the composite aggression score when we controlled for social exclusion, $r(31) = .50$, $p < .003$. That is, the better the participant reported feeling, the more aggressively he or she behaved (after we controlled for rejection vs. acceptance). This result seems paradoxical: If anything, we would expect a negative correlation between good moods and aggression. Thus, these results do not provide support for the mood mediation hypothesis, either; out of the four correlations that would support that hypothesis, only one shows any sign of mood mediation, and that correlation is in the opposite direction from what a mood mediation hypothesis would predict.

General Discussion

We began by considering that there were plausible theoretical grounds for predicting that social exclusion would cause behavior to become either more aggressive or less aggressive. The findings of these studies have consistently shown that exclusion causes more aggression rather than less. In these experiments, participants were exposed to a forecast that their future would likely involve a lack of social relationships or to an immediate social rejection, as opposed to a variety of control and comparison conditions. In four out of five experiments, participants' behavior became more aggressive as a result of social exclusion.

Specifically, these manipulations of social exclusion caused people to react more aggressively to criticism. Excluded people gave very negative ratings to someone who was applying for a job (Experiments 1–3) and chose to blast another person with a higher level of aversive noise (Experiments 4 and 5). In Experiment 5, excluded people were aggressive toward even a neutral target—someone who had not provoked them or, indeed, interacted with them in any way.

Not all bad news produced aggression. In the misfortune control group in Experiment 1, participants were told they would be prone to accidents and would suffer many injuries later in life. This forecast did not produce any perceptible rise in aggression. Apparently, social exclusion is not just another kind of personal misfortune. Being alone is in some respects worse than having your bones broken. The behavior of the misfortune control group also suggests that these experiments are not simply a further demonstration of the triggering effect on aggression (Pedersen et al., 2000). The misfortune control group also received two provocations in a row, yet they did not behave differently from those who received only one (e.g., the future belonging group, which received a good prediction before the provocation). The results of Experiment 5, in which rejected participants aggressed against someone in the absence of provocation, also show that more than triggering was involved.

In addition, these effects are not subtle, delicate findings that required powerful statistical microscopes to establish. On the contrary, all of the significant findings surpassed Cohen's (1977) criterion for qualifying as large effects (the cutoff is $d = 0.80$). Across the four studies with significant effects for social exclusion (i.e., all except Experiment 3), the average size of the difference between the socially excluded and accepted participants was $d = 1.33$. Clearly, our participants were very strongly affected by these manipulations. Put another way, these manipulations of social exclusion consistently produced large and powerful increases in aggression.

The size of the effects must be considered especially surprising in light of the seeming weakness of the manipulations, as compared with rejections that occur in everyday life. One manipulation consisted of telling people, ostensibly on the basis of a simple paper-and-pencil questionnaire, that in the distant future they would lack for friends. Another manipulation just said that several strangers with whom the participants had had a brief get-acquainted chat had chosen to work with each other instead of with the participants. The rejections of everyday life, from romantic heartbreak to employment interviews (not to mention the journal review process), almost certainly carry considerably more weight and have a much more immediate, pragmatic impact than do these manipulations. The large effects we found with randomly assigned rejections in an artificial environment makes it less astonishing that rejections outside the laboratory can sometimes lead to cruel, brutal, and even lethally violent reactions.

These responses also appear irrational and maladaptive. The seemingly sensible response to being excluded from social groups is to change one's behavior toward a more positive, prosocial orientation in the hope that better behavior will elicit better reactions from others. Instead, people changed toward a more aggres-

sive, antisocial orientation. These results are especially intriguing considering that other research has found a shift toward more prosocial behavior after ostracism (Williams & Sommer, 1997; Williams et. al., 2000). Ostracism, which involves ignoring someone, may produce different reactions from participants than did our manipulations, which involved either an outright rejection or a prediction of a lonely future life. Future research should explore why some manipulations of the need to belong produce prosocial behavior and others produce antisocial behavior.

It is also important to recognize that the aggressive tendencies we observed were always directed toward someone other than the source of rejection. In the studies that manipulated future aloneness, the expected lack of future social connections led people to treat current interaction partners more negatively. Even the studies that relied on immediate social rejections (in the form of hearing that no one in the group had wanted to work with the participant) assessed aggressive behavior toward people who were unconnected with the rejection. Thus, the aggression we observed was apparently not a specific retaliation for the rejection. The antipathy fostered by being excluded was displaced onto other targets. Put another way, those who reject a person are not the only people in danger of becoming targets of the rejected person's wrath.

On the other hand, there was one important exception. People who were socially excluded did not engage in aggression toward people who were nice to them. In Experiment 3, some excluded people received praise from a confederate, and they were not aggressive toward the praising person. These results suggest that excluded people may still behave prosocially toward someone who treats them well.

Even this reciprocation of kindness was limited, however. Rejected and excluded people were no more kind than were accepted (or other) people toward someone who treated them well (in Experiment 3). We found no support at all for the seemingly rational prediction that people would respond to social exclusion by trying extra hard to be nice to others to win friends and possibly overcome their social isolation. In other words, not one finding from these five experiments indicates that rejected or excluded people became more prosocial than do others—presumably the most adaptive response to social exclusion, because it would improve one's chances of being accepted by others in the future. Apparently, praise and positive treatment can, at best, bring socially excluded individuals back to the normal level of prosocial behavior. The effects of social exclusion were thus antisocial or, under special circumstances, neutral. They were never more prosocial.

Thus, socially excluded people are hostile toward someone who provokes them but are reasonably friendly toward someone who is kind to them. What about everyone else? In Experiment 5, we measured aggression toward a neutral target who had neither praised nor insulted the participant. Rejected participants were still more aggressive than others toward the neutral target. These findings suggest that social exclusion produces a broadly aggressive pattern, even though excluded individuals make some exceptions by reciprocating kindness.

Emotion and Motivation

What lies between the situational manipulations and the behavioral responses? Our reasoning emphasized emotion and motivation. We had reasoned that the effects of social rejection might be mediated by either emotional distress or an increased motivation to get along with others. Neither hypothesis was supported.

Emotion. In contrast to the powerful effects of social exclusion on behavior, its effects on mood and emotional distress were consistently weak. Our participants did not report much distress in response to our manipulations. In some experiments, the impact of the social exclusion on mood failed to reach significance. Other experiments did find significant effects, but they tended to be small, and the rejected participants typically rated their emotions as neutral. The difference between the accepted and the rejected participants' moods was less than 1 point on the 7-point mood scale. On the PANAS scale, rejected participants never differed from the other groups in negative mood and rarely differed in positive mood (in the one significant effect, the difference was 5 points on a scale with a potential range from 10 to 50). Our other experiments (Twenge, Catanese, Tice, & Baumeister, 2001) using these manipulations also failed to find significant mood effects on either the PANAS or the Brief Mood Introspection Scale (Mayer & Gaschke, 1988).

Thus, these experiments show that social exclusion had large effects on behavior but small effects on mood. Despite this, we tried to analyze for evidence that behaviors were mediated by moods, but we consistently found results contrary to what is needed to infer mediation (Baron & Kenny, 1986). Moreover, Experiments 1 and 3 had a misfortune control condition in which people were told they would have many accidents and injuries. Participants in this condition reported moods that were similar to those in the future alone condition (in Experiment 3), but they behaved less aggressively (in Experiment 1). The effects of social exclusion appear to have bypassed mood and gone straight to producing aggressive behavior.

Taken at face value, the mood and emotion ratings furnished by our participants suggest that these manipulations produced numbness rather than acute distress. In Experiment 3, the participants in the future alone condition gave an average mood rating of 4.22 on the 1–7 scale (3.67 if they had also received a negative essay evaluation). In Experiments 4 and 5, rejected participants reported very little negative mood on the PANAS; their average negative mood score was 13.84, barely different from the minimum score of 10 and not different from the accepted participants. Socially excluded participants were not saying they were severely upset—on the contrary, they were reporting that they felt neither good nor bad. In sum, social exclusion produced strong behavioral effects, but these behaviors cannot be explained by emotional distress.

Motivation. Our investigation was carried out in the theoretical framework that assumes a "need to belong" as a powerful and fundamental human motivation. Evidence reviewed by Baumeister and Leary (1995) indicates that a broad range of human behavior is shaped by that motivation. The assumption that this motivation is powerful fits well with the large sizes of the effects we observed. Apparently, thwarting the need to belong, even just from telling people that decades into the future they would lack for close friends and relationships, was enough to produce powerful responses.

In one crucial respect, however, the present results do not fit neatly into a motivational explanation. Frustrating a motivation usually leads to renewed efforts to find satisfaction. In this case,

rejected people (whose need to belong was frustrated) might try harder to be nice to people to win friends. In the present study, the shift toward aggression among socially excluded individuals is not only irrational and maladaptive (as we have already noted)—it seems to defy the usual pattern for thwarted motivations.

The simplest and (in our view) most plausible way to explain these findings motivationally is to assume that people already have aggressive impulses that are typically held in check. Prosocial, nonaggressive behavior thus requires overriding these antisocial impulses and motives. Social structures, culture, and commitments to communal welfare thus help enforce conscience, virtue, and other restraints. As we suggested at the beginning of this article, human social behavior often encounters a conflict between pursuing selfish, individualistic goals and restraining those impulses to do what is best for the broader community. The internal mechanisms that enable the prosocial behaviors to win that conflict may depend on feeling committed to a network of social relations. Thus, feelings of exclusion may weaken those restraints and allow aggressive, selfish tendencies to prevail.

An alternative motivational explanation suggests that experiences of social exclusion alter the person's motivations per se (as opposed to merely diminishing the internal restraints on them). Rejection could create aggressive motivations where none existed previously. This line of explanation is inherently plausible, but it is not parsimonious: It postulates the creation of new motivational patterns during the course of the experiment. Our data do not contain anything that supports that more ambitious line of explanation, although in principle, future work might well find some support for it.

Concluding Remarks

A variety of evidence, from narrow studies of friendship patterns among children to the very broadest social statistics, points toward correlations between social exclusion and aggression. But what causes what? Many theorists have concluded, very plausibly, that aggressive behavior leads to social exclusion, because people dislike associating with someone whose behavior is harmful or disruptive. Our findings do not prove that theory wrong, but they do support the opposite direction of causality. Exclusion from social groups and relationships—even just hearing a forecast about being alone during the distant future—appears to produce a strong tendency toward aggressive behavior.

It is commonplace to observe that human beings are social creatures. The present findings highlight both the extent of that sociality and its limits. The deeply social aspect of human nature is evidenced by how strongly people were affected by rejection and exclusion. A limit was indicated, however, by the fact that people in our studies responded to social exclusion by quickly abandoning their usual prosocial, nonaggressive orientation, especially if they were provoked. If intelligent, well-adjusted, successful university students can turn aggressive in response to a small laboratory experience of social exclusion, it is disturbing to imagine the aggressive tendencies that might arise from a series of important rejections or chronic exclusion from desired groups in actual social life.

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