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# Effects of Mortality Salience on Evaluation of Ingroup and Outgroup Sources: The Impact of Pro- Versus Counterattitudinal Positions

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*Past Terror Management Theory (TMT) research has demonstrated that mortality salience leads to favoritism toward ingroup members and derogation of outgroup members and to polarized attitudes toward the source of pro- and counterattitudinal statements. In such research, the individual's group membership and the individual's worldview position were examined separately. Thus, when the individual's group membership was manipulated, one could normally assume that an outgroup member is counterattitudinal and an ingroup member is proattitudinal. It is unclear, therefore, whether ingroup members elicited favoritism from mortality salient participants because of their group membership or because of their presumably proattitudinal position, or both. The authors present two studies in which the individual's group membership and attitudinal position are jointly manipulated. Results showed that among mortality salient participants, the outgroup member received favorable or unfavorable evaluations depending on his position, whereas the ingroup member received moderately positive evaluations regardless of the position taken.*

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**Keywords:** death anxiety; ingroup; outgroup; attitude similarity; social perception; source evaluation

**H**ow would you evaluate an individual who argues that social psychologists are less competent than neuroscientists? Would it matter if that individual was a social psychologist or a neuroscientist? And would it matter if just prior to hearing this you were sitting in front of your computer answering e-mails or watching a plane crash into the Pentagon on television? The current research addresses source evaluation as a function of message position, group membership, and death anxiety. Although attitudes are usually defined as global evaluations of objects, issues, and persons, much research in attitudes has focused on the former two as targets of eval-

uations. For instance, various studies have demonstrated that our evaluations toward consumer products and public policies may be influenced by characteristics associated with the source of persuasion (for reviews, see Eagly & Chaiken, 1993; Petty & Wegener, 1998). However, there has been relatively little research on what influences our evaluations toward the source as an attitude object.

Theory and research suggest that an individual's attitudinal position is one important piece of information that people use to evaluate the source. A number of theorists have proposed that source evaluation is related to the source's attitudinal similarity. For example, according to Byrne's (1971) theory of interpersonal attraction, people like others to the extent that others agree with them. Moreover, a linear relationship between liking for an individual and the individual's extent of attitude similarity has been demonstrated in past research (e.g., Byrne & Nelson, 1965). Another relevant piece of information is the source's group membership. According to social identification theory (Tajfel & Bilig, 1974) and self-categorization theory (Turner, Hogg, Oakes, Reicher, & Whetherel, 1987), people like individuals who belong to their group and dislike those who belong

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**Authors' Note:** This research was supported in part by Ohio State University's Distinguished University Fellowship. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of Ohio State University. We thank the members of the Ohio State Group for Attitudes and Persuasion for comments on the research. We also thank Paul White for providing us with ostensible radio excerpts that we modified for our current research. Correspondence concerning this article should be addressed to Ya Hui Michelle See, Department of Psychology, The Ohio State University, 1885 Neil Avenue, Columbus, OH 43210-1222; e-mail: see.39@osu.edu.

*PSPB*, Vol. 32 No. 3, March 2006 405-416

DOI: 10.1177/0146167205282737

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to another group because of the desire for a positive social identity. Past research has shown that such in-group bias can be manifested in differential positive trait ratings (e.g., Brewer & Silver, 1978). Therefore, people's attitudes toward an individual are influenced by that individual's group membership and attitudinal position.

More recently, research has demonstrated that these two pieces of information become even more important when we find ourselves in situations that prompt existential concerns. Most of the prior research has examined the impact of position and group membership on attitudes toward individuals under pristine situations. Yet, in our daily lives, we encounter individuals under a wider variety of circumstances. For example, recent worldwide events such as terrorist attacks and outbreaks of diseases such as SARS demonstrate that we sometimes encounter individuals who try to persuade us during times of concern about our life and death. Thus, understanding how death anxiety affects attitudes toward possible persuaders is of high current interest.

Perhaps the most prominent area of social psychological research that is relevant to these issues is work based on Terror Management Theory (TMT) (Greenberg, Solomon, & Pyszczynski, 1997). TMT posits that we try to deal with the fear of our inevitable death by subscribing to a worldview that gives us meaning, order, and death transcendence. Indeed, much research (e.g., Greenberg et al., 1990) has supported the hypothesis that reminders of our death lead us to defend our worldview when it is threatened. In past research, one's worldview has typically been operationalized in ways that are relevant to one's group memberships or cherished beliefs (e.g., one's nationality, one's religion) (Greenberg et al., 1990); that is, the threat to one's worldview has been operationalized in ways that range from an individual simply belonging to another group (e.g., Greenberg et al., 1990) to an individual criticizing one's salient beliefs (e.g., Duchesne, Janssen, & van Knippenberg, 2000). Therefore, past research has focused on an individual's group membership and attitudinal position as particularly relevant pieces of information for our evaluations of the individual as we are coping with our fear of death. Before discussing the current research, we review work on each of these variables.

#### TERROR MANAGEMENT: PRO- VERSUS COUNTERATTITUDINAL SOURCES

According to TMT, mortality salience leads people to defend their worldview against threat. In particular, many studies have supported the hypothesis that mortality salience leads people to derogate individuals who make statements that attack their worldview. For example, Greenberg et al. (1990) found that mortality salience led American participants to show decreased liking

for an anti-U.S. source, relative to control participants. In the same research, participants who were high in authoritarianism also showed reduced liking for an attitudinally dissimilar individual under mortality salience. In another instance, Duchesne et al. (2000) found that among high-need-for-closure participants, mortality salience increased derogation of a source who criticized their university. On the other hand, TMT research has shown that death reminders lead to a preference for a proattitudinal individual. For example, Greenberg et al. (1990) found that mortality salience, relative to the control condition, increased American participants' preference for a pro-U.S. source and increased positivity toward an attitudinally similar target among high authoritarians.

#### TERROR MANAGEMENT: REACTIONS TO INGROUP VERSUS OUTGROUP MEMBERS

According to prior TMT research, mortality salience increases ingroup favoritism and outgroup rejection. For instance, Greenberg et al. (1990) found that relative to control participants, mortality salient Christian participants liked a Jewish target less but a Christian target more. More recently, Castano, Yzerbyt, Paladino, and Sacchi (2002) found that relative to their control counterparts, Italian participants under mortality salience showed a greater positive bias in rating Italians versus Germans. Such ingroup bias also extends to participants' behavior. For instance, Jonas, Schimel, Greenberg, and Pyszczynski (2002) found that mortality salience led American participants to donate more money to an American charity relative to an international charity. Thus, the effects of mortality salience on ratings of ingroup members are similar to those found for individuals who espouse proattitudinal positions. Indeed, one might expect an ingroup member to hold more attitudinally congruent positions than an outgroup member.

What about ingroup members who hold attitudinally dissimilar positions? Castano, Yzerbyt, and Paladino (2004) have argued that according to the TMT perspective, one's group membership should serve as a death anxiety buffer only when such membership implies worldview validation. On the other hand, they argue that group membership alone might help alleviate death anxiety because social identification enables the extension of the self; that is, Castano and his colleagues have suggested that from the TMT perspective, ingroup members who are counterattitudinal would be derogated. However, from the social identification perspective, ingroup status would either compensate for or override a counterattitudinal position such that a counterattitudinal ingroup individual would not be derogated

or would still receive favorable evaluations. Based on past research, it is not entirely clear how participants react to an attitudinally dissimilar ingroup member under mortality salience conditions. For instance, previous research has shown that relative to control participants, mortality salient White participants were more lenient toward a White pride essayist and a blatantly discriminating White employee in their racism and guilt judgments, respectively (Greenberg, Schimel, Martens, Solomon, & Pyszczynski, 2001). Although this suggests that an ingroup individual who makes racist statements is more tolerated under mortality salience conditions, there were no ingroup egalitarians presented in this research for comparison purposes, and there were not any outgroup (African American) individuals who made pro-White statements. Without these comparison groups, it is difficult to discern the unique meaning of the tolerance of racist Whites observed under mortality salience.

#### THE PRESENT RESEARCH

Because most of prior research on reactions to individuals under mortality salience conditions has examined position and group membership separately, it is unclear whether ingroup members elicited favoritism from mortality salient participants because of their group membership or because of their presumably proattitudinal position, or both. Even in research that directly pits group membership against position in the form of an apparently counterattitudinal ingroup individual (e.g., Greenberg et al., 2001), it is hard to distinguish between group membership effects and position effects because all of the relevant comparison conditions were not included. Therefore, in the current research, we will jointly manipulate position (pro- or counterattitudinal) and group membership (ingroup or outgroup) in addition to mortality salience (present or not). Due to the exploratory nature of our initial study, we considered three possible outcomes. First, both the source's group membership and the source's position might be more impactful under mortality salience conditions. In other words, relative to the control condition, a source in the mortality salience condition who is either an ingroup member or proattitudinal would be evaluated more positively, but a source who is either an outgroup member or counterattitudinal would be evaluated more negatively. This would imply that worldview validation and social identification are equally important because they exert independent effects on evaluations. A second possibility is that either the group membership or the position taken would matter more than the other factor under mortality salience. For instance, if group membership overrides position, then an ingroup source would be evaluated more positively than an out-

group source, regardless of position. This would suggest that one terror management strategy (e.g., social identification) can replace another (e.g., worldview validation). A third possibility is that the two factors would interact under mortality salience. For example, it could be that under mortality salience conditions, position matters only when the source is an outgroup rather than an ingroup member because the mere presence of an ingroup member provides sufficient protection against threat (see Castano et al., 2004), whereas more threatening outgroup members must be scrutinized for their positions. This would imply a more dynamic process in which one terror management strategy (e.g., social identification) influences the separate effects of another defense mechanism (e.g., worldview validation) on evaluations.

The major aim of the current research is to investigate how participants under mortality salience conditions will form attitudes toward an individual, given information about that individual's group membership and attitudinal position. In two studies, we manipulated the source to be from the participants' own university (ingroup) or their rival university (outgroup), and the source either took a pro-ingroup (proattitudinal) or an anti-ingroup (counterattitudinal) position. An individual from a rival university can be conceived of as a definitive outgroup member. In addition, one's university, similar to one's nationality or religion, serves to give order (e.g., in the form of the academic calendar), meaning (e.g., as one fulfills the purpose of receiving an education), and permanence (e.g., in the form of the school's historical achievements). Thus, statements that praise or criticize one's university are unambiguously proattitudinal or counterattitudinal. To vary mortality salience, we used a procedure common in past TMT research. Prior to receiving the message, participants were either reminded of their death or of their dental pain. Dental pain is commonly used as a control for mortality salience because it has been demonstrated to create equal negative affect as mortality salience in prior research but without raising life and death concerns (e.g., Greenberg et al., 1995).<sup>1</sup>

#### EXPERIMENT 1

##### *Method*

##### *PARTICIPANTS AND DESIGN*

Participants were 121 introductory psychology students at Ohio State University who were randomly assigned to the conditions of a 2 (salience: mortality or dental pain)  $\times$  2 (source group membership: ingroup or outgroup)  $\times$  2 (position: pro- or counterattitudinal) between-subjects design. The students received partial course credit for their participation.

## PROCEDURE

All materials in the experiment were presented and completed in Medialab software (Jarvis, 2002). At the beginning of the session, the experimenter led participants into a room with eight computers, where they selected a seat. Participants were told that because they had signed up for a ½ hour session, they would be participating in two separate, short experiments to receive the ½ hour credit. To further alleviate participants' suspicion that both experiments were actually part of the same study, they were told that the computer would randomize the order in which the experiments were presented to them.

Participants were then presented with the Personality Questionnaires Study. The study's ostensible purpose was to examine relationships among various personality questionnaires. First, participants filled out two filler personality questionnaires, which were presented as Personality Questionnaire One and Personality Questionnaire Two. The two filler questionnaires were followed by the supposedly "newly developed" Projective Life Attitudes Assessment, which contained either the mortality or the dental pain salience treatment. Finally, as in past TMT research (e.g., Greenberg et al., 1990), participants filled out a modified version of the PANAS-X (Watson, Clark, & Tellegen, 1988), a self-report measure that contained the Positive and Negative Affect subscales.

After completing the Personality Questionnaires Study, participants were presented with an ostensibly separate experiment. The apparent purpose of this second experiment, the Communications Study, was to determine how people evaluate and respond to different modes of communications. In the current session, participants expected to evaluate written transcripts taken from live radio broadcasts. Participants then read an excerpt from an interview with a university administrator who was either from their own university or from a rival university. In the excerpt, the university official either made proattitudinal statements that students from Ohio State University (i.e., the participants' own university) were better than students from the University of Michigan (i.e., the participants' rival university) or made counterattitudinal statements that students from Ohio State University were worse than students from the University of Michigan. After reading the excerpt, participants reported their evaluation of the administrator. At the end of the session, participants were debriefed and thanked for their participation.

## INDEPENDENT VARIABLES

*Mortality salience.* The two open-ended questions in The Projective Life Attitudes Assessment constituted the mortality salience manipulation. In the mortality

salience condition, participants responded to the following questions: "Please briefly describe the emotions that the thought of your own death arouses in you" and "Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead." In the control condition, participants responded to parallel questions with respect to dental pain.

*Source group membership.* After participants filled out the PANAS-X in the Personality Questionnaires Study, they received instructions for the Communications Study. The instructions constituted the source's group membership manipulation. Participants in the ingroup source condition read, "Please read the following excerpt from a radio interview with an administration officer from the Ohio State University." Participants in the outgroup source condition read, "Please read the following excerpt from a radio interview with an administration officer from the University of Michigan." In addition, the beginning portion in the interview included an introduction of the source. Participants in the ingroup source condition read the following:

Q: What is your name and status here at Ohio State University?

A: My name is Gregory Edwards, and for the past year I have worked as administrative liaison to different faculty and staff committees on the Ohio State University campus. In this function, I attend most of the meetings and provide the committees with information and feedback from the administration's point of view on various topics and proposals.

Participants in the outgroup source condition read a parallel introduction except Ohio State was replaced with the University of Michigan.

*Source attitudinal position.* The administrative officer's responses to the interviewer's questions were manipulated to be either proattitudinal or counterattitudinal. An example of proattitudinal statements is, "[Ohio State University students] are more engaging and very concerned with their role in our society, something rarely seen at Michigan. . . . I am impressed with Ohio State." The counterattitudinal response is parallel to the proattitudinal response. An example is, "Ohio State University students are less concerned about their role in our society . . . less mature than those at Michigan. . . . I am disappointed with Ohio State."

## AFFECT CHECK AND DEPENDENT MEASURE

*Check on induced affect.* After completing the mortality salience or dental pain salience treatment, participants filled out the modified PANAS-X, which assesses their affect, on 5-point scales with 1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*.

**TABLE 1: Mean Source Evaluation as a Function of Salience, Source Group Membership, and Position in Experiment 1**

Source Group Membership	Position	M Salience		SD Salience		n Salience	
		Mortality	Dental Pain	Mortality	Dental Pain	Mortality	Dental Pain
Ingroup	Pro	4.87 <sub>a,b</sub>	6.01 <sub>a</sub>	1.79	1.78	12	18
	Counter	4.83 <sub>a,b</sub>	4.07 <sub>b</sub>	2.24	1.42	15	15
Outgroup	Pro	6.29 <sub>a,c</sub>	5.83 <sub>c</sub>	1.41	1.27	13	14
	Counter	2.28 <sub>d</sub>	2.71 <sub>d</sub>	1.50	1.19	19	15

NOTE: The higher the mean, the more favorable the source evaluation. Means with different subscripts differ significantly at  $p < .05$ .

Participants' negative affect was computed as the average of their ratings on the 10 items in the Negative Affect subscale (Cronbach's  $\alpha = .86$ ). The purpose for the affect check is to discount the alternative explanation that any effect in the study was due to a greater negative affect experienced by mortality salient participants.

No direct manipulation check for the mortality salience treatment was included for the following reasons. First, a direct manipulation check might induce mortality salience in the dental pain salience control participants. Second, even subtle death reminders would bring death thoughts back into mortality salient participants' consciousness and, thus, eliminate mortality salience effects, which past research has shown to occur only after a delay—when mortality salience is presumably outside of participants' consciousness (e.g., Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994).

*Source evaluation.* After reading his comments, participants indicated their attitude toward the source on five 9-point scales, with 1 representing *not at all* and 9 representing *totally*. The five items were as follows: "How much do you like the speaker?" "How intelligent do you think the speaker is?" "How knowledgeable do you think the speaker is?" "How much did you agree with the speaker's opinion of Ohio State University students?" and "From your perspective, how true do you think the speaker's opinion of Ohio State University students is?" To assess participant's evaluation of the source, their responses to the five items were averaged (Cronbach's  $\alpha = .91$ ). The first three items were the same items used in previous TMT research (e.g., Greenberg et al., 1990), and the last two items were adapted from the same research, with the target changed to Ohio State University students to reflect the communication used in the current research.

### Results

Both the affect and source evaluation measures were subjected to a 2 (salience: mortality or dental pain)  $\times$  2 (source group membership: ingroup or outgroup)  $\times$  2 (position: pro- or counterattitudinal) ANOVA.

### AFFECT CHECK

As in past TMT research, mortality salient participants did not experience more negative affect than did dental pain salient participants ( $M = 1.75$ ,  $SD = .58$  and  $M = 1.82$ ,  $SD = .60$ , respectively),  $F(1, 120) = .24$ ,  $p = .62$ .<sup>2</sup>

### SOURCE EVALUATION

Results showed significant main effects for Source Group Membership,  $F(1, 120) = 4.82$ ,  $p < .05$ , and for Position,  $F(1, 120) = 56.57$ ,  $p < .01$ . Overall, participants rated the ingroup source ( $M = 4.94$ ,  $SD = .22$ ) more favorably than the outgroup source ( $M = 4.28$ ,  $SD = .21$ ). They also rated the source more favorably when his position was proattitudinal ( $M = 5.75$ ,  $SD = 1.67$ ) rather than counterattitudinal ( $M = 3.47$ ,  $SD = 1.66$ ).

These main effects were qualified by a significant Source Group Membership  $\times$  Position two-way interaction,  $F(1, 120) = 18.03$ ,  $p < .01$ . This interaction suggested that the position taken by the outgroup source had a greater impact on evaluations of the source than the position taken by the ingroup source; that is, people reacted more favorably to the ingroup source when the position taken was proattitudinal ( $M = 5.55$ ,  $SD = 1.84$ ) rather than counterattitudinal ( $M = 4.45$ ,  $SD = 1.88$ ),  $t(58) = 2.30$ ,  $p < .05$ , but the reaction was even more extreme when the outgroup source took a proattitudinal ( $M = 6.05$ ,  $SD = 1.53$ ) versus a counterattitudinal ( $M = 2.47$ ,  $SD = 1.37$ ) position,  $t(59) = 9.63$ ,  $p < .01$ .

Of greatest interest, there was a significant three-way interaction among all the independent variables,  $F(1, 120) = 5.30$ ,  $p < .05$ . The means for the three-way interaction are presented in Table 1. To assess the nature of this three-way interaction, we performed separate Source Group Membership  $\times$  Position ANOVAs for the control and mortality salient participants. Among control participants, the significant main effects for Source Group Membership,  $F(1, 61) = 4.33$ ,  $p < .05$ , and for Position,  $F(1, 61) = 46.73$ ,  $p < .01$ , were not qualified by the Source Group Membership  $\times$  Position two-way interaction,  $F(1, 120) = 2.52$ ,  $p = .12$ ; that is, overall, control participants rated the proattitudinal source more favorably than the counterattitudinal source, regardless of his group mem-

bership, and rated the ingroup source more favorably than the outgroup source, regardless of his position.

A different pattern of results emerged for mortality salient participants. Specifically, for these individuals, the main effect for Position,  $F(1, 58) = 17.43, p < .01$ , was qualified by a significant Source Group Membership  $\times$  Position two-way interaction,  $F(1, 120) = 16.75, p < .01$ . This interaction demonstrated that mortality salient participants reacted more extremely to what the outgroup source had to say than to what the ingroup source had to say; that is, under mortality salience conditions, whether the outgroup source made pro- or counterattitudinal statements mattered,  $t(30) = 6.85, p < .01$ , but whether the ingroup source made pro- or counterattitudinal statements mattered hardly at all,  $t(25) = .50, p = .96$ .

Unexpectedly, unlike in some previous terror management research (e.g., Duchesne et al., 2000), mortality salient participants rated the outgroup source as favorably as their control counterparts regardless of the source's position; that is, the Salience  $\times$  Position interaction was not significant for the outgroup source, although the means suggested that the outgroup source's position mattered more under mortality salience conditions than under control conditions. We return to this effect in our final discussion following Study 2. However, this interaction was significant for the ingroup source,  $F(1, 59) = 3.98, p = .05$ , in the opposite direction, indicating that ingroup source's position mattered less under mortality salience than under the control condition.

### Discussion

Experiment 1 provided evidence that under mortality salience, group membership interacted with position to determine source evaluations, whereas in the control condition, group membership and position exerted independent effects. The interaction of group membership and position effects among mortality salient participants was such that position did not matter for participants' attitude toward the ingroup source but did for their attitudes toward the outgroup source. When the outgroup member said something positive about the ingroup, he was rewarded with very favorable evaluations, but when he said something negative, he was derogated. On the other hand, the ingroup member received moderately favorable evaluations from mortality salient individuals regardless of what he said. It is particularly noteworthy that even when the ingroup member took a counterattitudinal position, his ingroup status apparently protected him from derogation relative to the outgroup member who took the same position. This is a new finding that adds to previous research demonstrating that under mortality salience, a deviant ingroup member may be tolerated relative to control conditions (Greenberg et al., 2001).

### EXPERIMENT 2

Experiment 1 was unique in examining the joint impact of source group membership and position under mortality salience conditions; thus, it was important to replicate the key results in another study. In addition, we wanted to find out why the mortality salient participant's evaluation of the ingroup source was moderated relative to the outgroup source and relative to the control condition. To examine this, we wanted to assess the role of information processing in forming the source judgments.

In particular, one can ask whether mortality salient participants evaluated the source in a cognitively effortful way. Past research has not looked at whether mortality salient participants arrived at their evaluations of the sources through relying on simple characteristics of the source alone (i.e., the source's attitudinal position and/or group membership) or by effortfully processing the substantive content of what the source does or says. Contemporary persuasion theories such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (HSM) (Chaiken, Liberman, & Eagly, 1989) posit that people can form and change their attitudes with relatively little or much thought. In the present research, if mortality salience caused participants to think more effortfully about statements from the outgroup member than statements from the ingroup member, and they found the proattitudinal information to be cogent and the counterattitudinal information to be specious when processed, it could account for why the outgroup sources produced more polarized judgments than ingroup sources under mortality salient conditions.

On the other hand, it may be that mortality salience does not increase effortful information processing of the substance of the source's message. Instead, death reminders may lead participants to use the cues that are relevant to terror management as they form attitudes toward an individual; that is, under death anxiety conditions, participants may have selectively relied on the outgroup source's position to form evaluations rather than processed the general substance of message presented. To examine whether outgroup sources lead mortality salient people to generally scrutinize the message or to selectively depend on cues, we varied the quality of the arguments that the source gave for his position in Experiment 2. Argument quality is a widely used tool to assess the extent of message-relevant thinking (see Petty & Wegener, 1998) and was varied in addition to the variables manipulated in Experiment 1.

If the effects obtained in Experiment 1 were due to mortality salient participants differentially relying on the position of outgroups versus ingroups, then it should not matter whether the source provides strong or weak argu-

ments for his position; that is, we should replicate Experiment 1's result regardless of argument quality. However, if mortality salience causes individuals to effortfully scrutinize the content of the outgroup source more than the ingroup source, then the outgroup source should be appreciated more when the arguments are strong than when they are weak. This interaction of source and argument quality under mortality salience conditions could occur instead of or in addition to the interaction of source and message position observed in Experiment 1.

### Method

#### OVERVIEW

The procedure in Experiment 2 was identical to that in Experiment 1, with the addition of an argument quality manipulation. Participants filled out the same questionnaires as in Experiment 1 and then read an ostensible radio transcript. In addition, manipulation checks for the source's group membership and his position were included.

#### PARTICIPANTS

Participants were 176 introductory psychology students at Ohio State University who participated in the 2 (salience: mortality or dental pain)  $\times$  2 (source group membership: ingroup or outgroup)  $\times$  2 (position: pro- or counterattitudinal)  $\times$  2 (argument quality: weak or strong) study in return for partial fulfillment of a course requirement.

#### INDEPENDENT VARIABLES

Mortality salience, source group membership, and position were all manipulated in exactly the same way as in Experiment 1. However, Experiment 2 has an additional independent variable—argument quality.

Argument quality was manipulated to be weak or strong through the examples provided by the administrative officer in support of his views. An example of a proattitudinal strong argument is as follows: "The professors and students at Ohio State University had a good rapport and easily discussed topics, compared to Michigan." An example of a proattitudinal weak argument is as follows: "Ohio State University students here seem to be good at keeping their dorms clean, for example. Michigan students tend to be very messy when they stay in the dorms." Parallel counterattitudinal weak arguments were constructed. The arguments used in this study are provided in the appendix.

#### DEPENDENT MEASURE AND MANIPULATION CHECKS

As in Experiment 1, participants were given the mortality salience or dental pain salience treatment before filling out the modified PANAS-X. Then, participants read the radio transcript and indicated their overall eval-

uation of the source. Manipulation checks also were included.

*Source group membership manipulation check.* Participants were asked to respond to the multiple-choice question, "At which university is the speaker working?" The five choices were University of Wisconsin, Ohio State University, University of Arizona, New York University, and University of Michigan.

*Position manipulation check.* Participants were asked to respond to the multiple-choice question, "Does the speaker think that Ohio State University students are better or worse than Michigan students?" The three choices were as follows: "Ohio State University students are better than Michigan students," "Ohio State University students are worse than Michigan students," and "Ohio State University students are neither better nor worse than Michigan students."

*Source evaluation.* As in Experiment 1, participants indicated their attitude toward the source on five items using 9-point scales.

### Results

#### MANIPULATION CHECKS

*Affect check.* As in Experiment 1, mortality salient participants did not experience any more negative affect than did dental pain salient participants ( $M = 1.70$ ,  $SD = .67$  and  $M = 1.73$ ,  $SD = .59$ , respectively). In other words, the main effect of mortality salience on negative affect was not significant,  $F(1, 160) = .05$ ,  $p = .83$ , and there were not any other effects on this measure.

*Source group membership.* Nearly all (96.6%) of the participants responded correctly to the manipulation check question assessing their perception of the source's group membership. The 6 participants who got the source's group membership wrong were excluded from further analyses.

*Position.* Nearly all (94.5%) of the participants responded correctly to the manipulation check question assessing their perception of the source's position. The 9 participants who got the source's position wrong were excluded from further data analyses.<sup>3</sup>

#### DEPENDENT MEASURE

*Source evaluation.* Participants' evaluations of the source (Cronbach's  $\alpha = .92$ ) were computed as the average of participants' responses to the five items described previously. Results showed significant main effects for Argument Quality,  $F(1, 160) = 7.08$ ,  $p < .01$ , for Salience,  $F(1, 160) = 4.26$ ,  $p < .05$ , and for Position,  $F(1, 160) = 60.56$ ,  $p < .01$ . Overall, participants rated the source presenting strong arguments ( $M = 4.59$ ,  $SD = 1.60$ ) more favorably than the source presenting weak arguments

**TABLE 2: Mean Source Evaluation as a Function of Salience, Source Group Membership, and Position in Experiment 2**

Source Group Membership	Position	M Salience		SD Salience		n Salience	
		Mortality	Dental Pain	Mortality	Dental Pain	Mortality	Dental Pain
Ingroup	Pro	4.59 <sub>a,b</sub>	5.29 <sub>a</sub>	1.57	1.91	18	17
	Counter	4.46 <sub>a,b</sub>	3.41 <sub>b</sub>	1.73	1.42	18	21
Outgroup	Pro	6.10 <sub>c</sub>	4.83 <sub>a</sub>	1.19	1.58	24	20
	Counter	2.84 <sub>d</sub>	2.59 <sub>d</sub>	1.37	1.59	19	24

NOTE: The higher the mean, the more favorable the source evaluation. Means with different subscripts differ significantly at  $p < .05$ .

( $M = 3.92$ ,  $SD = 1.55$ ). Furthermore, mortality salient participants ( $M = 4.60$ ,  $SD = 1.87$ ) rated the source more favorably than did control participants ( $M = 3.91$ ,  $SD = 1.96$ ). In addition, participants rated the source more favorably when his position was proattitudinal ( $M = 5.26$ ,  $SD = 1.64$ ) rather than counterattitudinal ( $M = 4.38$ ,  $SD = 1.80$ ).

The main effects were qualified by a significant Source Group Membership  $\times$  Position two-way interaction,  $F(1, 160) = 11.81$ ,  $p < .01$ . This was the same interaction observed in Experiment 1; that is, although the ingroup source elicited more favorable evaluations when he was proattitudinal ( $M = 4.93$ ,  $SD = 1.75$ ) than when he was counterattitudinal ( $M = 3.89$ ,  $SD = 1.71$ ),  $t(72) = 2.58$ ,  $p < .05$ , the preference for the proattitudinal source ( $M = 5.53$ ,  $SD = 1.51$ ) relative to the counterattitudinal source ( $M = 2.70$ ,  $SD = 1.49$ ) was even greater for the outgroup source,  $t(85) = 8.79$ ,  $p < .01$ .

More important, as in Experiment 1, there was a significant three-way Salience  $\times$  Source Group Membership  $\times$  Position interaction,  $F(1, 160) = 7.23$ ,  $p < .01$ . The means for the significant three-way interaction are displayed in Table 2 and conform closely to the pattern observed in the first study. The three-way interaction was not qualified by a four-way interaction with Argument Quality,  $F(1, 160) = .00$ ,  $p = .97$ . Thus, as in Experiment 1, we performed separate Source Group Membership  $\times$  Position ANOVAs for the mortality salient participants and the control participants, collapsing across argument quality. Among control participants, the significant main effect of Position,  $F(1, 81) = 31.28$ ,  $p < .01$ , was not qualified by the Source Group Membership  $\times$  Position two-way interaction,  $F(1, 81) = .23$ ,  $p = .63$ ; that is, overall, control participants rated the proattitudinal source more favorably than the counterattitudinal source, regardless of his group membership.

Different results were found for mortality salient participants. Specifically, the main effect of Position,  $F(1, 78) = 30.01$ ,  $p < .01$ , was qualified by a significant Source Group Membership  $\times$  Position two-way interaction,  $F(1, 74) = 26.45$ ,  $p < .01$ . As in Experiment 1, this interaction demonstrated that mortality salient participants reacted

more extremely to what the outgroup source said than what the ingroup source said. In other words, mortality salient participants rated the ingroup source similarly whether he took a counterattitudinal ( $M = 4.46$ ,  $SD = 1.73$ ) or a proattitudinal ( $M = 4.59$ ,  $SD = 1.57$ ) position,  $t(34) = .24$ ,  $p = .81$ . However, the outgroup source was rated much more negatively when the position taken was counterattitudinal ( $M = 2.84$ ,  $SD = 1.37$ ) rather than proattitudinal ( $M = 6.10$ ,  $SD = 1.19$ ),  $t(41) = 8.35$ ,  $p < .01$ .

The three-way interaction also was decomposed by looking at the Salience  $\times$  Position interaction separately for the ingroup source and the outgroup source. As in Experiment 1, the Salience  $\times$  Position interaction was significant for the ingroup source,  $F(1, 73) = 4.92$ ,  $p < .05$ . This interaction indicated that the ingroup source's position had less impact on source evaluation when mortality was salient than when it was not. Also as in Experiment 1, this interaction was not significant for the outgroup source,  $F(1, 86) = 2.70$ ,  $p = .10$ , although as in Experiment 1, there was a tendency for the position effect to be larger when mortality was salient than when it was not.

### Discussion

Experiment 2 replicated the results of Experiment 1 with regard to participants' overall evaluation of the source. In brief, control participants' attitudes toward both the ingroup and the outgroup sources were influenced by the position the source took—pro- or anti-Ohio State University. However, under mortality salience, the ingroup source's position no longer had any impact on evaluations. Attitudes toward the outgroup source were affected significantly by the position taken. Although the argument quality manipulation produced a main effect on source evaluation, demonstrating its effectiveness, it did not moderate the three-way interaction. This suggests that despite the different quality in arguments, differences in evaluations of ingroup versus outgroup members among mortality salient participants were most plausibly due to their selective reliance on position as a cue rather than their intensive processing of the substance of the message.



**TABLE 3: Mean Source Evaluation (Combined Data From Experiments 1 and 2) as a Function of Salience, Source Group Membership, and Position**

Source Group Membership	Position	M Salience		SD Salience		n Salience	
		Mortality	Dental Pain	Mortality	Dental Pain	Mortality	Dental Pain
Ingroup	Pro	4.70 <sub>a</sub>	5.66 <sub>b</sub>	1.63	1.85	30	35
	Counter	4.62 <sub>a</sub>	3.68 <sub>c</sub>	1.96	1.53	33	36
Outgroup	Pro	6.17 <sub>d</sub>	5.24 <sub>e</sub>	1.41	1.52	37	34
	Counter	2.56 <sub>f</sub>	2.64 <sub>f</sub>	1.44	1.43	38	39

NOTE: The higher the mean, the more favorable the source evaluation. Means with different subscripts differ significantly at  $p < .05$ .

## GENERAL DISCUSSION

### *Analysis of Combined Data From Experiments 1 and 2*

Because there were some marginal significance levels from our studies, before drawing any final conclusions, we analyzed the results of Experiments 1 and 2 together to achieve maximum power. We collapsed across argument quality because this was not included in Experiment 1 and had no interactive impact in Experiment 2. Participants who were excluded from analyses in Experiment 2 also were excluded from the combined data set. Results from the 2 (salience: mortality or dental pain)  $\times$  2 (position: pro- or counterattitudinal)  $\times$  2 (source group membership: ingroup or outgroup)  $\times$  2 (experiment: one or two) ANOVA revealed main effects for Position,  $F(1, 281) = 114.64, p < .01$ , and Source Group Membership,  $F(1, 281) = 6.78, p < .05$ . Participants were more favorable toward the source when he took a pro- rather than counterattitudinal position and when he was an ingroup member rather than an outgroup member. As in both individual experiments, the Position  $\times$  Source Group Membership interaction also was significant,  $F(1, 281) = 30.83, p < .01$ . Information regarding the source's position affected participants' evaluation of the source when he was an outgroup member but not when he was an ingroup member.

Also, as was the case in the individual studies, the Salience  $\times$  Position  $\times$  Source Group Membership three-way interaction was reliable,  $F(1, 281) = 12.82, p < .01$ . The means for the three-way interaction are shown in Table 3. Notably, these effects were not influenced by experiment. In addition, the Experiment factor did not interact with any of the other variables. The enhanced power of the combined data set was most useful for decomposing the three-way interaction.

To understand the three-way interaction, we first performed separate Position  $\times$  Source Group Membership ANOVAs for mortality salient and control participants. Results revealed that among control participants, there

were main effects for Position,  $F(1, 143) = 74.85, p < .01$ , and Source Group Membership,  $F(1, 143) = 7.69, p < .01$ , but no interaction between the two variables,  $F(1, 143) = 1.39, p = .24$ . Thus, control participants were more favorable toward the source when he was proattitudinal than when he was counterattitudinal and when he was an ingroup member than when he was an outgroup member. Among mortality salient participants, the main effect for Position,  $F(1, 137) = 44.49, p < .01$ , was qualified by the Position  $\times$  Source group membership interaction,  $F(1, 137) = 40.90, p < .01$ . As in each individual study, this interaction demonstrated that mortality salient participants reacted more extremely to what the outgroup source said than what the ingroup source said. In other words, mortality salient participants rated the ingroup source just as favorably when he was counterattitudinal ( $M = 4.62, SD = 1.96$ ) as when he was proattitudinal ( $M = 4.70, SD = 1.63$ ),  $t(61) = .17, p = .87$ . However, the outgroup source was rated much more negatively when the position taken was counter- ( $M = 2.56, SD = 1.44$ ) rather than proattitudinal ( $M = 6.17, SD = 1.41$ ),  $t(73) = 10.93, p < .01$ .

Some new effects emerged when we performed separate Salience  $\times$  Position ANOVAs for the ingroup and the outgroup source. For both ingroup and outgroup sources, an interaction was obtained. When the source was an ingroup member, position affected source evaluation less in mortality salient participants than in control participants,  $F(1, 133) = 9.87, p < .01$ ; that is, for an ingroup source, when mortality was salient, source evaluations depended less on what position the source took than when mortality was not salient. Perhaps when one's mortality is salient, knowing that an individual is from one's ingroup already fulfills one's death anxiety needs. Thus, one does not need to rely on additional cues to form evaluations. In contrast, when the source was a more threatening outgroup member, position affected source evaluation more in mortality salient participants than in control participants,  $F(1, 147) = 4.37, p < .05$ ; that is, for an outgroup source, when mortality was salient,

source evaluations depended more on what position the source took than when mortality was not salient. The latter interaction was only a trend in each individual study but was significant when the two studies were combined. This result suggests that when mortality is salient, more weight is given to the outgroup member's position. This may be because the outgroup member's status does not assuage death anxiety so the source's positions must be distinguished in an attempt at worldview defense.

#### *Summary and Implications for TMT*

Across our two studies, mortality salience consistently led to greater sensitivity toward the position taken by an outgroup member than an ingroup member. In other words, under mortality salience, people used position as a relevant cue for evaluations when the source was an outgroup member. The outgroup member was especially disliked when he took a counterattitudinal position but was especially liked when he took a proattitudinal position. In contrast, when the source was an ingroup member, mortality salience rendered his position as a completely unimportant cue for people's evaluations of him. Therefore, our research conceptually replicates previous findings showing that counterattitudinal ingroup individuals are tolerated among mortality salient participants relative to control participants (Greenberg et al., 2001). This tolerance for counterattitudinal ingroup members appears to stem from the relative unimportance of the position taken by ingroup members when mortality is salient. The position taken by ingroup members under mortality salience is less important than the position taken by outgroup members under mortality salience conditions and less important than the position taken by ingroup members under control conditions. The confluence of these findings meant when the position taken was proattitudinal, the outgroup source was praised more than the ingroup source, a unique finding that reflects mortality salient participants' ignoring position as a cue for their attitudes toward an ingroup source.

It is worth mentioning that participants in the present research first knew the source's group membership and only then learned his position through reading his comments. Thus, it is possible that if participants were to know the source's position first and then find out his group membership, the locus of the attenuation and exaggeration of source evaluation would be the source's position, instead of his group membership; that is, the proattitudinal source might receive moderately favorable evaluations regardless of his group membership, whereas the counterattitudinal source would receive polarized evaluations depending on his group member-

ship. Such a finding would imply that social identification and worldview defense are substitutable as terror management strategies, such that the opportunity to rely on one cue differentially affects the importance of another cue in forming evaluations. On the other hand, it is also possible that the individual's group membership would be more important than his worldview position even if the position was known before the group membership. This finding would be consistent with Castano et al.'s (2004) argument that social identification defenses may override worldview validation defenses, such that regardless of which cue is presented first, the group membership cue will always affect evaluations. Future research, which involves the manipulation of the order in which participants find out the target's group membership and his position, could more definitively address the question of whether the individual's group membership is substitutable with or more important than the individual's position under mortality salience. Based on the present research, we conclude that when the opportunity for social identification is available first, the fulfillment of social identification needs alone may alleviate death anxiety without the need to resort to worldview defense.

#### *Conclusions*

Results from the present research showed that under mortality salience, our attitudes toward an outgroup member are influenced by the position taken, but our attitudes toward an ingroup member are not. This suggests that at times when our own mortality is likely to be salient, such as when there is war or a widespread disease, the extent to which we like an outgroup individual will depend on whether the individual is on our side. However, when the individual is an ingroup member, whether he or she espouses pro- or counterattitudinal views is less critical. Future research might examine whether such effects are generalizable to an individual source who is advocating a relatively mundane position that is pro- or counterattitudinal. For instance, under mortality salience induced by war, one may like or dislike the government's recommendation for tax increases depending on whether he or she agrees with this recommendation and whether the government is perceived to be one's ingroup or outgroup. If one sees the government as one's outgroup (e.g., "I am liberal but my government is conservative"), liking for the government will depend on whether the government's position is pro- or counterattitudinal. In contrast, if one sees the government as one's ingroup, liking for the government may not be affected by whether one agrees with the recommendation.

## APPENDIX

**Strong and Weak Arguments Used in Experiment 2**

Excerpt containing proattitudinal strong arguments:

- Q: How does Ohio State University (OSU)/Michigan compare to Michigan/OSU?
- A: Well, as a matter of fact, I think that OSU is better than Michigan. OSU students seem to have a very healthy attitude about their studies in comparison to Michigan students. They are more engaging and very concerned with their role in our society, something rarely seen at Michigan. Overall, the students at OSU are more mature than those at Michigan. OSU faculty and staff are more cooperative and show more concern about the school and the students, in particular. I am impressed with Ohio State.
- Q: I see, so Ohio State/Michigan has impressed you more than Michigan/OSU. Do you have any other examples of what led to this opinion?
- A: Yes, I do. On occasion, I will stop by OSU classrooms to see how teachers and students interact. The classes that I have visited have shown me a difference between the schools. OSU professors and students have a great rapport and easily discussed topics, compared to Michigan. Unlike Michigan students, OSU students were interested in the subject matter and asked intelligent, probing questions. OSU students show a desire to truly learn and understand the classroom material, and they also know how to have fun and relax. The ability to balance recreation and learning is key for success in college and the OSU students display this much better than at Michigan.

Excerpt containing proattitudinal weak arguments:

- Q: How does OSU/Michigan compare to Michigan/OSU?
- A: Well, as a matter of fact, I think that OSU is better than Michigan. OSU students here seem to be good at keeping their dorms clean, for example. Michigan students tend to be very messy when they stay in the dorms. OSU students are also more concerned about the type of food they eat. OSU students only patronize on-campus restaurants that are better in terms of service and food quality. Overall, the faculty and students at OSU are also more attuned to changes in weather. They tend to wear clothing that is suitable for the weather. I am impressed with Ohio State.
- Q: I see, so Ohio State/Michigan has impressed you more than Michigan/OSU. Do you have any other examples of what led to this opinion?
- A: Yes, I do. On occasion, I will stop by student dorms to look at how tidy and clean they are. The trash cans in OSU dorms are never overfilled, unlike those at Michigan. There is also a greater variety of cleaning supplies in the maintenance closets in OSU dorms. At OSU, I also see less students at on-campus restaurants that I personally think serve low-quality food. In addition, I go to classrooms to see what faculty members and students are wearing. On a windy day, you always see OSU faculty and students in windbreakers. On a sunny day, OSU students tend to wear shorts and t-shirts. Michigan students always wear the same type of clothes regardless of the weather.

Excerpt containing counterattitudinal strong arguments:

- Q: So, you worked at Michigan/Ohio State. How does Ohio State/ Michigan compare?
- A: Well, as a matter of fact, I think that OSU is worse than Michigan. OSU students seem not to have a very healthy attitude about their studies in comparison to Michigan. They are less engaging and not very concerned with their role in our society, something rarely seen at Michigan. Overall, the students at OSU are less mature than those at Michigan. The faculty and staff here/there are less cooperative and show less concern about the school and the students, in particular. I am disappointed with Ohio State.
- Q: I see, so Ohio State has disappointed you in comparison to Michigan. Do you have any other examples of what led to this opinion?
- A: Yes, I do. On occasion, I will stop by classrooms to see how teachers and students interact. The classes that I have visited have shown me a difference between the schools. The professors and students have a poor rapport and discussions were problematic. The students were not interested in the subject matter and asked foolish, trivial questions. The students here/there show a lack of desire to truly learn and understand the classroom material and they focus too much on having fun and relaxing. The ability to balance recreation and learning is key for success in college and the Michigan students display this much better than those here at OSU.

Excerpt containing counterattitudinal weak arguments:

- Q: So, you worked at Michigan/Ohio State. How does Ohio State/ Michigan compare?
- A: Well, as a matter of fact, I think that OSU is worse than Michigan. OSU students seem to be very messy when they stay in the dorms. Michigan students are better at keeping their dorms clean. OSU students are also not concerned enough about the type of food they eat. OSU students patronize on-campus restaurants that are very poor in terms of service and food quality. All OSU students care about is that on-campus restaurants are convenient. Overall, the faculty and students at OSU are also not alert to changes in weather. They tend to wear clothing that is unsuitable for the weather. I am disappointed with Ohio State.
- Q: I see, so Ohio State has disappointed you in comparison to Michigan. Do you have any other examples of what led to this opinion?
- A: Yes, I do. On occasion, I will stop by student dorms to look at how tidy and clean they are. The trash cans in OSU dorms are always overfilled, unlike those at Michigan. Also, there is a very limited variety of cleaning supplies in the maintenance closets in OSU dorms. At OSU, I always see students at on-campus restaurants that I personally think serve low-quality food. There are restaurants that are a little farther from campus but that serve better food, but I hardly see OSU students in those restaurants. In addition, I go to classrooms to see what faculty members and students are wearing. OSU faculty and students always wear the same type of clothes regardless of the weather, which changes drastically within days.

## NOTES

1. Although as in other terror management research we focus on how motivational concerns triggered by mortality salience can influence evaluations, readers might wonder how mortality salience affects cognitive capacity relative to the commonly used dental pain control condition; that is, is it possible that ability factors (e.g., due to distraction) play a role in evaluations under mortality salience? To examine possible differences in induced cognitive capacity, we conducted a pilot study in which 57 students from the same sample as the primary experiments were assigned to one of four conditions: dental pain salience, mortality salience, high cognitive load, or low cognitive load. We measured participants' Stroop interference to assess their cognitive capacity. In the high cognitive load condition, participants had to memorize 10 digits and were told that they would be asked to report those digits after performing a Stroop task. In the low cognitive load condition, participants had to memorize a single digit. The Stroop task involved pressing color-coded keys to indicate the font color of a color-name word or a string of Xs. Each stimulus appeared for a maximum of 2,000 ms, preceded by a fixation cross that is displayed for 500 ms. On incompatible trials, a color-name word appears in a color other than its semantic meaning (e.g., "red" appearing in blue type). On control trials, the string of Xs appears in any of the four colors (e.g., "XXXX" appearing in blue type). Stroop interference was computed by subtracting each participant's reaction times (RTs) for compatible trials from the participant's RTs for incompatible trials. Manipulation of dental pain versus mortality salience was same as in our two studies. One participant was excluded from analysis because his or her average reaction times were 3 standard deviations from the mean. Due to a skewed distribution, participants' reaction times were subjected to natural log transformation. Results showed that high cognitive load participants ( $M = 84.09$  ms,  $SD = 68.27$  ms) exhibited greater Stroop interference than did low cognitive load participants ( $M = 32.95$  ms,  $SD = 67.37$  ms),  $t(25) = -1.96$ ,  $p < .05$ , thus demonstrating the sensitivity of the Stroop task as a measure of cognitive capacity. However, mortality salient participants ( $M = 37.83$  ms,  $SD = 75.84$  ms) did not differ from control participants ( $M = 85.47$  ms,  $SD = 83.23$  ms) in Stroop interference,  $t(27) = 1.59$ ,  $p = .18$ .

2. In our research, affect was measured through self-report so we cannot discount the possibility that differences in affect may be found if we used an implicit measure of affect. However, it has been shown in previous research that affect, as measured by facial EMG, was equal in mortality salient and pain salient participants (Arndt, Allen, & Greenberg, 2001).

3. Analysis of all participants, including those who either got the source's position or his group membership wrong, also was performed. Results were very similar to when the participants were excluded. In other words, all ANOVA results that were significant remained significant.

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Received August 11, 2004

Revision accepted August 7, 2005