

Not a Problem: A Downside of Humorous Appeals

A. Peter McGraw, Julie L. Schiro, and Philip M. Fernbach*

University of Colorado-Boulder, USA

ABSTRACT

Public service announcements (PSAs) are traditionally designed to elicit negative emotions that spur problem-solving behavior. However, in order to improve their reach, some social marketers are forgoing traditional strategy by creating PSAs that are humorous. Because of humor's positivity and association with non-serious situations, we hypothesized that humorous appeals can decrease problem perception and problem-solving behavior. Study 1 examined problem perceptions using matched pairs of humorous and non-humorous PSAs. Respondents judged a social issue as less important to solve after viewing the humorous version of the pair. Study 2 examined problem-solving behavior through a partnership with a non-profit organization seeking to improve young adults' sexual health knowledge. Humorous PSAs were less effective than a non-humorous version at spurring people to search for health information. The inquiry revealed a previously unaddressed tradeoff: using humor to benefit a message's reach creates a potential cost to solving a personal or societal problem.

WHETHER designed to address substance abuse (e.g., “this is your brain on drugs”), risky behavior (e.g., “only you can prevent wildfires”), or inequality (e.g., “a mind is a terrible thing to waste”), public service announcements (PSAs) are intended to help solve some personal or societal problem. PSAs typically follow a well-established model: elicit negative emotions that drive problem-solving (Bagozzi and Moore 1994). However, facing a cluttered marketplace and the opportunity to “go viral,” social marketers are increasingly abandoning

*A. Peter McGraw, Associate Professor of Marketing and Psychology, Peter.McGraw@colorado.edu; Julie L. Schiro, PhD Candidate, Marketing, Julie.Schiro@colorado.edu; Philip M. Fernbach, Assistant Professor of Marketing, Philip.Fernbach@colorado.edu. We thank

tradition and creating humorous PSAs. We examine a potential downside of humorous appeals. Because of humor's positivity and association with non-serious situations, we propose that humorous PSAs are less effective at spurring problem solving than their traditional, non-humorous counterparts.

Humorous Appeals

Commercial marketing communications have many goals (e.g., brand building, disparage competitors). Social marketing communications, however, are traditionally crafted with a specific goal and accompanying strategy: elicit negative emotions to spur people to solve a problem (Bagozzi and Moore 1994; Coke *et al.* 1978; Lazarus 1991; Maddux and Rogers 1983). A study of students' reactions to 30 recent anti-drug PSAs, for example, revealed that most of the PSAs were distressing to view (Fishbein *et al.* 2002).

Regardless of the goal, a cluttered media landscape makes it difficult to reach people with a message that sticks (McKee 2012). Digital media, such as Facebook, Twitter, and YouTube, add to the clutter yet are beneficial to marketers because digital content is commonly and easily shared. With these challenges and opportunities in mind, marketers are increasingly trying to be humorous (Gulas *et al.* 2010; Gulas and Weinberger 2006).

We define humor as a psychological state characterized by the positive emotion of amusement, an appraisal that something is funny, and a tendency to laugh (Martin 2007; McGraw and Warren 2010). Humorous appeals are attractive because being humorous garners attention (Eisend 2009; Gulas and Weinberger 2006; Madden and Weinberger 1982), increases ad liking (Alden *et al.* 2000; Beard 2005; Duncan and Nelson 1985), and enhances recall (Schmidt 1994, 2002). Positivity and arousal, which are outcomes of successful humor attempts, drive sharing behavior (Berger and Milkman 2012).

Like their commercial counterparts, social marketers are abandoning traditional strategy and creating humorous messages in order to facilitate reach. For example, people were paying little attention to actor Matt Damon's sustainable water PSAs, so he launched a humorous PSA featuring a fake press conference announcing his "strike from the toilet" (Damon 2013). His PSA has received over one million views (Water.org 2013). The social issues addressed by humorous PSAs vary widely. A recent anti-tobacco PSA presents smoking as a form of public flatulence (Quit the Denial 2013). Another uses a tongue-in-cheek spokesperson, "Dr. Rich Mahogany," to encourage men to address health problems, including depression and suicide (Man Therapy

2012). Others feature hunky, shirtless men reminding women to conduct breast self-exams (Rethink 2011). An eHow.com article sums up the shift in strategy, “No matter your target audience, humor is always an effective tool to spread awareness of your PSA” (Kittmer 2013).

Humor and Problem Solving

Although humor generally enhances a message’s reach, humorous appeals have potential downsides. For example, humorous content unrelated to a brand’s central message can be distracting and inhibit comprehension (Duncan 1979; Krishnan and Chakravarti 2003; Strick *et al.* 2010), and failed humor attempts can hurt evaluations of an advertised brand (Warren and McGraw 2013). We examine another potential downside of humorous appeals: humor may inhibit problem solving.

Theory and Evidence

Positive emotions inhibit the sense that something is wrong. Positive moods signal a safe environment (Schwarz 1990), increase optimism (Wright and Bower 1992), and decrease risk perceptions (Johnson and Tversky 1983). People will also ignore or gloss over negative information in order to protect a good mood (Andrade 2005; Isen and Simmonds 1978). Happiness even leads people to donate less money in response to charitable requests than does sadness (Small and Verrochi 2009) — an effect consistent with research demonstrating that positivity is less motivating than negativity (Baumeister *et al.* 2001).

A broad examination of humor research reveals that humor often arises when something that is potentially distressing is actually safe or non-serious. Humor attempts, such as jokes, puns, and slapstick, are typically not intended to be taken seriously, and humor occurs often in playful settings (Eastman 1936; Gervais and Wilson 2005; Martin 2007). Several theoretical accounts highlight how humorous reactions are associated with the appraisal that a situation is not threatening (Apter 1982; Martin 2007; Rothbart 1973) and describe laughter as a signal that a situation is safe or that a threatening act is not intended to harm (Gervais and Wilson 2005; McGraw *et al.* 2012; Ramachandran 1998). Evolutionary theories note that laughter is often associated with harmless attacks such as tickling and roughhousing (Gervais and Wilson 2005; Provine 2001). Other contemporary accounts suggest that humor is triggered by a false alarm (Ramachandran 1998), a seemingly important situation reinterpreted to be unimportant (Apter 1982; Wyer and Collins 1992), or a benign violation (i.e., something is wrong yet okay; McGraw and Warren 2010; McGraw *et al.* 2014; Veatch 1998).

Evidence also suggests that humor helps make negative situations less distressing (Martin 2001, 2002). Historical records indicate that people facing great suffering, such as holocaust victims and prisoners of war, use humor to cope (Ford and Spaulding 1973; Frankl 1985; Henman 2001). Clinical research similarly suggests that being humorous is an effective way to deal with grief (Keltner and Bonanno 1997) and pain (Cogan *et al.* 1987; Weaver and Zillmann 1994; Weisenberg *et al.* 1995; Zillmann *et al.* 1993). In laboratory settings, people (1) are less likely to condemn morally disturbing behavior after listening to humorous audio clips (Strohmingner *et al.* 2011; Valdesolo and DeSteno 2006), (2) experience more positive emotions and less negative emotions after making jokes about aversive images (Samson and Gross 2012), and (3) are less distressed if they humorously narrate an aversive video (Newman and Stone 1996).

There are hints that humorous appeals are not taken as seriously as their non-humorous counterparts. People are less likely to comply with advice when it is delivered humorously (Bussiere 2009). Humorous complaints are given a lower priority by customer service agents than non-humorous complaints (McGraw *et al.* 2015). People are also less likely to be persuaded by political information that is attributed to a humorist (Nabi *et al.* 2007; Young 2008). Lastly, 3 of the 30 anti-drug PSAs tested by Fishbein *et al.* (2002) were intended be humorous, yet none of the 3 were judged by respondents to be effective.

Study 1: Problem Recognition

With the goal to spur people to solve a problem, a PSA's function is to convince viewers that the depicted problem is important. We randomly assigned people to view either a humorous or non-humorous PSA and then asked viewers how important it is to solve the depicted problem. We also asked respondents to judge how important it is to solve nine other social problems. Thus, for each respondent, we collected 10 importance judgments, 1 corresponding to the viewed PSA (the "depicted issue") and 9 corresponding to problems not viewed in the PSA (the "non-depicted issues"). The design allows us to examine whether an effect of humor on problem perceptions is limited to the depicted problem or whether it extends to problems in general. We also collected importance judgments from a control group that did not view a PSA.

Stimuli

To develop a matched stimulus set and avoid selection bias, we used hypothesis-blind workers to identify humorous and non-humorous PSAs on YouTube. Thirty-three MTurk workers were paid 75 cents and given a chance to win a \$30 performance-bonus. They were asked to choose three social issues

and search YouTube for a humorous and non-humorous PSA addressing each issue. We told workers that the PSAs should be produced within the last 5 years and be similar in length, overall message, and target market, and that the humorous PSAs should be intentionally humorous. A hypothesis-blind research assistant examined the resulting 99 humorous/non-humorous pairs and selected 10 pairs that best matched the aforementioned criteria. The stimuli for the experiment thus consisted of 1 humorous and 1 non-humorous PSA for 10 social issues (e.g., obesity, drunk driving; see Table 1).

Table 1: Brief descriptions of the stimulus set from Study 1.

Social issue	Humorous PSA	Non-humorous PSA
Teen pregnancy	Pretend ad for the ravaged-looking “Teen Mommy Darcy” Barbie Doll	Bristol Palin talks about the consequences of teen pregnancy
Drunk driving	Drunk driving is like kicking a sleeping grizzly bear	Child and mother cry as police inform them of father’s death
Seat belt use	Two men sit upside down in a wrecked car and congratulate each other on not getting a “click it or ticket” ticket	Wife and daughter hug father and act as a seatbelt that protects him from harm
Adoption	Adoptive parent vacuums up pet hamster, but kids still love her	Montage of children playing in the grass
Pet adoption	Business man calls home to talk to cat, not wife	Montage of shelter animals
Safe sex	Band mates of Vampire Weekend discuss condoms on a public bus	Young adults discuss sex
Prescription drug abuse	Accessible prescription drugs is like having bear traps around the house	Daughter steals father’s prescription drugs
CPR	Actor Ken Jeong and sexy actresses perform CPR	Actress Janine Turner describes CPR
Heart disease	Actress Elizabeth Banks has a heart attack	Woman in car has a heart attack
Obesity	French fry discusses junk food	Feeding a child junk food is like giving a child heroin

Methods

Three-hundred-sixty-three U.S. residents were recruited on MTurk ($M_{age} = 29.18$; three were removed for failing an attention check) and were randomly assigned to view one of the 20 PSAs. An additional 192 respondents were assigned to the control group ($M_{age} = 30.19$; four were removed for failing an attention check). Prior to the task, we told participants that they would evaluate the importance of various social issues. Because we were concerned that respondents would report that every problem was highly important to address, we reminded respondents that societal resources (in terms of government funding, private funding, social involvement, etc.) are limited. Respondents assigned to watch a PSA then viewed 1 of the 20 PSAs and judged the importance of 10 social issues, including the issue depicted in the PSA. Respondents judged each social issue on a separate screen in a random order. Respondents made their judgments on a 7-point scale with endpoints “not important” and “extremely important.” Participants in the control group judged the social issues without viewing a PSA.

Results

Humorous versus non-humorous PSAs

Recall that we recorded two scores for each respondent who viewed a PSA: the importance judgment for the social issue that corresponded to the viewed PSA (the “depicted issue”) and the mean importance judgments of the remaining nine social issues, which were not viewed (the “non-depicted” issues). Figure 1 shows importance judgments for the depicted and non-depicted issues,

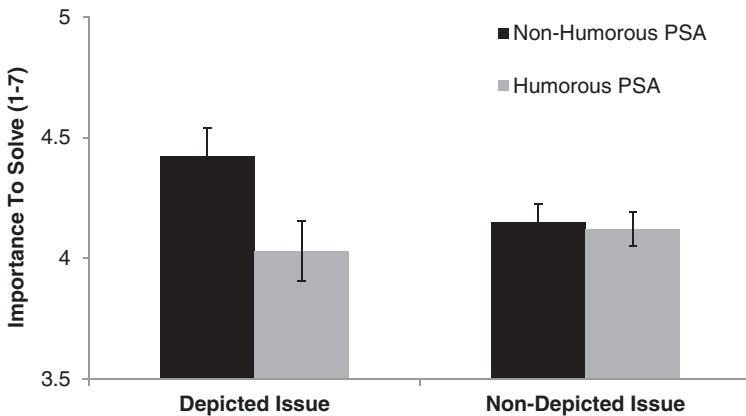


Figure 1: Mean importance judgments for depicted and non-depicted issues after watching either a non-humorous PSA (black bars) or humorous PSA (grey bars) in Study 1. Error bars indicate one standard error above and below the mean.

with separate bars for whether the PSA was humorous or not. Respondents who viewed a humorous PSA judged the depicted issue as less important to solve than respondents who viewed a non-humorous PSA.

We ran a repeated-measures ANOVA with issue type as the within-subjects factor and PSA type (humorous PSA vs. non-humorous PSA) as the between-subjects factor. The interaction between issue type and PSA type was significant ($F(1, 358) = 5.86, p < 0.05$). To explore the nature of the interaction, we ran follow-up simple effects tests. The importance judgments for depicted issues were lower among those who viewed a humorous versus non-humorous PSA ($M_{\text{Humorous}} = 4.03$ vs. $M_{\text{Non-Humorous}} = 4.42$; $F(1, 358) = 5.35, p < 0.05$), but non-depicted issues were judged similarly regardless of PSA type ($M_{\text{Humorous}} = 4.12$ vs. $M_{\text{Non-humorous}} = 4.15$; $F(1, 358) = 0.10, p > 0.70$).

Comparison to control

Respondents in the control condition provided importance judgments for each issue without viewing a PSA. We calculated the mean importance judgments for each issue, which served as a measure of baseline importance. To assess whether viewing a PSA changed perceived importance of the depicted issue compared to control, we subtracted the baseline importance judgments from the importance judgments for the depicted issue provided by each respondent viewing a humorous or non-humorous PSA. For example, the control group's mean importance judgment of obesity was 4.63. For all respondents who viewed a PSA on obesity, we subtracted 4.63 from their judgment of the depicted issue (i.e., obesity). Average difference scores for the humorous PSAs were negative ($M = -0.20$), whereas average difference scores for the non-humorous PSAs were positive ($M = 0.17$), indicating that the control group judged the social issues to be more important than did viewers of humorous PSAs but less important than did viewers of non-humorous PSAs.

To test the statistical significance of comparisons to the control group, we regressed the difference scores on PSA type (humorous PSA = 0, non-humorous PSA = 1). The effect of PSA type was significant, indicating humorous and non-humorous PSAs had divergent effects on importance judgments relative to control ($M_{\text{Humorous}} = -0.20$ vs. $M_{\text{Non-Humorous}} = 0.17$; $F(1, 358) = 5.38, p < 0.05$). Because we coded humorous PSAs as 0, the intercept reflects the mean difference in importance judgments between participants who viewed a humorous PSA and participants in the control group. The intercept was marginally significant, suggesting that humorous PSAs led to lower importance judgments relative to control ($M = -0.20, F(1, 358) = 3.03, p = 0.08$). To compare differences in importance judgments between participants who viewed a non-humorous PSA and participants in the control group, we reran the regression with reversed dummy coding such that respondents who viewed a non-

humorous PSA were coded as 0. The intercept was not statistically significant, which failed to provide clear evidence that non-humorous PSAs led to higher importance judgments relative to control ($M = 0.17$, $F(1, 358) = 2.40$, $p = 0.12$).

Discussion

Viewers of a humorous PSA judged the depicted issue to be less important to solve than viewers of a non-humorous PSA. Importance judgments of non-depicted issues were unaffected by the presence or absence of humor in the depicted PSA.

Study 2: Problem-solving Behavior

Models of consumer decision-making show that people are motivated to act when they believe a problem is important to solve (e.g., Hoyer and MacInnis 2008), so next we examine whether the detrimental effect of humor generalizes to problem-solving behavior. We partnered with a non-profit organization, the National Campaign to Prevent Teen and Unplanned Pregnancy, to examine the effectiveness of the organization's humorous media campaign. Sexual health campaigns typically target 18-to-29 year-old women, but ignore men. In order to capture the attention of young men, the organization is creating humorous PSAs and publishing them online. A key objective of the organization is to encourage viewers to seek out sexual health information.

Though there are many different behaviors that we could examine, the organization wanted to test whether their PSA was effective at getting people to search for information. Hence, we designed a search task as our primary dependent measure. Respondents viewed 10 statements about sexual health with missing information (e.g., "19% of young women believe it is quite or extremely likely that they are _____."; see Appendix A). We presented each incomplete statement on a separate screen in random order. The facts included in the statements were culled from online resources provided by our partner organization. Respondents could reveal the complete statement after a 3-s delay (presented as a countdown) or skip to the next statement. The total number of complete statements revealed served as our dependent measure. We also tested if self-reported intentions to learn more about sexual health were affected by the presence or absence of humor (Baumeister *et al.* 2007).

Stimuli

In a humorous PSA used by the National Campaign, a comedian acting as a spokesperson becomes outraged when he learns that 1 in 5 men think that having sex standing up reduces the chance of pregnancy (stimulus referred

to as “Original Humorous”; Third Floor Productions 2011d). We asked the organization to create a non-humorous PSA in which the spokesperson appears perplexed and somberly laments the statistic (stimulus referred to as “Non-humorous”; Third Floor Productions 2011a). Because the original humorous PSA used an aggressive style that could alienate viewers (Martin *et al.* 2003) and make viewers feel bad about themselves (Keltner *et al.* 1998), we also asked the organization to produce two other humorous PSAs that featured gentler teasing (stimuli referred to as “Teasing Crew” and “Teasing Audience”; Third Floor Productions 2011b,c). The PSAs were filmed and edited by the production company to be as similar as possible. Thus, we could compare humorous and non-humorous appeals while better holding constant extraneous factors present in Study 1’s stimuli.

To verify that the PSA already in use by the organization and the two new humorous PSAs differed from the non-humorous PSA in humor, we recruited seventy-seven 18-to-29 year-old men in the United States through an online survey on MTurk ($M_{\text{age}} = 24.77$; five respondents were removed for failing an attention check). Respondents were randomly assigned to watch one of the four PSAs and then rate it on three dimensions (amusing, humorous, funny) using a 5-point scale, with higher ratings indicating greater perceived humor. Averaging over the three ratings (*Chronbach’s* $\alpha = 0.93$), there were no judged differences in humor ratings across the three PSAs intended to be humorous ($M_{\text{Gets Real}} = 4.05$, $M_{\text{Teasing Audience}} = 4.25$, $M_{\text{Teasing Crew}} = 4.28$; $F(2, 52) = 0.36$, $p > 0.70$), but they were rated as significantly more humorous than the non-humorous PSA in a planned comparison ($M_{\text{Humorous(Collapsed)}} = 4.19$, $M_{\text{Non-Humorous}} = 3.24$. $t(70) = 3.62$, $p < 0.01$).

Intuitions about humorous PSAs

We also tested whether intuitions about the effectiveness of humor would contrast with our findings. Fifty-seven MTurk workers watched the original humorous PSA used by the organization and the non-humorous PSA. Order was randomized. Respondents were told that a major goal of the campaign was to prompt viewers to search for more information on sexual health. Respondents indicated which PSA would be most effective at achieving this goal. Seventy percent of respondents believed the humorous PSA would be more effective than the non-humorous PSA, which was significantly greater than chance (binomial test; $p < 0.01$), suggesting that people do not anticipate that a humorous appeal may decrease search.

Methods

We recruited 18-to-29 year-old men in the United States through an online survey on MTurk ($N = 95$; $M_{\text{age}} = 25.3$; six were removed for failing an

attention check). Respondents were randomly assigned to view one of the four PSAs or a no-video control. Those in the control group read information that was spoken in the PSAs (i.e., “1 of 5 men believes that having sex standing up reduces the chance of pregnancy”). Next, respondents were told they could learn more about sexual health by revealing health information that was missing from a series of incomplete statements. Ten incomplete statements were presented in total, each on its own screen. Respondents were told they had the option to reveal the missing text or skip to the next statement. By clicking “yes,” the missing information was displayed pending a 3-s countdown. After the information was revealed, we presented the respondent the next incomplete statement. Respondents who clicked “no” were immediately presented the next incomplete statement. The process was repeated for all 10 statements. Finally, respondents indicated their interest in learning more about 14 forms of birth control listed on the organization’s website (e.g., “I would like to learn more about the following method of birth control: Abstinence”) on a 5-point scale with endpoints “strongly disagree” and “strongly agree.”

Results

We examined the effect of condition on the number of statements revealed by respondents. A one-way ANOVA showed no statistically significant differences across the humorous videos in the number of statements revealed ($F(2, 50) = 2.4, p > 0.1$), so we collapsed over the humorous videos and performed a planned comparison between the humorous videos and the non-humorous one. Confirming our prediction, the contrast was significant; respondents revealed fewer statements after viewing the humorous PSAs than the non-humorous PSA ($M_{\text{Humorous}} = 6.7$ vs. $M_{\text{Non-Humorous}} = 8.4; t(86) = 2.12, p < 0.05$, partial $r^2 = 0.05$). Respondents in the control condition revealed fewer statements than those in the non-humorous conditions, but more statements than those in the humorous condition ($M_{\text{Control}} = 7.6$). However, comparisons between the control and PSA conditions were not significant ($p > 0.25$).

Next we examined the effect of condition on respondents’ interest in learning more about 14 forms of birth control (see Table 2). Viewers of the humorous PSAs indicated lower interest than viewers of the non-humorous PSA for 11 forms of birth control. The difference was significant when averaged over participants ($M_{\text{Humorous}} = 2.4$ vs. $M_{\text{Non-Humorous}} = 2.8; t(13) = 4.51, p < 0.01$) but not when averaged over forms of birth control ($t(86) = 1.21, p > 0.2$). Interest among control respondents resembled those in the humorous condition ($M_{\text{Humorous}} = 2.4$ vs. $M_{\text{Control}} = 2.4$), although a statistical comparison against the non-humorous condition was not significant ($p > 0.8$).

Table 2: Self-reported interest in additional information about 14 forms of birth control in study 2.

Measure	Humorous PSAs		Non-humorous PSA		Control	
	M	SD	M	SD	M	SD
Withdrawal	2.30	1.37	2.88	1.62	2.37	1.46
Spermicide	2.49	1.31	2.59	1.42	2.53	1.35
Sponge	2.23	1.34	2.47	1.33	2.11	1.15
Fertility awareness	2.25	1.31	3.24	1.44	2.11	1.05
Cervical cap	2.28	1.26	2.47	1.46	2.16	1.26
Female condom	2.66	1.39	2.82	1.38	2.63	1.61
Condom	2.38	1.43	3.18	1.38	2.26	1.37
Diaphragm	2.30	1.23	2.53	1.42	2.47	1.39
The pill	2.81	1.47	3.24	1.48	2.79	1.58
The patch	2.30	1.28	2.59	1.46	2.53	1.35
The ring	2.58	1.31	3.00	1.46	2.58	1.57
The shot	2.87	1.32	2.88	1.36	2.37	1.46
Implant	2.32	1.21	2.65	1.37	2.58	1.43
IUD	2.21	1.15	2.24	1.35	2.37	1.38
Average	2.43		2.77		2.42	

Discussion

Study 2 replicates and extends Study 1 using more closely matched stimuli and measuring search behavior. According to our partner organization, the PSAs were designed to spur curiosity about sexual health. The more traditional non-humorous PSA was most successful at accomplishing the goal. Viewers of humorous PSAs sought out less sexual health information than viewers of the non-humorous PSA.

Replication and Meta-Analysis

In order to develop a better understanding of the reliability and effect size for the search result we present 11 additional fairly direct replications consisting of a total sample size of $N = 1953$. The replications differed in (1) the populations from which the samples were drawn, (2) the number of incomplete statements included in the experiment (5 vs. 10), (3) whether 1 or 3 humorous PSAs were used, (4) whether a no-video control condition was included, and (5) whether subjects were asked their interest in learning

more about birth control. We then performed a meta-analysis on the studies using the mean difference in the number of statements revealed between the non-humorous and humorous PSA conditions. A summary of the study methods and the meta-analysis procedure are provided in Appendix B. The meta-analysis revealed an estimated mean effect size of $r = 0.06 \pm 0.045$ at 95% confidence ($Z = 2.57, p < 0.01$). The finding corroborates the results of Study 2 and confirms that the humorous PSAs lead to less search for sexual health information than the non-humorous PSA, though the effect is relatively small.

We also examined whether humor increased or decreased the number of statements revealed relative to a control condition. The mean statements revealed in control conditions were in between the means of the humorous and non-humorous PSA conditions. The meta-analysis suggests that the use of humor decreases search relative to control. Respondents in the humorous PSA conditions revealed fewer statements than those in the control condition at marginal significance with an estimated mean effect size of $r = 0.05 \pm 0.057$ at 95% confidence ($Z = 1.83, p < 0.1$). There is no evidence that the absence of humor increases search relative to control ($r = 0.003, n.s.$). We also analyzed self-reported intentions to learn about birth control across five studies that included the measure. The meta-analysis revealed a mean effect size of $r = 0.05$ that did not significantly differ from zero.

General Discussion

Advertiser Claude Hopkins recognized a potential downside of using humorous appeals when he famously cautioned, “people don’t buy from clowns.” We present a different downside: humor inhibits problem recognition and problem solving. Our results are consistent with theories suggesting that humor occurs in response to situations that are safe, playful, or non-serious (McGraw and Warren 2010; McGraw *et al.* 2012, 2014), evidence that good moods signal that everything is okay (Schwarz 1990), and a broad array of evidence that positivity is less motivating than negativity (Baumeister *et al.* 2001).

Study 1 examined perceptions of social issues, such as obesity and seatbelt use. Respondents judged an issue as less of a problem after viewing a humorous PSA than a non-humorous PSA. Study 2 examined search behavior through a partnership with the National Campaign to Prevent Teen and Unplanned Pregnancy. Humorous PSAs created by the organization were less effective than a non-humorous PSA at spurring search for information that would have improved the viewer’s sexual health knowledge. When informed of the results of the study, the National Campaign adjusted their strategy. Instead of trying to encourage viewers to seek out more information, the organization started providing problem solving information within their humorous PSAs

(Liz Sabatiuk, personal communication, September 25, 2013; Vega 2013). In a new campaign, for example, a young male humorously explains in great detail how and why birth control pills work (Bedsider.org 2013).

The traditional approach to social marketing recommends that PSAs elicit negative emotions in order to drive problem-solving behavior (Bagozzi and Moore 1994; Coke *et al.* 1978; Lazarus 1991; Rogers 1983). We show that deviating from the traditional model has a potential downside for marketers interested in behavior change. Nevertheless, because humorous appeals help cut through clutter (Eisend 2009; Gulas and Weinberger 2006), some marketers may still be willing to be humorous when the primary goal is to get people to pay attention. Indeed, the nightly news is often unpleasant, but in the case of satirical news programs (e.g., *The Daily Show with Jon Stewart*), humor gets people to tune-in. Some airlines, for instance, are creating cheeky safety videos in order get passengers to attend to a familiar message (Virgin America 2013). Social marketers, moreover, may forgo behavior change benefits and choose instead to pursue the added publicity of having media outlets report on the latest humorous PSA. In sum, the pursuit of humor in marketing communications — PSA or otherwise — should be a decision about how the tactic best fits into an organization's overall marketing strategy.

In contrast to our results, some research suggests that humor could enhance problem solving when social marketers use fear appeals. Classic research suggests that people avoid fear appeals that cause extreme distress because emotion-focused coping (e.g., avoidance) takes precedence over problem-focused coping (e.g., solving the depicted problem; Janis and Feshbach 1953; Lazarus 1991). Although recent meta-analyses reveal that the avoidance of fear appeals are overstated in the literature (De Hoog *et al.* 2007; Witte and Allen 2000), creating negative emotion by way of fear is risky because fear appraisals generally lead people to withdraw (Bandura 1977; Gross 1998; Tanner Jr. *et al.* 1991). We were curious if humor would buffer against fear effects (e.g., Conway and Dubé 2002; Mukherjee and Dubé 2012), so we examined two pairs of PSAs (drunk driving and obesity) in Study 1 that used fear appeals. The results were consistent with our original hypothesis: humorous PSAs were associated with *lower* problem judgments than their non-humorous counterparts.

Conclusion

Given the benefits of humorous appeals, it is not surprising to see serious messages being communicated humorously in the marketplace. Our inquiry suggests that these benefits have a potential downside for behavior change, thus revealing a previously unaddressed tradeoff between enhancing reach and spurring problem solving.

Appendix A

The 10 incomplete sentences used to determine the amount of search. Missing information is shown in parentheses. Presentation order was random. (*Source*: The National Campaign 2010)

1. Among unmarried 20-something women, _____. (7 in 10 pregnancies are unplanned)
2. Fifty-one percent of unplanned pregnancies among unmarried women end in abortion, compared to _____. (22% of unplanned pregnancies among married women)
3. Thirty percent of young adults know little or nothing about condoms and 63% _____. (know little or nothing about the birth control pill)
4. Nearly 1 in 5 young adults (18%) think _____ after sex can _____. (douching; prevent pregnancy)
5. Forty-three percent of guys say they'd be at least a little pleased if they found out today that _____. (their partner was pregnant. And that's among guys who say it's important for them to avoid pregnancy right now)
6. Nineteen percent of young women believe it is quite or extremely likely that they are _____. (infertile)
7. Thirty-seven percent of young adults surveyed thought taking the pill for a year would be more dangerous than _____. [having a baby (in fact for non-smokers under the age of 35, pregnancy and delivery are nearly 20 times riskier than using the pill)]
8. Though _____ % of those surveyed said they would most trust a professional source for information about birth control, only _____. (73; 32% listed a professional source as their most common source of information about contraception in the past year)
9. Only _____ % of all unplanned pregnancies occur to teen girls. (21)
10. Over half (55%) of all unplanned pregnancies occur to _____. (women in their twenties, and fully 1 million occur to women in their early twenties)

Table 3: Results of Meta-analysis.

Study	Sample	PSA(s)	Group N		Effect size (Fisher's Z based on partial r)					
			Humor	Non-humor	Reveal DV		Interest DV			
			Yes	control	Humor vs. non-humorous	Humor vs. control	Humor vs. control	Humor vs. non-humorous		
1	18-29 Year old males	Set 1	53	17	19	0.23	0.13	0.00	0.11	
2	All ages	Set 2	196	207	NA	0.03	0.02	NA	NA	
3	18-29 Year old males	Set 1	122	120	136	-0.02	0.12	0.10	0.05	
4	18-29 Year old males	Set 3	97	27	31	0.11	0.15	NA	NA	
5	All ages	Set 1	75	80	73	0.05	-0.12	0.14	-0.19	
6	18-29 Year old males	Set 3	85	26	27	-0.06	NA	NA	NA	
7	All ages	Set 2	62	62	NA	0.09	0.04	NA	NA	
8	18-29 Year old males	Set 3	44	41	39	0.11	NA	NA	NA	
9	All ages	Set 3	31	30	30	-0.04	0.02	NA	NA	
10	18-29 Year old males	Set 3	43	42	NA	-0.17	NA	NA	NA	
11	College population (lab study)	Set 1	75	24	NA	0.21	NA	0.05	NA	
12	College population (lab study)	Set 1	29	10	NA	NA	NA	0.20	NA	
Summary (95% confidence interval)						0.059 (± 0.045)	0.053 (± 0.057)	0.003 (± 0.048)	0.048 (± 0.073)	0.060 (± 0.101)

Set 1: Original humorous, teasing crew, teasing audience, and non-humorous.
 Set 2: Teasing crew and non-humorous.
 Set 3: Original humorous, non-humorous.

Appendix B

Before running the meta-analysis, we compiled the data from 12 studies into 1 dataset. All humorous PSA conditions were collapsed, leaving three conditions for analysis: humorous, non-humorous, and control. We computed two sets of dummy codes to compare these three conditions. The first set compares the humorous PSA to the non-humorous PSA (X1), and the humorous PSA to the control condition (X2). The second set compares the control to the humorous PSA (Z1), and the control to the non-humorous PSA (Z2).

Dummy set 1			
	Humorous	Non-humorous	Control
X1	0	1	0
X2	0	0	1
Dummy set 2			
	Humorous	Non-humorous	Control
Z1	1	0	0
Z2	0	1	0

We ran four regression models for each study. The first two models regressed the number of statements revealed on Dummy sets 1 and 2. The second two models regressed interest in learning more about sexual health on Dummy sets 1 and 2. For each study, we recorded the partial r for each unique contrast (humorous vs. non-humorous, humorous vs. control, and control vs. non-humorous). We Fisher transformed these partial correlations and multiplied them by the inverse variance weight to determine the weighted effect size within each study, within each contrast (Lipsey and Wilson 2001). Within a given contrast, the sum of the weighted effect size divided by the sum of the inverse variance weights forms the weighted mean effect size for that contrast. To calculate the standard error of the mean effect size, we took the square root of one over the sum of the inverse variance weights within each contrast. Using the mean and standard error, we computed the 95% confidence interval around the effect size and the corresponding Z — score.

Key Results: Those in the humorous conditions revealed fewer statements than those in the non-humorous condition ($Z = 2.57, p < 0.01$). Compared to the control condition, humor decreased statements revealed at marginal significance ($Z = 1.83, p < 0.1$) while directionally, the absence of humor increased statements revealed, although this difference was not significant ($p > 0.9$). Interest in learning more about birth control did not differ by condition (all $p > 0.25$). Directionally, those in the humorous condition indicated less interest in learning more about birth control than those in the non-humorous and control conditions.

References

- Alden, Dana L., Ashesh Mukherjee, and Wayne D. Hoyer (2000), "The Effects of Incongruity, Surprise and Positive Moderators on Perceived Humor in Television Advertising," *Journal of Advertising*, 29(2), 1–15.
- Andrade, Eduardo B. (2005), "Behavioral Consequences of Affect: Combining Evaluative and Regulatory Mechanisms," *Journal of Consumer Research*, 32(3), 355–62.
- Apter, Michael J. (1982), *The Experience of Motivation: The Theory of Psychological Reversals*, London: Academic Press.
- Bagozzi, Richard P. and David J. Moore (1994), "Public Service Advertisements: Emotions and Empathy Guide Prosocial Behavior," *Journal of Marketing*, 58(1), 56–70.
- Bandura, Albert (1977), "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," *Psychological Review*, 84(2), 191–215.
- Baumeister, Roy F., Ellen Bratslavsky, Catrin Finkenauer, and Kathleen D. Vohs (2001), "Bad is Stronger than Good," *Review of General Psychology*, 5(4), 323–70.
- Baumeister, Roy F., Kathleen D. Vohs, and David C. Funder (2007), "Psychology as the Science of Self-Reports and Finger Movements Whatever Happened to Actual Behavior?" *Perspectives on Psychological Science*, 2(4), 396–403.
- Beard, Fred K. (2005), "One Hundred Years of Humor in American Advertising," *Journal of Macromarketing*, 25(1), 54–65.
- Bedsider.org (2013), "Guy's Guide: The Pill," <http://www.youtube.com/watch?v=avFWvmjg674> (accessed on 04/02/2014).
- Berger, Jonah and Katherine L. Milkman (2012), "What Makes Online Content Viral?" *Journal of Marketing Research*, 49(2), 192–205.
- Bussiere, Dave (2009), *The Effects of Humor on the Processing of Word-of-Mouth*, ed. AM. L. McGill and S. Shavitt, Vol. 36, Pittsburg, PA: Association for Consumer Research, 399–404.
- Cogan, Rosemary, Dennis Cogan, William Waltz, and Melissa McCue (1987), "Effects of Laughter and Relaxation on Discomfort Thresholds," *Journal of Behavioral Medicine*, 10(2), 139–44.
- Coke, Jay S., C. Daniel Batson, and Katherine McDavis (1978), "Empathic Mediation of Helping: A Two-Stage Model," *Journal of Personality and Social Psychology*, 36(7), 752–66.
- Conway, Michael and Laurette Dubé (2002), "Humor in Persuasion on Threatening Topics: Effectiveness is a Function of Audience Sex Role Orientation," *Personality and Social Psychology Bulletin*, 28(7), 863–73.

- Damon, Matt (2013), "Matt Damon Takes on Global Water Crisis," in *The Lead with Jake Tapper*, ed. Jake Tapper, <http://thelead.blogs.cnn.com/2013/11/15/matt-damon-takes-on-global-water-epidemic/> (accessed on 04/02/2014).
- De Hoog, Natascha, Wolfgang Stroebe, and John B. F. deWit (2007), "The Impact of Vulnerability to and Severity of a Health Risk on Processing and Acceptance of Fear-Arousing Communications: A Meta-Analysis," *Review of General Psychology*, 11(3), 258–85.
- Duncan, Calvin P. (1979), "Humor in Advertising: A Behavioral Perspective," *Journal of the Academy of Marketing Science*, 7, 285–306.
- Duncan, Calvin P. and James E. Nelson (1985), "Effects of Humor in a Radio Advertising Experiment," *Journal of Advertising*, 14(2), 33–64.
- Eastman, Max (1936), *Enjoyment of Laughter*, New York, NY: Simon and Schuster.
- Eisend, Martin (2009), "A Meta-Analysis of Humor in Advertising," *Academy of Marketing Science Journal*, 37(2), 191–203.
- Fishbein, Martin, Kathleen Hall-Jamieson, Eric Zimmer, Ina von Haefen, and Robin Nabi (2002), "Avoiding the Boomerang: Testing the Relative Effectiveness of Antidrug Public Service Announcements Before a National Campaign," *American Journal of Public Health*, 92(2), 238–45.
- Ford, Charles V. and Raymond C. Spaulding (1973), "The Pueblo Incident: A Comparison of Factors Related to Coping with Extreme Stress," *Archives of General Psychiatry*, 29(3), 340–3.
- Frankl, Viktor E. (1985), *Man's Search for Meaning*, Massachusetts: Beacon Press.
- Gervais, Matthew and David Sloan Wilson (2005), "The Evolution And Functions of Laughter and Humor: A Synthetic Approach," *The Quarterly Review of Biology*, 80(4), 395–430.
- Gross, James J. (1998), "The Emerging Field of Emotion Regulation: An Integrative Review," *Review of General Psychology*, 2(3), 271–99.
- Gulas, Charles S., Kim K. McKeage, and Marc G. Weinberger (2010), "It's Just a Joke," *Journal of Advertising*, 39(4), 109–20.
- Gulas, Charles S. and Marc G. Weinberger (2006), *Humor in Advertising: A Comprehensive Analysis*, Armonk, NY: M.E. Sharpe Inc.
- Henman, Linda D. (2001), "Humor as a Coping Mechanism: Lessons from POWs," *Humor: International Journal of Humor Research*, 14(1), 83–94.
- Hoyer, Wayne and Deborah MacInnis (2008), *Consumer Behavior*, 5th edn, Manson, OH: South-Western Cengage Learning.
- Isen, Alice M. and Stanley F. Simmonds (1978), "The Effect of Feeling Good on a Helping Task That Is Incompatible with Good Mood," *Social Psychology*, 41(4), 346–9.

- Janis, Irving L. and Seymour Feshbach (1953), "Effects of Fear-Arousing Communications," *The Journal of Abnormal and Social Psychology*, 48(1), 78–92.
- Johnson, Eric J. and Amos Tversky (1983), "Affect, Generalization, and the Perception of Risk," *Journal of Personality and Social Psychology*, 45, 20–31.
- Keltner, Dacher and George A. Bonanno (1997), "A Study of Laughter and Dissociation: Distinct Correlates of Laughter and Smiling During Bereavement," *Journal of Personality and Social Psychology*, 73(4), 687–702.
- Keltner, Dacher, Randall C. Young, Erin A. Heerey, Carmen Oemig, and Natalie D. Monarch (1998), "Teasing in Hierarchical and Intimate Relations," *Journal of Personality and Social Psychology*, 75(5), 1231–47.
- Kittmer, L. (2013), "How to Generate a PSA Announcement," <http://www.ehow.com/how%208051862%20generate-psa-announcement.html%20eHow.com> (accessed on 04/02/2014).
- Krishnan, H. Shanker and Dipankar Chakravarti (2003), "A Process Analysis of the Effects of Humorous Advertising Executions on Brand Claims Memory," *Journal of Consumer Psychology*, 13(3), 230–45.
- Lazarus, Richard S. (1991), *Emotion and Adaptation*, New York: Oxford University Press.
- Lipsey, Mark W. and David B. Wilson (2001), *Practical Meta Analysis. Applied Social Research Methods Series*, Vol. 49, California: Sage Publications.
- Madden, Thomas J. and Marc G. Weinberger (1982), "The Effects of Humor on Attention in Magazine Advertising," *Journal of Advertising*, 11(3), 8–14.
- Maddux, James E. and Ronald W. Rogers (1983), "Protection Motivation and Self-Efficacy: A Revised Theory of Fear Appeals and Attitude Change," *Journal of Experimental Social Psychology*, 19(5), 469–79.
- Man Therapy (2012), "Dr. Rich Mahogany, Man Therapy®PSA," <https://www.youtube.com/watch?v=EhH7SjbxsgU&feature=youtu.be:Cactus> (accessed on 07/11/2015).
- Martin, Rod A. (2001), "Humor, Laughter, and Physical Health: Methodological Issues and Research Findings," *Psychological Bulletin*, 127(4), 504–19.
- Martin, Rod A. (2002), "Is Laughter the Best Medicine? Humor, Laughter, and Physical Health," *Current Directions in Psychological Science*, 11(6), 216–20.
- Martin, Rod A. (2007), *The Psychology of Humor: An Integrative Approach*, Burlington, MA: Elsevier Academic Press.
- Martin, Rod A., Patricia Puhlik-Doris, Gwen Larsen, Jeanette Gray, and Kelly Weir (2003), "Individual Differences in Uses of Humor and Their Relation to Psychological Well-Being: Development of the Humor Styles Questionnaire," *Journal of Research in Personality*, 37(1), 48–75.

- McGraw, A. Peter and Caleb Warren (2010), "Benign Violations: Making Immoral Behavior Funny," *Psychological Science*, 21(8), 1141–9.
- McGraw, A. Peter, Caleb Warren, and Christina Kan (2015), "Humorous Complaining," *Journal of Consumer Research*, 41(5), 1153–71.
- McGraw, A. Peter, Caleb Warren, Lawrence E. Williams, and Bridget Leonard (2012), "Too Close for Comfort, or Too Far to Care? Finding Humor in Distant Tragedies and Close Mishaps," *Psychological Science*, 25(10), 1215–23.
- McGraw, A. Peter, Lawrence E. Williams, and Caleb Warren (2014), "The Rise and Fall of Humor: Psychological Distance Modulates Humorous Responses to Tragedy," *Social Psychology and Personality Science*, 5, 566–72.
- McKee, Steve (2012), "Integrated Marketing: If You Knew It, You'd Do It," <http://www.businessweek.com/articles/2012-05-10/integrated-marketing-if-you-knew-it-you-d-do-it> (accessed on 04/02/2014).
- Mukherjee, Ashesh and Laurette Dubé (2012), "Mixing Emotions: The Use of Humor in Fear Advertising," *Journal of Consumer Behavior*, 11(2), 147–61.
- Nabi, Robin L., Emily Moyer-Gusé, and Sahara Byrne (2007), "All Joking Aside: A Serious Investigation Into the Persuasive Effect of Funny Social Issue Messages," *Communication Monographs*, 74(1), 29–54.
- Newman, Michelle Gayle and Arthur A. Stone (1996), "Does Humor Moderate the Effects of Experimentally-Induced Stress?" *Annals of Behavioral Medicine*, 18(2), 101–9.
- Provine, Robert R. (2001), *Laughter: A Scientific Investigation*, New York, NY: Penguin Press.
- Quit the Denial (2013), "Social Farting," <https://www.youtube.com/watch?v=EpA1cJIOSR0> (accessed on 04/02/2014).
- Ramachandran, Vilayanur S. (1998), "The Neurology and Evolution of Humor, Laughter, and Smiling: The False Alarm Theory," *Medical Hypotheses*, 51(4), 351–4.
- Rethink (2011), "Rethink Breast Cancer presents: Your Man Reminder," <https://www.youtube.com/watch?v=VsyE2rCW71o> (accessed on 07/11/2015).
- Rogers, Ronald W. (1983), "Cognitive and Physiological Processes in Fear Appeals and Attitude Change: A Revised Theory of Protection Motivation," in *Social Psychophysiology: A Sourcebook*, ed. John T. Cacioppo and Richard E. Petty, New York, NY: The Guilford Press, 153–76.
- Rothbart, Mary K. (1973), "Laughter in young children," *Psychological Bulletin*, 80(3), 247–56.
- Samson, Andrea C. and James J. Gross (2012), "Humour as Emotion Regulation: The Differential Consequences of Negative Versus Positive Humour," *Cognition and Emotion (Print)*, 26(2), 375–84.
- Schmidt, Stephen R. (1994), "Effects of Humor on Sentence Memory," *Journal of Experimental Psychology. Learning, Memory, and Cognition*, 20(4), 953–67.

- Schmidt, Stephen R. (2002), "The Humour Effect: Differential Processing and Privileged Retrieval," *Memory*, 10(2), 127–38.
- Schwarz, Norbert (1990), *Feelings as Information: Informational and Motivational Functions of Affective States*, New York, NY: Guilford Press.
- Small, Deborah A. and Nicole M. Verrochi (2009), "The Face of Need: Facial Emotion Expression on Charity Advertisements," *Journal of Marketing Research*, 46(6), 777–87.
- Strick, Madelijn, Rob W. Holland, Rick B. Van Baaren, and A. D. Van Knippenberg (2010), "The Puzzle of Joking: Disentangling the Cognitive and Affective Components of Humorous Distraction," *European Journal of Social Psychology*, 40, 43–51.
- Strohinger, Nina, Richard L. Lewis, and David E. Meyer (2011), "Divergent Effects of Different Positive Emotions on Moral Judgment," *Cognition*, 119(2), 295–300.
- Tanner Jr., John F., James B. Hunt, and David R. Eppright (1991), "The Protection Motivation Model: A Normative Model of Fear Appeals," *Journal of Marketing*, 55(3), 36.
- The National Campaign (2010), "The Fog Zone Is All around Us," http://blog.thenationalcampaign.org/pregnant_pause/2010/10/the-fog-zone-is-all-around-us.php (accessed on 04/02/2015).
- Third Floor Productions (2011a), "PSA Gets Real About Stats (Non-humorous)," https://www.youtube.com/watch?feature=player_embedded&v=4V_HDACVTm4 (accessed on 04/02/2015).
- Third Floor Productions (2011b), "PSA Gets Real on Crew Member (Teasing Crew)," http://www.youtube.com/watch?feature=player_embedded&v=wNsj24jea34 (accessed on 04/02/2015).
- Third Floor Productions (2011c), "PSA With Crazy Stats (Teasing Audience)," https://www.youtube.com/watch?v=Nbir990RmSw&feature=player_embedded (accessed on 04/02/2015).
- Third Floor Productions (2011d), "Sex Psa Gets Real (Original Humorous)," <http://www.youtube.com/watch?v=nMvjfyw7yQQ> (accessed on 04/02/2014).
- Valdesolo, Piercarlo and David DeSteno (2006), "Manipulations of Emotional Context Shape Moral Judgment," *Psychological Science*, 17(6), 476–7.
- Veatch, Thomas C. (1998), "A Theory of Humor," *Humor: International Journal of Humor Research*, 11(2), 161–215.
- Vega, Tanzina (2013), "Using Humor to Talk About Birth Control," <http://www.nytimes.com/2013/11/11/business/media/using-humor-to-talk-about-birth-control.html> (accessed on 07/11/2015).
- Virgin America (2013), "Virgin America Safety Video #VXsafetydance," <https://www.youtube.com/watch?v=DtyfiPIHsIg> (accessed on 10/02/2015).

- Warren, Caleb and A. Peter McGraw (2013), "When Humor Backfires Revisiting the Relationship Between Humorous Marketing and Brand Attitudes," Marketing Science Institute Reports, <http://www.msi.org/reports/when-humor-backfires-revisiting-the-relationship-between-humorous-marketing/> (accessed on 11/07/2015).
- Water.org (2013), "Matt Damon Goes on Strike!" <http://www.youtube.com/watch?v=jQCqNop3CIg> (accessed on 04/02/2014).
- Weaver, James and Dolf Zillmann (1994), "Effect of Humor and Tragedy on Discomfort Tolerance," *Perceptual and Motor Skills*, 78(2), 632–4.
- Weisenberg, Matisyohu, Inbal Tepper, and Joseph Schwarzwald (1995), "Humor as a Cognitive Technique for Increasing Pain Tolerance," *Pain (Amsterdam)*, 63(2), 207–12.
- Witte, Kim and Mike Allen (2000), "A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns," *Health Education & Behavior*, 27(5), 591–615.
- Wright, William F. and Gordon H. Bower (1992), "Mood Effects on Subjective Probability Assessment," *Organizational Behavior and Human Decision Processes*, 52(2), 276–91.
- Wyer, Robert S. and James E. Collins (1992), "A Theory of Humor Elicitation," *Psychological Review*, 99(4), 663–88.
- Young, Dannagal Goldthwaite (2008), "The Privileged Role of the Late-Night Joke: Exploring Humor's Role in Disrupting Argument Scrutiny," *Media Psychology*, 11(1), 119–42.
- Zillmann, Dolf, Steve Rockwell, Karla Schweitzer, and S. Shyam Sundar (1993), "Does Humor Facilitate Coping with Physical Discomfort?" *Motivation and Emotion*, 17(1), 1–21.