

The Influence of Ethnicity on Consumers' Environmental Attitudes and Responses to Guilt Appeals in Green Advertising: An Experimental Study

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Abstract: Recent research on green consumer behaviors has increasingly shifted its focus to the effects of demographics on consumers' environment attitudes. In this post-test only experimental study, we examine if ethnicity predicts consumers' environmental attitudes. We also investigate whether different levels of guilt appeals affect post-exposure consumers' attitude toward the green ad (Aad) and the green brand (Ab). Our empirical results show that ethnicity explains consumers' environmental attitudes, which lends support to the environmental deprivation theory. MANCOVA analysis also finds the guilt appeal level in green advertising significantly predicts consumers' attitude toward the green ad (Aad) and the green brand (Ab).

Keywords: Advertising effectiveness, attitude, green advertising, environmental attitudes, ethnicity, guilt appeal, experiment

1. Introduction

Green advertising can be viewed as an important environmental marketing instrument to promote the use of environmentally friendly products and to support environmental causes (Leonidou, Leonidou, Palihawadana & Hultman, 2011; Li, 2013). In recent years, there has been a parallel rise in green advertising and increasing consumer interest in the environment related issues (Leonidou et al., 2011). The growing use of green advertising aims to provide effective intervention of consumers' green behaviors by creating consumer awareness and modifying their green attitudes. However, recent studies from both academic and industry researchers have questioned the effectiveness of green advertising. Among variables that have been examined, scholars increasingly shifted their attention to explore the influence of demographic attributes on consumers' environmental attitudes (Ellis & Korzenny, 2012; Mobley, Vagias & DeWard, 2010; Nixon & Saphores, 2009). With the emerging demographic shifts in the United States, researchers increasingly explored whether and how minority populations (such as Hispanic, African-American, and Asian consumers) will respond to environment-related issues (Ellis & Korzenny, 2012; Johnson et al., 2004; Mukherji, 2005; Nixon & Saphores, 2009; Whittaker, Segura & Bowler, 2005). The growing importance of ethnicity as a predictor of consumers' pro-environment behaviors sometimes generates inconclusive, even contradictory, results in the environmental marketing literature.

Therefore, it is important for green marketing researchers and practitioners to understand the relationship between demographics and environmental attitudes, in particular when targeting minority populations in the United States. Because environmental marketers have heavily relied on green advertising to deliver their messages to modify consumers' environmental attitudes and behaviors, it is equally important to understand if these demographic variables play any role in explaining the effectiveness of green advertising campaigns. The understanding of demographics will benefit the development of more effective green advertising strategies in promoting more awareness of environmental issues, enhancing consumer involvement, and encouraging sustainable development through heightened environmental concerns among the minority communities. This study focuses on ethnicity because it is the most salient and studied consumer characteristic (Ellis & Korzenny, 2012; Johnson et al., 2004; Mukherji, 2005; Nixon & Saphores, 2009; Whittaker et al., 2005) to examine the environmental attitudes of minority populations, and this demographic variable is likely to influence how they will respond to green advertising.

2. Literature Review

2.1. Ethnicity and Environmental Attitude Variations

Whittaker et al. (2005) summarized that dominant theoretical frameworks to examine the relationship between ethnicity and environmentally related issues are mainly drawn from Maslow's (1970) hierarchy of needs model or environmental deprivation theory (Lowe & Pinhey 1982; Tremblay & Dunlap 1978; Van Liere & Dunlap, 1980). Derived from acculturation literature, scholars have also focused on the acculturation process as a potential predictor of ethnic variations in consumers' environmental attitudes. For example, Mukherji (2005) applied ethnic assimilation theory to investigate intra-ethnic group variations in Hispanic environmental attitudes. She found that acculturation is negatively correlated with environmental attitudes.

Theoretical frameworks examining the relationships between ethnicity and environmental attitudes are essentially based on how consumers weigh different needs in their life. On the basis of Maslow's need hierarchy theory (1970), minority populations were hypothesized to focus on needs related to their daily life, instead of higher level needs such as environment-related issues. Environmental protection was believed to be less relevant to the life of minority populations because they were often less educated, poorer, and time-stressed to attend to green behaviors. As a result, minority consumers were believed to be less concerned about pro-environmental issues and less supportive of environmental concerns (Whittaker et al., 2005).

On the other hand, scholars argued that, as a result of their lower socio-economic status, minority populations' daily experience with less satisfactory living conditions instead will cause them to be more sensitive to the environment issues in their surroundings. In other words, living in a polluted neighborhood would make minority consumers more concerned about these issues. This line of reasoning is often called environmental deprivation theory (Lowe & Pinhey, 1982; Van Liere & Dunlap, 1980; Whittaker et al., 2005). Therefore, it can be argued that poorer minority populations will be more concerned about day-to-day environmental issues than their wealthy White counterparts.

2.2. Environmental Attitudes

Consumers' favorable or unfavorable feelings or judgments with regard to an environmental issue make up their environmental attitudes (Hines et al., 1986/1987). Conceptually, environmental attitudes are often defined as consumers' general attitudes toward the environment, the ecology, the energy crisis, unleaded gasoline or taking environmental action (e.g., recycling household waste; purchasing behavior) (Cramer, 1991; Davies et al., 2002).

Many scholars have reported that there were significant relationships among environmental attitudes, observed behaviors, and behavioral intentions (Bradley, 2009; Hansmann et al., 2005; Kotchen & Reiling, 2000; Meinhold, 2005). Overall, these studies concluded that favorable environmental attitudes positively influenced environmental behaviors or intentions.

Operationally defined, environmental attitudes are often measured by the New Ecological Paradigm (NEP) (Dunlap, van Liere, Mertig & Jones, 2000; Stern, Dietz & Kalof, 1993; Kotchen & Reiling, 2000; Tarrant & Green, 1999). The NEP scale is composed of five dimensions: limits of growth, anti-anthropocentrism, fragility of nature's balance, rejection of exemptionalism, and the possibility of an eco-crisis (Dunlap et al., 2000). Researchers interested in the environmental attitudes of minority populations

continued to use the NEP scales to examine consumers' environmental attitudes (Ellis & Jorzenny, 2012; Johnson et al., 2004; Mobley et al., 2010). Therefore, it is essential to understand whether consumers' ethnicity predicts their environmental attitudes. Given the inconsistent findings of ethnicity in the literature, we proposed a research question, instead of a hypothesis, to guide our study:

Research Question 1: Will ethnicity predict environmental attitudes?

2.3. Effectiveness of Guilt Appeals in Green Advertising

Green marketing emerged in the 1980s, and has grown rapidly in the past decades in response to increasing environmental problems around the world (Tucker, Rifon, Lee & Reece, 2012). However, academic researchers have been criticized for not providing results relevant to practitioners' needs (Tucker et al., 2012). Green advertising is often viewed as an important social marketing instrument to promote environmentally friendly products, welfare, safety, risk minimization and the avoidance of dissatisfaction among other strategies, which seek to encourage cooperation to fulfill social goals (Chang, 2012).

To create post-exposure emotional responses, guilt has been one of the most mentioned green advertising appeals in the literature (Burnett & Lundsford, 1994; Chang, 2012). Guilt has been conceptualized as an internal emotional response involving penitence, remorse, self-blame, and self-punishment experienced after violating or contemplating to violate an internalized standard (Lascu, 1991).

However, the effectiveness of guilt appeals in green advertising does not mean that any level of guilt intensity will automatically guarantee effective green advertising campaigns. The level of guilt appeal in the ad has been found to affect consumers' emotional responses (Pinto & Priest, 1991) and green advertising effectiveness (Jiménez & Yang, 2008). As the intensity of guilt appeal

increased, consumers felt more anger and decreased their positive affective responses (Pinto & Priest, 1991) and subsequent advertising effectiveness (Jiménez & Yang, 2008). Furthermore, for the guilt appeals to be effective, Chang (2012) found consumers' issue proximity perception and environmental consciousness play significant moderating roles. When a low-proximity issue is provided to consumers with weak environmental consciousness, guilt appeals were no more effective than non-guilt appeal ad. The presence of guilt appeal in a green ad was found to backfire among consumers with a high-proximity issue and a strong environmental consciousness (Chang, 2012). Latest research further implies the effectiveness of green advertising is contingent on product claims in the eco-themed ads (Tucker et al., 2012).

To better examine the effectiveness of guilt appeals in green ads, this study employed two effectiveness metrics commonly used in advertising research that examined the influence of guilt appeal on consumer attitude changes: consumers' attitude toward the green ad (henceforth, Aad) and the green brand (henceforth, Ab). The study used these two dependent variables on the basis of past KAP research paradigms in environmental research (Bradley, 2009; Hansmann, Scholz, Francke & Weymann, 2005; Meinhold, 2005; Jiménez & Yang, 2008). This decision also aims to better address the conundrum in explaining the disjoint between consumer environmental attitudes and actual purchase behaviors (Cone Communications, 2011; Tucker et al., 2012). Therefore, the following research questions were proposed to examine the moderating role of environmental attitudes and ethnicity on the relationship between the level of guilt appeal and advertising effectiveness (as measured by attitudes toward the ad and the brand).

Research Question 2-1: Will ethnicity moderate the relationship between guilt appeal level in a green ad and consumers' attitude toward the green ad (Aad)?

Research Question 2-2: Will ethnicity moderate the relationship between guilt appeal level in a green ad affect consumers' attitude toward the green brand (Ab)?

Research Question 3-1: Will environmental attitudes moderate the relationship between guilt appeal level in a green ad and consumers' attitude toward the green ad (Aad)?

Research Question 3-2: Will environmental attitudes moderate the relationship between guilt appeal level in a green ad and consumers' attitude toward the green brand (Ab)?

3. Method

The study of ethnic variations of environmental attitudes often relies on large-scale surveys (Ellis & Korzenny, 2012; Johnson et al., 2004; Whittaker et al., 2005). Although content analysis studies of green advertisements provide a thorough descriptive study in how green advertisements have been created (Li, 2013), these studies lack a causal assessment of how an individual's environmental attitudes and ethnicity influence the effectiveness of a green advertising campaign using different levels of guilt appeals. In line with the needs to better test a pre-launch ad copy in the green marketing industry, the present study employed an experimental design to provide empirical assessment of these casual relationships.

3.1. Sampling Method and Sample Characteristics

The study used a convenient sampling method to recruit 108 students in a large metropolitan Southwestern university in the United States to take part in the study. To ensure high internal validity in a true experimental design, participants were randomly assigned to two different experimental conditions to provide empirical evidence for our research questions. Furthermore, a single blinding procedure was used for the study, so participants were unaware of the purposes of the experiment.

The convenience sample was made of 50% female (N=54) and 50% male (N=54) participants. The majority of them were below 24 years old (N=81, 75%). In terms of ethnicity, 24 of them (22.2%) were Whites/Caucasians, while 84 (77.8%) were Hispanics/Latinos (See Table 1).

Table 1. Demographic Profiles of the Sample

		Cases	Percentage (%)
Gender	Male	54	50.0
	Female	54	50.0
Age	18 - 19 years old	10	9.3
	20 - 24 years old	71	65.7
	25 - 29 years old	20	18.5
	30 - 34 years old	2	1.9
	35 - 39 years old	2	1.9
	40 - 44 years old	1	.9
	45 and above	2	1.9
Ethnicity	Whites/Caucasians	24	22.2
	Hispanics/Latinos	84	77.8

3.2. Experimental Stimuli

The experimental stimuli were created to resemble magazine advertisements, so that external validity would be accomplished to some extent. These two ads varying in guilt levels were developed using Photoshop software that enabled the researchers to create two similar, but manipulated levels of guilt appeal in the ads (Coutler & Pinto, 1995). The high guilt level ad aimed to elicit felt guilt and emotions associated with irritated, annoyed, and angry emotions. On the other hand, the low guilt level ad was designed to evoke felt guilt and emotions associated with happy-amused emotions such as laughter, happiness, smiling, and amusement (Coulter & Pinto, 1995). See Figure 1 and Figure 2 for the test ads.

The Healthy Home

Acts accordingly to your values



Make a responsible choice for you, your family and the environment. There are many products that YOU consume that are toxic to our water systems due to the bleach and other chemical residue that negatively impact the aquatic life, other animals and ourselves. These residues may be the cause of many diseases, so please Stop!!! Start at your home by using environmentally-friendly cleaning products such as our Nature Generation® Laundry Soaps or Dishwashing Liquid that do not compromise the health of you and your loved ones.

The conscious environmental actions start in your home with Nature Generation®.



Figure 1. High Guilt Appeal Ad

The Healthy Home

The responsible and safe option



Make a smart choice for you and your family by using chemical-free residue and fully biodegradable cleaning products that do not harm you, your family, the aquatic life or other animals - the environment as a whole. Start in the kitchen with our Nature Generation® Dishwashing Liquid or in the dirty clothes in the washer with our Laundry Soaps and see just how effective, safe and responsible cleaning can be!

The conscious environmental choice starts in your home with Nature Generation®.



Figure 2. Low Guilt Appeal Advertisement

The manipulation check procedure was conducted to ensure that the guilt appeal level (low and high) was successfully manipulated in the actual study. On the basis of the operationalization of guilt, four 5-point Likert statements were used to assess the manipulation check. These four items were modified from Plutchik (1980) and Coulter and Pinto (1995), including the following adjectives: After reading the ad, I feel “blameworthy,” “annoyed,” “angry,” and “upset.” The scales used for the manipulation check had a Cronbach’s alpha coefficient of .78.

One-Way ANOVA procedure was run to examine if the manipulation of guilt levels in the

test ads was successful. All variables selected for manipulation check demonstrated a significant group difference between low and high guilt appeals. Descriptive statistics between high vs. low guilt appeal ads also showed that there was a numerical tendency showing that the low guilt appeal repeatedly had a lower score than the high guilt appeal in the four variables. The low guilt appeal was perceived as less blameworthy ($M=2.52$, $SD=.98$), less annoying ($M=2.15$, $SD=.88$), less anger provoking ($M=1.97$, $SD=.93$), and less upsetting ($M=2.00$, $SD=.86$) as compared to the high guilt appeal, which was perceived as more blameworthy ($M=2.95$, $SD=1.06$), more annoying ($M=2.53$, $SD=1.01$), more anger provoking ($M=2.45$, $SD=1.08$), and more upsetting ($M=2.41$, $SD=1.09$) (See Table 2).

Table 2. Manipulation Check

		<i>Mean</i>	<i>SD</i>	<i>F(p)</i>
After reading the ad, I feel blameworthy.	Low guilt appeal	2.52	.98	5.17*
	High guilt appeal	2.95	1.06	(.03)
After reading the ad, I feel annoyed.	Low guilt appeal	2.15	.88	5.10*
	High guilt appeal	2.53	1.01	(.03)
After reading the ad, I feel angry	Low guilt appeal	1.97	.93	6.88**
	High guilt appeal	2.45	1.08	(.01)
After reading the ad, I feel upset.	Low guilt appeal	2.00	.86	5.39*
	High guilt appeal	2.41	1.09	(.02)

Note.

* $p<.05$, ** $p<.01$, *** $p<.001$

3.3. Instrumentation

Participants' environmental attitudes were measured using six 5-point Likert-type statements (Dunlap, Van Liere, Mertig & Jones, 2000). They included the following statements: "We are approaching the limit of the number of people the earth can support," "When humans interfere with nature, it often produces disastrous consequences," "Humans are severely abusing the environment," "If things continue on their present course, we will soon experience a major ecological catastrophe," "The balance of nature is strong enough to cope with the impact of modern industrial nations," and "The so-called "ecological crisis" facing humankind has been greatly exaggerated." The last two items were recoded reversely. Cronbach's alpha coefficient for the six-item scales was acceptable at .80. A composite score was computed for later analysis.

4. Findings

In order to provide statistical data to answer our research questions, the researchers conducted One-Way ANOVA to examine the relationship between ethnicity and environmental attitudes (Research Question 1). Statistics showed that consumers' ethnicity significantly predicted their environmental attitudes ($F=14.61$, $p<.001$) (See Table 3). Descriptive statistics further demonstrated that Whites/Caucasians ($M=3.26$, $SD=.78$) held less positive environmental attitudes when compared with their

Latinos/Hispanics counterpart ($M=3.82$, $SD=1.57$) (See Table 4). Therefore, the relationship between ethnicity and environmental attitudes (Research Question 1) was confirmed by our empirical data.

Table 3. One-Way ANOVA: Relationship between Ethnicity and Environmental Attitudes

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	P	Observed Power
Ethnicity	Environmental Attitudes	5.67	1	5.67	14.61	.000***	.97

Note.

* $p<.05$, ** $p<.01$, *** $p<.001$

Table 4. Descriptive Statistics

		Mean	SD	F(p)
Environmental Attitudes	Whites/Caucasians	3.26	.78	14.61***
	Latinos/Hispanics	3.82	1.57	(.000)

To examine the moderating roles of environmental attitudes and ethnicity on the relationship between ad guilt level and effectiveness metrics (i.e., Aad and Ab), the researchers conducted MANCOVA procedures (Research Question 2 and 3). MANCOVA analysis was selected because it has been a reliable statistical source used among many researchers to remove the effects and errors of covariates to better examine the relationship between the independent and dependent variables (Mertler & Vanatta, 2002). Furthermore, the two dependent measures (i.e., Aad and Ab) were highly correlated ($r=.68$, $p<.001$). Therefore, this statistical procedure is appropriate.

Ethnicity and environmental attitudes were entered as covariates in the MANCOVA model because they were likely to influence the effect of guilt level on the effectiveness of green advertising. Results from MANCOVA found that, when covariate effects were removed, there was a main effect of guilt level in a green ad on consumers' attitudes toward the green ad (Aad) and the green brand (Ab) (Wilks' Lambda=.93, $F(2, 103)=3.74$, $p< 0.05$) (See Table 5).

Table 5. MANCOVA Model

Effect		Value	F	Hypo-thesis df	Error df	P	Observed Power
<u>Covariates</u>							
Environmental Attitudes	Wilks' Lambda	.98	.96	2	103	.43	.20
Ethnicity	Wilks' Lambda	.99	.59	2	103	.56	.15
<u>Main Effect</u>							
Experiment (Low or High Guilt)	Wilks' Lambda	.93	3.74	2	103	.03	.67

Note.

* $p<.05$, ** $p<.01$, *** $p<.001$

One-Way ANOVA further found that guilt level in the green ad demonstrated observable effects on consumers' attitude toward the green ad ($F=4.89$, $p<.03^*$) and the green brand ($F=7.28$, $p<.01^{**}$). It was also found that a low guilt ad led to more favorable Aad (M low guilt level=3.43 vs. M high guilt level=3.08) and Ab (M low guilt level=3.96 vs. M high guilt level=3.56), when compared with a high guilt ad (See Table 6). Both covariates, ethnicity and environmental attitudes, were found to be non-significant. Thus, Research Questions 2-1, 2-2, 3-1 and 3-2 were not supported (i.e., no significant effect was found).

Table 6. One-Way ANCOVA and Descriptive Statistics

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	P	Mean SD (Low Guilt Level)	Mean SD (High Guilt Level)
Covariates Environmental Attitudes	Attitude toward the Green Ad (Aad)	.40	1	.40	.56	.46		
	Attitude toward the Green Brand (Ab)	.50	1	.50	.08	.78		
Ethnicity	Attitude toward the Green Ad (Aad)	.00	1	.00	.00	.99		
	Attitude toward the Green Brand (Ab)	.37	1	.37	.02	.43		
Ethnicity	Attitude toward the Green Ad (Aad)	3.51	1	3.51	4.89	.03*	3.43 (.81)	3.08 (.87)
	Attitude toward the Green Brand (Ab)	4.27	1	4.27	7.28	.01**	3.96 (.72)	3.56 (.81)

Note.

* $p<.05$, ** $p<.01$, *** $p<.001$

5. Discussion and Conclusion

In response to the first research question, consumers' ethnicity was found to be an important predictor of consumers' environmental attitudes as demonstrated in similar studies using an environmental deprivation theory (Ellis & Korzenny, 2012). Contrary to what need hierarchy scholars would claim that Hispanics, like other minority groups in the U.S. (Dalton, 2002), will be more likely to ignore environmental issues than their White counterparts, this study lent support to the environmental deprivation claim. The environmental deprivation theorists argued that, like other minorities, Hispanic

consumers were likely to demonstrate concerns over environmental issues over time, with a higher level of concern than Whites, because of their daily exposure to less satisfactory living conditions.

Although the sample consisted mainly of college students, it is likely that White and Latino college students come from different socioeconomic backgrounds and have different daily experiences with environmental issues. However, it is also worth noticing that ethnicity, like other demographic variables (e.g., income, size of town, political ideology, gender, religiosity, etc.), has often been criticized by scholars for only producing inconclusive results (Klineberg et al., 1998).

The third research question studies if consumers' environmental attitudes moderate guilt appeal and green advertising effectiveness. The examination of consumers' specific environmental attitudes was very common in past environmental research as seen in studies examining attitudes toward the environment, the ecology, the energy crisis, unleaded gasoline or taking environmental action (e.g., recycling household waste; purchasing behavior) (Davies et al., 2002; Hines et al., 1986). Past studies have also found that environmental attitudes toward specific issues were strongly related to behavior pertinent to that specific issue in an environmental context (Hines et al., 1986). Chang's (2012) study explored the important moderating roles of issue proximity and environmental consciousness in affecting the effectiveness of guilt appeal in green advertising. When consumers do not believe the presented environmental issues in the green ad to be relevant to their daily life, it is unlikely the ad will create desired attitudinal and behavioral changes in the consumers. Given that minority consumers developed environmental attitudes toward different environmental problems, it is important to examine how these pre-existing attitudes will affect the effectiveness of green advertising campaigns. The present study offers useful insights into the relationship by focusing on ethnic variations of environmental attitudes between Hispanics/Latinos and Whites/Caucasians, two important ethnic segments that can have a significant impact on the success of a national green campaign as well as the environment.

The second and third research questions in this study asked whether green ads with different guilt appeal levels will influence consumers' attitude toward the green ad (Aad) and the green brand (Ab), after taking into consideration their ethnicity and environmental attitudes. Consumers' environmental attitudes have not been used in past green advertising studies to investigate how these attitudes were likely to play a role in assessing the effectiveness of green advertising, until recently (Chang, 2012). Empirical results found that both consumers' environmental attitudes and ethnicity did not have significant effects on green advertising effectiveness (measured by post-exposure Aad and Ab). Rather, the level of guilt appeal in the green ads consistently predicted how consumers would respond to the test ads.

Different from previous environmental studies that examined mechanisms behind consumers' knowledge, attitudes and behavioral changes, this study aimed to shed light on whether a guilt appeal strategy is effective to change or modify consumers' attitudes in green campaigns. Specifically, the researchers intended to examine the level of guilt appeal in green advertising can effectively modify their Aad and Ab, leading to subsequent behavioral changes (MacKenzie et al, 1986; Lutz et al., 1983; Jiménez & Yang, 2008). Because green advertising has been widely used as a cost-effective tool to change consumers' beliefs about and attitudes toward environmental issues, it is important to understand what type of advertising appeals will be most effective.

The noticeable effect of the guilt appeals in this study posed an interesting question about the role of the guilt appeal in green advertising campaigns in spite of consumers' pre-existing environmental attitudes and ethnic attributes. Both consumers' environmental attitudes and ethnicity were found to

have no statistical significant effects on the dependent variables (i.e., Aad and Ab). The main effect of the guilt appeals was demonstrated after removing these two covariates. This study seems to support that the use of guilt appeals in a green campaign can be effective across different ethnic populations with different pre-existing environmental attitudes. As such, this experiment seems to lend support to a universal approach, instead of a targeted or segmented approach, when planning and implementing green campaigns to an increasingly ethnically diverse US audience. In other words, if a green campaign is designed to employ guilt appeals in its ads, it is likely to show similar effects on consumers even if they are from different ethnic backgrounds and environmental attitudes. For environmental researchers and practitioners, it is useful to discover the role of guilt appeals in affecting how they will respond to green ads. In particular, a better understanding of how different levels of guilt appeals can lead to variations in Aad and Ab is likely to help environmental researchers and practitioners to design more effective green campaigns that can change people's attitudes toward specific environmental issues.

5.1. Limitations and Future Research

While this research provides both theoretical and practical contributions on whether ethnicity affects consumers' environmental attitudes and how ethnic consumers will respond to green ads when removing ethnicity and environmental attitudes, there are some potential limitations that need to be considered when interpreting the study.

Participants were recruited from both White/Caucasian and Hispanic ethnic groups. Other ethnicities were not included as a result of the convenience sampling method. Future research should include other ethnic minorities in the sample to better explore the importance of ethnicity. Participants' one-time exposure to the ad might not lead to long-term attitude and behavioral change. Their post ad-exposure reactions were likely to be influenced by their interest in the test ads and brand/product. Without a baseline measured before the exposure, it was less likely to assess changes before and after the test ads. Therefore, future research is recommended to use a pre-test and post-test design to better assess consumers' changes.

In addition, guilt appeals were operationalized as two-level appeals (low and high) in this investigation and might not be able to capture the potentially multi-level nature of this variable. This could have some effects on the results of this study because it leaves out other possible perceptions that could be latent from participants' points of views regarding guilt portrayed in commercial messages. Furthermore, given that a low guilt level is often associated with positive emotions such as laughter and humor, it is likely to affect the construct validity of guilt because of the difficulty to separate human feelings arbitrarily.

Furthermore, the study mainly relied on the textual description to manipulate different levels of guilt appeal. The decision was justified because the test ads were created to simulate magazine ads. Therefore, future research may explore various advertising claims (Tucket et al., 2012), advertising executional elements (such as verbal, visual, music), and other advertising appeals (such as humor, fear, or sex appeals) in different media (such as television, radio, or the Internet).

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