

The Effects of Anger, Sadness and Happiness on Persuasive Message Processing: A Test of the Negative State Relief Model

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Although scholars have posited that message strength has a weak effect for those in happy moods, and a strong effect on individuals in sad or neutral moods (e.g., Bless, Mackie, & Schwarz, 1992), research findings reveal contradictory results. Moreover, several theoretical observations of this effect have treated emotion as if it exists on a continuum with “negative emotion” on one end, and “positive” emotion on the other end. We sought to further examine the affect of happiness and sadness on persuasion, and to compare these effects with the impact of anger on attitude positivity and persuasive message processing. We predicted if the negative state relief model is the dominant model of emotion, then anger and sadness should “behave” similarly, but if emotions are discrete and unique, anger and sadness should elicit distinct effects. A4 (anger, sadness, happiness, control) X2 (strong message, weak message) independent groups design was employed. Consistent with past research, message strength was positively correlated with attitude, intention and behavior, but was negatively correlated with negative thoughts, and counterarguments. When considering recall, and thought relevance unique interactions emerged dependent on the emotion(s) participants experienced. In general, the negative state relief effect was not supported.

One of the most observable effects in the persuasion literature is that strong persuasive messages are more effective than weak persuasive messages (Mitchell, 2000).¹ One ostensible moderator of this effect, however, is the emotion or mood² experienced by the message receiver. Studies indicate that message strength has a weak effect on happy people, whereas message strength³ (where a strong message is considered to be logical, coherent, and containing convincing evidence) has a strong effect on sad (or neutral) (Bless, Bohner, Schwarz, & Strack, 1990; Bless, Mackie, & Schwarz, 1992; Bohner, Chaiken, & Hunyadi, 1994; Bohner, Crow, Erb, & Schwarz, 1993; Petty, Schumann, Richman, & Strathman, 1993) individuals. Although several investigations have observed this effect, the findings are mixed concerning the strength of the affect of emotion on attitude positivity. Moreover, several theoretical observations of this effect have treated emotion (and mood) as if it exists on a continuum with “negative emotion” on one end, and “positive” emotion on the other end. In fact, a dearth of social influence research has examined emotions as if they are discrete and unique—although several scholars have posited that this is the case (e.g., Lazarus, 1991). The purpose of the present study is two-fold. First, we sought to further examine the strength of the effects of happiness and sadness on attitude change. Second, we sought to examine and compare these effects

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with the effect of anger on attitude change and persuasive message processing. If the negative state relief model is the dominant model of emotion, then anger and sadness should “behave” similarly, but if emotions are discrete and unique, anger and sadness should elicit distinct effects.

Rationale

Hypotheses regarding the relationship between message irrelevant mood and attitudes toward a topic can be drawn from the Heuristic Systematic Model (HSM), (Eagly & Chaiken, 1983) and the Elaboration Likelihood Model (ELM) (Petty, Cacioppo, & Goldman, 1981). The HSM, much like the ELM posits that receivers engage in either heuristic processing or systematic message processing. The systematic route to persuasion is marked by issue relevant thinking, and predicts that attitude change is a function of message content and elaboration. This kind of processing is indicated by careful and effortful evaluation of the message (see Eagly & Chaiken, 1993, for review).

The heuristic, or peripheral route to persuasion involves the association of message recommendations with heuristic cues in the environment (Petty & Cacioppo, 1981). Heuristic processing occurs when receivers use mental shortcuts in lieu of engaging in issue relevant thinking to determine their attitude. Eagly and Chaiken purported that this type of reasoning is a limited mode of information processing requiring little cognitive effort and few cognitive resources (1993). Attitudes formed via heuristic processing are less stable, less resistant to counterarguments, and less predictive of subsequent behavior than those attitudes formed via systematic processing. Whether people process a message heuristically or systematically, however, is moderated by motivation and the ability to do so (Petty & Cacioppo, 1986). If a person lacks ability or motivation, the likelihood of heuristic processing increases. If both motivation and ability are high, the probability of systematic processing increases (Chaiken, 1980; Eagly & Chaiken, 1993, p. 327).

Using this theoretical framework, Worth and Mackie (1987) demonstrated that persons in a negative mood engage in systematic processing and are more persuaded by strong persuasive messages than by weak messages. Bohner et al. (1992) also asserted that persons in a positive mood are more easily persuaded. Although both Bohner et al. and Mackie and Worth have data consistent with their hypotheses, the evidence is mixed on the effects of mood and attitude change. For instance, Smith and Shaffer (1991) experimentally varied mood, message strength, and outcome involvement to test Bohner et al.’s hypothesis. Their data were partially consistent with Bohner et al. and Mackie and Worth. Under low outcome involvement conditions, neutral mood participants generated more message elaborations than did positive mood participants. This difference vanished, however, under conditions of high outcome involvement.

Mitchell (2000) tested alternative hypotheses regarding happiness and sadness on message processing in an experiment varying emotion, outcome involvement and message strength. In that study, interestingly, both happy and sad participants were able to differentiate weak and strong persuasive messages in both high and low involvement conditions. In fact, emotional state had little or no bearing on the number of messages one accurately recalled, or the number of positive or negative thoughts. Rather, the most potent independent variable was message strength. The stronger the message, the more likely relevant thinking during attitude formation

occurred. Strong persuasive messages fared better than weak ones in all conditions, regardless of mood. Mitchell concluded that “. . . there is no evidence provided by this research that persons in a happy mood are cognitive misers, unable to process messages systematically or are lazy” (p. 223). However, because Mitchell (a) used a counterattitudinal topic (comprehensive exams for seniors), and (b) provided the mood induction and the persuasive message were separately, (thus allowing the ephemeral effects of the message to begin wearing off by the time students received the written message), an extension is warranted.

Given mixed evidence, more research is needed in order to unwind the effects of emotion on persuasion. Moreover, research focused on the theoretical underpinnings of *why* emotion motivates behavior in the above stated ways is also needed.

Negative State Relief Model

According to the Negative State Relief Model (NSR; Cialdini, Darby, & Vincent, 1973), a negative mood is accompanied by an intrinsic drive to alleviate the bad feelings (Carlson & Miller, 1987). Because people do not enjoy negative moods, they work toward moving back to their baseline mood. Individuals are motivated to distract themselves from unpleasant thoughts, and engage in other activities (such as reading a persuasive message) that divert their attention from the stimuli that caused them to experience unpleasant affect (Isen & Simmonds, 1978). Thus, they may be more likely to scrutinize a persuasive message and elaborate its message content. Regardless of the content of the message, the participants may recognize it as a temporary diversion from the cause of their negative emotion(s) (see Mackie & Worth, 1989). In such conditions it is likely that negative affect would lead persons to distinguish between weak and strong persuasive messages, and attitude change would occur via the systematic route.

On the other hand, people in a positive mood are less likely to engage in message elaboration because they process stimuli that maintain positive affect. Critical analysis of the persuasive message content and attitude change is unlikely because individuals are concentrating on other stimuli in an attempt to maintain their positive mood. Therefore, those in positive moods are less likely to distinguish between weak and strong persuasive messages because they are not motivated to scrutinize the message. Observations that people experiencing positive moods selectively expose themselves to positively toned material and avoid negatively toned material are consistent with this hypothesis (Isen & Simmonds, 1978; Mischel, Ebbessen, & Zeiss, 1973).

The Categorical Perspective

One limitation to Cialdini et al.'s model is that emotion is presented as existing on a positive to negative continuum. Emotion can be conceptualized as categorical, however. Scholars advocating dimensional models of affect purport that emotional states of similar valence share common defining features and suggests that understanding the underlying features of the dimension leads to understanding the emotion (Smith & Dillard, 1997). In fact, in some dimensional models emotions of similar valence are treated as if they are bipolar, ranging from positive to negative (e.g., Russell, 1980)⁴. The categorical perspective, on the other hand, emphasizes the unique qualities of distinct emotional states (e.g., Ekman, 1992; Izard, 1977). For example, Ekman (1992) distinguished affective states via physiological characteris-

tics, leading to five basic, discrete emotions: anger, fear, enjoyment, sadness and disgust. In addition, Lazarus (1991) contended that emotions are discrete and unique because they each have distinct "action tendencies", meaning they motivate different behavioral responses. To the extent that the dimensional perspective of emotion or mood is correct, a clear understanding of the effects of emotion on persuasion requires examination of the unique qualities of different emotional states. In this project, we examined happiness and sadness providing a replication of past research. Furthermore, we included anger to: (a) compare three distinct emotions and (b) compare two "negative emotions." If the dimensional view of emotion is correct anger and sadness (negative emotion[s]) will have similar effects but different from happiness (a positive emotion). However, if emotion is categorical, the three induced emotions should provide unique effects.

Motivational Aspects of Emotions

Anger. Aristotle discussed anger as an emotion resulting from the belief that we have been unfairly slighted. This occurrence leads to painful feelings, and a "... desire for revenge" (1941, p. 1380). Moreover, Lazarus categorizes anger as a "goal incongruent emotion." Much of the anger research focuses on the tendency of this emotion to provoke aggression (Lazarus, 1991). Accordingly, the action tendency for angry individuals is to launch "... an attack on the agent held to be blameworthy of the offense" (Lazarus, 1991, p. 226). Unlike other emotions that do not involve fault (e.g. depression, sadness) or those in which the experiencer is at fault (e.g. shame, guilt), when people feel angry, loss is often "... blamed on another person" (Lazarus, 1991, p. 218). Unlike sadness, anger does not trigger anger-relief, but, rather, induces people to focus inward and about their anger (stay emotion-focused). Smith and Dillard's (1997) experiment in which people were induced to experience fear, anger or sadness, provided evidence for this hypothesis. Their data indicated that angry participants had less on-topic thoughts about a persuasive message, than did the other participants. Anger might make peripheral processing of a persuasive message more likely because ability or motivation to engage in issue-relevant thinking is debilitated. Instead, angry participants focus on emotion-relevant (or revenge relevant) thoughts.

Sadness. Sadness comes "when the situation might have been reversible" (Stearns, 1993, p. 548). Whereas people whom are angry, think they can fix the "lost goal," people that are sad tend to accept their loss eventually (see Stein & Levine, 1990). Ellsworth and Smith (1988) posit that sadness is associated with self-protectiveness in that sad persons might want to shut out the unpleasant situation. Lazarus (1991) suggested that sad persons are motivated not to focus on sadness, focusing instead on some other event (or stimuli). As Lazarus puts it, the action tendency for sad people is to "... strive to remove any trace of sadness" (1991, p. 251). In other words, sadness motivates people to focus outward in an attempt to ameliorate the sadness and restore the baseline mood. In this sense, sadness fits neatly into the NSR. Given the desire to ameliorate the experienced sadness, persons might tend to centrally process a persuasive message. A particular persuasive message might serve as a state relief opportunity for sad individuals. Given the heightened awareness paid to the message participants will be more likely to engage in issue-relevant thinking than to emotion-relevant thinking.

Happiness. Unlike anger and sadness, happiness is a goal congruent emotion. Often associated with joy, happiness is a positive reaction usually referring to a specific event; it can range in intensity, but is typically experienced in low intensity patterns (see Lazarus, 1991). Like other emotions, happiness elicits an action tendency. Typically, happy persons are motivated to sense pleasure and security in the world. Thus, they usually want to share their positive outlook of the world. When happy, we are motivated to continue feeling elated by focusing inward in an attempt to continue feeling good. Based on this line of thought, happy people are expected to peripherally process persuasive messages, avoiding issue-relevant thinking and engaging in emotion-relevant thinking.

The present study is an important extension and replication of Mitchell's (2000) study because if Mitchell's findings were due to methodological artifacts and random error and Mackie and Worth's line of research is not, then, *message strength will affect those in sad moods, and not those in happy moods.* With respect to anger, it is hypothesized that *message strength will have a minimal effect on persons in a happy or angry state, but message strength will have an effect on those in a sad mood. Sad mood participants will be motivated to process centrally and therefore will be capable of distinguishing between weak and strong persuasive messages. Happy and angry participants, on the other hand, will not be motivated to process systematically and thus will be equally persuaded by weak and strong persuasive messages.*

In order to measure systematic processing, thought listing procedures were employed. Specifically, (1) the number of negative, and positive thoughts was measured, (2) the number of correctly recalled arguments was measured, (3) the number of counter-arguments was counted, and (4) the number of message relevant thoughts were counted. *Persons who process the persuasive message systematically will have more negative thoughts about the weak message, and more positive thoughts about the strong message, will recall more of the message arguments, have more message-relevant thoughts, develop more counterarguments against the weak message, and make fewer errors in recalling the message.* However, if Mitchell's data were not simply due to statistical and methodological artifacts, then mood should have little effect on cognitive processing, and a main effect for message strength will be observed.

Method

Participants

Participants (Ps; $N = 199$; approximately 25 Ps per condition) were lower level communication undergraduates recruited from undergraduate communication courses at a medium sized Midwestern university. Ps received course credit. Fifty-six percent of the sample was female, and the mean age was 21 years. Seventy-eight percent of the sample was Caucasian.

Procedure and Design

A 4 (anger, sadness, happiness, control) X 2 (strong message or weak message) independent groups design was employed. Ps were given instructions indicating they would be taking part in a media related study. Each P was assigned randomly to experimental group. When Ps arrived to the laboratory they were seated at a video cubby. Each cubby had its own TV/VCR combination, allowing students to watch the video in privacy. The laboratory held 8 TV/VCR cubbies, each of which was

occupied for each time slot of the study. Each video began with a 15 second commercial (held constant for every condition) in order to make the induction appear realistic. Next, there was a seven-minute video clip that served as the emotion induction (for the control group the video moved immediately to the persuasive message).

Happiness. The happiness video included a 7-minute Paula Poundstone stand-up comedy segment containing no harsh language or inappropriate material.

Sadness. The sadness video included a 7-minute segment of an animal hospital where a woman's dog was rushed to the vet, but died.

Anger. The anger video included a 4-minute segment (the realistic length of such a news broadcast) of a fake news broadcast dealing with issues of parking on campus. Students were informed that their on-campus parking rights were being taken away, and that fines were being raised. A well-known female news anchor in the city performed as the journalist in the video. The video was shot in her affiliate's news studio to increase ecological validity. A pre-test indicated that the video was realistic.

Following the emotion induction, the video presented the persuasive message induction. The persuasive message was presented as words scrolling on the video screen. There was not a voice-over, in order to control for nonverbal effects. The strong message included factual, persuasive material pertaining to why people should become bone marrow donors⁵. The weak message included non-vivid, inconsistent and bland reasons for why people should donate bone marrow.

Ps were then asked to complete the questionnaire that contained all dependent measures and all induction checks. Finally, Ps were debriefed.

Instrumentation

Message effectiveness. Perceived message strength was measured via eight items ranging from one (totally disagree) to 7 (totally agree). Items were "The message I saw regarding bone marrow was compelling" and "The message was dumb (reverse coded)".

Emotion. Perceived happiness, sadness and anger were measured via four Likert-type items (per construct) that ranged from one (I feel none of this feeling) to seven (I feel a great deal of this feeling). Example mood statements were sad, dreary, dismal, happy, content, angry, mad and furious.

Attitude. Five Likert-type questions regarding the person's feelings about taking comprehensive exams (1 = getting on a bone marrow registry list is a dumb idea, 5 = getting on a bone marrow registry list is a smart choice) measured attitude.

Behavioral intention. Ps intention to get on a bone marrow registry list was examined with 5 questions. Items ranged from one (totally disagree) to seven (totally agree), such as "I intend on getting on the bone marrow registry list".

Behavior. Two Likert scale items ranging from one (totally disagree) to seven (totally agree) were used to measure behavior. An example item is "I will get on the list".

Recall. As another measure of systematic processing, correct recall was measured by counting the number of persuasive arguments the participant correctly recalled in addition to number of omissions and commissions. Omissions were defined as the

number of arguments the participant did not recall, or omitted, in the recall task. Comissions were defined as the number of arguments the participants recalled, but did not actually exist in the persuasive message. In order to measure correct recall, we divided the number of correctly recalled items by the total number of items recalled yielding the percentage of correctly recalled items. Two trained coders separately coded 10% of the recall tasks in order to calculate inter-coder reliability. Inter-coder reliabilities were $r = .94$ for correct recall. Disagreements were resolved via discussion.

Thought relevance and valence. Participants were asked to list all of the thoughts they had while reading the persuasive message. The number of thoughts was coded and counted. Coders coded 10% of the responses with another coder, and standardized item alphas were calculated from their percentage of times they agreed. Each thought was first coded for relevance. An irrelevant thought was considered a thought that dealt with factors non-related to the message ($\alpha = .90$). For example "I was thinking that I am hungry." A relevant thought was any thought that was in regard to the persuasive message ($\alpha = .92$). An example was "This message is interesting." All of the relevant thoughts were coded for valence. A positive thought indicated that the P had a positive feeling about the message, liked the message or learned from the message ($\alpha = .87$). For example "I was enlightened by this message!" A negative thought indicated negative responses toward the message ($\alpha = .89$), such as "This is dumb." Finally, a neutral thought was defined as a thought that appeared to have no valence ($\alpha = .95$), such as "This is interesting".

Counterarguments. Ps were also asked to think of as many counterarguments as possible. Counterarguments were counted.

Results

Pilot Testing

Each emotion induction was pre-tested. Ps were shown the video including the emotion induction and subsequently were asked to complete the emotion induction check. Ps reported experiences of sadness, happiness and anger. An Analysis of Variance (ANOVA) was performed on Ps ratings of the first induction check. Ps perceived the sad mood induction ($M = 17.34$, $sd = 6.16$) as producing sadder moods than the happy mood induction ($M = 5.87$, $sd = 2.52$) and the anger induction ($M = 10.58$, $sd = 7.12$; $F[2, 75] = 36.32$, $p < .001$, $\eta^2 = .82$). Ps perceived the happy mood induction ($M = 20.56$, $sd = 3.55$) as producing happier moods than the sad mood induction ($M = 8.62$, $sd = 4.08$) and the anger induction ($M = 7.16$, $sd = 5.55$; $F[2, 76] = 82.35$, $p < .001$, $\eta^2 = .89$). Ps perceived the anger mood induction ($M = 22.39$, $sd = 5.49$) as producing angrier emotions than the happy mood induction ($M = 4.5$, $sd = .72$) and the sadness induction ($M = 8.14$, $sd = 5.05$; $F[2, 76] = 115.18$, $p < .001$, $\eta^2 = .89$). Thus, the emotion inductions were effective.

Next, confirmatory factor analysis procedures were performed on the induction checks, the attitude scale and the behavioral intention scale data. These data were consistent with the proposed five-factor model, in which internal consistency and parallelism yielded small errors. A three item unidimensional solution was observed for the attitude scale ($M = 12.24$, $sd = 3.47$) which was reliable (standardized item alpha, $\alpha = .73$). An eight item unidimensional solution was obtained for message

strength ($M = 31.29$, $sd = 12.08$). This scale was also reliable (standardized item alpha, $\alpha = .94$). A four item unidimensional solution was determined for the happiness scale ($M = 13.55$, $sd = 5.73$, $\alpha = .91$). A four item unidimensional solution was determined for the anger scale ($M = 6.73$, $sd = 4.08$, $\alpha = .93$). And, a four item unidimensional solution was determined for the sadness scale ($M = 12.83$, $sd = 6.13$, $\alpha = .88$). Finally, a four item unidimensional solution was observed for the behavioral intention scale ($M = 12.84$, $sd = 6.17$, $\alpha = .87$).

Induction checks were also performed on all of the independent variables in the primary study. Ps' ratings of message strength (1 = very weak, 7 = very strong) were analyzed in a 4×2 (Emotion \times Message Strength) ANOVA. Ps perceived the strong messages to contain stronger arguments ($M = 36.80$, $sd = 10.70$) than the weak messages ($M = 25.18$, $sd = 10.44$, $F[1, 189] = 58.02$, $p < .001$, $\eta^2 = .24$, $r = .49$).

Next, the emotion induction check was examined. It should be noted that the emotion induction check took place *after* the persuasive message was viewed. During the pre-test, however, the induction check took place immediately after the emotion induction. For this reason, the pre-test is viewed as more accurate in that it tells us what emotion the Ps were experiencing while viewing the persuasive message, which is central to this examination. An ANOVA was performed on Ps ratings of happiness. Ps perceived the happiness induction as creating more happiness ($M = 16.12$, $sd = 5.11$) than the sadness induction ($M = 10.63$, $sd = 3.87$), the anger induction ($M = 13.62$, $sd = 5.97$) or the control group did ($M = 13.74$, $sd = 6.30$, $F[3, 188] = 7.74$, $p < .001$, $\eta^2 = .11$, $r = .33$). Next, an ANOVA was performed on Ps ratings of sadness. Ps perceived the sadness induction as creating more sadness ($M = 17.19$, $sd = 5.62$) than the happiness induction ($M = 10.75$, $sd = 5.39$), the anger induction ($M = 10.84$, $sd = 5.62$) or the control group ($M = 12.75$, $sd = 5.80$, $F[3, 191] = 13.43$, $p < .001$, $\eta^2 = .17$, $r = .41$). Finally, an ANOVA was performed on Ps ratings of anger. In this induction check, Ps perceived the anger induction ($M = 6.58$, $sd = 4.41$) as creating the same amount of anger as the sadness induction ($M = 7.26$, $sd = 4.48$), the happiness induction ($M = 5.51$, $sd = 2.56$) and the control group did ($M = 7.51$, $sd = 4.38$, $p > .05$). This was viewed as an artifact of the anger induction being shorter, and the induction check taking place after the persuasive message was viewed. The pre-test revealed that the anger induction had a large effect on perceived anger. Again, during the pilot test the induction check was given immediately *after* the news broadcast. Therefore, when the students watched the persuasive message they were feeling angry, but the anger might have worn off by the time the dependent measures were completed. Because anger had a unique and robust effect on the dependent variables, we proceeded with the analyses.

Hypotheses

The results of a 4×2 ANOVA indicated a main effect for message strength on attitude positivity, such that weak messages ($M = 11.17$, $sd = 3.44$) led to less positive attitudes than strong messages ($M = 13.19$, $sd = 3.22$; $F[1, 190] = 18.08$, $p < .001$, $\eta^2 = .09$, $r = .30$). No other main effects or interactions were detected. However, examination of the means (see Table 1) indicated that the strong message affected the anger and control group differently than it affected the sad and happy groups. The happy and sad groups were more persuaded by the strong message than the control and anger groups; although no groups exhibited high attitude positivity

TABLE 1
 MEANS AND (STANDARD DEVIATIONS) FOR EACH DEPENDENT VARIABLE BROKEN DOWN
 BY EMOTION AND MESSAGE TYPE

| | Happy | | Sad | | Angry | | Control | |
|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | Weak | Strong | Weak | Strong | Weak | Strong | Weak | Strong |
| Attitude | 11.14 (3.37) | 13.59 (2.93) | 10.95 (3.24) | 13.76 (4.19) | 11.32 (3.60) | 12.80 (2.16) | 11.24 (3.69) | 12.64 (3.32) |
| | -1 | 2 | -1 | 2 | -1 | 0 | -1 | 0 |
| Intent | 11.50 (6.03) | 14.56 (6.69) | 12.14 (6.86) | 15.12 (5.27) | 10.84 (6.00) | 13.80 (5.94) | 11.48 (6.27) | 12.89 (5.71) |
| Behavior | 2.76 (1.81) | 3.70 (1.88) | 2.77 (1.93) | 3.44 (1.47) | 2.52 (1.66) | 3.44 (1.50) | 2.76 (1.51) | 3.67 (1.63) |
| Relevant thoughts | 4.73 (2.31) | 5.70 (4.89) | 5.45 (2.80) | 4.40 (2.36) | 6.04 (3.47) | 5.28 (2.81) | 5.88 (2.55) | 4.71 (3.23) |
| | -1 | 1 | 1 | -2 | 1 | 0 | 1 | -1 |
| Irrelevant thoughts | .55 (.80) | .81 (1.61) | .73 (1.12) | .56 (1.29) | .20 (.50) | .56 (.82) | .72 (1.02) | .46 (1.03) |
| Recall | 80.36 (22.63) | 84.04 (23.63) | 78.14 (29.85) | 76.84 (29.30) | 87.20 (14.51) | 81.96 (27.78) | 91.60 (10.09) | 81.68 (30.63) |
| | 0 | 2 | -2 | -2 | 1 | -1 | 3 | -1 |
| Positive thoughts | .72 (1.08) | 2.70 (3.16) | 1.27 (1.61) | 2.20 (2.27) | 1.28 (2.03) | 2.49 (2.67) | 1.20 (1.89) | 2.21 (2.17) |
| Negative thoughts | 3.22 (2.07) | 2.04 (2.70) | 2.64 (2.27) | 1.20 (1.47) | 4.12 (2.92) | 1.84 (1.74) | 3.36 (2.38) | 1.67 (1.94) |
| | 1.5 | 0 | 0 | -2 | 3 | -2 | 1.5 | -2 |
| Counter arguments | 2.55 (1.71) | 2.04 (1.74) | 2.64 (1.79) | 2.16 (2.23) | 2.64 (1.77) | 2.04 (2.03) | 2.84 (1.72) | 1.96 (1.79) |

Note: Contrast coefficients are also provided for those dependent variables that were analyzed with a contrast analysis.

toward the weak message. Because ANOVA is not powerful enough to detect this type of interaction, a contrast analysis was employed (for contrast coefficients see Table 1). The interaction model was significant, accounting for a significant portion of the variance ($F[1, 191] = 18.67, p < .05, \eta^2 = .09, r = .30$). The emergent interaction between mood and message strength provided evidence that all three groups systematically processed the persuasive messages, and only differed in terms of the amount of positivity or negativity experienced. Thus, the data are consistent with Worth and Mackie with sadness, but not with happiness. Happy persons did not engage in mood maintenance activities.

A similar pattern of results emerged for behavioral intention and behavior. The ANOVA performed on these data also indicated a main effect for message strength such that strong messages elicited more intention ($M = 14.08, sd = 5.91$) and behavior ($M = 3.57, sd = 1.62$) than weak messages ($M = 11.46, sd = 6.20$ for intention; $F[1, 189] = 8.88, p < .01, \eta^2 = .05, r = .22$), ($M = 2.69, sd = 1.70$; $F[1, 190] = 12.97, p < .001, \eta^2 = .24$ for behavior). Again, there were no other main effects or interactions. The means (see Table 1) indicate strong messages prompted sad, happy, and angry groups to sign up to donate bone marrow, message strength minimally affected the control group in comparison to the mood-induced groups, however.

Next, we examined the effects of mood and message strength on relevant and

irrelevant thoughts and recall in a 4×2 ANOVA, but no significant main effects or interactions were detected. However, an apparent interaction was suggested by the pattern of means. Specifically, happy Ps had far more relevant thoughts when they read the strong message than the weak message, which was the opposite of the sad, angry and control pattern. Moreover, the sad group had less relevant thoughts overall than the angry Ps. Contrast analysis (for coefficients see Table 1) indicated that the proposed model accounted for a significant portion of the variance ($F[1, 191] = 6.05, p < .05, \eta^2 = .03, r = .17$).

We also perceived a unique interaction with recall such that the groups acted differently in terms of percentage of correctly recalled items. Sad Ps recalled the same amount, regardless of message strength, but happy Ps recalled more about the strong message than the weak message. Angry Ps, on the other hand, recalled far less about the strong message than the weak message. This interaction was tested via a contrast analysis (coefficients can be found in Table 1) and the model accounted for a significant portion of the variance ($F[1, 191] = 7.30, p < .05, \eta^2 = .04, r = .20$). This interaction provides evidence for the discrete perspective of emotions. If negative emotions act similarly, as indicated by the valence perspective, then sadness and anger would have recalled similar amounts about the same messages.

Positive and Negative thoughts were also examined as a function of emotion and message strength in a 4×2 ANOVA. Ps had more positive thoughts ($M = 2.40, sd = 2.57$) and less negative thoughts ($M = 1.69, sd = 2.0$) about the strong message. They had less positive thoughts ($M = 1.23, sd = 1.70$) and more negative thoughts ($M = 3.36, sd = 2.47$) about the weak persuasive message. Thus, there was a main effect of message strength on positive thoughts ($F[1, 191] = 16.33, p < .001, \eta^2 = .08, r = .28$) and on negative thoughts ($F[1, 191] = 26.80, p < .001, \eta^2 = .12, r = .35$). When examining the means for negative thoughts, a unique interaction was again present. It appeared sad and angry Ps had far less negative thoughts about the strong message than happy Ps. Moreover, Happy Ps had more negative thoughts about the weak message than sad Ps, but less than angry Ps. This interaction was examined in a contrast analysis (see coefficients in Table 1) and was significant ($F[1, 191] = 31.92, p < .05, \eta^2 = .14, r = .37$).

Finally, the amount of counterarguments the Ps developed was examined as a function of message strength and emotion in a 4×2 ANOVA. Ps developed more counterarguments after exposure to the weak persuasive message ($M = 2.67, sd = 1.73$) than in response to the strong persuasive message ($M = 2.05, sd = 1.92$). No other effects were present in these data.

We also examined the zero order correlations among the independent and dependent variables. It was perceived that examining the relative effect size associated with the independent variables would be critical to understanding the relationship emotion and message strength have with persuasive message processing. When these correlations were calculated, the control group was not included (emotion was coded such that happiness = 1, and anger = 3, thus for these analyses, the "emotion" variable was equivalent to higher scores indicating a more negative emotion).

In order to report a rigorous test, and to further examine these data for causal links, if any, a path analysis was conducted. It is evident in these data that the most potent independent variable was message strength. Furthermore, cognitive processing of the persuasive message was affected by emotion. Mitchell's (2000) reported a simple causal string in which message strength predicted perceived message strength,

TABLE 2
ZERO ORDER CORRELATIONS AMONG THE VARIABLES, CONTROL GROUP NOT INCLUDED (N = 146)

| | Emotion | Message | Recall | Pos | Neg | Rel | Irrele | Counter | Attit | Intent |
|------------|---------|---------|--------|--------|--------|-------|--------|---------|-------|--------|
| Emotion | | | | | | | | | | |
| Message | -.03 | | | | | | | | | |
| Recall | .12 | -.02 | | | | | | | | |
| Positive | .02 | .29** | .17 | | | | | | | |
| Negative | .19* | -.34** | -.01 | -.29** | | | | | | |
| Relevant | .10 | -.05 | .14 | .54** | .56** | | | | | |
| Irrelevant | -.09 | .08 | .04 | -.03 | .03 | .11 | | | | |
| Counterarg | -.01 | -.14 | .10 | .17* | .20* | .34** | .24* | | | |
| Attitude | -.05 | .33** | .18** | .38** | -.29** | .05 | .10 | .08 | | |
| Intention | -.09 | .24** | .21* | .35** | -.30** | .06 | .02 | .10 | .70** | |
| Behavior | -.04 | .25** | .21* | .38** | -.28** | .11 | .05 | .04 | .63** | .90** |

Note: *significant at .05 (two-tailed) **significant at .01 (two tailed). Emotion was coded 1 = happy, 2 = sad, 3 = anger; thus in this table emotion is treated as a variable ranging from positive to negative.

which was antecedent to attitude, which finally predicted negative thoughts. We examined the degree to which Mitchell’s model fit our data (see Figure 1).

The fit of this model was supported by two observations. First, the size of the path coefficients was substantial. Second, differences between predicted and the obtained correlations were insubstantial, and the path model is consistent with the data ($\chi^2(17) = 18.41, p > .05$).

Discussion

We had several reasons for undertaking the present study. First, we wanted to provide a partial replication and extension of Mitchell’s (2000) claim that emotion “had little or no bearing” (p. 222) on the cognitive processing of persuasive messages. We examined the effects of anger on persuasive message processing, and compared them to the effects of happiness and sadness. As with Mitchell’s analysis, message strength had the most robust effect on the dependent variables. According to our results, when people read a weak persuasive message, they exhibited fewer positive attitudes, less intention to change, less behavior change, fewer counterarguments and more negative thoughts.

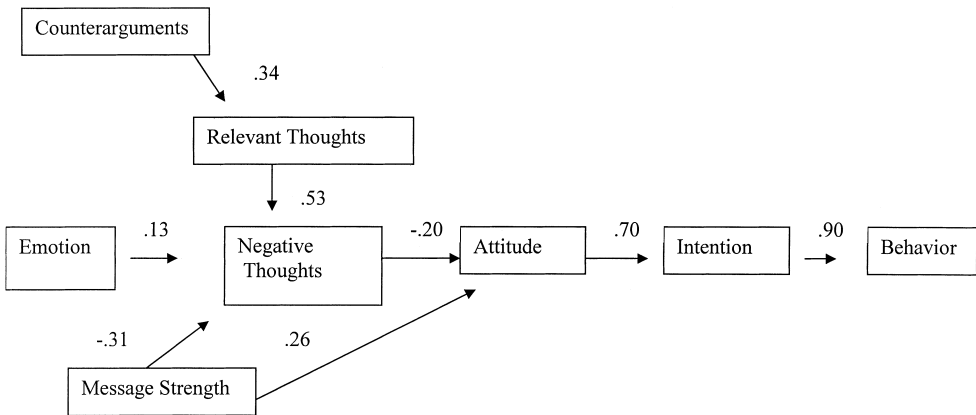


FIGURE 1
THE PATH MODEL WITH PATH COEFFICIENTS.

Emotion elicited some important interactions however, which supports the perspective that emotions are unique and discrete. Happy Ps had more relevant thoughts about the strong message, which was not the case for sad and angry Ps. In addition, Happy Ps recalled more about the strong message, but angry and sad Ps recalled more about the weak message. One way to explain these data is via an optimism bias. That is, there seems to be some evidence that happy Ps were more optimistic about persuasive messages than those Ps that are sad or angry. The emergent interactions suggest that happy Ps paid close attention to, and cognitively processed the strong messages, but, when given a weak persuasive message, perhaps happy Ps discounted it. The obverse is the case for sad and angry Ps. Sad and angry Ps paid close attention to the weak messages. It is possible that negative mood induces a type of cynicism such that when presented with “negative” stimuli (e.g., the weak message) they pay close attention, while happy persons are inattentive to any stimuli that might make them feel negative. If this is the case, then happy Ps are able to cognitively process—but avoid doing so in an attempt to maintain their mood. Nevertheless, this does not support the NSR because such an argument lends itself to negative mood Ps prolonging their negative mood.

Several tentative conclusions can be formulated. First, emotions do appear to be discrete. Angry, happy, and sad Ps were affected differently by the messages provided in this study. In general, however, sad and angry Ps followed similar patterns in terms of cognitive processing, and happy Ps acted in an opposite manner with some of the dependent variables. Although anger and sadness are discrete and unique, they are ore similar to one another than they are to positive emotions like happiness.

Second, these findings are in contrast with past research which indicated that message strength has little effect on happy Ps, while it has a robust effect on sad persons. In fact, as with Mitchell’s (2000) findings all Ps were able of distinguishing weak and strong messages. They were persuaded by strong messages, and not by weak messages. Although this study does present important evidence that happy, angry and sad people might process persuasive information differently (recalling different messages for example), they were all able and motivated to do so.

A potential limitation of this study is that mood intensity or attitude intensity were neither measured nor controlled for. It could be that extremely sad, happy or enraged persons act differently than those who are somewhat happy, sad or angry. Future research needs to examine the effects of mood/emotion intensity. Furthermore, when studies investigate attitude on a one to seven scale, they are likely to have problems due to a ceiling effect.

Notes

¹Petty and Cacioppo (1980) defined strong messages as those that elicit predominantly favorable thoughts about the message’s advocated position, and weak messages as those that elicit primarily unfavorable thoughts. However, several researchers have criticized research of this ilk for its inherently tautological definition of message strength (see Stiff & Boster, 1987, for example). All messages in this study were pre-tested.

²Scholars advocate that mood, affect and emotion are not synonymous. Affect is considered the most general, and primitive, mood is a specific type of affective state involving tone and intensity. Emotion on the other hand refers to a specific type of affective state. Emotion infers the existence of some specific goal. Certain scholars argue that happiness and sadness are moods, while anger is an emotion (e.g. see Clark, 1992). Nevertheless, we use the word “emotion” to refer to all three induced states in this study.

³Argument strength and argument quality, message strength and message quality are viewed as synonymous in this paper and are used as such.

⁴Russell's (1980) model also classifies emotion based on other dimensions such as physiological activity. Russell's model, however, is not of central concern to this investigation.

⁵Contact the first author for copies of the actual persuasive messages used in this study.

⁶Two other path models were tested: (1) a model including recall, and positive thoughts and (2) a model including recall, but not positive thoughts. Both failed, and were not consistent with these data.

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