



Alone and without purpose: Life loses meaning following social exclusion

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ABSTRACT

Four studies ($N = 643$) supported the hypothesis that social exclusion would reduce the global perception of life as meaningful. Social exclusion was manipulated experimentally by having a confederate refuse to meet participants after seeing their videotaped introduction (Study 1) and by ostracizing participants in a computerized ball-tossing game (Study 2). Compared to control condition and acceptance conditions, social exclusion led to perceiving life as less meaningful. Exclusion was also operationalized as self-reported loneliness, which was a better predictor of low meaning than other potent variables (Study 3). Study 4 found support for Baumeister's model of meaning (1991), by demonstrating that the effect of exclusion on meaning was mediated by purpose, value, and positive self-worth.

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Where do people find meaning in life? In principle, people could find meaning in communing with nature or with divinity, engaging in philosophical or religious contemplation, pursuing scientific or artistic or technological innovation, or other potentially solitary pursuits. Life's meaning does not obviously or inherently depend on social relations. Yet in practice, it seems likely that people find meaning in their social relations. Unlike most other animals, humans obtain much of what they need from their social group, rather than directly from the natural environment. Consequently, the human capacity for sociality and for participation in culture likely evolved to facilitate survival (Baumeister, 2005; Dunbar, 1993, 1997). Hence social exclusion could threaten people at such a basic level that it would impair their sense of meaningful existence, as suggested by Williams (1997, 2002). A related prediction is made by Twenge, Catanese, and Baumeister (2003), who proposed that one effect of social exclusion is a retreat from meaningful thought. In the present investigation, we tested the hypothesis that social exclusion causes a global decrease in the perception of life as meaningful.

Meaning

Literally, *meaning* refers to a nonphysical reality inherent in the relationship between a symbol or representation and that to which it refers. By meaning of life, however, people typically intend not a dictionary definition of life but rather a way to make sense of their existence. This subjective evaluation of the meaningfulness of

one's life is how meaning is traditionally assessed (e.g., Crumbaugh & Maholick, 1964; Mascaro & Rosen, 2006). For instance, the Meaning in Life Questionnaire asks participants to rate their agreement with statements such as "My life has a clear sense of purpose" (Steger, Frazier, Oishi, & Kaler, 2006).

The belief that one is living a meaningful life is associated with positive functioning. This includes satisfaction with life (Chamberlain & Zika, 1988), enjoyment of work (Bonebright, Clay, & Ankenmann, 2000), happiness (Debats, van der Lubbe, & Wezeman, 1993), positive affect (Hicks & King, 2007; King, Hicks, Krull, & Del Gaiso, 2006), and hope (Mascaro & Rosen, 2005). Perceiving life as meaningful is even associated with physical health and general well-being (Reker, Peacock, & Wong, 1987; Ryff, 1989; Ryff & Singer, 1998; Wong & Fry, 1998; Zika & Chamberlain, 1987, 1992). Higher levels of perceived meaning are also associated with lower levels of negative functioning, including psychopathology (Crumbaugh & Maholick, 1964), stress (Mascaro & Rosen, 2006), need for therapy (Battista & Almond, 1973), suicidal ideation (Harlow, Newcomb, & Bentler, 1986), and depression (Debats et al., 1993; Mascaro & Rosen, 2005). Steger (in press) provides a comprehensive treatment of the benefits of perceiving meaning in life.

Based on a review of empirical findings on a broad array of topics including love, work, religion, culture, suicide, and parenthood, Baumeister (1991) concluded that the human experience is shaped by four needs for meaning, which can be understood as four ingredients or criteria of a meaningful life. First, a sense of *purpose* is reached when people perceive their current activities as relating to future outcomes, so that current events draw meaning from possible future conditions. Second, people desire feelings of *efficacy*. People feel efficacious when they perceive that they have control

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over their outcomes and that they can make a difference in some important way. Third, people want to view their actions as having positive *value* or as being morally justified. That is, people are motivated to act in a way that reflects some positive moral value, or at least to interpret their behavior as conforming to ideals and standards of what is approved and acceptable. Fourth, people want a sense of *positive self-worth*. They seek ways of establishing that they are individuals with desirable traits. Finding some way of believing oneself to be better than other people seems to be a common form of this need for meaning.

All four of these needs for meaning must be based on one's daily experiences (Baumeister, 1991; Sommer, Baumeister, & Stillman, *in press*). In other words, satisfying these needs must be achieved through one's actual experience in life. Thus, the events that directly affect meaning in life – perhaps including social exclusion – will likewise affect one's senses of purpose, efficacy, value, and/or positive self-worth.

Social exclusion

The formation and maintenance of positive close relationships can aptly be characterized as one of the primary motivations for human beings (Buss, 1990; Maslow, 1968). This pervasive drive has been described as the need to belong (Baumeister & Leary, 1995). We define social exclusion as a perceived deficit in belongingness.

Past research has used two main approaches to studying social exclusion, and the present investigation used both. One research approach has centered on experimentally administered social rejection, in which participants are led to believe that others have rejected them (or will reject them) as social interaction partners (e.g., Bushman, Bonacci, Van Dijk, & Baumeister, 2003; DeWall, Twenge, Gitter, & Baumeister, 2009; Maner, DeWall, Baumeister, & Schaller, 2007; Williams, 2002; Williams & Sommer, 1997). The other approach has used individual differences in chronic loneliness. Most such work relies on self-ratings and self-reports (e.g., Cacioppo et al., 2006). Both approaches have merits. The experimental approach can use controlled manipulations to test a causal hypothesis, while the loneliness approach uses feelings of exclusion as experienced out of the laboratory and thus has greater external validity than the laboratory manipulations. In the present work, we tested the effect of exclusion on meaning using both loneliness and social rejection as operationalizations of exclusion.

To be sure, the difference between loneliness and rejection is not simply methodological; people who are generally lonely can experience moments of inclusion and people who experience rejection are not necessarily lonely. Yet there are important similarities between rejection and loneliness, the most salient of which is that they are both deficits in belongingness; loneliness is a protracted and negatively valenced feeling of social exclusion (Peplau & Perlman, 1982), whereas rejection is a pointed, specific instance of social exclusion. The overlap between rejection and loneliness has been demonstrated empirically by research showing that social rejection often results in feelings of loneliness (Boivin, Hymel, & Burkowski, 1995; Cacioppo, Hawkey, & Berntson, 2003; de Jong-Gierveld, 1987). We consider both loneliness and rejection important forms of social exclusion, such that the assessment of both provides a more complete understanding of the effects of belongingness deficits than assessing either one alone. Convergence across different methods and measures provides valuable confidence that conclusions are not artifacts of one method but rather reflect general patterns. If both laboratory-administered rejection and chronic feelings of loneliness converge in predicting a low sense of meaningfulness in life, then one may have confidence that the hypothesis linking meaning to belongingness has broad validity.

Social exclusion and meaning

Why should social exclusion reduce the sense of life as meaningful? The pervasive reliance on social connection as humankind's biological strategy entails that people are deeply motivated to connect with other people as a fundamental aspect of nearly all human striving. Meaning itself is acquired socially. Hence to be cut off from others is potentially to raise the threat of losing access to all socially mediated meanings, purposes, and values.

Prior work suggests that social exclusion reduces some meaningful thought, though this has generally not extended to the broad sense of whether life itself is meaningful. Twenge et al. (2003) found that social exclusion caused people to seek refuge in a state of cognitive deconstruction, characterized by decreased meaningful thought, as well as lethargy, altered time flow, the avoidance of emotion, and decreased self-awareness. In one study, participants who were told they were exceptionally well-liked and popular responded more favorably to a single item about life being meaningful than participants who were socially rejected, though the design of that study lacked a neutral control and so there was no way of knowing whether the difference was due to acceptance or rejection.

Williams (1997, 2002) theorized that being ostracized (a repeated form of social exclusion) impairs multiple psychological needs, including the need for a meaningful existence (as well as belongingness, self-esteem, and control). He and his colleagues have provided evidence that being ostracized reduces the ratings of meaningfulness of specific events (Sommer, Williams, Ciarocco, & Baumeister, 2001; Van Beest & Williams, 2006; Williams, Cheung, & Choi, 2000; Zadro, Williams, & Richardson, 2004). In particular, when confederates gradually cease to throw the ball to the participant as part of a ball-tossing game, participants tend to rate their participation in the game as relatively less meaningful, as compared to participants who continue to be included in the game (e.g., Zadro et al., 2004). Although such findings suggest some loss of meaning, they may reflect participants' accurate perception that they were not involved in the game.

Recent work using the computerized ball-tossing procedure (dubbed *Cyberball*) took a step toward assessing whether exclusion affects global perceptions of meaning in life by assessing meaning both immediately following social exclusion and again after a delay (Zadro, Boland, & Richardson, 2006). Immediately following exclusion, there was a reduction in a composite measure of well-being that included a meaning dimension (e.g., feeling non-existent while playing the game) as well as the three other proposed needs. Forty-five minutes later, participants responded to similar questions, except that they were asked to provide their current feelings – those not tied directly to the exclusion experience (e.g., feeling non-existent right now). Although exclusion did not have a significant effect on the composite measure, there was an interaction between social anxiety and experimental condition, such that those high in social anxiety reported significantly lower composite scores than those low in social anxiety following social exclusion. These findings suggest that exclusion may affect meaning in a global way rather than in reference to the exclusion event, and that the effects of exclusion on meaning are most likely to be observed immediately following the exclusion event. The present research sought to build on these findings and to extend them.

Present research

We conducted four methodologically diverse studies to test the hypothesis that social exclusion decreases global perceptions of meaning in life. Studies 1 and 2 were experimental. Both studies included exclusion, neutral, and acceptance conditions, which

allowed us to distinguish the potential effects of rejection from those of acceptance. In Study 1, we operationalized social exclusion by providing participants with feedback from a social interaction that was rejecting, neutral, or accepting. Study 2 was a conceptual replication of Study 1, in which we used the Cyberball program to manipulate belongingness.

We also conducted two correlational studies (Studies 3 and 4) in which we measured individual differences in chronic loneliness. In Study 3, we undertook to compare the effects of exclusion on meaning to those brought about by emotional reactions, happiness, optimism, and depression. In Study 4, we sought to identify the underlying mechanisms between social exclusion and reduced meaning. In a test of Baumeister's model, we included measures of purpose, efficacy, value, and self-worth and conducted a multiple mediator test to determine whether social exclusion detracted from meaning in life by reducing these four dimensions.

Study 1

Study 1 provided an initial test of the hypothesis that social exclusion causes a global reduction in the perception that life is meaningful. Social exclusion was brought about by giving participants bogus feedback that was rejecting, neutral, or accepting. This procedure was based on a previously used social rejection manipulation (Bushman et al., 2003; Maner et al., 2007; Vorauer, Cameron, Holmes, & Pearce, 2003) with the exception that in the current version, we included an acceptance condition. This allowed us to gauge the effects of exclusion relative to a control and acceptance condition, and also to test whether acceptance increases meaning relative to the control condition.

Method

Participants

For partial course credit, 108 undergraduates (73 women) participated. Nineteen additional participants were excluded for expressing a suspicion regarding their supposed partner.

Materials and procedure

Participants arrived at the laboratory with the understanding that they would be taking part in a study on first impressions. Participants were told they would be exchanging messages with a partner of the same gender prior to meeting their partner face-to-face. After giving informed consent, the experimenter showed the participant a prerecorded videotaped message ostensibly made by the participant's partner. The video featured an undergraduate student (of the participant's gender) discussing topics such as career aspirations. After viewing the video, the experimenter had the participant make a similar video, based on the same questions that were answered in the confederate's videotaped introduction. Participants were then given a demographics questionnaire and a form for evaluating their partner in the study. The experimenter left the room, supposedly to bring the participant's video to the partner.

After approximately five minutes (the precise duration of the experimenter's absence was determined by adding two minutes to the length of the participant's video), the experimenter returned and delivered the experimental manipulation. By random assignment, participants received rejecting, neutral, or accepting feedback. Participants in the rejected condition were told that their partner had declined to meet with them after viewing their video. Participants in the control condition were told that their partner had abruptly remembered an important appointment and had left

the experiment before viewing the participant's video. In the accepted condition, participants were told that their partner had evaluated them very favorably and was looking forward to meeting them.

All participants were then given a small questionnaire packet. Those in the accepted condition were told that the questionnaires would be the final step before meeting their partner. Participants in the other conditions were told that the questionnaires would comprise the final step of the study, as their partner was unable or unwilling to meet with them.

Perceived meaning was assessed with the Daily Meaning Scale (DMS; Steger, Kashdan, & Oishi, 2007), which is designed to capture state fluctuations in meaningfulness. This scale is composed of two orthogonal subscales, one of which assesses the presence of meaning, while the other measures the search for meaning. The dependent variable was the presence subscale of the DMS (e.g., "Right now, how meaningful does your life feel?" $\alpha = .78$) rated from 1 (not at all) to 7 (absolutely). Participants also completed the search subscale (e.g., "How much are you searching for meaning in your life?" $\alpha = .92$). Scores were averaged for the each subscale, such that possible scores ranged from 1 to 7. Participants then completed the Brief Mood Introspection Survey (BMIS; Mayer & Gaschke, 1988). Lastly, participants completed a suspicion probe and were fully debriefed.

Results

Meaningfulness

Analysis of variance (ANOVA) revealed that rejected participants rated their life as having less meaning, as measured by the presence subscale of the DMS. Scores on that subscale varied significantly as a function of condition, $F(2, 105) = 3.33, p = .04$. Planned comparisons showed that rejected participants rated life as less meaningful ($M = 6.26; SD = .71$) than did accepted participants ($M = 6.54; SD = .57$), $F(1, 105) = 4.32, p = .04; d = .43$. Likewise, meaning scores were lower for rejected participants than control participants ($M = 6.62; SD = .46$), $F(1, 105) = 5.65; p = .02; d = .60$. Meaningfulness did not vary between accepted and control conditions ($F < 1, ns$), contrary to any suggestion that manipulated acceptance causes an increase in the sense of meaningfulness.

Experimental condition had no effect on the search for meaning, ($F < 1, ns$, Rejected: $M = 4.77, SD = 1.26$; Accepted: $M = 5.05, SD = 1.24$; Control: $M = 4.89; SD = 1.69$). Exclusion neither stimulated nor reduced the tendency to seek meaning.

Some studies have found that gender moderates the effects of rejection (Goodwin, Williams, & Carter-Sowell, 2007; Williams & Sommer, 1997), though most have not (e.g., Maner et al., 2007; Twenge, Baumeister, Tice, & Stucke, 2001; Twenge, Catanese, & Baumeister, 2002). We conducted a 2(gender) \times 3(rejected, control, accepted) ANOVA on the presence subscale of the DMS. There was a main effect for condition [$F(2, 102) = 4.01, p = .02$] but not for gender, $F < 1, ns$. The contrast between the rejected and accepted conditions was significant, $F(1, 102) = 4.97, p = .03$, as was the contrast between the rejected and control conditions, $F(1, 102) = 6.88,$

Table 1

Study 1 means and standard deviations for meaningfulness by gender and condition.

	Rejection condition	Acceptance condition	Control condition
Men	6.05 (.72)	6.71 (.44)	6.50 (.29)
Women	6.37 (.69)	6.45 (.63)	6.66 (.50)
Combined	6.27 (.71)	6.54 (.57)	6.62 (.46)

Note. Average responses made on a 7-point scale, with higher numbers indicating greater perceived meaning, as measured by the Presence dimension of the Daily Meaning Scale (Steger et al. 2007). $N = 108$.

$p = .01$. Accepted and control conditions did not differ, $F < 1$, *ns*. The interaction between gender and condition fell short of significance, although the trend was that men's meaning scores were affected more by exclusion condition than were women's scores $F(2, 102) = 2.34$, $p = .10$, see Table 1.

Mood

The BMIS furnishes two subscales, valence (good–bad) and arousal. ANOVA revealed that manipulated exclusion did not significantly affect arousal, $[F(2, 102) = 2.10$, $p = .13]$, but it did affect valence, $F(2, 102) = 3.98$, $p = .02$, with accepted participants feeling happier than rejected ones. We repeated the main analysis using mood valence as covariate. Controlling for mood dropped the effect of experimental condition below significance, $F(2, 102) = 2.10$, $p = .13$.

The shared variance between rejection, valence, and meaning prompted us to test whether valence mediated the relationship between exclusion and meaning. According to the Sobel (1982) test, however, mood valence did not mediate the contrast between the rejected and accepted conditions, $z = 1.07$, $p = .28$. Likewise, the contrast between the rejected and control conditions was not mediated by valence, $z = 1.44$, $p = .15$. Although the rejection manipulation did elicit some negative valence, rejected participants' low ratings of meaning were not uniquely driven by an affective response to the event.

Discussion

The experience of social rejection reduced global meaning. It did not appear to stimulate any corresponding search for new meaning. These results were not driven uniquely by residual emotion from the exclusion, although there was some variance shared between mood valence, social exclusion, and ratings of life as meaningful.

The mean score on the presence dimension of the DMS was high in all conditions ($M = 6.47$ on a 7-point scale) indicating that despite some reduction in meaningfulness, participants were not expressing that they experienced an existential void or nihilism. Strictly speaking, results demonstrated that rejected participants did not agree as strongly (as opposed to strongly disagreeing) with statements affirming the meaningfulness of their lives, as compared to those in other conditions. Still, even numerically small differences can have potentially profound importance (see Prentice & Miller, 1992), perhaps especially when they pertain to the meaningfulness of one's life.

We did not find that laboratory-manipulated social acceptance increased the sense of life as meaningful. It is possible that the manipulation was weak or that accepted participants assumed that most others also received positive feedback, and therefore did not respond to it as strongly as to rejection.

Study 2 (Conceptual replication)

For converging evidence, we replicated Study 1 using a different manipulation of social exclusion and a different measure of meaningfulness.

Method

Participants were 121 (81 women) undergraduates who participated in exchange for partial course credit. After giving informed consent, they were invited to play Cyberball, which appears to be an amusing, interactive ball-tossing computer game but is actually a program designed for research on social exclusion (Williams &

Jarvis, 2006). Participants were ostensibly connected via the internet to three fellow students involved in the same exercise. In fact, there were no other students; the Cyberball program controlled the ball throwing of the three characters. By random assignment, participants were assigned to one of three conditions: control, ostracism, or high-inclusion. In the control condition, the other three characters tossed the ball to each other and to the participant with about the same frequency. In the ostracism condition, none of the computer-controlled characters threw the ball to the participant after doing so briefly at the beginning of the exercise. In effect, ostracized participants were given a small taste of inclusion and were then completely excluded. In the high-inclusion condition, the participant received approximately 22% more throws than in the control condition. The additional receptions came at the cost of fewer throws received by one computer-controlled character, such that high-inclusion participants were conspicuously favored.

After the game, participants completed the BMIS and then the Kunzendorf No Meaning Scale ($\alpha = .84$; KNMS; Kunzendorf & McGuire, 1994; Kunzendorf, Moran, & Gray, 1995–1996). This scale assesses the extent to which life itself is viewed as meaningless (e.g., “Life is a cruel joke” and “It does not matter whether I live or die”).

Results and discussion

The results were consistent with Study 1. ANOVA using condition and gender as independent variables revealed a significant main effect of condition, $F(2, 115) = 4.06$, $p = .02$. The main effect for gender was not significant, $F(1, 115) = 1.51$, $p = .22$, but the interaction between gender and condition was significant, $F(2, 115) = 3.49$, $p = .03$, such that men were more strongly affected by the manipulation than women (see Table 2). Planned comparisons confirmed that life was rated as more meaningless by ostracized participants than by those in the control condition, $F(1, 115) = 3.83$, $p = .05$; $d = .33$, and more than by those in the high-inclusion condition, $F(1, 115) = 7.79$, $p = .01$; $d = .39$. The control and high-inclusion conditions did not differ ($F < 1$, *ns*), again replicating the pattern found in Study 1.

As one might expect, there was general disagreement with the notion that life is meaningless. As a result, the data were skewed. We repeated the analyses using a log transformation of KNMS scores to correct for skew. The same results were found, with the exception that the contrast between the ostracism and high-inclusion condition was only marginally significant, $p = .06$.

ANOVA on mood scores yielded no significant differences, though there was a modest effect of condition on mood valence ($p = .10$). The main finding that ostracism increased meaningfulness remained significant in an ANCOVA on meaningfulness scores controlling for mood valence, $F(2, 114) = 4.57$, $p = .01$. One reason for the limited role of mood in Studies 1 and 2 may be that social exclusion elicits anger primarily, rather than the generalized emotions we measured (Chow, Tiedens, & Govan, 2008).

Table 2
Study 2 means and standard deviations for meaningfulness by gender and condition.

	Ostracism condition	High-inclusion condition	Control condition
Men	1.56 (.49)	1.34 (.41)	1.15 (.18)
Women	1.30 (.27)	1.24 (.18)	1.28 (.35)
Combined	1.38 (.36)	1.27 (.29)	1.25 (.31)

Note. Average responses made on a 4-point scale, with higher numbers indicating greater perceived meaningfulness (i.e., less meaning), as measured by the Kunzendorf No Meaning Scale (Kunzendorf & McGuire, 1994). $N = 121$.

Study 3

Having established that laboratory-manipulated social exclusion can cause a decrease in the perception of life as meaningful, Study 3 moved on to study the effects of social exclusion as experienced outside of the laboratory. Insofar as loneliness reflects a chronic sense of social exclusion, we predicted that lonely people would rate life as chronically less meaningful than other people would.

Study 3 also sought to distinguish the effects of loneliness on meaning from those of other documented predictors of meaning. Depression is associated with low levels of meaning (Debats et al., 1993), so we measured depression. We also assessed mood because it covaries with meaningfulness (Hicks & King, 2007; King et al., 2006), and because Study 1 suggested that mood accounts for some of the effect that social rejection has on meaningfulness. Optimism was measured, as it seems likely that being optimistic would be associated with the view that one's life has meaning, whereas pessimism might be associated with the opposite view.

A particular interest was whether chronic loneliness would predict search for meaning. Study 1 failed to find any effects of manipulated exclusion on the search for meaning, but this could reflect the fact that the laboratory manipulation was relatively minor (although it did reduce the sense of life as meaningful). A chronic lack of belongingness could well stimulate a search for meaning – or, equally plausibly, it could create a feeling of futility or helplessness that could reduce a quest for meaning.

Method

Participants and procedure

Participants were 202 undergraduates (77% female) participating in the study in exchange for partial course credit. After giving informed consent, participants completed a series of questionnaires online at a time of their choosing.

Dependent variable

Meaningfulness

The Meaning in Life Questionnaire was used to assess the extent to which participants viewed their lives as having meaning (MLQ; Steger et al., 2006). The MLQ is nearly identical to the Daily Meaning Scale (DMS; Steger et al., 2007) used in Study 1, the main difference being that the MLQ assesses relatively stable feelings of meaningfulness, whereas the DMS measures how participants feel “right now”. Thus, the MLQ is better suited for measuring the effects of ongoing exclusion than the DMS.

The MLQ, like the DMS, has two orthogonal subscales. The presence subscale assesses the extent to which one perceives meaning to be present in one's life (e.g., “I understand my life's meaning” $\alpha = .88$), while the search subscale measures the extent to which an individual is seeking meaning (e.g., “I am always searching for something that makes my life feel significant” $\alpha = .92$).

Independent variables

Social exclusion

Ongoing social exclusion was assessed with the UCLA Loneliness Scale short form ($\alpha = .81$; Hays & DiMatteo, 1987). Sample items include “I feel left out” and “I feel isolated from others.”

Depression

We measured depression using the Center for Epidemiologic Studies Depression Scale ($\alpha = .77$; Andresen, Malmgren, Carter, &

Patrick, 1994). Participants were asked to report their experience during the previous week, with items such as “I was bothered by things that usually don't bother me” and “I felt depressed.”

Happiness

Happiness was assessed with the Subjective Happiness Scale, ($\alpha = .85$; Lyubomirsky & Lepper, 1999).

Optimism

We assessed individual differences on optimism and pessimism using the Life Orientation Test-Revised ($\alpha = .74$; Scheier, Carver, & Bridges, 1994). Sample items include, “In uncertain times, I usually expect the best,” and “I'm always optimistic about my future.”

Mood

The arousal ($\alpha = .58$) and valence ($\alpha = .86$) dimensions of mood were again assessed with the BMIS.

Results and discussion

Meaningfulness

Loneliness predicted the presence of meaning, $r = -.35$; $p < .001$, such that more loneliness was associated with less meaning. Consistent with Study 1, there was no correlation between loneliness and search for meaning, $r = .06$, *ns*. Thus, again, it appears that being socially excluded is related to a reduced sense of life as meaningful, but social exclusion neither evokes nor stifles any tendency to seek for meaning in life.

Several other independent variables were related to meaningfulness. These included depression ($r = -.24$, $p = .001$), happiness ($r = .36$, $p < .001$), optimism ($r = .21$, $p = .003$), and mood valence ($r = .30$, $p < .001$). Arousal did not predict meaningfulness ($r = .08$, *ns*). Thus, as expected, there were a number of potent predictors of meaning with which to compare the relative impact of loneliness.

Multiple regression analyses

To determine the unique influence of loneliness on meaning, we conducted a stepwise Multiple Regression Analysis in which the presence dimension of the MLQ served as the dependent variable and all of the above variables served as independent variables.

Table 3
Stepwise multiple regression of independent variables on meaningfulness.

Independent variables	B	SE B	β	t
Model 1				
Loneliness	-.48	.10	-.34**	-4.96
Model 2				
Loneliness	-.38	.10	-.27**	-3.70
Valence	.16	.06	.20*	2.78
Model 3				
Loneliness	-.40	.10	-.29**	-3.94
Valence	.15	.06	.20*	2.76
Arousal	.22	.10	.14*	2.10
Model 4				
Loneliness	-.28	.11	-.20*	-2.44
Valence	.12	.06	.16*	2.11
Arousal	.24	.10	.16*	2.37
Happiness	.24	.11	.18*	2.16

Note. $R^2 = .12$ for Model 1; $R^2 = .15$ for Model 2; $R^2 = .17$ for Model 3, and $R^2 = .19$ for Model 4.

Predictor variables entered: Loneliness, depression, happiness, optimism, arousal, and valence $N = 202$.

* $p \leq .05$.

** $p \leq .001$.

Results demonstrated that the best predictor of the perception that one's life is meaningful was loneliness, $\beta = -.34$, $p < .001$; see Table 3. Next, we conducted a hierarchical multiple regression in which all the predictors but loneliness were entered in the first step; in the second step we added loneliness. Adding loneliness significantly improved the model, $\Delta R^2 = .03$; $F(1, 180) = 5.75$, $p = .018$. We repeated this procedure for all other independent variables. The inclusion of depression ($F < 1$) and optimism [$F(1, 180) = 1.26$, $p = .26$] did not significantly improve the model. However, happiness, valence, and arousal improved the model; happiness: $\Delta R^2 = .016$, $F(1, 180) = 3.67$, $p = .06$; valence: $\Delta R^2 = .021$, $F(1, 180) = 4.65$, $p = .032$; arousal: $\Delta R^2 = .020$, $F(1, 180) = 4.53$, $p = .04$. Thus, overall, loneliness was the strongest predictor, though other variables added explanatory power.

Gender

Neither the main effect of gender on meaningfulness, $\beta = .04$, ns , nor the interaction between gender and loneliness, $\beta = .05$, ns , was significant.

Study 4

The purpose of Study 4 was to address the means by which exclusion reduces meaning. According to Baumeister's (1991) analysis, the evaluation of life as meaningful depends on a sense of purpose (seeing current activities as contributing to future outcomes), efficacy (experiencing control over one's outcomes), value (having moral justification or socially approved motives), and self-worth (being a worthy individual with desirable traits). Thus, our expectation was that the mechanism by which social exclusion reduces meaning would be by reducing the sense of having purpose, efficacy, value, and positive self-worth. As in Study 3, we took advantage of naturally occurring differences in social exclusion and operationalized exclusion by self-reported loneliness.

Method

Participants and procedure

For partial course credit, 212 undergraduates (87% female) participated in the study. After giving informed consent, participants completed the questionnaire online at a time of their choosing.

Dependent variable

Meaningfulness

The Meaning in Life Questionnaire (presence subscale) was again used to assess the extent to which participants viewed their lives as meaningful ($\alpha = .93$).

Independent variable

Social exclusion

Ongoing social exclusion was again assessed with the UCLA Loneliness Scale short form ($\alpha = .86$).

Mediator variables

Purpose

We created a measure of purpose in life by combining the three items from Krause's (2004) purpose subscale (e.g., "In my life, I have goals and aims") as well as the two relevant items from the Personal Growth Initiative Scale (Robitschek, 1998) (e.g., "I know how to change specific things that I want to change in my life"). Cronbach's alpha was .91 in the present sample.

Value

We used Krause's (2004) two-item value subscale: "I have a system of values and beliefs that guide my daily activities," and "I have a philosophy of life that helps me understand who I am." The items correlated with each other at $r = .76$.

Efficacy

We used the internality dimension of a locus of control scale to measure efficacy ($\alpha = .77$; Levenson, 1973). Example items include "Whether or not I get to be a leader depends mostly on my ability" and "My life is determined by my own actions."

Self-worth

To measure self-worth, we used Rosenberg's (1965) measure of self-esteem, $\alpha = .89$. Example items include "On the whole, I am satisfied with myself" and "I feel that I have a number of good qualities."

Results

To test whether the four needs for meaning functioned as mediators between loneliness and meaning, we conducted multiple mediation, which permits the assessing of multiple indirect effects simultaneously. Our analytic approach was informed by Preacher and Hayes (2008) who recommend bias-corrected bootstrapping to measure multiple indirect effects. Bootstrapping involves the repeated extraction of samples from the data set (in this case, 5000 samples were taken), and the estimation of the indirect effect (or effects, in the case of multiple mediation) in each resampled data set. The totality of all the estimated indirect effects permits the construction of a 95% confidence interval for the effect size of each indirect effect. If the values of the estimated effect sizes within the confidence interval include zero, this indicates a nonsignificant effect. All the intervals we describe are bias-corrected intervals (see Efron, 1987; Efron & Tibshirani, 1993; Williams & MacKinnon, 2008 on the advantage of bias-corrected intervals).

The total indirect effect for all four mediators assessed simultaneously was significant ($Z = -7.23$, $SE = .02$; $p < .01$), which is consistent with the hypothesis that meaning in life is composed from purpose, value, efficacy, and self-worth. That is, higher levels of loneliness were associated with lower levels of meaning, mediated by the four needs for meaning (Baumeister, 1991). We then examined the mediators individually, and results likewise supported the view that social exclusion reduces a sense of meaning by decreasing these four needs. The confidence interval for the effect size of the indirect path through purpose was $-.05$ to $-.01$ and did not include zero, indicating it was a significant mediator. Likewise, the indirect paths for self-worth ($-.09$ to $-.03$) and value ($-.04$ to $-.01$) did not include zero, indicating that they were significant mediators, $p < .05$. The confidence intervals for efficacy ($-.02$ to $.00$) included zero at the upper limit and was therefore a marginally significant mediator, $p = .07$. Thus, according to predictions, all four of the needs for meaning – purpose, self-worth, value, and efficacy (though it was marginal) – mediated the relationship between loneliness and perceived meaningfulness. We note these results were found despite the fact that all four needs for meaning covaried among themselves (see Table 4), and collinearity among mediators tends to attenuate multiple indirect effects.

Although there was evidence in support of all four mediators, it is possible for one mediator to account for significantly more variance than the others. To determine the relative value of the mediators, we conducted bias-corrected comparisons between all the mediators. The 95% confidence intervals for contrasts of self-worth with both efficacy and values did not include zero, indicating that

Table 4
Correlations for exclusion, meaningfulness, and four mediators.

Variables	1	2	3	4	5
Social exclusion (lonely)	–				
Meaningfulness	–.44**	–			
Purpose	–.34**	.44**	–		
Efficacy	–.41**	.62**	.52**	–	
Values	–.35**	.56**	.39**	.63**	–
Self-worth	–.69**	.59*	.35**	.54**	.50**

** $p < .01$; $N = 212$.

Table 5
The effect of exclusion on meaningfulness through purpose, efficacy, values and self-worth.

Model	Product of coefficients			Bootstrapping bias-corrected 95% CI	
	Point estimate	SE	Z	Lower	Higher
Indirect effects					
Purpose	–.03	.01	–3.30	–.05	–.01
Efficacy	–.01	.01	–1.79	–.02	.00
Values	–.02	.01	–2.72	–.04	–.01
Self-worth	–.06	.02	–4.12	–.09	–.03
Total	–.11	.02	–7.23	–.15	–.08
Contrasts					
Purpose/efficacy	–.02	.01	–1.62	–.05	.01
Purpose/values	–.01	.01	–.77	–.04	.02
Purpose/self-worth	.03	.02	1.69	–.02	.08
Efficacy/values	.01	.01	.98	–.01	.03
Efficacy/self-worth	.05	.01	3.16	.01	.08
Values/self-worth	.04	.02	2.37	.00	.07

Note: 5000 bootstrap samples; $N = 212$.

self-worth was a significantly stronger mediator than these two. No other contrasts were significant (see Table 5).

General discussion

Social exclusion causes a global reduction in the perception of life as meaningful. The relationship between social exclusion and low meaning was assessed using both laboratory-administered experiences of rejection (Studies 1–2) and naturally occurring feelings of loneliness (Studies 3–4). It was evident across two different manipulations of social rejection and three different measures of meaningfulness. Both loneliness and rejection were associated with relatively low meaning, suggesting that the proposed relationship between exclusion and meaning has broad validity. The experimental designs in Studies 1 and 2 also permit causal inference, and so it is reasonable to conclude that being excluded is a direct cause of the reduced sense of life as meaningful.

Social exclusion is hardly the sole determinant of a meaningful life. We replicated the links between meaningfulness and other variables, including happiness, optimism, and depression. The effect of social exclusion was independent of these, however. It was also mostly independent of mood and emotion, though there was some shared variance among mood, exclusion, and meaning. It was consistent across both genders, though one study found that the effect of manipulated rejection on meaningfulness was stronger among men than among women.

Some participants were given feedback indicating that they were especially well liked (Study 1) or were conspicuously included more than their peers (Study 2), yet this acceptance feedback failed to increase meaning relative to control conditions. Given the high average levels of meaning across studies and the expectation of social acceptance, this may have been due to a ceiling effect.

Still, the pattern suggests that the effects of social relationships on meaning are immediately apparent in the absence of belonging. Being socially excluded seems to be a direct cause of reduction in the sense of life as meaningful.

Study 4 sought to identify how exclusion affects meaning. Our expectations were informed by Baumeister's (1991) empirically based thesis on the constituents of meaning in life. According to that view, there are four factors that guide one in the evaluation of meaning in life, and that perceiving life as meaningful rests upon satisfying these four factors. Multiple mediation revealed that the relationship between exclusion and low meaning in life is a mediated one, with all four needs for meaning mediating this relationship. In other words, social exclusion indirectly lowered meaning by reducing each of these four factors.

First, exclusion reduced one's sense of *purpose*, which refers to connecting current activities to future outcomes – as well as the desire to meet objective goals and attain desired states of subjective fulfillment. Thus, excluded individuals are less likely to seek fulfillment or to see their current activities as relating to desired future states, which in turn contributes to the perception of futility in life. Second, exclusion reduced *efficacy*, or the perception that one has control over his or her outcomes (though this finding was marginally significant). Being unable to attain desired social interactions challenges the perception that one has control over his or her life, and perceiving limited or no control over one's life reduces a sense of meaning in life. Third, exclusion reduces one's *value*, which is the belief that one is a moral being, acting on socially-approved motivations. Research has demonstrated that individuals who are socially excluded demonstrate less empathy (DeWall & Baumeister, 2006) behave more aggressively (Buckley, Winkel, & Leary, 2004), and are less likely to behave prosocially (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), than others. Thus, the reduced sense of one's own morality may accurately reflect antisocial motivations. The resulting decrease in one's perceived morality contributes to a corresponding reduction in the perception of a higher purpose or meaning in life. Fourth, exclusion erodes one's *self-worth*, such that one sees his or her traits and abilities less favorably. In other words, being excluded from desired social interactions results in a decreased perception of one's worth, which in turn leads one to devalue the meaning of his or her existence.

Noting that many primitive societies equate exile with death and use ostracism as the most severe punishment, Williams (2002) proposed that being excluded by others constitutes a painful glimpse of what life would be like if one did not exist: Other people would continue acting and interacting without the excluded person. To live for days or years amid people who ostracize you must indeed evoke the possibility that one does not exist in a full sense that others acknowledge. Our findings suggest that even a small dose of such an experience can be sufficient to begin to erode one's ordinary sense of life as meaningful.

Limitations and future directions

One potential limitation to the current findings pertains to our manipulations involving social exclusion from one or more strangers. In Experiments 1 and 2, participants were rejected or ostracized by one or more people with whom they had never interacted. It is possible that experiencing social exclusion from close relationship partners might have stronger effects on meaning in life compared to the effects we documented with exclusion from strangers. Hence our findings may represent a conservative estimate on the strength of the relationship between social exclusion and meaningfulness.

Although theory (Twenge et al., 2003; Williams, 1997, 2002) and two experimental studies reported herein hold that exclusion

affects meaning, the reverse causal relationship (i.e., that meaning affects social interactions) remains possible also. Future research may examine the possibility that perceiving life as meaningful promotes harmonious social interactions. That is, the relationship between meaning and sociality may be bidirectional, such that deprivations in belonging result in low meaning and low meaning results in impaired social interactions.

Concluding remarks

People may search for meaning in many places. The current results suggest, however, that people find meaning from each other. Across four studies, we found that when belongingness needs are threatened – either by an instance of social rejection or ongoing feelings of loneliness – people perceive less meaning in their lives compared to when belongingness needs are met.

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