

Rest in peace? Brand-induced mortality salience and consumer behavior[☆]

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Abstract

The present research examines the hypothesis that brands can automatically activate mortality-related thoughts and, in turn, affect consumer behavior. Terror Management Theory (TMT; [Greenberg Jeff, Pyszczynski Tom, Solomon Sheldon. The Causes and Consequences of a Need for Self-esteem: A Terror Management Theory. In: Baumeister Roy F, editor. Public Self and Private Self. New York/Berlin: Springer-Verlag, 1986. pp. 189–192.]) predicts that brand-induced mortality salience leads to increased spending and worldview defense. The present findings show that explicit exposure to an insurance brand increases the accessibility of death-related thoughts, which, in turn, increases personal spending intentions (Experiment 1). Experiment 2 demonstrates that (implicit) insurance brand exposure positively affects charity donations. Additionally, the results of Experiment 3 reveal that subliminal brand exposure affects worldview defense in such a way that individuals who unconsciously observe an insurance brand rate domestic products more favorably and foreign products less favorably than individuals in the control condition. Brand associations can affect (unconscious) consumer behavior in various unanticipated ways.

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Imagine buying a new car. You are looking for a fast one that will augment your driving experience and impress your friends. Two brands that automatically come to mind are “Porsche” and “Dodge Viper”, because you associate them with all the qualities you are looking for in a car. After some consideration you decide to purchase the “Porsche”. You start looking in the yellow pages to find an insurance company that offers a car insurance that provides security and safety. Whilst scrutinizing the relevant pages and seeing the brand names and logos of all the different insurance companies, you find yourself thinking about the terrible things that could happen to you and your

precious new car: theft, damage, vandalism and even a fatal accident.

This scenario shows that brands may activate a plethora of associations, which is congruent with the idea that consumers associate brands with related constructs such as a particular product attribute, usage situation, brand spokesperson, and the brand’s logo. Aaker (1991) defines brand associations as “anything linked in memory to a brand”. These associations are assumed to be organized in a network similar to associative memory models (Anderson, 1993). For example, “Porsche” and “Dodge Viper” may trigger associations such as the pleasure of driving, speed and impression management, just as insurance brands can evoke associations involving security and belongingness. Such positive associations are often the result of enduring marketing strategies that repeatedly stress these brand characteristics, and they are often the focus of consumer research (e.g., Kohli et al., 2005; Punj and Moon, 2002; Van Osselaer and Janiszewski, 2001).

However, as follows from the example above, not all brand associations originate from intentional tactics by marketers.

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Brand associations also seem to arise unintentionally as a consequence of, for instance, negative publicity or a product's attributes. For example, insurance brands are likely to remind us of disaster, illness, and even mortality. Whereas the effects of intentionally designed marketing strategies and consciously created brand associations on brand equity and consumer behavior received much attention, (e.g., Belén del Río et al., 2001; Brown and Dacin, 1997; Cobb-Walgren et al., 1995; Keller, 1993, 2003; Krishnan, 1996; Yoo et al., 2000), one cannot say the same about the effects of brand associations that originate spontaneously and are not part of a well-designed marketing strategy. Do such unintended, and perhaps undesired, brand associations affect consumer behavior? The present paper argues that they do. More specifically, the current research shows that brands can sometimes automatically trigger unconscious, hidden motives, desires, and fears that have a significant impact on consumer behavior. The present research focuses on one very powerful hidden motive: the fear of death (Greenberg et al., 1986). Although previous work stresses the relevance of the construct of mortality salience for the field of consumer behavior (e.g., Arndt et al., 2004; Solomon et al., 2004), various important questions have been left unaddressed in the literature. The present series of studies focuses on the notion that brand attributes may (unintentionally) induce the fear of death under various conditions. Moreover, the present research aims to extend earlier findings on the effects of death-related anxiety on various forms of consumer behavior.

The next section briefly reviews previous research on the relationship between death-related anxiety and consumer behavior, and identifies several gaps in the literature. The section that follows discusses three experiments that tested the notion that brands can induce mortality salience and subsequently influence consumer behavior.

1. Consumer behavior as terror management

According to Terror Management Theory (TMT: Greenberg et al., 1986), much human behavior emanates from the fear of death that becomes salient when confronted with mortality. The will to survive and the knowledge that life is transient results in an unsolvable conflict, often referred to as terror. Terror Management Theory postulates that individuals deal with this terror by endorsing a cultural worldview that gives meaning, order and permanence to the self. Living up to these standards provides high levels of self-esteem which functions as a buffer against existential anxiety. Various studies support the proposition that reminders of mortality intensify the desire to express cultural values and to engage in culturally prescribed behavior (see Greenberg et al., 2004 for a recent overview). For example, mortality salience leads to overestimation of consensus for one's attitudes on culturally relevant issues (Pyszczynski et al., 1996), more positive evaluations of charities (Jonas et al., 2002), a higher level of emotional distress when behaving counter to cultural values and norms (Greenberg et al., 1995), and more favorable attitudes of those individuals who exemplify cultural values or praise the culture (e.g., Greenberg et al., 1990; Rosenblatt et al., 1989). Moreover, research shows

that reminders of death not only intensify the desire to express and praise cultural values, but also the inclination to defend the values and norms of one's cultural worldview (in-group-bias) and, at the same time, the tendency to derogate values of other cultures (out-group derogation). For example, Germans who thought about their mortality reported less support for the European currency, the Euro, and greater support for the German Mark (Jonas et al., 2005). Expressing cultural values and defending one's cultural worldview seem to serve as mechanisms that regulate experienced existential terror.

Recent research explores TMT assumptions in the realm of consumer behavior (Arndt et al., 2004; Rindfleisch and Burroughs, 2004; Maheswaran and Agrawal, 2004). In the current western society, consumerism and materialism can be seen as important values intrinsic to a western worldview. Accordingly, thoughts about death intensify the desire to meet these values by acting in accordance with them because this will boost self-esteem. In line with these notions, research shows that participants who consciously think about their mortality evaluate their financial future more positively, and expect to spend more money on luxury items in the next fifteen years than participants in the control condition (Kasser and Sheldon, 2000). Reminders of death also increase the attraction of high status products, presumably because these kinds of possessions show that one is doing well and meeting the standards of one's society (Heine et al., 2002; Mandel and Heine, 1999). Research on the effects of death reminders is still in its infancy, however, and little is known as yet about other worldview defense strategies that may be directly relevant to the consumer domain. For example, it remains unclear how the previously discussed impact of mortality salience on in-group bias and out-group derogation manifests itself in the consumer domain. One rather straightforward possibility would be that mortality salience leads to a general preference for national (own-country) products and a devaluation of foreign products. The present paper will address this issue.

Furthermore, most research in the domain of Terror Management activated mortality-related thoughts by confronting participants with a threatening video about death or by instructing participants to write or think about (their) mortality (for an overview see: Pyszczynski et al., 2004). However, research left unaddressed whether marketing stimuli, such as brands, physical products, or advertisements can automatically activate mortality-related thoughts as well. The present series of studies focuses on one specific type of marketing stimulus and assesses the role of brands in inducing consumer mortality salience. In sum, this research aims to establish the missing causal links between three constructs: brands, mortality salience and consumer behavior.

The present research adds to the literature in two ways. First, the hypothesis that mere brand exposure can function as an (unintended) reminder of mortality by triggering associations of disaster, fatal accidents and illnesses will be tested. Research on automatic construct activation (e.g., Bargh and Pietromonaco, 1982; Higgins et al., 1985; Macrae et al., 1994; Wheeler and Petty, 2001) supports the idea that subtle environmental cues can influence construct accessibility. For example, Kay,

Wheeler, Bargh, and Ross (2004) show that implicitly presented material business objects, like boardroom tables and briefcases, increase the cognitive accessibility of related constructs such as competition. Likewise, brands—considering their broad scope of associations—may trigger various constructs related to unconscious consumer motives, such as a fear of death or a need to belong. To validly establish the specific relationship between brands and unconscious consumer motives, the present research examines the effects of different priming procedures on the accessibility of mortality-related thoughts. Across studies, priming procedures are varied from extensive and explicit, that is, supraliminal priming, to subtle and below the threshold level of conscious perception, that is, subliminal priming (Bargh and Chartrand, 2000). These procedures offer the possibility to learn more about the effects of brand associations that are not part of a well-designed marketing strategy, and are not controlled by marketers, but arise automatically from links with related constructs. This approach extends previous research in the realm of terror management by providing a first test of the role of marketing stimuli as inductors of mortality perceptions (i.e., brands and brand logos).

Second, this research extends previous TMT research by providing explicit tests of the various ways in which mortality concerns affect consumer behavior. In western countries where consumerism is deeply interwoven with cultural beliefs and money is a pervasive barometer of self-worth (Bauman, 1995), excessive spending can function as a coping-strategy for dealing with existential anxiety (see also Arndt et al., 2004). In line with these notions, the hypothesis is that increased personal spending and charity donations are a function of brand-induced mortality salience. Moreover, the present studies take in-group favoritism and out-group derogation into the consumer domain by proposing that mortality salience induces a more positive perception of products and goods that are produced in one's own country and a more negative perception of products originating from abroad. In other words, individuals who (unconsciously) think about their mortality, through brand exposure, will be motivated to defend their own culture by expressing greater appreciation for their "own" products and lower appreciation for other cultures' ("their") products.

2. Overview

This research has two aims, (1) to test whether priming participants with an insurance brand logo can automatically activate death-related thoughts, and (2) to replicate and extend research on consumption-related mechanisms to reduce existential anxiety. This paper reports three studies that used different priming procedures: Experiments 1 and 2 used an explicit and implicit supraliminal brand priming method, respectively, to make mortality salient. Experiment 3 used a subliminal brand priming method to activate death-related thoughts. Using these different priming procedures, ranging from very explicit to very implicit, offers the possibility to validly establish the effectiveness of different forms of brand exposure, while providing and extending the knowledge about the effects of unintended and unmanaged brand associations.

Accordingly, the present study is one of the first to assess the effects of brands on mortality salience and subsequent consumer behavior.

The studies measure four different types of coping strategies, aimed at reducing existential anxiety, which are relevant to the consumer domain: increased spending (Experiment 1), increased donation to charity (Experiment 2), increased appreciation for national products, and decreased appreciation of foreign consumer goods (Experiment 3). The expectation was that exposure to an insurance brand increases the accessibility of mortality-related thoughts, which, in turn, would increase various types of coping strategies relevant to the consumer domain. Finally, Experiment 1 used a mediation analysis (cf. Baron and Kenny, 1986) to establish the mediating role of mortality salience in the relation between brand exposure and consumer worldview defense strategies.

3. Experiment 1

Experiment 1 aimed to test three hypotheses. First, this study examined the effect of explicit-supraliminal-brand priming on mortality salience. The first hypothesis was that extensive exposure to an insurance brand increases the accessibility of mortality-related thoughts. The second hypothesis was that this brand-induced mortality salience would affect personal spending on other items than the branded ones. Finally, the third hypothesis stated that mortality salience mediates the relation between brand exposure and spending intentions.

3.1. Method

3.1.1. Design and participants

The experiment employed a single factor between-subjects design (brand: insurance brand logo vs. no brand logo). Forty-three participants (23 males and 20 females) with a mean age of 22 years ($SD=2.69$) took part in the experiment. Participants received € 2 for their participation.

3.1.2. Procedure

On arrival at the lab, the experimenter told the participants that the study consisted of a series of unrelated studies. The experimenter placed each participant in a separate room with a computer that provided all further instructions. After answering some demographic questions, participants in the experimental condition observed a brand logo, whereas control participants did not. After brand exposure, participants completed several measures assessing mortality salience, mood and spending intentions. Finally, participants responded to the "funneled debriefing" procedure (Bargh and Chartrand, 2000) to ascertain that nobody identified the real purpose of the study. After completing the different parts of the study, the experimenter debriefed, paid, and thanked participants for their attendance.

3.1.3. Brand exposure

The computer program randomly assigned participants to either the brand exposure or the control condition. In the brand

manipulation condition, participants saw the brand logo of a well-known insurance company, whereas participants in the control condition did not. To ascertain a thorough and extensive confrontation, the exposure lasted for five minutes and participants wrote down all the thoughts that came to mind during the brand logo exposure (Macrae et al., 1994).

3.1.4. Mood

To assess whether the brand exposure would lead to unintended mood effects, participants responded to the 20-items Positive Affect Negative Affect Schedule (PANAS; Watson et al., 1988), which consisted of 10 positive items ($\alpha=.79$) and 10 negative items ($\alpha=.78$). This questionnaire, designed to measure participants' feelings at that particular time, also served as a delay and distraction measure. This was important because previous research shows that standard mortality salience effects mainly occur after a (short) period of delay (Arndt et al., 1997).

3.1.5. Mortality salience

To measure the accessibility of death-related thoughts, participants responded to the word fragment completion task (Greenberg et al., 1994) in which they completed a set of 15 incomplete words by filling in one or more syllables. Participants could complete ten of these words as either neutral or death-related words, and the remaining 5 words served as filler items. Examples included "De..", which participants could complete as either "Death" or "Dean", and "...ave" which they could complete as "Grave" or "Wave". The summed total of death-related words that participants completed served as an index for mortality salience ($M=.8$, $SD=.91$, range=0–3).

3.1.6. Spending intentions

Participants indicated their inclination for excessive spending by reporting how much money they were planning to spend on entertainment and food in the upcoming month. Consumption and hedonism are currently seen as the most essential values in Western countries (Baumann, 1995). Therefore, the expectation was that spending money on consuming luxury food in a restaurant and entertaining oneself are adequate ways of expressing these current Western values. The summed scores on the items entertainment and food served as a measure of short-term spending intentions.

3.2. Results and discussion

The results of the debriefing procedure revealed that none of the participants recognized the real purpose of the experiment. This enabled us to include all participants in the analyses.

3.2.1. Mood

Analysis of variance on the positive items of the PANAS, ($F(1, 41)=.83$, *ns*) and the negative items of the PANAS, ($F(1, 41)=1.77$, *ns*) indicated that participants' mood states were not affected by brand exposure. Hence, mood states cannot account for the difference in cognitive accessibility of death-related words and spending intentions.

3.2.2. Mortality salience

An ANOVA on the number of completed death-related words showed that participants in the brand manipulation condition completed more death-related words ($M=1.2$, $SD=1.0$) than participants in the control condition ($M=.4$, $SD=.66$; $F(1, 41)=8.9$, $p<.01$). Participants who explicitly saw the insurance brand logo indeed had more mortality-related thoughts than participants in the no-brand control condition, thus confirming that explicit brand exposure increased mortality salience.

3.2.3. Spending intentions

In line with the predictions, an ANOVA on the measure of spending intentions revealed that participants in the experimental condition planned to spend more money on entertainment and food ($M=204$, $SD=95.83$), than participants in the control condition ($M=130$, $SD=59.96$; $F(1, 41)=9.58$, $p<.01$).

3.2.4. Mediation analysis

A mediation analysis tested the hypotheses that mortality salience mediates the relation between brand exposure and spending (cf. Baron and Kenny, 1986). The first regression analysis, with spending intentions as the dependent variable and brand manipulation (dummy coded) as the predictor, yielded a significant relation ($\beta=.44$, $p=.004$). A second regression analysis, with the mediator (mortality salience) as the dependent variable and brand manipulation as the predictor, showed that brand manipulation influenced mortality salience significantly ($\beta=.40$, $p=.005$). Subsequently, following the procedure outlined by Baron and Kenny (1986), a regression analysis with brand manipulation (dummy coded) and mortality salience (centered, see Aiken and West, 1991) as predictors and spending intentions as the criterion revealed that the previously found relationship between brand manipulation and spending intentions became insignificant ($\beta=.22$, $p>.10$), whereas the mediator retained its significance ($\beta=.50$, $p=.001$), which indicates full mediation. A Sobel test (Baron and Kenny, 1986; Preacher and Hayes, 2004) confirmed that mortality salience mediates the relation between brand manipulation and spending intentions ($Z=2.27$, $p<.05$). These results suggest that mortality salience is a significant mediator of the relation between brand manipulation and spending intentions.

These findings support the hypothesis that mortality salience can be induced by explicit priming with an insurance brand logo. Measuring the accessibility of death-related thoughts, enabled the possibility to show that brand exposure indeed induces mortality salience directly. Additionally, in accordance with the second hypothesis, the results showed that participants in the experimental condition indicated to spend more money in the near future than participants in the control condition, which offers further support for the effects of mortality salience on consumption-related intentions. Moreover, the mediation analysis revealed that the effect of brands on spending intentions is fully mediated by the accessibility of death-related thoughts. In sum, these results show that brand logos can influence spending intentions via mortality salience. Individuals confronted with an insurance brand, are unconsciously reminded of their mortality and use spending as a means to regulate their experienced terror.

This is the first study to show that effects of mortality salience on consumer behavior are mediated by mortality-related thoughts.

Given the fact that this study contrasted a brand exposure condition with a non-brand exposure control condition, one could argue that brand exposure as such, regardless of the specific type of brand, may have been sufficient to activate associations such as spending and purchasing, which could have led to increased spending intention. To rule out this alternative explanation, Experiment 2 uses a neutral brand in the control condition. To further validate the results of Experiment 1, and mimic a more “real world” situation, Experiment 2 uses a more implicit brand exposure by presenting the brand logo as a subtle and incidental environmental cue. Finally, Experiment 2 tests whether mortality salience can have effects other than increased consumerism, by examining the relationship between mortality salience and donations to charity.

4. Experiment 2

Experiment 2 aimed to extend the results of Experiment 1 in a more natural setting by using a more implicit, subtle exposure of the insurance brand logo. Furthermore, Experiment 2 used a control brand in the control condition to rule out the alternative explanation that exposure to any brand influences spending behavior. To guarantee the implicit presence of the brands, the brand logos were printed on a mouse pad that was used during the experiment yet was not the focus of attention during any part of the experiment. Hence, the logos were only accidentally present in the experimental setting. Moreover, the present experiment investigated whether mortality salience affects actual behavior by measuring the amount of money participants were prepared to donate to charity. Donating behavior can be seen as desirable behavior in western culture (see Jonas et al., 2002), which makes it a suitable strategy for expressing cultural values. The expectation was that individuals who used the mouse pad with the printed insurance logo would donate more money to charity than participants using a mouse pad with a control brand.

4.1. Method

4.1.1. Design and Participants

This experiment employed a single factor between-subjects design (brand manipulation: mouse pad with printed insurance logo vs. mouse pad with printed control brand logo). A total of thirty-seven participants (20 males and 17 females) with a mean age of 22 years ($SD=2.39$) took part in this study. The experimenter paid the participants € 2 for their participation.

4.1.2. Procedure

As in Experiment 1, the experimenter told participants that they would take part in a sequence of short, unrelated studies. The entire experiment took place on a computer and participants used either a mouse pad with the printed insurance logo or a mouse pad with the logo of a control brand (a brand for a personal care product). Subsequently, participants responded to the Positive Affect Negative Affect Schedule (PANAS) and indicated how much money they wanted to donate to charity.

Finally, the experiment contained a funneled debriefing procedure, to uncover any suspicions of the experiment’s real goal. After the experiment, the experimenter debriefed, paid, and thanked participants for their attendance.

4.1.3. Brand manipulation

The experimenter randomly assigned participants to a room in which the mouse pad with the insurance brand logo was present or to a room in which the mouse pad with the control brand was present. Hence, during the entire experiment, participants used the mouse pad with either the printed insurance brand logo or the mouse pad with the printed control brand logo. To ascertain the implicit character of the experimental treatment, neither the experimenter nor the instructions provided by the computer program made any reference to the mouse pad or logo during any part of the experiment.

4.1.4. Mood

Participants responded to the 20-item PANAS questionnaire to check for design confounds (α positive items = .77, α negative items = .79).

4.1.5. Charity donation

At the end of the experiment, participants read some information about a charity foundation concerned with environmental protection and climate issues and indicated how much money they wanted to donate.

4.2. Results and discussion

The results of the debriefing procedure revealed that none of the participants identified the true purpose of the experiment.

4.2.1. Mood

As in Experiment 1, analysis of variance on the positive items ($F(1, 35)=.22, ns$) and the negative items ($F(1, 35)=1.56, ns$) of the PANAS showed there were no significant differences in mood states between the experimental condition and the control condition. Hence, mood states cannot account for the observed results.

4.2.2. Donations

An ANOVA revealed that participants in the experimental condition indicated to give more money to the charity foundation ($M=22, SD=22.45$) than participants in the control condition ($M=9, SD=9.17; F(1, 35)=5.22, p<.05$).

These findings extend the results of Experiment 1 by showing that brand-induced mortality salience leads to expressing cultural values by more generous donations to charity. This means that brands can function as subtle environmental cues that may affect consumer-related worldview defense strategies in ways that were unintended by the brand owner. Moreover, the use of a control brand in the control condition ruled out that general brand associations such as consumption and spending caused the effects on spending behavior.

The findings of Studies 1 and 2 imply that consumers may use spending, specifically on culturally valued items, as a coping

mechanism to reduce experienced terror triggered by the subtle presence of brands in the environment. However, there may be more ways in which brand-related mortality reminders affect consumer behavior. Terror Management Theory states that another coping strategy exists of support for one's own culture and worldview and derogation of other cultures (Greenberg et al., 1986). These mechanisms may translate to a consumer context, as they may affect the evaluation of foreign and local products. Specifically, as a consumption-related worldview defense mechanism, individuals exposed to the insurance brand may evaluate domestic products more favorably and foreign products less favorably. Experiment 3 tests this hypothesis. Additionally, Experiment 3 employs a subliminal brand priming procedure, in order to test the hypothesis that even brands presented on an unconscious level can affect mortality salience and corresponding consumer behavior.

5. Experiment 3

Experiment 3 applied a common worldview defense mechanism following a mortality salience manipulation to a consumer context: in-group bolstering and out-group derogation (Greenberg et al., 1986). More specifically, this experiment tested whether mortality salience affects the evaluation of domestic and foreign products. The experiment used subliminal brand exposure to establish that mortality-related associations become active even when consumers are completely unaware of being exposed to a brand stimulus.

5.1. Method

5.1.1. Design and participants

To test the hypotheses, this experiment used a 2 (subliminal exposure: insurance brand vs. control brand) \times 2 (products: domestic vs. foreign) design with repeated measures on the second factor. Seventy-seven participants (22 male and 55 female), with a mean age of 21 years ($SD=2.38$) participated in the present study. They received €2 for their participation.

5.1.2. Procedure

As in the previous studies, the experimenter told participants they would participate in a sequence of unrelated studies. The experimenter seated the participants in a separate room at individual computer desks. After responding to demographic questions, participants performed a lexical decision task in which a subliminal priming procedure took place. Subsequently, participants evaluated typical domestic products and typical foreign products. A debriefing procedure to assess whether participants had noticed the subliminal brand manipulation concluded the experiment.

5.1.3. Brand exposure

The experiment used a subliminal priming task based on a standard priming procedure (Bargh and Pietromonaco, 1982; Strahan et al., 2002). Participants performed a masked lexical decision task in which they had to indicate as quickly and accurately as possible (by pressing the "a" or ";" key,

respectively), whether a string of letters shown to them on a computer screen constituted an existing word or not. The string of letters appeared in the middle of the computer screen. Between the presentation of forty words and non-words, brand logo primes flashed in the middle of the screen in half of the trials. The brand logos appeared on screen for a period of 10 milliseconds each. In the experimental condition, participants received a subliminal presentation of the insurance brand logo whereas participants in the control condition received a subliminal presentation of the logo of a soft drink brand. The experiment used this brand in the control condition because the colors of the brand logo matched those of the insurance brand logo, which facilitated the masking technique. Moreover, the use of another control brand than the one used in Experiment 2 ascertained that the earlier results are not attributable to the use of one particular control brand. A "sandwich" mask, consisting of a series of X's in the same colors as the brand logo primes, appeared before and after the primes in the exact same spot as the brand logo primes. Both masks appeared on screen for 300 ms each.

5.1.4. Product attitudes

To measure participants' attitudes towards typically domestic (i.e., Dutch) food products and typically foreign food products, participants rated—on a 5-point scale—how positive (versus negative) they evaluated each of the products concerned. A picture—on which the product's name was clearly visible—of each product was displayed on the computer screen. Participants rated a total of five typically domestic products (e.g., "Gouda Cheese" and "Grolsch Beer") and five foreign products (e.g., "Carbonell olives" and "Corona beer"). A summation of the five scores on the domestic products served as the attitude score towards the domestic products and a summation of the five scores on the foreign products served as the attitude score towards the foreign products.

5.2. Results and discussion

The results of the debriefing procedure confirmed that none of the participants identified that they had been exposed to a subliminal brand manipulation.

5.2.1. Product attitudes

A 2 (brand: insurance brand vs. soft drink brand) \times 2 (product: domestic vs. foreign) ANOVA with repeated measures on the last factor yielded a significant main effect of product ($F(1, 75)=4.05, p<.05$), indicating that the domestic products were generally evaluated more positively ($M=17, SD=2.83$) than the foreign products ($M=16, SD=3.22$). This main effect was qualified by a significant interaction effect between brand and product ($F(1, 75)=8.76, p<.01$). Simple main effect analyses showed that participants in the insurance brand condition rated the domestic products more positively ($M=18, SD=2.10$) than participants in the control brand condition ($M=16, SD=3.28, F(1, 75)=5.20, p<.05$). Conversely, participants in the insurance brand condition rated the foreign products less positively ($M=16, SD=3.34$) than participants in the control brand condition ($M=17, SD=2.96, F(1, 75)=4.05, p<.05$). These

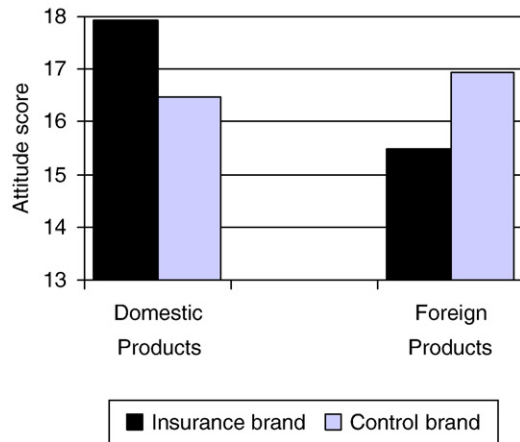


Fig. 1. Attitude scores on domestic and foreign food products as a function of brand exposure.

findings suggest that participants in the insurance brand condition showed in-group favoritism, by expressing a more positive attitude towards domestic products, as well as out-group derogation, by expressing a more negative attitude towards foreign products (see Fig. 1).

These findings demonstrate that unintended brand associations can affect the evaluation of different products. The present findings may thus be the first to provide a clear demonstration of consumption-related in-group favoritism and out-group derogation as a function of brand induced mortality salience. Hence, the results attest to the various forms in which consumer behavior may function to reduce existential terror that is experienced when individuals are confronted with a mortality-related brand. Furthermore, the present findings show that these effects can even be induced when the brand stimuli have been presented subliminally.

6. General discussion

The present research investigated whether unintended brand associations can influence consumer behavior by triggering unconscious consumer motives. The hypotheses were that exposure to an insurance brand would activate mortality-related thoughts and that mortality-related thoughts, in turn, would increase consumer spending, increase consumer preference for domestic products, and decrease consumer preference for foreign products. The present findings support these hypotheses. First, the current research is the first to show that exposure to marketing stimuli, like brands, is sufficient to induce mortality salience. This is a clear extension of earlier research that has underscored the relevance of the mortality salience construct for understanding various forms of consumer behavior (e.g., Solomon et al., 2004; Arndt et al., 2004) but thus far has ignored the role of marketing stimuli as causal agents in this process. The present results align with earlier findings indicating that brand stimuli are capable of activating direct and indirect consumer associations. In this regard, it is noteworthy that something so subtle and perhaps trivial as a simple brand logo that is presented with (Experiment 1) or

without (Experiments 2 and 3) any concomitant instructions and even nonconsciously (Experiment 3), can have these dramatic and far-reaching effects on man's ultimate fear: his or her death. Second, the present research shows that consumers have several response options to deal with induced existential terror. Experiments 1 and 2 revealed that exposure to an insurance brand enhanced spending on items that one values positively in current western society. A mediation analysis confirmed that the relation between brand associations on the one hand, and spending on the other, was mediated by mortality salience. Hence, excessive spending on culturally valued items is a direct response to mortality salience. Experiment 3 showed that a subliminal brand prime increased preference of domestic over foreign products, thus demonstrating how worldview defense mechanisms, such as in-group favoritism and out-group derogation can pervade a consumer context.

6.1. Terror management theory and consumer behavior

Effects of mortality reminders have been under frequent investigation since Greenberg, Pyszczynski, and Solomon (1986) formulated Terror Management Theory. The main focus of this research has been on the general consequences of mortality salience, such as self-esteem striving, group affiliations, and self-serving biases (for a review see Pyszczynski et al., 2004). More recently, mortality salience has also grasped the attention of consumer researchers, but work in this domain has remained on the conceptual level for a long time (e.g., Arndt et al., 2004; Maheswaran and Agrawal, 2004), and has only scarcely included empirical demonstrations of mortality salience directly pertaining to consumer behavior (Ferraro et al., 2005; Heine et al., 2002; Jonas et al., 2005; Kasser and Sheldon, 2000; Mandel and Smeesters, 2007). The present findings offer empirical support for the notion that mortality salience can lead to "the urge to splurge", which was suggested, but not tested by Arndt et al. (2004). Mortality salience not only results in overestimating one's financial position in the future (Kasser and Sheldon, 2000), but mortality salience also influences spending intentions on culturally prescribed items in the short term. Participants anticipated spending more money in the coming month when they perceived a mortality-related brand. These results suggest that mortality salience directly motivates individuals to reduce their experienced terror. Moreover, these findings empirically verify that reducing existential anxiety is conceivable through lavish consumption. Additionally, the experiments demonstrated that mortality-related brand-priming influences consumer behavior in more ways than one. Although other studies in this domain showed instances of in-group favoritism (e.g., Nelson et al., 1997), the current study presents evidence for *both* in-group favoritism *as well as* out-group derogation in a consumer context. Specifically, mortality salience influenced attitudes towards both domestic and foreign food products by boosting the evaluation of domestic products while simultaneously lowering the evaluation of foreign products. These findings demonstrate that one's daily shopping behavior may be pervaded by motives and considerations that are hidden to the

eye and the conscious mind. Accordingly, even subtle reminders of mortality may directly affect the amount of money one plans to spend, the extent to which one is keen to support charity, and the kinds of products one likes and dislikes. As such the present results provide empirical evidence for the notion that the fear of death can be *induced* and *managed* by entities that are commonly and even ubiquitously found in the consumer-behavior domain.

6.2. Brand associations and consumer behavior

From the somewhat broader perspective of unconscious activation (i.e., priming) of perceptions and behavior (see Bargh, 2002), the present study is the first that directly measures mortality salience after brand priming. The findings show that mere brand logos can serve as primes in activating constructs. This means that brand associations, even without the physical presence of the accompanying product, can become active by exposing participants explicitly to the brand as well as by implicit, incidental brand exposure. Brand confrontation not only has an effect on construct accessibility but also on preferences and the tendency to spend more money. This finding offers support for a full causal chain of brand exposure, inducing unintended brand associations (mortality salience), which spurs concomitant consumer behavior.

Marketers try to influence consumer behavior by creating positive brand associations on the assumption that this will increase both sales and brand loyalty. The results found that unintended (even unknown) associations can direct consumer decisions as well. Whether these kinds of unintended brand associations are harmful or fruitful to a certain company will depend on the kind of associations that spontaneously arise around a brand or product. The present studies used one particular brand to induce mortality salience. For future studies, it would be interesting to verify whether other types of brands can engender similar effects so that the present results can be generalized to other product categories and brands. However, for now, it seems wise for brand managers to bear in mind that brands may have a host of unknown (and possibly undesirable) associations that might facilitate or interfere unintentionally with their brand strategies, especially because these unintended brand associations can become activated by very subtle and even subliminal exposure. Stretching this point results in the provocative notion that brand advertising for product A may directly benefit sales for brand B (either in or outside the product category of A) to the extent that consumers buy brand B as an effective defense strategy to manage the mortality salience induced by brand A.

Additionally, in the realm of consumer behavior, different priming methods have been used for influencing brand and product choices. It has been established that (supra- and subliminally) priming various concepts can affect consumer decision-making and brand preference (e.g., Strahan et al., 2002). The present results contribute to this body of knowledge by demonstrating that brands themselves can also function as primes and indirectly affect different forms of consumer behavior. Moreover, brands are capable of activating a host of associations that can lead to consumer behavior unrelated to the advertised product.

To date, most priming research focused on activating mental constructs that were semantically related to the intended behavior (e.g., Bargh et al., 1996; Dijksterhuis et al., 2000; Dijksterhuis and van Knippenberg, 1998). For instance, Bargh, Chen, and Burrows (1996), demonstrate that activating the concept of “rudeness” facilitates interrupting the experimenter. The present research extends these findings by showing that the activated construct needs not necessarily be semantically related to the intended behavior. Specifically, the findings showed that death-related thoughts can trigger semantically unrelated behavior, such as increased spending. In other words, there seems to be a direct relation between the accessibility of death-related thoughts and spending intentions, though this relation cannot be viewed as semantic. Although the present research did not directly measure any activated *motivations*, the underlying assumption is that the activated death-related thoughts induced the motivation to regulate experienced terror. This finding opens a new reservoir of behavior, motivations and needs that might be susceptible to activation by brand exposure.

In sum, marketing-related stimuli can serve as primes that trigger unconscious consumer motives. In the present research, a seemingly trivial stimulus such as a brand logo activated different worldview defense strategies when participants thought about the brand very thoroughly, when the brand was an incidental part of the environment, and even when participants perceived the brand logo at a subliminal level.

6.3. Concluding remarks

Brands are capable of automatically activating related constructs and presumably motivations as well. This might open a new way of looking at brand marketing strategies. Consumers are certainly not aware of all the effects that brand exposure might have on them, regardless of whether this exposure was a conscious or unconscious experience for them. None of the participants in our studies made any connection between the brand exposure and their spending intentions or product evaluations. This may be a blessing in disguise, given the abundance of brands and the plethora of effects that they might unconsciously evoke. Perhaps consumers are better off remaining “comfortably ignorant” rather than constantly realizing that such seemingly trivial stimuli as brand logos can remind them about the inevitable end that lies ahead, and can shape their behavior in more ways than one.

References

- Aaker DA. Managing Brand Equity. New York: Free Press; 1991.
- Aiken LS, West SG. Multiple regression: Testing and interpreting interactions. Sage Publications, Inc; 1991.
- Anderson JR. The architecture of Cognition. Cambridge, MA: Harvard University Press; 1993.
- Arndt Jamie, Greenberg Jeff, Solomon Sheldon, Pyszczynski Tom, Simon Linda. Suppression, accessibility of death-related thoughts, and cultural worldview defense: exploring the psychodynamics of terror management. *J Pers Soc Psychol* 1997;73(1):5–18.
- Arndt Jamie, Solomon Sheldon, Kasser Tim, Sheldon Kennon M. The urge to splurge: a terror management account of materialism and consumer behavior. *J Consum Psychol* 2004;14(3):198–212.

- Bargh John A. Losing consciousness: automatic influences on consumer judgment, behavior, and motivation. *J Consum Res* 2002;29(11):280–5.
- Bargh John A, Pietromonaco P. Automatic information processing and social perception: the influence of trait information presented outside of conscious awareness on impression formation. *J Pers Soc Psychol* 1982;43(3):437–49.
- Bargh John A, Chartrand Tanya L. The mind in the middle: a practical guide to priming and automaticity research. In: Reisand Harry T, Judd Charles M, editors. *Handbook of research methods in social and personality psychology*. Cambridge: University Press; 2000. p. 253–85.
- Bargh John A, Chen Mark, Burrows Lara. Automaticity of social behavior: direct effects of trait construct and stereotype activation on action. *J Pers Soc Psychol* 1996;71(2):230–44.
- Baron Reuben M, Kenny David A. The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J Pers Soc Psychol* 1986;51(7):1173–82.
- Bauman Zygmunt. *Life in Fragments: Essays in Postmodern Morality*. Oxford: Blackwell; 1995.
- Belén del Río A, Vázquez Rodolfo, Iglesias Victor. The effects of brand associations on consumer response. *J Consum Mark* 2001;18(5):410–25.
- Brown Tom J, Dacin Peter A. The company and the product: corporate associations and consumer product responses. *J Mark* 1997;61(1):68–84.
- Cobb-Walgren Cathy J, Ruble CA, Donthu N. Brand equity, brand preference, and purchase intent. *J Advert* 1995;24(3):25–40.
- Dijksterhuis Ap, van Knippenberg Ad. The relation between perception and behavior, or how to win a game of trivial pursuit. *J Pers Soc Psychol* 1998;74(4):865–77.
- Dijksterhuis Ap, Aarts Henk, Bargh John A, van Knippenberg Ad. On the relation between associative strength and automatic behavior. *J Exp Soc Psychol* 2000;36(5):531–44.
- Ferraro Rosellina, Shiv Baba, Bettman James R. Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice. *J Consum Res* 2005;32(1):65–75.
- Greenberg Jeff, Pyszczynski Tom, Solomon Sheldon. The causes and consequences of a need for self-esteem: a terror management theory. In: Baumeister Roy F, editor. *Public Self and Private Self*. New York: Springer-Verlag; 1986. p. 189–92.
- Greenberg Jeff, Pyszczynski Tom, Solomon Sheldon, Rosenblatt Abram. Evidence for terror management theory II: the effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *J Pers Soc Psychol* 1990;58(2):308–18.
- Greenberg Jeff, Pyszczynski Tom, Solomon Sheldon, Simon Linda. Role of consciousness and accessibility of death-related thoughts in mortality salience effects. *J Pers Soc Psychol* 1994;67(4):627–37.
- Greenberg Jeff, Porteus Jonathan, Simon Linda, Pyszczynski Tom. Evidence of a terror management function of cultural icons: the effects of mortality salience on the inappropriate use of cherished cultural symbols. *Pers Soc Psychol Bull* 1995;21(11):1221–8.
- Greenberg Jeff, Koole Sander L, Pyszczynski Tom. *Handbook of experimental existential psychology*. Guilford Press; 2004.
- Heine Steven J, Harihara M, Niiya Y. Terror management in Japan. *Asian J Soc Psychol* 2002;5(3):187–96.
- Higgins E Tory, Bargh John A, Lombardi Wendy J. Nature of priming effects on categorization. *J Exper Psychol, Learn, Mem, Cogn* 1985;11(1):59–69.
- Jonas Eva, Schimmel Jeff, Greenberg Jeff, Pyszczynski Tom. The Scrooge effect: evidence that mortality salience increases prosocial attitudes and behavior. *Pers Soc Psychol Bull* 2002;28(10):1342–52.
- Jonas Eva, Fritsche Immo, Greenberg Jeff. Currencies as cultural symbols — an existential psychological perspective on reactions of Germans toward the Euro. *J Eco Psychol* 2005;26(1):129–46.
- Kasser Tim, Sheldon Kennon M. Of wealth and death: materialism, mortality salience, and consumption behavior. *Psychol Sci* 2000;11(4):348–51.
- Kay Aaron C, Wheeler S Christian, Bargh John A, Ross Lee. Material priming: the influence of mundane physical objects on situational construal and competitive behavioral choice. *Org Behav Human Decis Process* 2004;95(1):83–96.
- Keller Kevin L. Conceptualizing, measuring, and managing customer-based brand equity. *J Mark* 1993;57(1):1–22.
- Keller Kevin L. Brand synthesis: The multidimensionality of brand knowledge. *J Consum Res* 2003;29(4):596–600.
- Kohli Chiranjeev S, Harich Katrin R, Leuthesser Lance. Creating brand identity: a study of evaluation of new brand names. *J Bus Res* 2005;58(11):1506–15.
- Krishnan HS. Characteristics of memory associations: a consumer-based brand equity perspective. *Int J Res Mark* 1996;13:389–405.
- Nelson Lori J, Moore David L, Olivetti Jennifer, Scott Tippony. General and personal mortality salience and nationalistic bias. *Pers Soc Psychol Bull* 1997;23(8):884–92.
- Macrae C Neil, Stangor Charles, Milne Alan B. Activating social stereotypes: a functional analysis. *J Exp Soc Psychol* 1994;30(4):370–89.
- Maheswaran Durairaj, Agrawal Nidhi. Motivational and cultural variations in mortality salience effects: contemplations on terror management theory and consumer behavior. *J Consum Psychol* 2004;14(3):213–8.
- Mandel Naomi, Heine Steven J. Terror management and marketing: he who dies with the most toys wins. *Adv Consum Res* 1999;26:527–32.
- Mandel Naomi, Smeesters Dirk. Shop ‘til you drop: the effects of mortality salience on consumption quantity. *Advances in Consumer Research* 2007;26(1):527–32.
- Preacher Kristopher J, Hayes Andrew F. Spss and Sas procedures for estimating indirect effects in simple mediation models. *Behav Res Meth Instrum Comput* 2004;36(1):717–31.
- Punj Girish, Moon Junyeon. Positioning options for achieving brand association: a psychological categorization framework. *J Bus Res* 2002;55(4):275–83.
- Pyszczynski Tom, Wicklund Robert A, Floresku Stefan, Koch Holgar, Gauch Geradine, Solomon Sheldon, Greenberg Jeff. Whistling in the dark: exaggerated consensus estimates in response to incidental reminders of mortality. *Psychol Sci* 1996;7(6):332–6.
- Pyszczynski Tom, Greenberg Jeff, Solomon Sheldon, Arndt Jamie, Schimmel Jeff. Why do people need self-esteem? A theoretical and empirical review. *Psychol Bull* 2004;130(3):435–68.
- Rindfleisch Aric, Burroughs James E. Terrifying thoughts, terrible materialism? Contemplations on a terror management account of materialism and consumer behavior. *J Consum Psychol* 2004;14(3):219–24.
- Rosenblatt Abram, Greenberg Jeff, Solomon Sheldon, Pyszczynski Tom. Evidence for terror management theory: I. The effects of mortality salience on reactions to those who violate or uphold cultural values. *J Pers Soc Psychol* 1989;57(4):681–90.
- Solomon Sheldon, Greenberg Jeff, Pyszczynski Tom. Lethal consumption: death-denying materialism. In: Kasser Tim, Kanner Allen D, editors. *Psychology and consumer culture: The struggle for a good life in a materialistic world*. American Psychological Association; 2004. p. 127–46.
- Strahan Erin J, Spencer Steven J, Zanna Mark P. Subliminal priming and persuasion: striking while the iron is hot. *J Exp Soc Psychol* 2002;38(6):556–68.
- Van Osselaer Stijn MJ, Janiszewski Chris. Two ways of learning brand associations. *J Consum Res* 2001;28(2):202–23.
- Watson David, Clark Lee A, Tellegen Auke. Development and validation of brief measures of positive and negative affect: the PANAS scales. *J Pers Soc Psychol* 1988;54(6):1063–70.
- Wheeler SChristian, Petty Richard E. The effects of stereotype activation on behavior: a review of possible mechanisms. *Psychol Bull* 2001;127(6):797–826.
- Yoo Boonghee, Donthu Naveen, Lee Sungho. An examination of selected marketing mix elements and brand equity. *J Acad Mark Sci* 2000;28(2):195–211.