

When bad gets worse: the amplifying effect of materialism on traumatic stress and maladaptive consumption

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Abstract Our research explores the amplifying effect of materialism on the experience of traumatic stress and maladaptive consumption via both an Israeli field study and a U.S. national survey. Our field study assesses the moderating impact of materialism upon both traumatic stress and maladaptive consumption among participants from an Israeli town under terrorist attack vs. participants from an Israeli town not exposed to hostilities. Our survey examines the possible underlying processes behind these effects among a nationally representative sample of Americans. The Israeli study reveals that, when faced with a mortal threat such as a terrorist attack, highly materialistic individuals report higher levels of post-traumatic stress, compulsive consumption, and impulsive buying than their less materialistic counterparts. Our U.S. study suggests that these effects are likely due to the fact that materialistic individuals exhibit lower levels of self-esteem, which reduces their ability to cope with traumatic events. Thus, our results indicate that, in addition to its well-documented harmful direct effect on psychological well-being, materialism also exerts an indirect negative effect by making bad events even worse.

Keywords Materialism · Stress · Mortal threat · Trauma · Terror

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In times of upheaval and stress people often seek relief via shopping and consumption (Mathwick et al. 2001). Indeed, just a few days after the terrorist attacks of September 11, 2001, President George Bush encouraged Americans to “get down to Disney World in Florida. Take your families and enjoy life the way we want it to be enjoyed” (New York Times 2012). Consumption as a means of coping with life’s challenges is a trademark characteristic of individuals with high levels of material values (Belk 1985; Richins and Dawson 1992). Hence, those who heeded President Bush’s directive were probably more materialistic than the average American. Unfortunately, most materialistic individuals derive little satisfaction from their consumption activities (Burroughs and Rindfleisch 2002). This raises the intriguing possibility that materialism may actually make bad events, such as a terrorist attack, even worse. Our research examines this possibility.

Materialism is a topic that has generated considerable interest among marketing scholars and has been linked to a variety of social and psychological ills, including reduced generosity, decreased life satisfaction, and higher levels of depression and anxiety (Belk 1985; Burroughs and Rindfleisch 2002; Richins and Dawson 1992). As noted by Kasser (2002, p. 87), “our well-being declines when materialistic values become central to what we believe is important in life.” Although prior research has made important contributions, it has almost exclusively focused on materialism’s *direct* effects on well-being. Thus, we know little about materialism’s potential indirect effects. This is an important issue, as recent research has called for an expanded look at materialism’s impact and consequences (Burroughs and Rindfleisch 2012; Moschis 2007). Our paper seeks to address this gap by examining the degree to which materialism moderates (i.e., amplifies) both the post-traumatic stress (PTS) associated with mortal threats as well as the impact of this stress upon maladaptive consumption activity in the form of compulsive consumption and impulsive buying.

Specifically, drawing on theoretical perspectives from the literature on materialism, terror management theory (TMT), and post-traumatic stress, we suggest that materialistic individuals facing mortal threats such as a terrorist attack will experience higher levels of stress compared to their less materialistic counterparts. Moreover, we posit that they will also exhibit higher levels of maladaptive consumption behavior such as compulsive consumption and impulsive buying. Thus, in contrast to prior research that largely focuses on the negative outcomes of materialism, we examine the degree to which materialism makes negative outcomes even worse.

Although our empirical focus is on terrorist attacks, our conceptualization is applicable to a broad range of stressful life events, including physical abuse, automobile accidents, and natural disasters. Thus, our research uncovers a hidden yet potentially quite expansive domain of consequences that have largely gone unnoticed in the extant materialism literature. We employ a multinational and multimethod approach by first assessing our conceptualization through a field study among Israelis facing an direct mortal threat (i.e., terrorist attack) and then investigating the underlying process mechanisms via a national survey of Americans. Thus, we believe that our research offers both conceptual and empirical contributions to the materialism domain.

Conceptualization

Our conceptualization is grounded in three distinct but related theoretical perspectives: materialism (e.g., Richins and Dawson 1992), terror management (e.g., Solomon et al. 2004), and stress (e.g., Lazarus 1999; Thoits 1995). Various combinations of these three perspectives have been examined in prior research. For example, Burroughs and Rindfleisch (2002) find that stress serves as a key mediator of the relationship between materialism and subjective well-being. In addition, Arndt et al. (2004) suggest that materialism is a response to the terror of existential insecurity. More recently, Rindfleisch et al. (2009) show that existential insecurity (i.e., terror management) moderates the impact of materialism on self-brand connections. However, to our knowledge, no one has yet examined all three constructs (i.e., materialism, existential insecurity, and stress) in a single study. Our research addresses this gap. Specifically, we propose that the mortal threat of terrorist attacks leads to significant levels of stress and that individuals seek to cope with this stress by engaging in maladaptive consumption behavior such as compulsive consumption and impulsive buying. Moreover, we posit that the paths between both threats and stress and stress and maladaptive consumption behavior will be amplified among individuals high in materialism. This conceptualization is portrayed in Fig. 1.

Mortal threat and stress

Stress is a topic that has been extensively studied across a broad domain of literature (Folkman 2010). As noted by Lazarus and Folkman (1984), stress can be viewed as a stimulus, a response, or a combination of the two. Given our conceptualization of stress as both a reaction to mortal threats and a driver of maladaptive consumption, we consider stress to be both a stimulus and a response. Any life event, either positive or negative, that challenges the status quo and requires a response can be potentially stressful (Cohen 1988; Lee et al. 2001). These events are often external and typically beyond an individual's control. In extreme cases, the stress associated with such events can be traumatic and produce considerable distress. The American Psychiatric Association defines traumatic events as “events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (American Psychiatric Association 2000, p. 467). Exposure to these traumatic, life-threatening events can produce feelings of fear and a sense of helplessness, which may result in post-traumatic stress. Individuals suffering from PTS commonly exhibit a variety of psychosomatic symptoms, including a lack of concentration, insomnia, intrusive memories, nightmares, and numbed emotions (Foa et al. 1993).¹

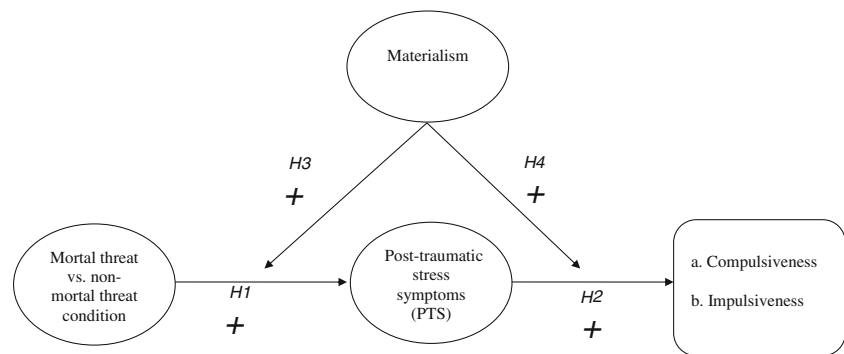
Like many psychosomatic responses, PTS shows considerable variability across individuals (Lazarus 1999; Marshall et al. 2007). Nonetheless, PTS is most likely to arise when a traumatic event is severe, proximate, or frequently occurring (Foa et al. 1993). For example, an epidemiological survey administered in the aftermath of September 11 found that while less than 4% of Americans living outside of New York City reported PTS symptoms, over 11% of New Yorkers experienced such symptoms (Galea et al. 2003). Similar results have been found in Israeli studies that compare the level of PTS among those living in areas under rocket attack from Palestinians vs. those living in areas not subject to such attacks (Somer et al. 2007, 2009). Thus, as a baseline hypothesis, we posit that:

H1: Exposure to a mortal threat is associated with higher levels of PTS.

Stress and maladaptive consumption

Our research focuses on two specific maladaptive consumption behaviors: compulsive consumption and impulsive buying.

¹ Individuals who report six or more of these symptoms and also experience significant social impairment are typically diagnosed as suffering from post-traumatic stress disorder (PTSD) (National Institute of Mental Health 2009). Since our research is not clinical in nature, our focus is on the *symptoms* associated with post-traumatic stress rather than on PTSD itself.

Fig. 1 Conceptual model

Although conceptually related, these two forms of maladaptive consumption differ in terms of their origin and manifestation. Specifically, while compulsive consumption is considered to be a behavioral trait that is often beyond an individual's control (Hirschman 1992; Moschis 2007), impulsive buying is a behavior that is more situational in nature and often influenced by external events (Faber 2010; Rook and Fisher 1995). We selected these two behaviors due to their conceptual connection to stress (Hirschman 1992), their use in prior materialism research (Rindfleisch et al. 1997), and their relevance for marketing theory and practice (Faber 2010).

Prior research indicates that PTS can lead to a variety of maladaptive behaviors such as alcohol abuse (Jakupcak et al. 2010), eating disorders (Holzer et al. 2008), and sleep disturbances (Harvey et al. 2003). These findings are congruent with the tenets of terror management theory, which suggests that the anxiety produced by threat of mortality promotes a variety of maladaptive consumption behaviors (Ferraro et al. 2005; Kasser and Sheldon 2000; Mandel and Smeesters 2008). For example, Mandel and Smeesters (2008) find that death anxiety is associated with over-purchasing and over-consumption of food products. Moreover, prior research in both consumptive consumption and impulsive buying suggests that these two behaviors are often mechanisms for coping (in the short term) with adverse emotional states such as stress (e.g., Hirschman 1992; O'Guinn and Faber 1989; Ridgway et al. 2008). For example, Youn and Faber (2000) find that the tendency to engage in impulsive buying is positively associated with stress. Likewise, Sneath et al. (2009) show that among Hurricane Katrina victims, stress is correlated with both compulsive consumption and impulsive buying.

While they may offer temporary stress relief, these two consumption activities are generally viewed as maladaptive, as they have been associated with such negative consequences as binge eating, alcoholism, and drug addiction (Hirschman 1992; Faber et al. 1995; Valence et al. 1988). In sum, we posit that the post-traumatic stress produced by mortal threats is associated with these two maladaptive consumption behaviors.

H2a: Higher levels of PTS will be associated with higher levels of compulsive consumption.

H2b: Higher levels of PTS will be associated with higher levels of impulsive buying.

The amplifying effect of materialism

Although materialism is a complex construct and has been viewed from a variety of perspectives (e.g., Belk 1985; Kasser and Ryan 1993; Richins and Dawson 1992), most marketing scholars consider materialism to be a centrally held value that is formed at an early age and remains relatively stable throughout one's life (e.g., Burroughs and Rindfleisch 2002; Richins 2004; Richins and Dawson 1992). Specifically, Richins (2004) defines materialism as "the importance ascribed to the ownership and acquisition of material goods in achieving major life goals or desired states" (p. 210).

As a centrally held value, materialism serves as a lens through which people view and interpret the world (Richins 2004). As noted by Shrum et al. (2005), this lens can provide a distorted view of reality. Specifically, highly materialistic individuals often see the world as more affluent than it actually is and place greater attention to the material objects owned by others (Kasser 2002). Due to this biased perspective, materialistic individuals often focus on acquiring possessions as a means of establishing their sense of self-worth (Burroughs and Rindfleisch 2012; Chaplin and John 2010; Hunt et al. 1990). According to terror management theory, this striving for self-esteem is especially likely when individuals are reminded of their mortality (Arndt et al. 2004).

Ironically, although materialistic individuals believe that object acquisition will help them establish a sense of security and enhance their well-being, the opposite is often the case (Burroughs and Rindfleisch 2002; Kasser 2002). Burroughs and Rindfleisch (2012) refer to this paradox as the "material trap" and suggest that the short-term satisfaction of acquiring material objects is offset by materialism's long-term negative consequences upon individual and collective well-being.

Moschis (2007) proposes that personal values such as materialism may moderate the impact of stressful life events upon consumption-related coping activities. This proposition is also congruent with the stress literature, which indicates that an individual's beliefs and values may moderate their reactions to stressful events (Carver and Connor-Smith 2010; Ehlers and Clark 2000; Lazarus 1999).

Prior research suggests that materialistic individuals often display low levels of self-esteem and have weak social support networks (Christopher et al. 2004). As a result, highly materialistic individuals may lack the psychosocial resources to control stress when faced with a mortal threat. Thus, we suggest that materialism will have an amplifying effect on the relationship between mortal threats and PTS:

H3: The relationship between mortal threat and PTS will be stronger for individuals high in materialism vs. individuals low in materialism.

In addition to moderating the effect of mortal threats on PTS, we suggest that materialism also amplifies the effect of PTS on compulsive consumption and impulsive buying. One widely noted characteristic of materialistic individuals is their (mistaken) belief that material objects are a route toward happiness and well-being (Kasser 2002; Richins 2004; Richins and Dawson 1992). Indeed, materialistic individuals often turn toward objects as a means of coping with stressful life events and view these objects as a source of security in an uncertain world (Rindfleisch et al. 1997, 2009). For example, Rindfleisch et al. (2009) find that, as a response to existential insecurity, materialistic individuals exhibit stronger connections to material objects compared to their less materialistic counterparts. Thus, since PTS is clearly a negative and insecure state, highly materialistic individuals should be more likely to display compulsive consumption and impulsive buying activity as a means of coping with it. Hence, we posit that:

H4a: The relationship between PTS and compulsive consumption will be stronger for individuals high in materialism vs. individuals low in materialism.

H4b: The relationship between PTS and impulsive buying will be stronger for individuals high in materialism vs. individuals low in materialism.

Israeli study

Participants and procedures

This first study contrasts two groups of participants: a group exposed to the mortal threat of terrorist attacks (i.e., mortal threat condition) and a group not subject to such a threat (i.e., non-mortal threat condition). Participants in the mortal threat condition lived in a town in the southern part of Israel located

about 1 km from the Gaza Strip. Data were collected during fall 2007, when this area was under extensive rocket attacks from the Gaza strip (Hall et al. 2008). These attacks occurred daily for approximately 6 months and disrupted normal everyday life: schools were closed, people lived in bomb shelters, and some families sought temporary refuge in safer parts of the country. Surveys were hand delivered to 200 adult residents of this town during a meeting at a local community center. Due to the chaotic circumstances, participants were given the option to take the questionnaires to their home or shelter so they could complete them under safer conditions. Our survey had a 75% return rate. Of our 50 non-respondents, 40 could not be contacted and ten refused to complete the survey. After excluding 11 surveys due to missing data, our final sample consisted of 139 participants. Demographically, our participants were 53% female, had an average of 13.5 years of education, a mean age of 38.5, and 34% reported an above average income.

The participants in the non-mortal threat condition were from a town in Israel located approximately 60 km from the Gaza strip and not under direct threat of rocket attacks. However, these participants were aware of these attacks via the extensive coverage of this activity in the Israeli media. Again, we distributed surveys to 200 adults at a local community center event during fall 2007. We received 179 completed surveys (a 90% response rate). Nine surveys were eliminated due to missing data, for a final sample of 170 participants. Among these participants, 52% were female, with an average of 14.5 years of education, a mean age of 37, and 38% reported an above average income. Other than education, which is somewhat higher in the non-mortal threat condition ($p < .05$), the demographic profile of participants across both conditions is statistically equivalent.

Measures and validation

We measured our key constructs using established multi-item scales previously validated in an Israeli context. All measures were written in Hebrew.

Materialism We measured materialism using Richins' (2004) attenuated 9-item Material Values Scale via a 5-point Likert format. This scale assesses the value that consumers place on the acquisition of material objects such as expensive cars and luxury clothing. This scale demonstrated good reliability ($\alpha = .84$).

Post-traumatic stress (PTS) We assessed the level of psychological stress experienced by an individual after a life-threatening event using Foa et al.'s (1993) 17-item self-reported Post-Traumatic Symptom Scale (PSS-SR). This scale meets the DSM-IV's (American Psychiatric Association 2000) diagnostic criteria for PTS and has been shown to correlate highly with

clinical assessments of PTSD (e.g., Hobfoll et al. 2006; Somer et al. 2005). Participants rated how many times they experienced various stress-related symptoms such as having nightmares or memory loss during the course of a month (on a 4-point scale ranging from not at all to five or more times per week). We calculated the total PTS symptom score by summing each participant's responses across all 17 items. This scale demonstrated a high degree of reliability ($\alpha=.95$).

Compulsive consumption We assessed compulsive consumption using Babin et al.'s (1994) 5-item measure of this construct. This measure focuses on the tendency to cope with negative moods by making an excessive number of purchases relative to one's disposable income and includes items such as, "I have bought something, got home, and didn't know why I had bought it." This scale was assessed via a 5-point Likert scale and demonstrated good reliability ($\alpha=.81$).

Impulsive buying We assessed our participants' tendency to make unplanned purchases using Weun et al.'s (1998) 5-item measure of impulse buying tendency. This measure, which includes items such as: "When I go shopping, I buy things that I had not intended to purchase" was assessed via a 5-point Likert scale and exhibited good reliability ($\alpha=.82$).

Control variables In addition to our key measures, we also assessed participants' age, gender, income, and education (using single item scales), as these indicants have been related to materialism in prior research (e.g., Burroughs and Rindfleisch 2002; Chaplin and John 2007; Richins and Dawson 1992). Also, to account for individual differences in pre-existing stress, we also controlled for previous traumatic experiences by asking participants to report if they witnessed (1 point) or experienced (2 points) or a set of 12 separate stressful events, such as a car accident, physical assault, or life-threatening illness. These items were obtained from the Life Event Checklist (Gray et al. 2004), which is a commonly applied assessment of stressful events. The mean score for this measure was 7.5 (range: 0–22). This is a formative scale;

thus, we did not calculate its reliability (Table 1). The summary statistics for all of the measures employed in this study are presented in Table 1.

Analysis and results

We tested our hypotheses via hierarchical regression analysis (HRA) (Aiken and West 1991). Specifically, we conducted three sets of HRA, one for each of our dependent variables: (1) PTS, (2) compulsive consumption, and (3) impulsive buying. For each of these dependent variables, we first specified a direct-effects model and then specified a higher-order model that also included our hypothesized moderator effects. We used an incremental F -test to compare the amount of variance explained in the direct effects vs. higher-order regressions (Aiken and West 1991). For HRA 1, the key predictors were mortal threat condition and materialism. For HRA 2 and 3, the key predictors were PTS and materialism. Each regression also included age, gender, income, education, and life events as control variables. All variables were mean centered prior to entry in order to aid interpretation (Aiken and West 1991).

The results of our moderated regressions are provided in Tables 2 (DV=PTS) and 3 (DV=Compulsive Consumption and Impulsive Buying). As shown in Table 2, the effect of mortal threat (-1 =non-mortal-threat, 1 =mortal-threat) on PTS is positive and significant ($b=8.45$; $p<.01$), supporting H1 and indicating that participants from the mortal threat condition experienced higher PTS than participants from the non-mortal threat condition. This analysis also reveals a significant interaction between threat condition and materialism ($b=1.97$; $p<.05$). In order to examine the nature of this effect, we followed Muller et al.'s (2005) recommendation and calculated the simple effect of mortal threat condition on PTS at ± 1 standard deviation from the moderator (i.e., materialism). This analysis reveals that the simple effect for high materialism is 6.81, while the simple effect for low materialism is 4.27. Thus, as suggested by H3, the stress

Table 1 Summary statistics (Israeli study)

	M	SD	1	2	3	4	5	6	7	8
1. PTS	11.31	12.63								
2. Materialism	2.42	.83	.18							
3. Impulsive buying	2.63	1.00	.22	.34						
4. Compulsive buying	1.95	0.83	.27	.38	.16					
5. Age	36.58	15.01	-.07	-.25	-.14	.02				
6. Education	14.16	2.51	-.10	-.09	.02	-.10	.25			
7. Income	2.08	.85	-.16	.02	.04	.00	.14	.34		
8. Gender	.51	.50	.06	.07	.04	.05	.08	.21	.05	
9. Life events	7.50	5.30	.06	.10	.05	.09	-.16	-.01	-.03	.03

All correlations above (below) .12 (–.12) are significant at the $p<.05$ level; all correlations above (below) .21 (–.21) are significant at the $p<.01$ level

Table 2 Regression results for PTS (Israeli study)

Predictors	<i>b</i>	<i>t</i>	<i>SE</i>
Mortal threat	5.54	8.45**	.66
Materialism	3.53	4.34**	.82
Mortal threat \times Materialism	1.55	1.97*	.79
Age	-.05	-1.00	.05
Education	.05	.18	.28
Income	-1.53	-1.92	.80
Gender	1.02	.79	1.30
Life events	.03	.21	1.22
$R^2 = .25$			
$F(8,300) = 12.67^{**}$			

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

associated with a mortal threat is greater among highly materialistic individuals than their less materialistic counterparts.

The results associated with compulsive consumption and impulsive buying are displayed in Table 3. As predicted, PTS has a significant effect on both compulsive consumption ($b = 2.47$; $p < .01$) as well as impulsive buying ($b = 3.89$; $p < .01$). Thus, both H2a and H2b are supported. In addition, materialism has a significant moderating effect on the relationship between PTS and both compulsive consumption ($b = 3.30$; $p < .05$) and impulsive buying ($b = 1.95$; $p < .01$). An examination of the simple effect of PTS on compulsive consumption at ± 1 standard deviation from the moderator (i.e., materialism) reveals that the simple effect for high materialism is .12, while the simple effect for low materialism is .008. Similarly, the simple effect of PTS on compulsive buying at ± 1 standard deviation from the moderator (i.e., materialism) reveals that the simple effect for high materialism is .19, while the simple effect for low materialism is .05. This pattern of results lends considerable support to both H4a and H4b by indicating that materialism moderates the association

between PTS and both compulsive consumption and impulsive buying.

U.S. study

While our Israeli study provides substantial evidence for the amplifying effect of materialism, it does not examine the underlying reason why materialism amplifies both stress and maladaptive consumption. Our conceptualization suggests that these effects are due to highly materialistic individuals' need for security when faced with a mortal threat such as a terrorist attack. Prior research indicates that individuals with high levels of self-esteem are better able to cope with these types of death-related threats (e.g., Greenberg et al. 1997; Harmon-Jones et al. 1997). Because materialistic individuals typically exhibit low self-esteem, they may be especially likely to experience higher levels of stress and seek to resolve this stress via maladaptive consumption activities (Chaplin and John 2010; Christopher et al. 2009). Thus, we examine the role of self-esteem as a possible underlying driver of the effects observed in our Israeli study.

An alternative explanation for our observed effects is a lack of social support. Prior research suggests that materialistic individuals have weaker social connections than their less materialistic counterparts (Burroughs and Rindfleisch 2002; Richins and Dawson 1992). Thus, they may have weaker social support networks. Since social support is an important psychological resource that mitigates the negative consequences of traumatic events (Brewin et al. 2000; Ozer et al. 2003; Thoits 1995), materialistic individuals may have greater difficulty trying to cope with traumatic stress. This lack of social support may also explain why materialistic individuals appear to channel their stress through maladaptive consumption activities such as compulsive consumption and impulsive buying. Our second study examines both of these two alternative explanations.

Table 3 Regression results for maladaptive consumption (Israeli study)

Predictors	DV: Impulsiveness			DV: Compulsiveness		
	<i>b</i>	<i>t</i>	<i>SE</i>	<i>b</i>	<i>t</i>	<i>SE</i>
PTS	.01	2.47**	.004	.01	3.89**	.004
Materialism	.36	5.30**	.07	.33	6.02**	.06
Materialism \times PTS	.02	3.30**	.01	.01	1.95*	.004
Age	-.01	-1.62	.004	.01	1.49	.003
Education	.03	1.33	.02	-.03	-1.63	.02
Income	.05	.76	.07	.04	.67	.05
Gender	-.01	-.06	.11	.02	.22	.09
Life events	.001	.09	.01	.01	.97	.01
$R^2 = .18$				$R^2 = .21$		
$F(8,300) = 8.33^{**}$				$F(8,300) = 9.93^{**}$		

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

Participants and procedures

We commissioned an online survey administered by Qualtrics, which maintains a large nationally representative online panel of Americans between the ages of 18 and 65. For a fee, Qualtrics provides academic researchers with access to this panel; these fees are proportional to both the number of items included in the survey as well as the desired number of participants. For this study, we obtained 855 participants. The mean age of these participants was 36.31, 55% were female, 25% had Bachelor's degree or higher, and their median income was \$50,000. This demographic profile closely matches that of the U.S. adult population.

Measures and validation

In congruence with our first study, our survey instrument assessed materialism using Richins' (2004) 9-item Material Values Scale ($\alpha=.88$), compulsive consumption using Babin et al.'s (1994) 5-item measure ($\alpha=.80$), and impulsive buying using Weun et al.'s (1998) 5-item measure ($\alpha=.82$). All of these measures were assessed using a 5-point Likert format.

As an indicant of participant's degree of perceived mortal threat, we employed Wittkowski's (2001) 6-item Fear of One's Own Death scale, which includes items such as "I am frightened by the idea that my thoughts and feelings will stop when I am dead." This scale is designed to capture the degree to which an individual is psychologically disturbed by the thought of their own death and has been associated with heightened stress and anxiety. We assessed this measure via a 4-point Likert format ($\alpha=.95$).

In terms of our two process measures, we assessed self-esteem using ten items from Rosenberg's (1965) Self Esteem scale via a 4-point Likert format ($\alpha=.87$), and social support using eight items from Zimet et al.'s (1988) Perceived Social Support scale via a 7-point Likert format ($\alpha=.91$). Examples of these items include "I feel that I am a person of worth, at least on an equal plane with others" (self-esteem), and "There is a special person who is around when I am in need" (social support). As seen in their coefficient alpha scores, these multi-item measures displayed good reliability. In addition, a confirmatory factor analysis reveals that all of these measures exhibit strong convergent validity via single factor loadings.

Finally, as in our Israeli study, our survey instrument also assessed gender, age, education, income, and previous traumatic experiences (using 12 items from the Life Event Checklist; Gray et al. 2004) as control measures. The mean score for the Life Event Checklist was 14.42 (range: 13–37). The summary statistics for all of the measures employed in this study are presented in Table 4.

Analysis and results

The main objective of this second study was to examine the potential underlying mechanisms for the amplifying effects of materialism observed in our Israeli study. We began this process by first assessing the degree to which materialism amplifies the effect of mortal threats upon maladaptive consumption among Americans. Thus, following our Israeli study, we conducted hierarchical regression analyses for both compulsive consumption and impulsive buying. For each of these dependent variables, we first specified a direct-effects model (i.e., the effect of fear of own death) and then specified a higher-order model that also included materialism as a moderator. We used an incremental F -test to compare the amount of variance explained in the direct effects vs. higher-order regressions (Aiken and West 1991). Each regression also included age, gender, income, education, and life events as control variables. All variables were mean centered prior to entry in order to aid interpretation (Aiken and West 1991). The results of these analyses are displayed in Table 5.

As shown in this table, materialism exhibits a significant moderating effect on the relationship between fear of own death and both compulsive consumption ($b=.08$; $p<.02$) and impulsive buying ($b=.08$; $p<.02$). An examination of the simple effect of fear of own death on impulsive consumption at ± 1 standard deviation from the moderator (i.e., materialism) reveals that the simple effect for high materialism is .31, while the simple effect for low materialism is .13. Similarly, the simple effect of fear of own death on compulsive buying at ± 1 standard deviation from the moderator (i.e., materialism) reveals that the simple effect for high materialism is .36, while the simple effect for low materialism is .18. This pattern of results provides confirmatory evidence for the amplifying effects of materialism documented in our first study among Israelis facing terrorist attack.

As a means of uncovering the potential underlying mechanism for this amplifying effect, we assessed the degree to which the moderating role of materialism occurs for individuals under high (66th percentile and above) versus low (33rd percentile and below) levels of self-esteem and social support. This analysis reveals that this moderating effect holds for Americans with low self-esteem ($b_{\text{impulsiveness}}=.13$, $t=2.00$, $p<.05$; $R^2=.35$, $F(8,281)=19.22$, $p<.001$; $b_{\text{compulsiveness}}=.18$, $t=2.88$, $p<.004$; $R^2=.42$, $F(8,281)=25.18$, $p<.001$) but not for those with high self-esteem ($b_{\text{impulsiveness}}=.04$, $t=.79$, $p<.43$; $R^2=.28$, $F(8,377)=18.66$, $p<.001$; $b_{\text{compulsiveness}}=-.03$, $t=-.67$, $p<.50$; $R^2=.31$, $F(8,377)=21.43$, $p<.001$). In contrast, no significant moderating effects were found with regards to social support for either impulsiveness or compulsiveness.

In sum, this second study lends confirmatory support for the amplifying effect of materialism observed in our first study and suggests that this effect appears to be a generalized

Table 4 Summary statistics (U.S. study)

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Fear of death	2.25	.91										
2. Materialism	4.28	1.09	.29									
3. Impulsive buying	3.78	1.24	.29	.52								
4. Compulsive buying	3.68	1.29	.34	.57	.72							
5. Self-esteem	4.42	.57	−.32	−.14	−.10	−.19						
6. Social support	4.86	1.32	.03	.08	.15	.06	.38					
7. Age	36.31	13.36	−.26	−.27	−.14	−.20	.20	−.05				
8. Education	2.57	1.19	−.03	.09	.09	.02	.16	.16	.07			
9. Income	2.38	1.30	−.01	.11	.09	−.02	.16	.18	.01	.49		
10. Gender	.56	.50	−.001	−.03	.04	−.03	.01	.02	.002	−.03	.06	
11. Life events	14.42	3.28	−.03	.07	.01	−.02	−.05	−.08	−.10	.02	.03	−.01

All correlations above (below) .07 (−.07) are significant at the $p < .05$ level; all correlations above (below) .10 (−.10) are significant at the $p < .01$ level

response to global mortality concerns rather than a localized reaction to a specific mortal threat. Thus, this study extends the generalizability of our findings beyond the context of a particular traumatic event. In addition, this study provides insight into the possible mechanism behind materialism's amplifying effect. In brief, it appears that this effect is likely driven by low levels of self-esteem rather than by a lack of social support.

Discussion

Over the past two decades, a substantial body of research has established that materialism is antithetical to well-being (e.g., Belk 1985; Burroughs and Rindfleisch 2002; Richins and Dawson 1992). Ironically, while materialistic individuals value the acquisition of objects as a means of attaining the good life, this value orientation often reduces their happiness, lowers their life satisfaction, and makes them more anxious and depressed. Although materialism's harmful direct effects have been widely examined, our research shows that this value may also have substantial negative *indirect* effects. Specifically, our field study among 137 Israelis living under the mortal threat of terrorist attacks indicates that materialism amplifies the impact of this threat upon post-traumatic stress as well as the impact of this stress upon maladaptive consumption behaviors. Our survey study among 855 Americans confirms this amplifying effect and suggests that it may be a global response to the fear of death and driven by low self-esteem. In essence, our research suggests that materialism makes bad events even worse. In this final section, we discuss the implications of our research and directions for future inquiries in this domain.

Managerial implications

Our findings indicate that in time of extreme stress, highly materialistic individuals seek solace in compulsive and impulsive buying activity. Although many stressful events are largely unpredictable, some (such as severe storms or an impending military crisis) are forewarned. Under these conditions, consumers often make a mad rush to gas stations and grocery stores to stockpile fuel and food. Our research suggests that this impulsive tendency during times of crisis may be more generalizable in nature. This presents an opportunity for both manufacturers of impulse items and the retailers that sell these products. For example, retailing managers could capitalize on this tendency for impulsive coping by placing more expensive and higher margin products in high traffic areas and promote these items using messages of assurance and security (e.g., “protect yourself and your family by investing in our new security system”). Future research could assist in these marketing efforts by examining the specific types of products and services that materialistic individuals impulsively purchase during times of traumatic stress.

Moreover, our results also reveal that these impulsive and compulsive coping responses are psychologically driven by low self-esteem. This finding reinforces prior research, which suggests that, when faced with existential threats, materialistic individuals look to brands as a security provider to help bolster their sense of self-esteem (Rindfleisch et al. 2009). This result also holds substantial managerial implications. During traumatic events such as terrorist attacks, military hostilities, or natural disasters, marketers may benefit from associating their brands with images and narratives that focus on safety and security. A good example of this strategy is Budweiser's famous 2002 Superbowl ad, which sought to

Table 5 Regression results for maladaptive consumption (U.S. study)

Predictors	DV: Impulsiveness			DV: Compulsiveness		
	<i>b</i>	<i>t</i>	<i>SE</i>	<i>b</i>	<i>t</i>	<i>SE</i>
Fear of Death	.22	5.34**	.04	.27	6.53**	.04
Materialism	.55	15.59**	.04	.61	17.63**	.03
Materialism x Fear of Death	.08	2.33*	.03	.08	2.30*	.03
Age	.003	1.08	.003	−.001	−.34	.003
Education	.15	2.03*	.07	.01	.21	.03
Income	.04	1.17	.04	−.07	−2.37*	.03
Gender	.01	.39	.03	−.02	−.30	.07
Life events	−.01	−.89	.01	−.02	−1.77	.01
	$R^2=.31$			$R^2=.37$		
	$F(8,846)=46.72^{**}$			$F(8,846)=61.69^{**}$		

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

provide assurance to a nation still recovering from the shock of the 9/11 terrorist attacks though a solemn but strong portrayal of its iconic Clydesdales marching past the Brooklyn Bridge, Central Park, and the Statue of Liberty.

Theoretical implications

One of the most vibrant areas of materialism scholarship is the question of *why* materialism hampers well-being (Burroughs and Rindfleisch 2002; Kasser 2002; Shrum et al. 2012). Although there are numerous explanations for the effect, one popular view is the notion that material values are extrinsic in orientation and conflict with intrinsic values such as family, community, and religion, which produces stress (e.g., Burroughs and Rindfleisch 2002; Kasser and Ryan 1993). Our research enriches and extends this school of thought by offering an expanded view of the relationship between materialism and stress. Our findings suggest that materialism not only produces higher levels of stress (in the form of PTS) but also shapes the manner in which individuals cope with this stress. Specifically, our results indicate that, when faced with traumatic stress (either in the form of a specific mortal threat or a more generalized fear of mortality), materialistic individuals are more likely to try to relieve this stress via impulsive and out-of-control consumption activities. Since this type of consumption often leads to increased credit card debt, greater spousal conflict, and reduced self-esteem, it is likely to produce even greater stress and lower well-being (Hirschman 1992). Thus, materialism's relationship with stress may be even more pernicious than commonly thought. This finding is congruent with Moschis' (2007) recent observation that "the relationship between materialism and subjective well-being might be more complex than originally assumed" (p. 443), and it represents the first documentation of materialism's indirect (and largely hidden) impact on well-being.

Our specific example of traumatic stress focused on terrorist attacks. Fortunately, most individuals will never experience this type of stress. Hence, it is natural to wonder about the generalizability of our findings to other forms of traumatic stress. As shown in our U.S. study, materialism's amplifying effects occur not just in response to a specific threat but also as a way of coping with generalized anxiety about one's mortality. Thus, we believe that the results we uncovered may extend to a wide variety of contexts. Prior research indicates that PTS can arise from a host of traumatic events, including automobile accidents, criminal attacks, and natural disasters (Cohen 1988; Gray et al. 2004). These events are, unfortunately, not uncommon. For instance, more than 3,400 Americans are victims of a violent personal attack (i.e., aggravated assault, murder, rape, robbery) each day. It is estimated that approximately 70% of us will experience one more traumatic events during our lifetime (Breslau et al. 1998; Norris 1992). Thus, the type of stress examined in our study extends far beyond terrorist attacks. Prior research suggests that the PTS associated with more personal traumatic events such as accidents and assaults tends to be higher than the PTS associated with more collective events such as a terrorist attack (Beck et al. 2007; Rothbaum et al. 1992). Thus, the degree to which materialism moderates the experience of PTS induced from other types of traumatic events is an interesting issue for future research. Conversely, although our conceptualization focuses on the amplifying effects of materialism upon the association between stress and consumption, it is also possible that stress may amplify the effects of materialism on consumption (Burroughs and Rindfleisch 2002). Thus, future research that employs a longitudinal or ethnographic inquiry would be helpful in sorting out the complex relationship between stress and materialism and the conditions under which one amplifies the other.

In addition to the stress associated with traumatic events, everyday life is filled with a variety of stressors, some of which can result in significant stress. For many individuals,

the economy and the marketplace are sources of considerable stress. For example, the recent Great Recession has been empirically associated with increased anxiety, alcohol abuse, and suicide (De Vogli et al. 2013; Vijayasiri et al. 2012). Even when economic times are good, the marketplace can inherently be stressful (Duhachek 2005; Moschis 2007; Yi and Baumgartner 2004). For example, the process of searching for the best college to attend, the right house to buy, or the most qualified doctor for a major operation can often result in high levels of stress. Likewise, many individuals are faced with the stress of either not having enough money to buy what they need or having enough money and not being able to decide what they want. Although some prior research has explored the role of individual difference factors in terms of coping with stressful economic decisions (e.g., Duhachek and Iacobucci 2005), the role of materialism in this context remains unexplored. Thus, the degree to which materialism amplifies economic and marketplace stress is an interesting question for future research. This research would be especially impactful if conducted among individuals living in economically ravaged countries such as Greece or Spain, in which economic terror may be just as salient as the existential terror among individuals facing terrorist attacks.

The stress associated with the marketplace is further heightened by the growing number of firms that employ stress-inducing marketing tactics, such as fear appeals and limited time offers, to increase consumer response (Aggarwal et al. 2011; Suri et al. 2007). For example, Aggarwal and colleagues (2011) find that limited-time and limited-quantity messages stimulate consumer purchase intentions by creating a sense of scarcity. In isolation, these tactics may seem like inconsequential irritants. However, they can add up to create a cumulative effect that may result in traumatic stress. While this effect has not yet been studied in a consumption context, prior research in psychology suggests that the cumulative effect of daily hassles can be nearly as stressful as traumatic events (Lazarus 1999; Zautra 2003). Our research suggests that materialistic individuals are likely to suffer disproportionately from the use of these types of marketing tactics. Thus, the individuals who are most highly involved in shopping and consuming, and presumably most aware of marketing tactics, seem to be the ones most at risk from such tactics. Hence, efforts designed to curb marketing's harmful effects must go beyond just increasing consumer awareness of marketing tactics (Aggarwal et al. 2011; Suri et al. 2007). Future research is needed in terms of conceptualizing and testing alternative strategies for minimizing the harmful effects of stress-inducing marketing tactics in general and their impact on highly materialistic individuals in particular.

Our research focuses squarely upon documenting materialism's negative indirect effects on well-being. This focus is congruent with the general orientation of the materialism literature, which largely views materialism as a harmful byproduct of our consumption-focused economy (e.g., Arndt

et al. 2004; Belk 1985; Burroughs and Rindfleisch 2002; Richins and Dawson 1992). However, in recent years, some materialism scholars have begun to wonder if materialism may also have a bright side (e.g., Burroughs and Rindfleisch 2012; Shrum et al. 2012). For example, Rindfleisch et al. (2009) find that highly materialistic individuals display stronger levels of communal brand connections compared to their less materialistic counterparts.

Although they may be a poor substitute for traditional communal connections, brand communities provide individuals with several benefits, including an enhanced sense of belonging and a source of help and support (Muniz and O'Guinn 2001). Thus, materialism, albeit indirectly, may also *enhance* one's well-being. Our findings may provide some indirect support to this notion; although maladaptive consumption is unlikely to be a functional means of coping with traumatic stress in the long-run, it may be better than some alternatives (e.g., alcohol abuse, smoking, suicide). Future research could help shed light on this question by examining the degree to which the incidence of these various coping mechanisms varies in accord with an individual's level of material values. Our hope is that this initial look at materialism's amplified effects on individual well-being will stimulate further work on this important topic and help determine when and why materialism makes bad events even worse.

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