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Humans have a fundamental need to belong, and when thwarted, engage in behaviors to facilitate reaﬀiliation. Humor, a uniquely human trait, evolved as a means of facilitating rapport between individuals and fostering stronger interpersonal bonds through the elicitation of positive affect and activation of reward centers in the brain. We predicted that those experiencing acute ostracism would rate others’ attempts at humor (i.e., jokes) as funnier than those experiencing social inclusion, particularly low-quality jokes, as a means of ingratiating themselves to new opportunities for aﬃliation. Men and women were either included or ostracized via Cyberball and rated male and female targets’ funniness and likeability, half of which were paired with a funny joke and the other half an unfunny joke. Excluded men rated women as funnier than did included men, even when women’s jokes were categorically unfunny. Collectively, these results suggest that humor appreciation may be a means of facilitating social aﬃliation following rejection; however, this effect seems speciﬁc to men.

Keywords: Social exclusion - Humor - Jokes - Aﬃliation
Making of an In-Joke: Humor Appreciation as an Ingratiation Strategy Following Ostracism

Donald F. Sacco1 · Mitch Brown1 · Haley D. May1 · Mary Medlin1

Abstract  Humans have a fundamental need to belong, and when thwarted, engage in behaviors to facilitate reaffiliation. Humor, a uniquely human trait, evolved as a means of facilitating rapport between individuals and fostering stronger interpersonal bonds through the elicitation of positive affect and activation of reward centers in the brain. We predicted that those experiencing acute ostracism would rate others’ attempts at humor (i.e., jokes) as funnier than those experiencing social inclusion, particularly low-quality jokes, as a means of ingratiating themselves to new opportunities for affiliation. Men and women were either included or ostracized via Cyberball and rated male and female targets’ funniness and likeability, half of which were paired with a funny joke and the other half an unfunny joke. Excluded men rated women as funnier than did included men, even when women’s jokes were categorically unfunny. Collectively, these results suggest that humor appreciation may be a means of facilitating social affiliation following rejection; however, this effect seems specific to men.

Keywords  Social exclusion · Humor · Jokes · Affiliation

Humans have a unique capacity for generating and appreciating humor with some arguing it as critical for communication and positive social interactions (Goel and Dolan 2001). Given our species’ reliance on social living to solve adaptive problems related to survival and reproduction, humor exists as one tool to facilitate group living, as it can increase social bonding, cooperation, and positive affect through a reciprocal exchange of humor production and gratitude in the form of laughter (e.g., Fraley and Aron 2004; Li et al. 2009; Treger et al. 2013; Van Vugt et al. 2014). This suggests that the appreciation of another’s humor may be a means of building social rapport with conspecifics. Indeed, humor appreciation has been found to augment favorability toward a humorist, particularly those who use it successfully (Bressler et al. 2006; Cann et al. 1997); thus, suggesting successful humor use may implicate the human trait as a high-quality conspecific. In the current research, we suggest that appreciating another’s humor may be influenced by affiliative motives, or the desire to ingratiate oneself to attain social acceptance. Specifically, we test the hypothesis that those experiencing an acute ostracism event, for whom social affiliation is of paramount importance (e.g., Maner et al. 2007), will be especially likely to demonstrate appreciation of another’s humor attempts, even poorly enacted humor, as a means of ingratiating oneself with the prospective conspecific to facilitate affiliation.

The Pervasiveness of Belonging Motivation in Humans

Research has extensively documented that consistent access to social groups is adaptive in humans, thereby resulting in a concomitant drive to maintain at least a few positive social relations with conspecifics (Baumeister and Leary 1995). Although individuals strive to establish and maintain such positive social relationships, satisfaction of this need to belong can be stifled following experiences of social rejection or ostracism, resulting in decrements in basic social needs related to belonging, self-esteem, control, and meaningful existence (referred to as basic social needs; Williams et al. 2000). Indeed, not only do those experiencing ostracism self-report heightened negative emotions, but ostracism elicits similar anterior cingulate cortex activation as the experience of physical pain (Eisenberger and Lieberman 2004). This overlap between psychological and neural responses to physical and social pain is hypothesized to be adaptive. Much as physical pain communicates harm to the human organism, such as tissue damage, so too does social pain, which communicates...
that one’s critical social needs are not being met (MacDonald and Leary 2005). Given the efficiency evoked by activation of the “physical pain” alarm system, it has been suggested that this system evolved to respond to cues of social pain as well in order to motivate those experiencing it to engage in behaviors to satisfy their thwarted belonging needs.

Upon detection of acute ostracism and thwarting of belonging needs, numerous processes are engaged to facilitate affiliative opportunity. For example, ostracism leads to activation of the social monitoring system, resulting in greater perceptual accuracy at detecting signs of affiliation, such as Duchenne smiles, which communicate genuine interest, versus non-Duchenne smiles, which may mask underlying non-affiliative intent (Bernstein et al. 2008; Pickett and Gardner 2005). This accuracy translates to greater interest in working with others displaying Duchenne as opposed to non-Duchenne smiles (Bernstein et al. 2010). Such accuracy in discriminating cues indicative of genuine affiliative interest aids ostracized persons in focusing their resources on high probability affiliative opportunities.

Beyond increased perceptual accuracy in discriminating affiliative cues, ostracism also results in greater overall motivation to secure affiliation. For example, ostracized persons display greater interest in making new friends, greater desire to work with others (as opposed to alone), and more positive impressions of novel social targets, as well as the distribution of greater tangible rewards to new interaction partners (Maner et al. 2007). Thus, individuals enact prosocial and ingratiating responses toward others, particularly those who were not responsible for the ostracism experience, as a means of facilitating potential affiliation with these persons. As such, ostracized persons have multiple means of securing affiliation, such as through greater perceptual sensitivity to cues of affiliation and greater overall motivation to affiliate.

More recently, research finds that excluded individuals relax their standards for what would qualify as an acceptable affiliative opportunity. Specifically, individuals lower their physical standards for acceptable affiliative partners (reduced preference for facial symmetry; Sacco et al. 2014) and are more willing to identify with social groups deemed normatively less desirable (Sacco and Bernstein 2015). By lowering one’s threshold for acceptable affiliative targets, individuals increase the overall probability of successful affiliation following ostracism by expanding the pool of acceptable potential affiliative partners. Given these findings, we suggest that one means of ingratiating oneself to novel social targets is to increase their liking and interest in affiliation would be through the appreciation of another’s attempts to be humorous, especially if such humor attempts were of relatively lower quality. Specifically, by appreciating another’s humor attempts, individuals may elicit positive responses from the target communicating humor, which would facilitate potential affiliation with this target.

Social Functions of Humor

Humans have both a unique capacity for humor and an appreciation of it through laughter (Dunbar 2004). It is suggested that one function of humor, the elicitation of laughter, is to facilitate social bonding. Indeed, laughter is a universal human behavior (Provine 2004), is a universally recognizable human state (Eibl-Eibesfeldt 1999), and emerges in children as young as 17 days old as one of the first forms of social vocalization (Deacon 1997). Furthermore, laughter has been documented in children born both deaf and blind, an indication of its innateness, rather than a learned capacity (Provine 2004). Additionally, chimpanzees have been found to emit facial expressions and vocalizations during play that resemble human laughter, thereby establishing a homologous link with our closest primate relatives (Waller and Dunbar 2005). While humor is the most common human stimulus eliciting laughter, so too are social play and tickling.

Laughter occurs most frequently in the context of unexpected and non-serious events, which are the common characteristics of most jokes. Numerous proximate, psychological benefits of laughter have been documented, such as the immune system protection (Rosner 2002), stress relief and negative emotion reduction (Keltner and Bonanno 1997), and increased positive mood (Neuhoff and Schaefer 2002). Importantly, laughter not only communicates one’s own positive affective state, but also elicits positive affect in others (Bachorowski and Owren 2001). Individuals are rated by perceivers as more likeable when displaying both posed and genuine laughter, compared to a neutral affective state; however, those displaying genuine laughter are rated most likeable (Reysen 2006). Most importantly, laughter is thought to be affiliative, acting to integrate new individuals into existing groups (Gamble 2008) and facilitating closeness among dyads, even at minimum acquaintance (Frale y and Aron 2004). Finally, laughter acts as a social lubricant, as another’s laughter leads perceivers to behave more prosocially, and as an important link, as past research finds that individuals behave prosocially to facilitate affiliation when experiencing ostracism (Maner et al. 2007).

A “good sense of humor” is consistently rated as one of the most desirable traits when selecting ideal mates and optimum friends (e.g., Buss 1989; Feingold 1992; Zeigler-Hill et al. 2013). That is, humans tend to prioritize another’s ability to facilitate the reciprocal positive exchange of emotions and ideas afforded through humor. However, this reciprocal exchange remains contingent upon the prospective conspecific or mate’s ability to use humor successfully. For example, the use of benign humor styles (affiliative, self-enhancing) elicits positive first impressions from perceivers and are ultimately favored when individuals are tasked with selecting a humorist as a friend or mate, relative to injurious humor styles (aggressive, self-defeating; DiDonato et al. 2013; Kuiper and Leite...
Q5 2010; Zeigler-Hill et al. 2013). Benign humor styles would be
considered most appropriate in social exchanges with
strangers, thus implicated as “successful” humor for that
situation.

Another aspect of successful humor may include the over-
all funniness of the humor display. Indeed, previous research
indicates that categorically funny people are perceived as
more attractive relative to unfunny people (e.g., Bressler and
Balshine 2006). Such humorists may ultimately be perceived
as more capable of facilitating the reciprocal exchange re-
quired for certain aspects of optimum social bonding (e.g.,
Joke-telling and laughter). However, the selection of such op-
timal mates and conspecifics may not be possible for individ-
uals who may not have extensive social networks, thus neces-
sitating those with limited social connections to potentially
recalibrate their criteria for the optimum humorist as a mate
or conspecific. Consistent with the interest indicator model
(IIM) of humor, research indicates that people will laugh at
another person whom they like in hopes of facilitating social
bonds, even if that person is not particularly funny (Li et al.
2009). Because ostracism creates a motivation to establish
new social relationships, ostracized persons should be both
more interested in initiating humor as well as respond more
favorably toward another’s humor as both would be means of
facilitating affiliation. Although ostracized persons should
find veridically funny humor to be as funny as included per-
sons, they should additionally be more favorable toward un-
successful humor because such ingratiﬁcation toward these tar-
gets (i.e., displaying a lower standard for what constitutes
funny humor) would create additional opportunities for social
affiliation.

Current Research

Based on past literatures indicating that those experiencing
acute ostracism display heightened afﬁliative interest across
numerous psychological and behavioral domains, one means
of facilitating social opportunity would be to appear more
likeable to potential conspeciﬁcs. Furthermore, individuals
who display laughter are perceived as more likeable than those
displaying more neutral affect (e.g., Reysen 2006). One of the
most ubiquitous stimuli for eliciting laughter is verbal jokes.
We predicted that compared to those experiencing acute inclu-
sion, ostracized participants would report greater liking for a
target communicating a joke, a verbal humor display. Because
laughing at another’s attempt at being funny elicits higher
likeability from the humorist (Li et al. 2009), ostracized per-
sons may facilitate social acceptance, and thus secure afﬁlia-
tion, by ﬁnding a humorist’s attempt at being funny to be
especially funny.

Furthermore, we predicted that the most pronounced ef-
facts of inclusionary status on perceived funniness of targets
would be for humor displays considered categorically unfun-
n. Speciﬁcally, past research ﬁnds that although both ostra-
cized and included individuals value high-quality afﬁliative
opportunities, ostracized persons are more favorable toward
lower quality afﬁliative opportunities (i.e., ostracized persons
express greater interest in identifying with normatively devi-
ant groups and joining lower prestige groups compared to
included participants; Sacco and Bernstein 2015). Because
included persons’ social needs are adequately met, they do
not need to lower their standards in the service of additional
afﬁliation. Conversely, ostracized persons beneﬁt from ﬁnd-
ing lower quality afﬁliative opportunities attractive because
it would increase their overall probability of successful afﬁlia-
tion (Sacco et al. 2014). Because ﬁtness indicator theory
(Greengross and Miller 2011) suggests that humor production
is a cue to conspeciﬁc quality, we predicted that ostracized
persons would ﬁnd successful humor as funny as included
participants, but that ostracized persons would ﬁnd unsuccess-
ful humor funnier than included participants. Such ingratiﬁca-
tion toward less funny targets in the latter case would increase
the afﬁliative opportunities of ostracized persons by means of
ingratiﬁcation.

Finally, we also explored whether the above predictions
were qualiﬁed by participant sex, target sex, or both. We
thought it prudent to consider the sex of both target and par-
ticipant to determine how our results align with previous lit-
erature explicating potential sex differences and similarities
in humor production and appreciation. Speciﬁcally, at least in
the context of initial courtship, men typically value others’ recep-
tivity to their humor production, whereas women value humor
production and receptivity equivalently (Bressler et al. 2006;
Feingold 1992; Wilbur and Campbell 2011), although a gen-
eral sense of humor is unilaterally desirable for both sexes
(Buss and Barnes 1986; Li et al. 2009). Speciﬁcally, women
deen humor production a necessity in relationship partners
(Hone et al. 2015), making it sensible to predict that women
would ultimately have a dispositionally higher criterion for
men’s humor production and therefore demonstrate height-
ened stringency toward their humor production. This criterion
may ultimately implicate greater stringency toward male-
produced humor relative to female-produced humor. Addition-
ally, research ﬁnds that men have greater humor produc-
duction ability than women and typically view mates’ ability
to produce humor as a luxury rather than a necessity
(Greengross and Miller 2011; Hone et al. 2015). Thus, it
would seem sensible to predict that men would be less partic-
ular about a mate or conspeciﬁc’s humor production in a sce-
nario with their belongingness needs thwarted.

Given these ﬁndings, it is possible that the men and women
may respond differently to humor produced by male versus
female targets, which could qualify the patterns of ingratia-
tion following our ostracism manipulation. For example, one
could predict that men may be overall more sensitive to humor
production, and therefore excluded men may be more likely to demonstrate more ingratiation toward low-quality humor producers following ostracism relative to women. Because women tend to have a more stringent criterion for evaluating humor as funny, women may demonstrate a reduced tendency to report targets displaying low-quality humor as funny following ostracism compared to men (Wilbur and Campbell 2011).

Alternatively, it may be that men and women are especially sensitive to opposite-sex conspecifics’ humor, given the role of humor production and appreciation in courtship contexts (Li et al. 2009). The purpose of conducting analyses considering sex difference was to test these competing hypotheses and provide the most complete picture of humor production.

Method

Pilot Study

To acquire humor displays that were categorically funny for the main study, we piloted jokes by having participants rate how funny they were through a pre-test. We utilized jokes as the basis of humor displays for the ease of communication. In this paper, we have used the term “jokes” to operationalize humor displays.

Participants

We recruited 108 participants through Amazon’s Mechanical Turk (Buhrmester et al. 2011); 53 men, 55 women; Mage = 35.56 years, SD = 11.94; 75% White) who participated in this study in exchange for $0.25 (US).

Materials and Procedure

Following consent, participants rated 40 different jokes in random order. Importantly, these jokes were previously categorized by the authors of this paper and several research assistants as being either “funny” or “unfunny” (20 for either category). Participants rated the quality of these jokes, presented in random order, along a single item on a 7-point Likert-type scale (1 = not at all funny; 4 = neither funny nor unfunny; 7 = very funny) with higher scores reflecting a greater appreciation for the joke. Participants then indicated their demographic information and were debriefed.

Pilot Results

For the current study, four funny and four unfunny jokes were required. As such, we identified the four jokes in each category that were the highest (categorically funny) and lowest rated (categorically unfunny). The jokes with the highest mean ratings were included in the main study as the “funny” jokes, with two items being significantly above the midpoint (ts > 3.00, ps < 0.01, ds > 0.55); two other jokes, while not conventionally significant (ts < 1.33, ps = 0.190 and 0.237, respectively, ds < 0.25), were descriptively above the midpoint and were thus included as the additional funny jokes for this study. The jokes with lowest ratings were included in the main study as the “unfunny” jokes, with all four items being below the midpoint (i.e., categorically unfunny, ts > 6.00, ps < 0.001, ds > 0.50). See Appendix for the jokes selected for the main study. Importantly, the average funniness of the four funny jokes was significantly higher (mean = 4.37, SD = 1.29) than the unfunny jokes (mean = 2.65, SD = 1.67), t(107) = 11.15, p = 0.001, d = 2.17.

Main Study

Participants

We recruited 225 participants through Mechanical Turk (106 men, 119 women; Mage = 37.87 years, SD = 12.83; 78% White) in exchange for $0.50 (US). A small effect size power analysis (Cohen’s f = 0.1, β = 0.80) indicated 200 participants would be sufficient to detect effects with our study’s parameters (i.e., two between- and two within-subject variables). We intentionally oversampled in the event we had to exclude participants from final analyses. No participants’ data warranted exclusion. We had 53 men for both the inclusion and exclusion conditions with 60 and 59 women in the exclusion conditions, respectively; there were no violations of homogeneity of variance.

Materials and Procedure

After reading a study description and informed consent document, consenting participants were redirected to the study through a Qualtrics server and were randomly assigned to one of two experimental conditions. All participants were instructed that they would play an online ball-tossing game, which was the simulated interaction Cyberball (Williams and Jarvis 2006), with three other players, who were ostensibly participants from around the country. These other participants were actually preprogrammed agents who either included or excluded the participant (N = 113) or excluded the participant (N = 112) during the game. Specifically, in the inclusion condition, participants received consistent ball tosses throughout the game from the other players. For the exclusion condition, participants received an initial ball toss from each agent in the game, but

1 Although the jokes we classified as funny for the main study had ratings that tended to stay around the midpoint of the scale, they remained nonetheless funnier than the jokes we classified as unfunny. Furthermore, such tendency for so-called funny jokes to stay around the midpoint is typical of funny jokes in other experiments (see Chan et al. 2013).
Following Cyberball, all participants completed a Basic Needs Questionnaire, which has been used in past research to assess participants’ levels of four basic needs, and it has been demonstrated in past research that Cyberball ostracism results in reductions in all four needs (Williams et al. 2000). Along 5-point Likert-type scales (1 = not at all; 5 = extremely), these items assessed need satisfaction related belongingness (e.g., “I felt rejected,” α = 0.93), self-esteem (e.g., “My self-esteem was high,” α = 0.84), control (e.g., “I felt I had control over the course of the game,” α = 0.82), and meaningfulness (e.g., “I felt meaningless,” α = 0.83). Because the four needs were highly related (α = 0.83), we averaged participants’ four needs to create an average basic needs score, where higher values are indicative of greater need satisfaction, which is consistent with numerous past studies (Bernstein et al. 2014; Sacco and Bernstein 2015; Sacco et al. 2014). Participants also indicated their current negative mood following Cyberball along a 4-item scale with the same anchors (e.g., “I felt sad,” α = 0.88).

Following the Basic Needs Questionnaire, participants were instructed to complete a task that involved viewing male and female faces, which were each paired with one of the pretested jokes. Faces were of eight different Caucasian young adults of pretested average attractiveness that appeared neutrally expressive from the Aging Faces Database (Minear and Park 2004). In a randomized and counterbalanced order, one at a time, participants saw two male faces paired with a funny joke, two male faces paired with an unfunny joke, two female faces paired with a funny joke, and two female faces paired with an unfunny joke. Participants were instructed prior to the task that they would view targets paired with various jokes, and they would simply be asked to evaluate the joke and indicate the extent to which they thought they would like each person they saw. Participants saw faces one at a time in a randomized order and made two judgments about each target before the subsequent target was presented. Participants indicated the extent to which they found each target’s joke funny using the same scale as the pilot study, then how much they thought they would like each target using single face-valid items that were on similarly structured 7-point scales (1 = not at all; 4 = neutral; 7 = very much). Because past research finds that individuals are especially interested in affiliating with others following an exclusionary experience who were not part of the group who rejected them (e.g., Maner et al. 2007), participants were informed that the target persons they were evaluating were not part of the previous group comprising the ball-tossing game. Following target assessments, participants provided demographic information and were debriefed.

### Results

#### Manipulation Check

An independent sample t-test revealed that included participants reported greater basic need satisfaction (mean = 3.81, SD = 0.73) than excluded participants (mean = 2.49, SD = 0.81), t(223) = 12.85, p < 0.001, d = 1.71, indicating that Cyberball was effective at manipulating the experience of inclusion and ostracism, respectively. Ostracized participants (mean = 2.89, SD = 1.11) reported more negative mood compared to included (mean = 1.53, SD = 0.77), t(198.02) = −10.65, p < 0.001, d = 1.51.

#### Perceptions of Funniness

We first conducted a 2 (participant sex: male vs. female) × 2 (condition: exclusion vs. inclusion) × 2 (target sex: male vs. female) × 2 (target humor: funny vs. unfunny) mixed model ANOVA with repeated measures over the latter two factors, for perceptions of target funniness. There was a significant main effect of target humor, such that participants found funny jokes (mean = 4.34, SD = 1.33) funnier than unfunny (mean = 2.56, SD = 1.30), F(1, 221) = 305.84, p < 0.001, ηp² = 0.581. Effects were qualified by a (marginal) four-way interaction, F(1, 221) = 3.78, p = 0.053, ηp² = 0.017 (see Fig. 1 for graphical representations of the main findings for this study). No other main effects or interactions emerged in this omnibus analysis (ps > 0.090).

To decompose this interaction, we ran two separate 2 (condition: exclusion vs. inclusion) × 2 (target sex: male vs. female) × 2 (target humor: funny vs. unfunny) mixed model ANOVAs with repeated measures over the latter two factors, for each participant sex.

#### Men’s Ratings of Target Funniness

Effects for male participants were qualified by a significant condition × target sex × target humor interaction, F(1, 104) = 4.64, p = 0.033, ηp² = 0.043. This interaction prompted us to conduct separate 2 (condition: inclusion vs. exclusion) × 2 (target humor: funny vs. unfunny) mixed ANOVAs with repeated measures over the latter factor, for both male and female targets. Effects for female targets were qualified by a marginal condition × target humor interaction, F(1, 104) = 2.94, p < 0.089, ηp² = 0.027. Because of the superordinate three-way interaction, we found it prudent to decompose this interaction. Simple effects tests indicated that excluded men (mean = 2.95, SE = 0.19) perceived jokes from unfunny women as marginally funnier than did included men (mean = 2.49, SE = 0.19), F(1, 104) = 2.79, p = 0.098, ηp² = 0.026. However, excluded men (mean = 4.37, SE = 0.21) and included men (mean = 4.54, SE = 0.21) perceived funny jokes from men (mean = 4.64, SE = 0.21) as marginally funnier than unfunny jokes (mean = 2.95, SE = 0.21), F(1, 104) = 3.78, p = 0.053, ηp² = 0.017.
women as similarly funny, \( F(1, 104) = 0.30, p = 0.581, \eta_p^2 = 0.003 \). Viewed another way, although funny jokes were rated as funnier than unfunny jokes when considering participants' inclusionary status separately, \( Fs > 29.00, ps < 0.001 \), the difference for excluded men’s ratings in this comparison was at a reduced magnitude (\( \eta_p^2 = 0.223 \)) relative to included men’s ratings (\( \eta_p^2 = 0.374 \)).

For male targets, effects were not qualified by an interaction and were therefore considered no further, \( F(1, 104) = 0.02, p = 0.882, \eta_p^2 = 0.000 \). Taken together, these effects suggest that excluded men demonstrate a reduced criterion for considering something humorous, particularly when such humor displays are associated with women.

Women’s Ratings of Target Funniness

For female participants, no three-way interaction between condition, target sex, and target humor emerged, \( F(1, 117) = 0.59, p = 0.441, \eta_p^2 = 0.005 \). Thus, we did not subsequently decompose these results.

Liking

We first conducted a 2 (participant sex: male vs. female) \( \times 2 \) (condition: exclusion vs. inclusion) \( \times 2 \) (target sex: male vs. female) \( \times 2 \) (target humor: funny vs. unfunny) mixed model ANOVA, with repeated measures over the latter two factors for perceptions of target likeability. Participants liked female targets (mean = 4.09, SD = 1.15) more than male targets (mean = 3.85, SD = 1.14), \( F(1, 221) = 14.18, p < 0.001, \eta_p^2 = 0.060 \). There was a main effect of target humor, such that participants liked the funny targets more (mean = 3.62, SD = 1.19), \( F(1, 221) = 109.04, p < 0.001, \eta_p^2 = 0.330 \). Effects were further qualified by a significant four-way interaction, \( F(1, 221) = 4.92, p = 0.028, \eta_p^2 = 0.022 \). No other main effects or interactions in this omnibus analysis were conventionally significant (\( ps > 0.080 \)).

We decomposed the four-way interaction by conducting two separate 2 (condition: exclusion vs. inclusion) \( \times 2 \) (target sex: male vs. female) \( \times 2 \) (target humor: funny vs. unfunny) mixed model ANOVAs with repeated measures over the latter two factors, for each participant sex.

Men’s Ratings of Target Funniness

Effects for male participants were qualified by a marginal three-way interaction between condition, target sex, and target humor, \( F(1, 104) = 3.18, p = 0.077, \eta_p^2 = 0.030 \). Because of this marginally significant three-way interaction for men, we thought it prudent to conduct separate 2 (condition: exclusion vs. inclusion) \( \times 2 \) (target humor: funny vs. unfunny) mixed model ANOVAs, with repeated measures over the second factor, for either target sex, to have a full understanding of our effects. For male targets, a significant condition \( \times \) target humor interaction emerged qualified effects, \( F(1, 104) = 4.71, p = 0.032, \eta_p^2 = 0.043 \). Simple effect tests indicated that excluded men (mean = 4.39, SE = 0.15) liked funny male targets more than excluded women (mean = 4.30, SE = 0.14), \( F(1, 104) = 14.23, p < 0.001, \eta_p^2 = 0.121 \).
more than included men (mean = 3.96, SE = 0.15), $F(1, 104) = 3.97, p = 0.049, \eta_p^2 = 0.037$. Furthermore, included (mean = 3.51, SE = 0.18) and excluded men (mean = 3.47, SE = 0.18) liked unfunny male targets similarly, $F(1, 104) = 0.02, p = 0.881, \eta_p^2 = 0.000$.

**Women’s Ratings of Target Funniness**

Much like for humor perceptions, no interaction emerged for female participants, $F(1, 117) = 1.95, p = 0.165, \eta_p^2 = 0.016$.

We, therefore, no longer considered female participant response for the funniness dependent measure.

**Discussion**

In the current study, we tested the hypothesis that following an acute experience of social ostracism, individuals would be more ingratiating (i.e., rate them as funnier and more likeable) toward social targets communicating humor attempts via jokes, than socially included participants. Furthermore, we anticipated that this effect would be most pronounced toward social targets whose humor attempts were poor (i.e., told categorically bad jokes). Conversely, we anticipated that included and excluded participants would rate categorically funny targets as equivalently more funny than unfunny targets (e.g., Sacco et al. 2015).

Our hypotheses were based on several empirically supported theoretical frameworks. First, social exclusion involves interference with belongingness and a consequent motivation for affiliation, such as through cooperation and favorable evaluation of novel social targets (e.g., Maner et al. 2007). Second, appreciation of another’s humor has been found to elicit liking and foster prosocial and cooperative intentions (Bressler and Balshine 2006; Riesen 2006). Finally, whereas socially included persons become more judicious in evaluating new opportunities to affiliate, excluded persons tend to relax their criterion when evaluating others as potential affiliative partners in order to increase the possible number of affiliative opportunities (Sacco et al. 2014; Sacco and Bernstein 2015).

These predictions received partial support, however, and only for male participants. Specifically, excluded men reported greater ingratiation toward categorically unfunny jokes relative to included participants, as indexed by excluded men indicating unfunny female targets as funnier than included participants as well as the reduced magnitude difference in funniness ratings for either jokes category. This could indicate heightened tolerance toward lower quality prospective specifics in the service of ensuring affiliation. Since this effect was specific for female targets’ humor displays, perhaps excluded men could have communicated more appreciation toward women’s unfunny display, because they may also perceive such women as potentially having a lower threshold of what constitutes something as funny themselves, thus potentially making them more receptive to, and less discerning of, a humor display from a man (Wilbur and Campbell 2011).

Excluded men also rated funny men as more likeable, compared to included participants. Considering this finding in tandem with appreciation finding, this could suggest a coalitional mate acquisition function by liking funny men. It would seem sensible to predict that funnier men would have access to a larger, more extensive social network. Considering the importance of men’s humor production in mating contexts (e.g., Bressler and Balshine 2006), this network may also include more women whom an excluded man could see as a mating opportunity. Given excluded individuals’ attentiveness toward displays of affiliative intent (e.g., Bernstein et al. 2008, 2010; Maner et al. 2009), men’s reported liking could be a proxy of their intent to affiliate with men to potentially gain access to mating opportunities.

Although we expected the exclusionary experience to result in ingratiation for both male and female participants, there are possible, albeit speculative, reasons for our findings that were driven exclusively by male participants. As outlined by fitness indicator theory (Greenberg and Miller 2011), men’s humor may be a sexually selected trait. Specifically, women are more judicious in their appreciation of men’s use of humor and may ultimately prefer successful humor use in men due to its relation to mate value (e.g., Bressler and Balshine 2006). One consequence of these findings may be that men tend to demonstrate a greater capacity for humor production and, by extension, humor appreciation sensitivity (Wilbur and Campbell 2011). Women are the evaluators of men’s humor production in mating scenarios (Wilbur and Campbell 2011), so it may have been more difficult to manipulate their appreciation of poor humor production since it is often a critical trait for their own selection. For men, their criteria may be lower than women’s, because of their emphasis on humor production instead of receptiveness, thus making their appreciation toward unfunny humor more amenable to the manipulation. Thus, the inclusionary status may more effectively influence men’s judgments of variations in humor to a greater extent than women’s, as women may have a consistently more stringent criterion for other men’s jokes that is resistant to the influence of social motives.

Men’s ingratiation toward female targets as a function of inclusionary status may facilitate social opportunity may be driven by both affiliative and mating goals. For example, because unfunny women may not be emitting a high-quality mate signal (due to a poor attempt at humor), ingratiation toward these targets by men may be exclusively about fostering an affiliative relationship with these targets. Conversely, included men’s greater funniness ratings of funny female targets compared to ostracized men...
may be driven by mating motives. Insofar as humor is a signal of mate quality, included men may be motivated to identify these high-quality mates through their use of humor. Additionally, because social inclusion leads to more judicious evaluation of novel social opportunities than does social exclusion (Sacco and Bernstein 2015), included men’s sensitivity to funny females may reflect this more selective partner selection criterion. Given the potential conceptual overlap between perceptions of funniness and likeability, it is perhaps surprising that the current findings were not consistent across these two constructs. Although they are conceptually similar, they are not identical perceptions. For example, individuals may appreciate another’s low-quality humor attempts, without finding the target to be more likeable. That is, humor appreciation may be an ingratiation strategy toward lower quality conspecifics to increase affiliative opportunity, but that does not necessarily require the person to actually like the target more. Specifically, humor appreciation may be a deceptive signal in the service of affiliation that operates in a similar capacity to fake laughter (Bryant and Aktipis 2014) or non-Duchenne smiles (Lustgraaf et al. 2015). For example, individuals produce fake laughter as a deceptive signal in affiliative contexts to facilitate the appropriate interaction by being polite, but this display may not represent the laugh’s actual feelings toward the interaction partner.

Limitations and Future Directions

One short-coming of the current work was that we assessed affiliation interest indirectly through perceptions of target funniness and likeability. Future research should consider additional dependent measures, such as interest in working with targets on a collaborative task, or behavioral approach and avoidance of targets as more direct assessments of affiliation interest. Additionally, our assessments were unable to isolate the extent to which men’s evaluations of female targets was an exclusively affiliative interest or was associated with mating interest. However, past research finds evidence for a reprioritization hypothesis, such that social exclusion leads to greater emphasis on affiliation, whereas social inclusion leads to reprioritization toward mating goals (Brown et al. 2009). Given that included men in our study demonstrated heightened positive evaluations of funny female targets, consistent with interest in higher quality targets and a cue integral to mating, and excluded men were more favorable toward lower quality female targets (i.e., unfunny targets), our findings are at least consistent with prior work.

Future research should explore how inclusionary status influences specific kinds of humor appreciation. For example, it may be the case that excluded men show a stronger preference for affiliative humor than included individuals, as affiliative humorists’ humor displays may signal them as benevolent conspecifics in a manner similar to Duchenne smiles, which are ultimately preferred among socially excluded individuals (Bernstein et al. 2010; Zeigler-Hill et al. 2013). Conversely, included men may show a stronger preference for sexual humor than excluded participants, which would be consistent with the goal prioritization of included and excluded persons (Brown et al. 2009). For women, however, social exclusion may heighten their interest in prospective mates using aggressive humor. Although affiliative humorists are typically more desirable than aggressive humorists, particularly in long-term contexts (DiDonato et al. 2013), social exclusion heightens women’s interest in short-term mating and men possessing short-term mating cues (Sacco et al. 2012). Perhaps the aggression demonstrated in an aggressive humor display provides a similar signal to physical dominance that it would implicate such humorists as more desirable to women and upregulate their interest in such mates, particularly in short-term contexts.

Although jokes are a straightforward humor display one could consider for research (e.g., Bressler and Balshine 2006), it would also be advantageous to consider other more naturalistic humor displays in future research. Humor displays may also include tickling, witty banter, or responding to amusing situations. For example, a future study could task participants following an exclusionary experience to indicate the extent to which they would want to interact with a conspecific who appears either humorous in their behavior or not with the prediction that ingratiation would be higher toward unfunny conspecifics following the exclusionary experience.

Conclusion

Humor is a social tool used to facilitate social bonding. The appreciation of another’s humor can further facilitate greater liking of the humor appreciator by the humorist. Such ingratiation may be particularly useful for those who have recently experienced social ostracism, for whom affiliation is of paramount importance. Consistent with this theoretical framework, ostracized men found categorically unfunny women funnier and unfunny men more likable than did included participants. Conversely, included men found categorically funny women funnier than did excluded men. Thus, humor appreciation may be a strategy to secure affiliative opportunity following social exclusion.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.
Appendix

Funny Jokes

1. Cremation: My final hope for a smoking hot body!
2. What is Mozart doing right now? Decomposing.
3. “Doctor, I’ve broken my arm in several places.” “Well, don’t go to those places.”
4. The past, the present, and the future were having an argument. It was tense.

Unfunny Jokes

1. What do you call a tiger with glasses on? A scientist tiger.
2. What is small, grey, and triangular? The shadow of a green triangle!
3. What does a farmer say when he’s looking for his tractor?
   “Where’s my tractor?”
4. How can you open a banana? With a monkey!

References


AUTHOR QUERIES

AUTHOR PLEASE ANSWER ALL QUERIES.

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