Expressions of humor can be found across all cultures (Martin, 2010). Humor has a behavioral component that includes physical responses such as laughing and a physiological component that involves the heart muscle, circulatory system, endorphins, and muscles (Martin, 2001). Additionally, the stereotyped characteristics of laughter such as internote interval and decrescendo serve as a social component used to initiate and maintain social discourse (Provine & Yong, 1991). These stereotyped features along with the reinforcing nature of laughter establish humor as a universal phenomenon ideal for human communication (Martin, 2010). Because of the physical, hormonal, and endocrinological changes (Berk, Felten, Tan, Bittman, & Westengard, 2001; Hubert, Möller, & de Jong-Meyer, 1993), humor benefits mental, emotional, and physical health including the immune system (Bennett & Lengacher, 2007; Dillon, Minchoff, & Baker, 1986).

Research has shown multiple sources of humor such as oddities, incongruences, playfulness, and unexpected comicality (Goldstein & McGhee, 2013). However, the underlying sources of humor may not always be benevolent. It is not uncommon for people to laugh at someone else’s misfortune or defilement of character and reputation. This type of humor is called disparagement humor (Ferguson & Ford, 2008), also known as schadenfreude (Ben-Ze’ev, 1992). In the present study and the related literature review, we focused on the perception of disparagement humor or finding a joke about someone’s misfortune amusing.
Effects of Empathy on Disparagement Humor | Bui, Kalpidou, DeVito, and Greene

Why Is Disparagement Humor Funny?
Disparagement humor has puzzled philosophers and psychologists alike. From the psychoanalytic perspective, engagement in disparagement humor serves as a defense mechanism to protect a person’s self-worth (Ferguson & Ford, 2008). Freud (1960) speculated that disparagement or hostile humor allows people to relieve themselves of unacceptable and impure unconscious desires, a process similar to catharsis. To test this theory, Singer (1968) induced participants with aggressive motivation and then successfully reduced this unacceptable emotion by exposing participants to hostile humor. However, Berkowitz (1970) failed to demonstrate the cathartic role of hostile humor. Women participating in the study evaluated a female job applicant less favorably when they were exposed to offensive hostile humor than when they were exposed to nonhostile humor. Therefore, the evidence for the psychoanalytic perspective has been rather conflicting.

An alternative explanation to disparagement humor is the social identity theory (Tajfel & Turner, 1986). People may find happiness in another’s group misfortune in an area where two groups may be competing. Leach, Spears, Branscombe, and Doosje (2003) showed that Dutch soccer fans, who were induced with the belief that the German soccer team was a threat, expressed greater pleasure when hearing that the Germans lost the World Cup. Similarly, other studies have supported that perceived funniness of disparagement humor is greater when made against an outgroup (Abrams & Bippus, 2011). This suggests that group biases influence the experiences of malicious pleasure. However, social identity theory does not explain why people laugh at the misfortune of strangers whose affiliations with groups are unknown (Ferguson & Ford, 2008).

Superiority theory somewhat addresses the limitation of social identity theory by suggesting that pleasure at another’s misfortune derives from negative feelings for that person (Gruner, 1997). In support of superiority theory, feelings of dislike have been found to regulate experiences of disparagement humor (Hareli & Weiner, 2002; Wicker, Barron, & Willis, 1980). Hareli and Weiner (2002) found that induced feelings of dislike, but not envy, increased the amount of pleasure in another’s misfortune presented in hypothetical scenarios, with a mild level of misfortune generating greater pleasure. Hareli and Weiner (2002) speculated that feelings of dislike might have heightened the humorist’s self-esteem. Building on this idea, Van Dijk, van Koningsbruggen, Owverkerk, and Wesseling (2011) discovered that participants with lower self-esteem experienced greater pleasure at a fellow student’s misfortune when they also perceived this person as threatening.

Unlike the other explanations, superiority theory does not rely on the humorist’s identification of a group or unconsciously denied impulses. However, the underlying commonality in all perspectives is that the humorists harbor some sort of negative or unpleasant feelings. If the superiority explanation is accurate, a person should expect that inducing positive feelings such as empathy would decrease the level of amusement in disparagement humor. The current study explored this possibility.

The Relationship Between Humor Perception and Empathy
Empathy, defined as the ability to adapt a person’s way of thinking and behaving in order to understand another’s perspective and emotions (Rogers, 1980) has been associated with the ability to comprehend humor. Furthermore, inability to take someone else’s perspective has been linked to poor understanding of humor as illustrated in studies with adults (Samson, 2013) and children with autism (Baron-Cohen, 1997; Emerich, Creaghead, Grether, Murray & Grasha, 2003).

The direction of the relationship between empathy and humor is unclear. Earlier evidence suggested a positive correlation (Hampes, 2001). Using questionnaire data, Hampes (2010) found that humor aiming to create affiliations with others was positively correlated with empathic concern, but aggressive humor (i.e., laughing at others) was negatively correlated with empathic ability. In an experimental study, Greitemeyer, Osswald, and Brauer (2010) showed that playing prosocial video games increased empathy and decreased schadenfreude toward a male celebrity. The above studies supported a negative relationship between empathy and aggressive or disparagement humor, but there is limited causal evidence for this relationship.

The Current Study
Based on previous findings that inducing dislike increased the experience of disparagement humor (Hareli & Weiner, 2002; Van Dijk et al., 2011) whereas increasing empathy decreased schadenfreude (Greitemeyer et al., 2010), we sought to provide stronger experimental evidence for the
role of empathy. Unlike Greitemeyer et al. (2010), we took pre- and postratings of humor and used targets that were not known to participants. We expected that participants in the induced-empathy condition would report lower ratings of funniness and pleasure after watching the video clips than participants in the control group. A significant interaction between the pre- and postmeasure of humor and the control versus experimental group would support this hypothesis.

Additionally, we included questionnaires that assessed humor and empathy as dispositional traits. Dispositional humor involves the tendency to produce humor, use humor as a coping mechanism, and hold a positive attitude toward humor and humorists (Thorson & Powell, 1993). Dispositional empathy includes the ability to share other people’s emotions and respond sensitively to them (Spreng, McKinnon, Mar, & Levine, 2009). Based on the relationship between empathy and humor in individuals with autism (Baron-Cohen, 1997; Emerich et al., 2003) and the work of Hampes (2001, 2010) on aggressive and affiliative humor as discussed above, we expected significant correlations between empathy and humor, the direction of which would depend on the type or use of humor (i.e., a positive correlation between using humor as coping and empathy, a negative correlation between negative attitudes toward humor and empathy).

Method

Participants
Participants were 64 undergraduate students from a small, liberal arts Catholic college in the northeast. The average age of participants was 20.20 years ($SD = 1.48$). Most participants were women (92.2%), European American (81.3%; 9.4% Asian American; 9.3% other), and 15.6% were seniors, 39.1% juniors, 37.5% sophomores, and 7.8% first-year students. Participants’ majors included 40.7% in the social sciences, 35.9% in humanities, 18.8% in sciences, and 4.8% in business studies. Most participants who attended the college came from middle-class families. Participants were recruited from undergraduate psychology courses and may have received extra course credit for their participation. The student researchers e-mailed psychology professors for permission to recruit from their classes. At the beginning of class, researchers briefly described the study and passed out sign-up sheets for interested students to provide contact information. There were no exclusion criteria, and the sample size was determined by the restricted period available for data collection (two weeks in spring 2013).

Measures

Measures included a demographic scale and questionnaires about dispositional humor and empathy.

Dispositional humor. The Multidimensional Sense of Humor Scale (MSHS; Thorson & Powell, 1993) was designed to measure four dimensions of dispositional humor as well as an overall score. The initial scale has 24 items and yields the following dimensions: (a) Humor Production and Social Uses of Humor (e.g., “I can often crack people up with the things I say”), (b) Coping Humor (e.g., “Humor helps me cope”), (c) Negative Attitudes Toward Humor (e.g., “People who tell jokes are a pain in the neck”), and (d) Positive Attitudes Toward Humor (e.g., “I appreciate those who generate humor”). Participants rated the items using a 5-point Likert scale, which ranged from 1 (strongly disagree) to 5 (strongly agree). To calculate the overall score for dispositional humor, we reversed seven negatively worded items. To improve reliability of MSHS, we removed one item (“I can actually have some control over a group by my uses of humor”) and achieved a Cronbach alpha of .85. The alphas for the MSHS subscales ranged from .62 to .87.

Dispositional empathy. The Toronto Empathy Questionnaire (TEQ; Spreng et al., 2009) was used to measure participants’ level of dispositional empathy. The TEQ consists of 16 items, eight of which are positively worded (e.g., “When someone else is feeling excited, I tend to get excited too”) and eight of which are negatively worded (e.g., “Other people’s misfortunes do not disturb me a great deal”). Items assess comprehension of others’ emotions, experience of sympathetic physiological arousal, altruism, prosocial behavior, understanding of emotional states in others based on sensitivity responses, and the extent to which a person experiences the same emotional state of another. Participants rated the items using a 5-point Likert-type scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The Cronbach’s alpha for TEQ was .72 with the removal of one item (“I find it silly for people to cry out of happiness”). The average score of the remaining items in each scale was used in the analyses.

Procedure

The study was approved by the Assumption College institutional review board (#2013-15) and took place in the computer lab of the psychology
Results

We first conducted analyses to ensure that the empathic story was effective, that the two groups were not different in dispositional humor and empathy, and that the participants were not familiar with the protagonists in the video clips. We tested the effectiveness of the empathic story by comparing the control and the experimental groups using a multivariate analysis of variance with group (control, experimental) as the independent variable and each of the empathy adjectives as the dependent variables. The analysis showed a significant main effect of group on ratings of sympathy, \( F(1, 62) = 120.76, p < .001, \eta^2 = .66 \), warmth, \( F(1, 62) = 207.65, p < .001, \eta^2 = .77 \), compassion, \( F(1, 62) = 242.80, p < .001, \eta^2 = .80 \), soft-hearted, \( F(1, 62) = 104.59, p < .001, \eta^2 = .63 \), tender, \( F(1, 62) = 178.89, p < .001, \eta^2 = .63 \), and moved, \( F(1, 62) = 27.78, p < .001, \eta^2 = .31 \). As shown in Table 1, the scores of these perceived empathic states were significantly higher in the experimental than the control group. We also compared the two groups

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<th>TABLE 1</th>
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<td><strong>Descriptive Statistics for Induced Empathy</strong></td>
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Design. Participants were assigned to either the control or the experimental conditions in a counterbalanced order, resulting in equal sample size (\( n = 32 \)). The order of the paired clips before and after the story (empathic or neutral) was also counterbalanced, thus creating four combinations: (a) pretest Clips 1 and -2, experimental condition, posttest Clips 3 and -4; (b) pretest Clips 1 and -2, control condition, posttest Clips 3 and -4; (c) pretest Clips 3 and -4, experimental condition, posttest Clips 1 and -2; (d) pretest Clips 3 and -4, control condition, posttest Clips 1–2. Completion of the procedure took approximately 30 min. At that time, participants were debriefed about the experiment and were asked not to discuss the study with others. All participants who showed up were able to participate and complete the procedure. The study was concluded during the course of one academic semester.
in terms of dispositional humor and dispositional empathy to ensure that there were no preexisting differences that could potentially confound the effects of the experimental manipulation. These analyses did not yield any significant results (see Table 1). Lastly, we analyzed participants’ responses in the third statement (“I knew the people in this video”) after viewing the video clips and found that both groups were not familiar with the targets in the pairs of clips.

To test the hypothesis that invoking empathy would hinder the perception of how funny or pleasurable disparagement clips were, we conducted two repeated measures Analyses of Variance with dependent variables being the average scores across the clips for funniness and pleasure. The between-group variable was the control or the experimental group and the within-group factor was time (pre and post). We included the order of video clips as a covariate because, although we counterbalanced the order of the video clips across the control and experimental groups, we did not counterbalance the order of the clips within each pair (Clips 1 and 2 for the pretest and Clips 3 and 4 for the posttest).

There was a significant interaction effect between order of clips and time, $F(1, 61) = 7.58$, $p = .008$, $\eta^2_p = .11$. Watching Clips 3 and 4 in the pretest and Clips 1 and 2 in the posttest resulted in greater reduction in ratings of funniness in both the experiment and the control group. Through this analysis, it was evident that the interaction between order and time meant that the disparagement humor clips were not all equally funny. There was no significant main effect of the group, $F(1, 61) = .008$, $p = .928$, or the order in which the pairs of clips were viewed, $F(1, 61) = .001$, $p = .982$. As shown in Figure 1, there was a significant interaction effect between time and group that supported our hypothesis, $F(1, 61) = 3.76$, $p = .05$, $\eta^2_p = .05$. The experimental group experienced a decrease in how funny the video clips were ($M_{pre-exp} = 3.49$, $SD = 0.66$; $M_{post-exp} = 3.22$, $SD = 0.78$), but the control group did not ($M_{pre-control} = 3.33$, $SD = 0.87$; $M_{post-control} = 3.42$, $SD = 0.76$). Lastly, there was a significant main effect of the within-factor time, $F(1, 61) = 4.65$, $p = .035$, $\eta^2_p = .07$, indicating that the overall rating of funniness decreased, ($M_{pre} = 3.41$, $SD = 0.77$; $M_{post} = 3.32$, $SD = 0.77$).

Similar analyses were performed with the ratings of experienced pleasure from watching the clips as the dependent variable. Again, in support of the hypothesis, we found a significant interaction between the within and between factor (Time x Group), $F(1, 61) = 5.43$, $p = .023$, $\eta^2_p = .08$. As shown in Figure 2, the experimental group experienced a decrease in the amount of pleasure ($M_{pre-exp} = 3.22$, $SD = 0.79$; $M_{post-exp} = 2.78$, $SD = 0.88$). The control group remained about the same from $M_{pre} = 3.23$ ($SD = 0.84$) to $M_{post} = 3.24$ ($SD = 0.74$). The main effect of the within factor of time and the interaction effect between the order of the clips and time were not significant.
Lastly, we conducted correlational analyses between humor and empathy as measured by the questionnaires. As shown in Table 2, there was a significant positive correlation between empathy and humor, $r = .36$, $p = .005$, indicating that a positive approach to humor was related to higher empathy. This finding was in line with our prediction. We further explored the relationship of empathy with specific types of humor to investigate the negative association between negative humor and empathy found in the literature. As shown in Table 2, although empathy positively correlated with coping humor, $r = .34$, $p = .006$, there was a negative correlation between empathy and negative attitudes toward humor, $r = -.42$, $p = .001$. Lastly, there was a marginally significant correlation between positive attitudes toward humor and empathy, $r = .20$, $p = .097$.

**Discussion**

Inducing empathy significantly reduced the ratings of how pleasurable and funny participants perceived disparagement humor to be, thus supporting the main hypothesis. In contrast, participants who read the neutral story experienced similar levels of funniness and pleasure. Moreover, participants who experienced higher dispositional empathy tended to like humor whereas participants with lower dispositional empathy tended to hold negative attitudes toward humor. The results implied that empathy is a powerful emotion that changes the way people think about others in situations that are seemingly funny but potentially harmful.

It appears that lack of empathy might have brought feelings of amusement at someone’s misfortune. This significantly expanded previous research by Greitemeyer et al. (2010) who showed that empathy induced by playing prosocial video games decreased the experience of schadenfreude with regard to a male celebrity’s calamity. The current findings were different in that the target was a stranger, participants in the control and experimental groups did not differ in dispositional empathy or humor, and empathic states before and after the reading of the empathic or neutral story were taken into consideration. Therefore, we demonstrated the effect of empathy on disparagement humor in a much tighter experimental design.

In support of superiority theory, Hareli and Weiner (2002) showed that induced dislike increased feelings of pleasure at another’s misfortune. Similarly, we showed that induced empathy decreased disparagement humor as additional evidence for the superiority theory. It is possible that empathy reduced the need to feel superior by elevating self-esteem (Van Dijk et al., 2011), although including self-esteem as another measure would have allowed us to directly elucidate such effects.

The positive association between dispositional humor and dispositional empathy, also found in previous research (Hampes, 2001), highlighted the possibility of a common underlying mechanism in perceiving humor and experiencing empathy. This is likely the ability to understand the other person’s mental states such as intentions and feelings (Ramachandran, 2011). Moreover, our findings indicated that it was important to consider the relationships between different types of humor and empathy. Similar to previous evidence of Hampes (2010) that empathy was negatively associated with aggressive forms of humor (i.e., teasing, sarcasm, ridicule), we found that participants who reported lower empathy also held more negative attitudes toward humor. In contrast, positive forms of humor such as using humor as a coping strategy and holding positive attitudes toward humor have been associated with increased empathy (Hampes, 2010). These results were in line with the experimental findings, thus further supporting the role of empathy in understanding the perception of disparagement humor.

The findings were important because, in addition to strengthening existing literature, they made significant implications for future theory development and research. Although our findings supported the superiority theory, they did not necessarily dispute the social identity or the psychoanalytic perspective because both perspectives assume that the humorist harbors some unpleasant feeling that is potentially altered by induced empathy. However, by focusing on empathy as part

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<th>TABLE 2</th>
<th>Correlations Between Dispositional Humor and Dispositional Empathy</th>
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<td>Overall Dispositional Humor</td>
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<td>Humor Production</td>
<td>.18</td>
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<td>Coping Humor</td>
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<td>Negative Humor</td>
<td>-.42**</td>
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<td>Positive Humor</td>
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Note: $N = 64$, $p < .05$, $p < .01$. 

SUMMER 2016

PSI CHI JOURNAL OF PSYCHOLOGICAL RESEARCH

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of the processes involved in disparagement humor, researchers can propose a model that integrates all perspectives and current research. The process of disparagement humor may begin with the humorist engaging in appraisal of all known information about the target who experiences misfortune including social identity (Tajfel & Turner, 1986), sex (Greitemeyer et al., 2010), and various biases. Such appraisal may also include an estimate of the gravity of the misfortune (e.g., slipping on a banana peel is seen as harmless; Hareli & Weiner, 2002), often in light of the information about the target (i.e., the humorist hypothetically decides that rich celebrities deserve a misfortune because there are overindulged). This cognitive appraisal likely results in either negative or uncaring feelings (e.g., dislike) that allow the humorist to find humor in the target’s mishap. The relationship between appraisal and the associated emotions is probably bidirectional and happens quickly and largely out of awareness (Freud, 1960). Lastly, it is possible that the resulting humor makes people feel better about themselves, thus supporting the superiority theory (Van Dijk et al., 2011). Empathy likely interferes with both the cognitive appraisal and emotional component of the process. Inducing empathy reminds people of their social connection with each other, the moral value of caring for others, and wanes the tendency to respond with laughter. This integrative model merits further investigation.

A future replication of the current project could be improved by expanding the ratings of disparagement humor to include statements such as “I found this video clip humorous,” “This video clip was amusing to me,” “I really enjoyed this video clip,” and “This video was entertaining.” Such an approach would better capture the multiple dimensions of experiencing humor. People may find something very entertaining but not equally funny. This distinction that was not made here and in previous studies may be an important limitation to consider. The generalizability of the present findings was limited to the population of undergraduate students. Therefore, future research should include older adults who might have a different sense of humor and different levels of empathy than college students do. Research has shown an age-related declining ability to understand humor (Mak & Carpenter, 2007) and a linear age-related increase in emotional empathy and prosocial behavior (Sze, Gyurak, Goodkind, & Levenson, 2012). These changes in empathy and humor would possibly lead to a decline in disparagement humor with age.

Expanding the targets in age, sex, and familiarity would be another way to extend future research. Ratings of funniness and pleasure might have decreased more if the targets had been adults similar to the participants because people empathize more with those who are similar to them (Batson, Lishner, Cook, & Sawyer, 2005). Future research should consider sex effects on both empathy and humor. In the literature, women tended to have higher dispositional empathy than men did (Jonason, Lyons, Bethell, & Ross, 2013), and men tended to prefer more affective, self-enhancing, aggressive, and self-defeating kinds of humor than women did (Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003). A person would expect that induced empathy might be more effective in reducing disparagement humor in women than in men. This brings up a limitation in the present study because most participants were women due to recruiting from psychology courses, which were attended mostly by women. The overrepresentation of women raised the possibility that the effect we observed was stronger than it would have been with more men in the sample. Lastly, a person could consider personality effects. High scores on narcissism, psychopathy, and Machiavellianism tended to associate with low levels of dispositional empathy (Jonason et al., 2013). Individuals with such characteristics would potentially experience higher disparagement humor and not respond to induced empathy.

The current results demonstrated a causal relationship between empathy and disparagement humor. Moreover, empathetic people were more likely to enjoy positive uses of humor and less likely to enjoy aggressive forms of humor. Future research could expand the understanding of disparagement humor by investigating the cognitive appraisal that takes place and the associated feelings created before the experience of disparagement humor. Empathy appears to have the potential to alter the feelings resulting from such appraisal, thereby tempering the perception of humor.

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Effects of Empathy on Disparagement Humor | Bui, Kalpidou, DeVito, and Greene

doi:10.1037/0022-3514.68.6.1042


Bui, Kalpidou, DeVito, and Greene

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