Sadness and Consumption

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Sadness has a curious effect on consumption. Sadness from one situation tends to carry over to new situations, leading individuals to pay more in order to acquire new goods as well as to eat more unhealthy food. These undesirable consumption effects of sadness can occur *without* awareness by those in the sad state; they also occur even when the sadness-eliciting events have no rationally justifiable relation to the consumption choices at hand. Thus, the increased consumption (including paying more than one otherwise would) represents more than conscious attempts at "retail therapy." Rather, it represents unbidden and undesirable behavior. In an experiment with real food consumption, the present paper examines the hypothesis that sadness' impact on consumption could be attenuated if the choice context counteracted appraisals of helplessness and enhanced a sense of individual control. Consistent with the hypothesis, results revealed that: (1) sadness elevates self-reports of helplessness in response to the emotion-inducing situation; (2) this increased helplessness mediates the sadness-consumption effect; and (3) inducing a sense of control (via the provision of choice) attenuates sadness' effect.

Keywords: Sadness, consumption, choice, decision making, affect, emotion

Sadness and Consumption

Research on incidental emotion has discovered the pervasive tendency of emotions to carry over from one situation to another, coloring behavior in unrelated tasks (for reviews, see Forgas, 1995; Isen, 1993; Keltner & Lerner, 2010; Loewenstein & Lerner, 2003; Schwarz, 2000). Incidental emotions (i.e., normatively irrelevant, prior emotions) have been found to reliably influence numerous aspects of judgment and decision making, such as risk seeking (Johnson & Tversky, 1983; Lerner & Keltner, 2001), information processing (Isen, 2001; Tiedens & Linton, 2001), choice (Garg, Inman, & Mittal, 2005), and consumer transactions (Lerner, Small, & Loewenstein, 2004).

One of the most curious carryover examples involves sadness and consumption. It is curious for at least two reasons. First, its effects depart from what one would predict based on emotional valence. The standard prediction of a valence-based model would be that any negative emotion, including sadness, should trigger generalized negative valuation of, say, a new product. The idea is that a negative state leads one to perceive the world in negative ways. While disgust, another negative emotion, fits that predicted pattern, sadness in fact does not. Sadness actually triggers *positive valuation* of new products, as measured by willingness to pay (Lerner et al., 2004).

A second curious aspect of sadness and consumption is that the carryover effect drives consumption behavior across diverse domains. In the domain of eating, for example, sadness (relative to happiness) leads to increased consumption of tasty, fattening food products, such as buttered popcorn and M&M candies (Garg, Wansink, & Inman, 2007). In the domain of consumer transactions, sadness (relative to a neutral state) leads to an increased amount spent

to purchase items (Lerner et al., 2004). And the more sad decision makers focus thoughts on themselves during the choice process, the more money they choose to pay in order to acquire a new object, a phenomenon that has been labeled the *misery is not miserly effect* (Cryder, Lerner, Gross, & Dahl, 2008).

Importantly, sadness in all these cases is *incidental* to the choice at hand. Decision makers were randomly assigned to a sadness induction (e.g., reflecting on past sad events) or a neutral-mood induction. According to the subjects themselves, the incidental sadness should have had no role in shaping the present choices. Yet it did have a role. Moreover, unlike making a conscious choice to engage in "retail therapy," the sad feelings in all these studies carried over to the choice without decision makers realizing it. In fact, when decision makers were asked about the possibility of carryover, they explicitly denied it (for example, see Cryder et al., 2008). Thus, the carryover represents an unconscious, undesirable effect on spending and eating.

The Present Research

As described above, decision makers do not want to pay more or over-consume when they are sad, yet they do so. Moreover, sadness and over-consumption may create negative, recursive cycles of behavior. Episodes of over-consumption can themselves lead to negative moods, which then perpetuate these self-defeating behaviors (Leith & Baumeister, 1996). The present research therefore seeks to discover a way to attenuate the undesirable effect of sadness on consumption. More generally, we aim to examine both the robustness of the sadness-consumption effect as well as its moderating and mediating factors.

Hypotheses

Sadness has been associated with the core themes of loss and helplessness (Keltner, Locke, & Audrain, 1993; Lazarus, 1991). Consistent with this, a heightened sense of situational, rather than individual, control characterizes sadness (Lerner & Keltner, 2000; Scherer, 1997; Smith & Ellsworth, 1985; Weiner, 1985). Accordingly, sadness may evoke implicit goals of changing one's circumstances (Lerner et al., 2004) and acquiring rewarding outcomes (Raghunathan & Pham, 1999) to compensate for the sense of loss and helplessness.

Sadness has also been associated with conscious or unconscious attempts at mood repair (e.g., Raghunathan & Pham, 1999; Schwarz & Clore, 1983; Wegener & Petty, 1994). For example, sad (vs. anxious) individuals are more likely to choose high-risk/high-reward options (Raghunathan & Pham, 1999). More recently, research has revealed a wide range of what might be considered compensatory consumption effects. For example, sad individuals prefer to consume certain "comfort foods" or drinks, such as ice cream or hot tea, as opposed to healthier alternatives (Wansink, Cheney & Chan, 2003). Sad individuals are less likely to restrain their consumption of a hedonic, rewarding food than are happy individuals (Garg et al., 2007) unless they believe that eating will not change their mood (Tice, Bratslavsky, & Baumeister, 2001).

Taken together, the foregoing results shed light on the processes underlying the relationship between sadness and consumption. Given the underlying themes of loss and helplessness associated with sadness (Frijda, Kuipers, & ter Schure, 1989; Keltner & Lerner, 2010; Lazarus, 1991) as well as the pattern of compensatory consumption, could sadness' effect on consumption be attenuated by providing individuals with greater individual control and

diminished helplessness? In the present research, we hypothesize that increasing decision makers' sense of individual control and decreasing their sense of helplessness could attenuate the carryover effects.

An opportunity to choose a hedonic (i.e., rewarding) gift, rather than merely being endowed with one, may provide a needed sense of individual control. A long line of research on perceived control and choice suggests that individuals prefer choice (vs. no-choice) because of its link to self-determination and sense of control (Averill, 1973; Langer, 1975) even when these choices are trivial (Langer & Rodin, 1976) and when having more choices turns out to degrade decision quality (see Iyengar & Lepper, 2000). It has also been demonstrated that individuals are more satisfied by "free-choice" (without any external influence or motive) rather than "imposed-choice" (where an external motive, e.g., monetary reward, is involved) outcomes (Brehm, 1966; Deci & Ryan, 1987). Thus, because choice might give individuals some semblance of control and therefore alleviate the helplessness that is typically concomitant with sadness, we expect that choice will have a significant attenuating effect on sadness' carryover.

We test this idea across a study that focuses on the established relationship between sadness and food consumption (e.g., Garg et al., 2007; Tice et al., 2001). Specifically, our study examines the effect of sadness (versus a neutral state) on consumption of a hedonic food product (M&M candies) and whether this effect is attenuated in the context of choice. In the study, participants in a "high-control" condition are given a choice between a hedonic and a non-hedonic gift after the emotion induction (almost all participants choose the hedonic gift), whereas participants in a "low-control" condition are simply endowed (no choice) with the

hedonic gift before the emotion induction. (The no-choice condition resembles the standard procedure of giving a commodity in studies of the endowment effect.)

The amount of hedonic food consumed (measured in grams) served as the dependent variable, and we examined the effect of the choice of gift (high control) versus simple endowment (low control) on consumption for sad and neutral individuals. Further, we collect measures of helplessness to examine whether helplessness plays a role in explaining the hypothesized sadness-consumption relationship.

A comparison between sad and neutral participants in the low-control condition allows us to test the basic hypothesis (from prior literature) that sadness leads to increased hedonic consumption relative to the neutral condition. We predict that:

H1: (A replication) An incidental sadness prime will increase consumption of a hedonic food product relative to a neutral prime.

However, our main interest lies in comparing participants in low- versus high-control conditions. As discussed earlier, we believe that having a choice will offer participants a sense of empowerment and control that will compensate for the helplessness associated with sadness. Hence, we predict:

H2: Having a choice of hedonic gift versus simply receiving the same gift will influence consumption for the sadness condition, such that (a) consumption will be lower for the high-control condition than for the low-control condition, and (b) consumption for the sadness condition and neutral condition in the high-control condition will be statistically equivalent.

METHODS

Participants and Experimental Design

Participants (N = 104) were recruited from the undergraduate population of a large university in the southern United States for participation in exchange for extra credit[1]. A 2 (emotion: sad, neutral) x 2 (choice of gift: low control, high control) between-subjects design was implemented to test the hypotheses.

Procedure[2]

Participants were seated in private cubicles with no visual access to other participants. A brown bag sat on each participant's desk. An experimenter told all the participants that they would be participating in two short studies that had been combined for efficiency reasons. Before they began, a note instructed *half* the participants to open the brown bag on their desk (low-control condition), which was said to contain a token of appreciation for their participation, a two-piece golden box of Godiva chocolates. The study consisted of two parts: the emotion induction and a story reading task. The procedure closely followed that used in prior research on consumption (Garg et al., 2007) with the exception of the choice of gift manipulation. Importantly, the procedure in terms of the timing of the tasks is the same for the choice conditions – low-control and high-control – with the exception of the presence or absence of a choice of a gift.

Emotion Inductions. Emotions were induced using a well-established methodology in the affect domain (see, for example, Lerner & Keltner, 2001). Specifically, the manipulation

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[1] In line with prior research (Garg et al., 2007), dieters were eliminated.

[2] All procedures for this study were reviewed and approved by the institutional review board at the university where the study was conducted.

consisted of two questions. The first question asked participants to describe three or four things that make them feel sad. The second question then asked them to describe in detail the one thing that makes (or made) them feel most sad. They were encouraged to describe the incident in such a way "that another person reading the description might experience the same feeling." Participants in the neutral condition were asked to first describe three-to-four activities they did that day and then to describe their typical day in detail, as well as the activities they undertake on a routine day (e.g., Garg et al., 2005).

Control Manipulation. At this point, participants in the low-control condition, who had already received the Godiva box prior to the emotion induction, were instructed to continue with "Study 2." A note instructed the other *half* of participants, those in the *high-control condition*, to open the brown bag and *choose one of the two gifts* in the bag (a box of Godiva chocolates or a Bic ballpoint pen) as a token of appreciation for their participation. This procedure is based on that used by Higgins et al. (2003), who controlled for choice by offering participants a choice between an inexpensive pen and a more desirable coffee mug from participants' own school, knowing that the vast majority would choose the mug. Thus, the procedure offers participants a real choice but diminishes variance in the choice outcome. In the present study, almost all the participants were expected to prefer the Godiva chocolate to the alternative, the inexpensive pen. It is noteworthy that the focus here was not on gift-giving or its effects but rather on the varying levels of control afforded to participants in this context, in keeping with established procedures (e.g., Higgins et al., 2003).

Filler Task. At this point, all participants were asked to continue with "Study 2." In this task, participants across all conditions were asked to read a two-page event narrative and to

rate a series of statements on 7-point scales (1=strongly disagree; 7=strongly agree). The purpose of the filler task was to give participants time to consume the M&Ms. The narratives were adapted from Garg et al. (2007) and have been pre-tested for their affective tone. They were designed to help maintain each participant's affective state. The sad event, presented to participants in the sadness condition, described the tragic loss of seven children in a fire and included the emotional responses of eyewitnesses. The neutral narrative, presented to participants in the neutral condition, described a day in the life of a typical undergraduate and focused on daily activities such as getting ready, attending classes, and watching TV.

The statements assessed how well participants could relate to the story, how sad/happy they thought the story was, and how interesting they found the narrative to be. This procedure is similar to that used by Garg et al. (2007). At the same time, each participant was given a pre-weighed bowl of M&M candies as refreshments, along with a bottle of water.

Additional Measures. At this point, participants were given a final questionnaire that asked questions regarding the time elapsed since their last meal, the extent to which they felt hungry or full before and after the studies, their dieting status, and whether they tried to restrict or monitor their food consumption during the study. They were also asked whether they were allergic to chocolate, about their average frequency of chocolate consumption (less than once a week, one-to-three times a week, or more than three times a week), whether they intend to keep the "token gift" for themselves or give it to someone else, and whether they considered Godiva to be a brand of luxury chocolates.

Importantly, the questionnaire also collected measures designed to ascertain whether differences in perceived helplessness exist between sad and neutral individuals, as predicted by

our theory. Perceived helplessness was measured via three items (α = .79), adapted from Hartline & Ferrell (1996), each beginning, "Looking back on it (refers to the autobiographical situation) now, I feel…" (1) "I was well prepared for the situation(s) I faced," (2) "I had the resources to handle the situation(s)," and (3) "I was helpless to change the situation(s)" (reverse-coded). These items were then averaged to form a composite score for helplessness.

Emotion Manipulation Checks. Finally, to collect our emotion manipulation measures, we asked participants to report the feelings they experienced when writing about the autobiographical event pertaining to a specific emotion (sadness or neutral). To avoid revealing our interest in specific emotions, the form asked about 18 affective states; only nine were of interest to us. "Gloomy," "upset," "downhearted," "depressed," and "sad" comprised a sadness factor (α = .95). "Unemotional," "indifferent," "neutral," and "unaroused" comprised a neutral factor (α = .80). Response scales ranged from zero ("did not experience the emotion at all") to eight ("experienced the emotion more strongly than ever before") (see Lerner et al., 2004; Cryder et al., 2008).

Demographic measures concerning participants' gender, age, and race/ethnicity were also collected. After completing the study, participants were partially debriefed and dismissed. Each bowl of M&Ms was then individually re-weighed to obtain the amount of food product consumed (in grams).

RESULTS AND DISCUSSION

Preliminary Analyses: Emotion Manipulation Checks. A 2 (emotion: sad, neutral) x 2 (choice of gift: low control, high control) individual ANOVA was run with both self-reported

feelings of sadness and neutral state. As expected, only the main effect of emotion effect was significant and this revealed strong emotion induction effects ($p < .0001$) for both sad ($F(1, 99) = 227.46$) and neutral ($F(1,100) = 47.90$) conditions. Further, participants felt significantly more sad than neutral in the sadness conditions ($t(52) = 11.89$, $p < .0001$) and significantly more neutral than sad in the neutral conditions ($t(49) = -8.60$, $p < .0001$).

Helplessness Manipulation Checks. Also as predicted by appraisal theories, individuals in the sadness conditions indicated feeling significantly higher levels (indicated by lower scores) of helplessness than did individuals in the neutral conditions ($M_{sad} = 3.01$ vs. $M_{neutral} = 5.22$, $F(1,97) = 68.20$, $p < .0001$).

Insert Figure 1 about here

Inferential Analyses. A 2 (emotion: sad, neutral) x 2 (choice of gift: low control, high control) ANOVA with amount of M&Ms (in grams) consumed as the dependent variable and a "self-other" measure (whether participants intended to keep the Godiva chocolate for themselves or give it to someone else) as a covariate was conducted to test the hypotheses. We believed that accounting for participants' intentions with regard to the gift is important, as the effect of the gift would be more effective when one retains the gift for oneself.

Examining the simple effects across different conditions, several important results emerge. The low-control conditions are the closest to the *emotion conditions* used in prior studies and thus the most conducive for examining whether Hypothesis 1 is supported in this study. This is true because the participant was endowed with the gift before the emotion induction in the low-control conditions; therefore, its carryover effect on the simple effect of

emotion on consumption should be less than in the high-control conditions. To test Hypothesis 1, the simple effect between the sad and the neutral low-control conditions was compared. The results show that sad participants ate significantly more M&Ms than did neutral participants in these conditions (M_{sad} = 20.62 grams vs. $M_{neutral}$ = 9.98 grams), (t = 2.53, p < .05). Thus, Hypothesis 1 is supported.

Importantly, Hypothesis 2a is also supported. Specifically, the interaction between emotion and the choice condition was significant (F(2, 99) = 5.53, p < .05), such that while sad individuals consumed more in the low-control condition (M = 20.62 grams), they significantly reduced consumption in the high-control condition (M = 7.25 grams, p < .01). On the other hand, neutral individuals were impervious across the low- versus high-control conditions ($M_{low\text{-}control}$ = 9.98 grams vs. $M_{high\text{-}control}$ = 10.45 grams, *ns*), as expected. The effect of the covariate was not significant (F(1, 99) = .22, *ns*). Further, our results support the notion that when examining the general population (rather than special groups, such as dieters), the effect of emotion on consumption does not vary by gender.[3]

Hypothesis 2b is also supported; the average amount of M&Ms consumed by sad and neutral (M = 10.46 grams) participants were statistically indistinguishable in the high-control conditions (t = .78, *ns*).

Insert Figure 2 about here

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[3] We examined the effect of gender on consumption. In keeping with prior research in the emotion and consumption domain (see Garg et al., 2007), the effect of gender was found to be insignificant (F(1,99) = .01, *ns*).

Analyses next addressed the question of mediation. Does helplessness mediate the emotion to consumption connection? As discussed, sad individuals reported significantly higher levels of helplessness (indicated by lower scores) regarding the emotion situation than did those in the neutral condition (M_{sad} = 3.01 vs. $M_{neutral}$ = 5.22, $F(1,97) = 68.20$, $p < .0001$). Our argument is that this innate helplessness associated with sadness drives increased consumption and that offering a choice attenuates the effect. To test this, we ran a three-step mediation analysis (Baron & Kenny, 1986) separately for the low-control and high-control conditions, similar to a procedure conducted by Lerner, Goldberg, and Tetlock (1998).

As hypothesized, for the low-control conditions, emotion condition predicted helplessness ($F(1,47) = 21.64$; $p < .0001$); helplessness predicted amount consumed in grams ($F(1,47) = 5.64$; $p < .05$); and the once-significant path from emotion to amount consumed for the low-control conditions ($F(1,49) = 4.41$; $p < .05$) became insignificant ($F(1,46) = 2.38$; $p = .13$, *ns*) when helplessness was introduced in the same equation, indicating mediation. In contrast, for the high-control conditions, helplessness had no effect on the amount consumed ($F(1,50) = .12$; $p = .73$, *ns*). Thus, the data establish that helplessness drives the sad-consumption relationship and that when choice is offered to sad individuals, the sadness-helplessness-consumption links are decoupled (see Figure 3).

Insert Figure 3 about here

Overall, the results of this study reveal that sadness increases consumption unless individuals have a salient sense of high control. To our knowledge, these are the first results to

find a theoretically grounded way of attenuating sadness' effects on actual consumption behavior.

GENERAL DISCUSSION

Although it has been well established that incidental emotion influences many dimensions of consumer behavior (e.g., Isen, 2001; Isen, Shalker, Clark, & Karp, 1978; Mayer et al., 1992; Schwarz & Clore, 1983), there has been limited evidence of specific emotional states influencing actual *consumption behaviors,* such as eating.

The present research replicated existing findings in a new context, showing the carryover effect of sadness on consumption of a hedonic food product. More importantly, the present research extended prior work by discovering a key moderator and a key mediator. Specifically, heightening a sense of control by giving choice determined whether sadness' effect was attenuated. We suspect that this occurs because having a choice confers a sense of individual control that counteracts the sense of situational control/helplessness associated with sadness.

The results thus establish a conceptual connection with a long line of work in psychology on the effects of control (e.g., Averill, 1973; Iyengar & Lepper, 2000; Langer, 1975). And in establishing this connection, a host of implications for attenuating the sadness effect can now be explored. Now that we better understand the sadness-consumption relationship, such undesirable effects as spending too much or eating too much when one is incidentally sad can hopefully be reduced with strategic interventions.

It is important to distinguish between conscious and non-conscious behavior in this context. As we discussed earlier, the effects studied here are different from a more conscious choice of managing negative emotion, such as by engaging in "retail therapy." Our interest lies in the non-conscious effect of sadness on consumption, where participants are unaware of the nature of the effect on their behavior (e.g., the misery-is-not-miserly effect). In this phenomenon, although decision makers do choose to over-consume a food product, it is not a true choice, as they do not consciously realize they are over-consuming and do not attribute consumption to their sadness.

To recap, the study established three key points: (1) that sadness elevates self-reports of helplessness in response to the emotion-inducing situation; (2) that this increased helplessness mediates the sadness-consumption effect; and (3) that inducing a sense of control (via the provision of choice) attenuates sadness' effect on consumption. Now that a theoretically grounded moderator and another mediator of sadness' effects have been identified, multiple strategies for attenuating the effect can be explored.

Limitations and Future Research

While we explored some of the potential attenuating factors for the relationship between sadness and consumption behaviors, prior research (Garg et al., 2007; Schwarz & Clore, 1983) suggests that other moderators, such as providing information or making the source of the emotion salient, may also be effective attenuating factors. Thus, another direction for future research would be to examine whether such "non-consumption"-oriented moderators (e.g., source salience) are also effective in attenuating the effect of sadness on consumption.

While we established that the helplessness associated with sadness mediates the sadness-consumption relationship, we were not able to ascertain the effect of high control on consequent feelings of sadness and helplessness, as inserting measures for those dimensions could have disrupted the process we sought to study. Thus, collecting explicit measures to examine the effect of individual control on helplessness and sadness should be a fruitful avenue for future research. It could also shed light on a theoretical question: Does feeling less helpless correspond with feeling less sad?

The appraisal perspective suggests that each emotion consists of more than one key appraisal (Lerner & Keltner, 2000; 2001). Thus, it will be instructive to examine whether attenuating one of those appraisals attenuates the overall felt emotion or just the effect of the emotion on related outcome variables (e.g., attenuating the appraisal of uncertainty might lead to more risky decisions) while not significantly diminishing the overall felt emotion. Taken together, the present results can lead to fruitful avenues for future research based on understanding the link between the appraisal structure of an emotion and emotion effects on consumption.

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REFERENCES

Averill, J.R. (1973). Personal control over aversive stimuli and its relationship to stress. *Psychological Bulletin*, 80, 286-303.

Baron, R. M., & Kenny D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Brehm, J. (1966). *A theory of psychological reactance.* New York, NY: Academic Press.

Cryder, C.E., Lerner, J.S., Gross, J.J., & Dahl, R.E. (2008). Misery is not miserly: Sad and self-focused individuals spend more. *Psychological Science*, 19, 525-530.

Deci, E.L., & Ryan, R.M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology*, 53, 1024-1037.

Forgas, J.P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin*, 117, 39-66.

Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, 57, 212-228.

Garg, N., Inman, J. J., & Mittal, V. (2005). Incidental and task-related affect: A re-inquiry and extension of the influence of affect on choice. *Journal of Consumer Research*, 32, 154-159.

Garg, N., Wansink, B., & Inman, J. J. (2007). The influence of incidental affect on consumers' food intake. *Journal of Marketing*, 71, 194-206.

Hartline, M. D., & Ferrell, O. C. (1996). The management of customer-contact service employees: An empirical investigation. *Journal of Marketing*, 60, 52-70.

Higgins, E.T., Idson, L.C., Freita, A.L., Spiegel, S., & Molden, D.C. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology*, 84, 1140-1153.

Isen, A. M. (1993). Positive affect and decision making: Handbook of emotions. New York, NY: Guilford Press, pp. 261-277.

Isen, A.M. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology,* 11, 75-85.

Isen, A.M., Shalker, T.E., Clark, M., & Karp, L. (1978). Affect, accessibility of material in memory and behavior: A cognitive loop? *Journal of Personality and Social Psychology,* 36, 1-12.

Iyengar, S.S., & Lepper, M.R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology,* 79, 995-1006.

Johnson, E. J., & Tversky, A. (1983). Affect, generalization and the perception of risk. *Journal of Personality and Social Psychology*, 45, 20-31.

Keltner, D. & Lerner, J. S. (2010). Emotion. *The Handbook of Social Psychology* (5th edition), New York: McGraw Hill.

Keltner, D., Locke, K.D., & Audrain, P.C. (1993). The influence of attributions on the relevance of negative feelings to personal satisfaction. *Personality and Social Psychology Bulletin,* 19, 21-29.

Langer, E.J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, 32, 311-328.

Langer, E.J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology,* 34, 191-198.

Lazarus, R.S. (1991). *Emotion and adaptation.* London, UK: Oxford University Press.

Leith, K. P., & Baumeister, R. (1996). Why do bad moods increase self-defeating behavior? Emotion, risk taking and self-regulation. *Journal of Personality and Social Psychology,* 71, 1250- 1267.

Lerner, J.S., Goldberg, J. H., & Tetlock, P.E. (1998). Sober second thought: The effects of accountability, anger, and authoritarianism on attributions of responsibility, *Personality and Social Psychology Bulletin,* 24, 563-574.

Lerner, J.S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgment and choice. *Cognition and Emotion*, 14, 473-493.

Lerner, J.S., & Keltner, D. (2001). Fear, anger and risk. *Journal of Personality and Social Psychology*, 81, 146-159.

Lerner, J.S., Small, D.A., & Loewenstein, G. (2004). Heart strings and purse strings: Carry-over effects of emotions on economic transactions. *Psychological Science,* 15, 337-341.

Loewenstein, G., & Lerner, J.S. (2003). The role of affect in decision making. In R. Davidson, K. Scherer, & H. Goldsmith (Eds.), *Handbook of affective science* (pp. 619-642). New York: Oxford University Press.

Mayer, J.D., Gaschke, Y.N., Braverman, D.L., & Evans, T.W. (1992). Mood-congruent judgment is a general effect. *Journal of Personality and Social Psychology*, 63, 119-132.

Raghunathan, R., & Pham, M.T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes*, 79, 56-77.

Scherer, K. P. (1997). The role of culture in emotion antecedent appraisal. *Journal of Personality and Social Psychology*, 73, 902-922.

Schwarz, N. (2000). Emotion, cognition, and decision making. *Cognition & Emotion*, 14, 433-440.

Schwarz, N., & Clore, G.L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513-523.

Smith, C.A., & Ellsworth, P.C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 48, 813-838.

Tice, D.M., Bratslavsky, E., & Baumeister, R.F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, 80, 53-67.

Tiedens, L.Z., & Linton, S. (2001). Judgment under emotional uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology*, 81, 973-988.

Wansink, B., Cheney, M.M., & Chan, N. (2003). Exploring comfort food preferences across gender and age. *Physiology and Behavior*, 79, 739-747.

Wegener, D. T., & Petty R. E. (1994). Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality and Social Psychology*, 66, 1034-1048.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92, 548-573.

FIGURE 1

Manipulation check data show that the inductions had the intended effects

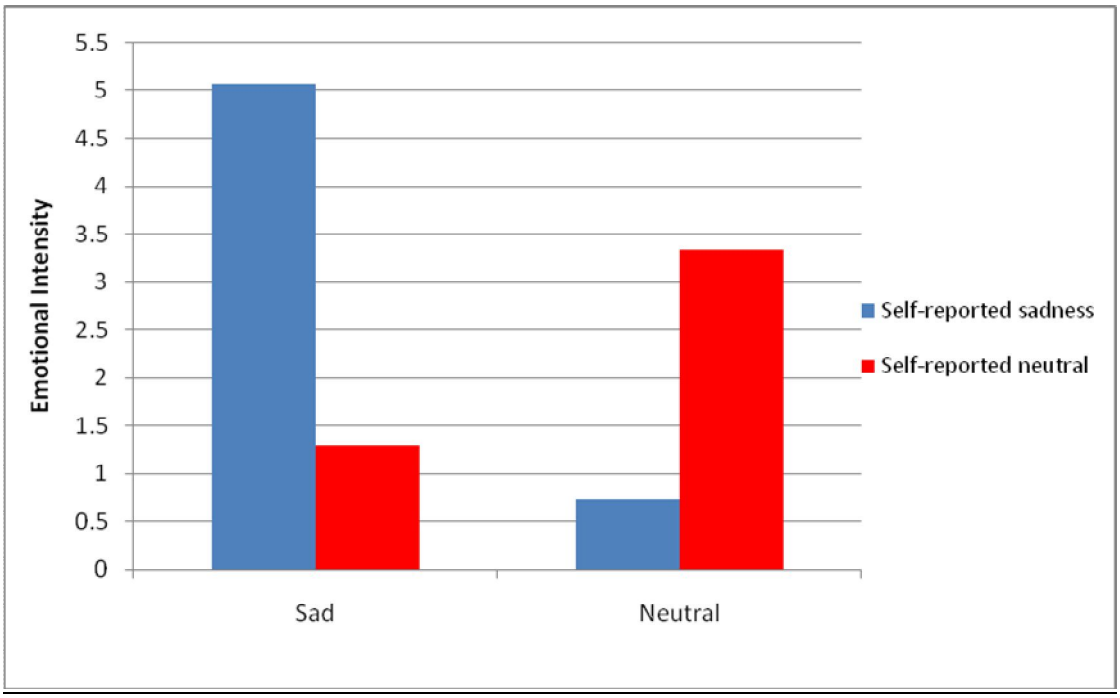

FIGURE 2

Participants in the sad condition only consumed more M&Ms (as measured in grams) when they were in the low-control condition

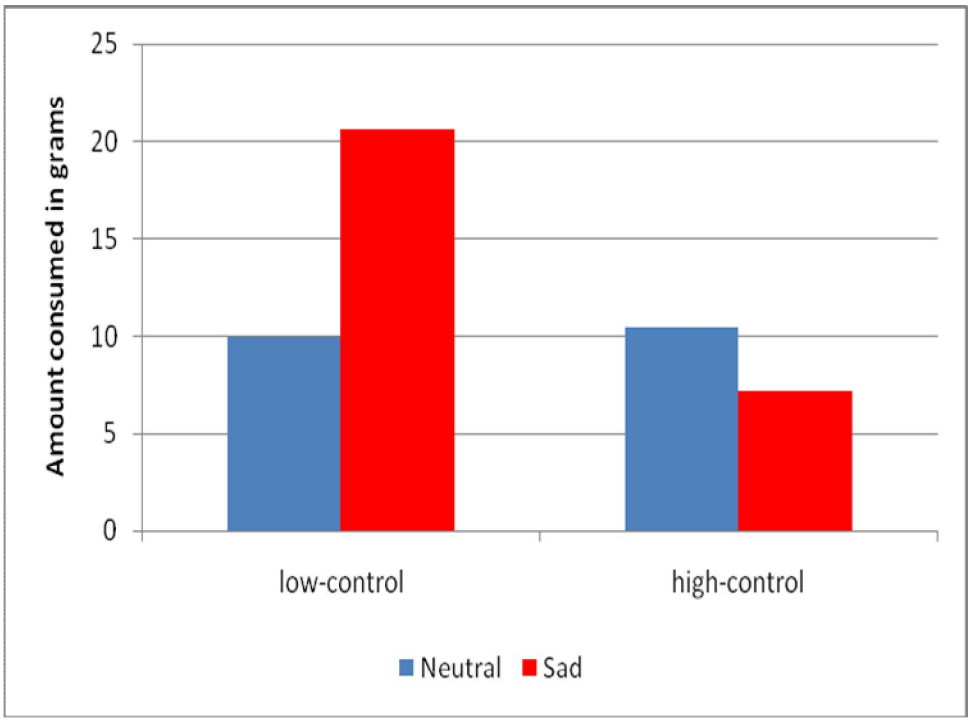

FIGURE 3

Self-reported helplessness mediates the effect of emotion on M&Ms consumed (in grams) in the *low-control* conditions