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Thesis title:

THE EFFECTS OF PSYCHOLOGICAL THREATS ON CONSUMER BEHAVIOR: HOW BRANDS AND HEROES CAN MITIGATE THE NEGATIVE EFFECTS OF PSYCHOLOGICAL THREATS ON INDIVIDUALS

PhD in	BUSINESS ADMINISTRATION AND MANAGEMENT
Cycle	XXX
Student's Advisor	DR. GÜLEN SARIAL-ABI
Calendar year of thesis defence	2019

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Abstract

This dissertation is composed of three main papers mainly around the topic of psychological threats, heroism, and consumer preferences. In the first essay of my dissertation, I examine the effect of psychological threats on consumer preferences. Hence, I investigate on the construct of brands that may provide psychological relief under psychological threats. I first showed – with a correlational study with factor reduction techniques – that individuals need brands that are built around two main dimensions when they are psychologically threatened (caregiver and fighter dimension). Each of these two dimensions responds to a specific threat: when the brand is perceived as a caregiver, it can mitigate social exclusion threats because it satisfies the needs to be emotionally cared for. When the brand is perceived as a fighter, it can mitigate self-esteem threats because it satisfies the need to be fought for. With this research I not only add to branding literature, by proposing two new types of brand personalities that can increase consumer preferences and improve brand attitudes, but also to psychological threats literature, by proposing new ways in which different types of threats (i.e., low self-esteem, and social exclusion) can be mitigated.

In my second dissertation paper, I focus on another important psychological threat: mortality salience (i.e., fear of death) and I propose reminder of heroes as a mean to mitigate this threat. Specifically, I demonstrate that when individuals are exposed to mortality salience, they have the tendency to engage in compensatory consumption (such as overeating or overspending). I suggest that reminder of heroes can block the effects of mortality salience on consumer behavior as heroes are able to enhance the perceived personal power of individuals, which in turn decreases mortality salience. However, not all heroes are equally effective: I propose – and empirically show – that human heroes are more effective than non-human ones. My research adds to the literature on psychological threats by demonstrating how heroes can mitigate the effects of threats on individuals. The results of my research also contribute to the previous literature on heroes by showing that heroes can enhance the perceived personal power of individuals and by distinguishing among human and nonhuman heroes.

Driven by my passion to conduct research on heroism, and by the growing presence of antiheroes in media and cinema, my third dissertation paper investigates the effect of antiheroes on people's behavior. I demonstrate that individuals reminded of antiheroes are more present-focused (rather than past or future focused), which leads to more sensation-seeking behavior (i.e., higher risk-taking and excitement seeking). Moreover, I demonstrate the effects using a real choice behavior in the laboratory, where I measure choice for exciting (vs. sincere or control) brands of chocolate. But not all antiheroes equally affect sensation-seeking tendencies. I suggest that antiheroes coming from a poor (vs. rich) socioeconomic status lead to more (vs. less) sensation seeking. With this paper, I contribute to research on antiheroes by showing their effect on individuals and by explaining the mechanism behind this. I also contribute to research on sensation seeking by showing an antecedent of this behavior: antiheroes' reminder. I add to previous literature by suggesting and demonstrating that antiheroes can drive sensation seeking up.

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PhD Dissertation

AULONA ULQINAKU

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THE FIGHTER AND THE CAREGIVER:

BRANDS THAT HELP INDIVIDUALS WITH SELF-ESTEEM AND SOCIAL EXCLUSION THREATS

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Abstract

Past research shows that brands help individuals mitigate the effects of psychological threats. Overlooked in past research is the kind of brands that help individuals cope with different psychological threats. We propose and show that fighter and caregiver brands help individuals to cope with self-esteem and social exclusion threats, respectively. Additionally, we demonstrate that these brands (i.e., fighter and caregiver) help individuals to engage in problem-focused (i.e., the fighter brand) or emotion-focused (i.e., the caregiver brand) coping to mitigate the effects of these psychological threats. We support our predictions across multiple studies that include a correlational study and multiple laboratory experiments. The findings extend the literature on branding and coping with psychological threats and generate actionable managerial practice.

Keywords: self-esteem threat, social exclusion threat, problem-focused coping, emotion-focused coping, fighter brands, caregiver brands

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Introduction

Consumers constantly experience psychological threats. Psychological threats have been defined as “an uncomfortable and aversive state that results from an actual or perceived discrepancy between one’s current state and an end state” (Han, Duhachek, and Rucker 2015, p. 532). Psychological threats may be related with unachievable goals related to work, appearance, or social status. Numbers show that in 2016, 118 million people in the EU lived at risk of being socially excluded (Eurostat 2016). These people who are psychologically threatened by different reasons (e.g., social exclusion) engage in consumption activities that are different than the ones who are not psychologically threatened. Research shows that there are several ways that individuals cope with psychological threats. Threatened individuals may mitigate the threat by building a satisficing social network (Baumeister and Leary 1995), investing in improving their public image, looking better in the eyes of the others, or seeking to convey a symbolic status of superiority (Baumeister, Smart, and Boden 1996). Symbolic self-completion theory (Wicklund and Gollwitzer 1982) and research in coping with threats (e.g., self-esteem, social exclusion) indicates that brands also help individuals to mitigate the effects of psychological threats (Han et al. 2015). Specifically, threatened individuals prefer luxurious and prestigious brands (e.g., Rolex and Lexus versus Chevrolet and Pringles; Mandel and Heine 1999), brands that are closer to their culture (e.g., patriotic brands; Liu and Smeesters 2010), and brands that are strongly connected to their identity (e.g., MP3 player brand; Rindfleisch, Burroughs, and Wong 2008).

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Although previous research suggests that brands help individuals to cope with different psychological threats, the particular kind of brands that are most helpful in helping individuals cope with psychological threats is overlooked (see Table 1). In this research, we focus on the type of brands that help individuals to cope with self-esteem and social exclusion threats.

Previous research suggests a close relationship between social exclusion threats and self-esteem threats (Loughran Dommer, Swaminathan, and Ahluwalia 2013; Lee and Shrum 2012; Leary 1990; Leary and Baumeister 2000; Leary et al. 1995). That is, when individuals feel socially excluded, their self-esteem is lowered. Similarly, research on self-esteem suggests that people with high self-esteem are less likely to suffer from social exclusion threat (Leary et al. 1995). Individuals with high (low) self-esteem tend to experience fewer (more) threats of social exclusion and tend to worry less (more) about them (Leary 1990; Leary and Baumeister 2000; Leary et al. 1995). In this paper we demonstrate that although social exclusion and self-esteem threats are closely interconnected, they lead to distinct brand preferences. We propose that individuals who are (vs. are not) threatened prefer specific types of brands depending on the psychological threat (i.e., social exclusion or low self-esteem) they are exposed to. Specifically, we demonstrate that individuals whose self-esteem is threatened prefer brands that are fighters, while individuals who experience social exclusion threats prefer brands that are caregivers.

The paper contributes to the literature on branding and coping with psychological threats in several respects. While past research has examined how brands can help individuals to mitigate the effects of psychological threats (e.g., Han et al. 2015; Mandel and Heine 1999; Reimann, Nunez, and Castano 2017; Rindfleisch, Burroughs, and Wong 2008; Wicklund and Gollwitzer 1982), past research has

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overlooked the specific type of brands that may be helpful in coping with different psychological threats. Our research, on the effects of different types of brands that help individuals to cope with self-esteem and social exclusion threats, addresses this gap in the literature. Distinct from past research, we demonstrate that individuals who experience self-esteem threats consume more fighter brands as these brands help them to engage in problem-focused coping and individuals who experience social exclusion threats consume more caregiver brands as these brands help them to engage in emotion-focused coping. Finally, this research contributes to the extant literature on branding by suggesting an alternative way for brands to position themselves –by positioning themselves as fighter or caregiver brands.

We organize the rest of the paper as follows. We first develop hypotheses of consumers' preferences for fighter or caregiver brands when they are exposed to self-esteem or social exclusion threats. We then report results of four studies that test the hypotheses. Following that, we discuss the theoretical contributions and substantive implications of the findings and identity opportunities for further research.

Theoretical Background

Brands that Can Help with Self-Esteem Threats

Self-esteem is defined as one of the basic and universal needs of individuals for feeling good about themselves (Brown, Collins, and Schmidt 1988). When individuals feel foolish, ashamed, inadequate, or awkward, their self-esteem is considered to be threatened (Leary et al. 1995). There are several ways in which a threat can incur to self-esteem (e.g., intellectual, academic, social, personality, or relational incompetence; VanDellen et al. 2011), but most of research has focused on failure

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regarding academic output or similar personal failures as threats to self-esteem (VanDellen et al. 2011).

Research shows that individuals whose self-esteem is threatened demonstrate violence by behaving aggressively towards others (Baumeister et al. 1996) to cope with self-esteem threats. However, they may also start blaming others for their failure, in order to cope with the self-esteem threat (VanDellen et al. 2011). Roth, Snyder, and Pace (1986) suggest that threats to self-esteem can lead to exaggerated caution, which may undermine the chances of success of reaching one's goals and aspirations. Moreover, self-esteem threats can affect social comparisons. For instance, when people with high (vs. low) self-esteem experience self-esteem threats, they tend to make more downgrading (vs. upgrading) social comparisons of themselves (Vohs and Heatherton 2004).

Research in coping indicates that individuals can fulfill the threatened self by choosing products or brands that signal the desired self-identity. For example, Afro-Americans tend to compensate for their threatened self-identity by naming their children after high-status, expensive brands, like Harvard (Levitt and Dubner 2007) or Alexus (Rucker and Galinsky 2008). Similarly, individuals whose intelligence is threatened (vs. whose intelligence is not threatened) prefer Wall Street Journal to Sports Illustrated as the former journal signals more intelligence (Gao, Wheeler, and Shiv 2009). Other research shows that as a way to mitigate self-esteem threats, one can connect with a high share brand (e.g., good and successful) (Cialdini et al. 1976). Specifically, Cialdini and colleagues showed that self-esteem threats (e.g., failing a test) drove students towards identification with the university football team, but only if the football team was winning.

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Research also shows that individuals whose self-esteem is threatened activate a problem-focused coping strategy to mitigate the effects of self-esteem threats (Han et al. 2015). They actively fight with the source of the threat to cope with the self-esteem threat. The fighter – often referred to as a warrior in the literature – is related to combating and positively changing the situation. The fighter acts to protect others from harm and evil. The fighter has the goal to make the world a better place. The aim of the fighter is to positively change the situation (e.g., the survival of the species; Pearson 1991). A fighter is more likely to have an approach (vs. avoidance) motivation because s/he actively acts to change the situation (Pearson 1991). A person with threatened self-esteem distances him/herself from social interactions and becomes anti-social (Strelan and Zdaniuk 2015). Social interactions (e.g., forgiving someone) when experiencing self-esteem threats, can make the person feel even more vulnerable. Hence, individuals whose self-esteem is threatened would not be better off with social interactions (Strelan and Zdaniuk 2015).

Applying the logic here, people may prefer brands that are fighters when their self-esteem is threatened. The fighter brand will be one that is perceived to fight to change the situation by having the image of being fearless, courageous, determined, and powerful. As a result, we propose that consumers who experience self-esteem threats will prefer more fighter brands (vs. caregiver brands) as fighter brands will help them to engage in problem-focused coping. Hence, we propose H_{1a} and H_{1b}:

H_{1a}: Individuals exposed to self-esteem threats (vs. social exclusion and no-threat) prefer brands that are fighters.

H_{1b}: The effect of self-esteem threat on preference for fighter brands is mediated by problem-focused coping.

Brands that Can Help with Social-Exclusion Threats

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One of the universal need of all humans is to have social relationships (Baumeister and Leary 1995). Social exclusion is the feeling of having these relationships impaired (Baumeister et al. 2005). Social exclusion threats impair self-regulation (Baumeister et al. 2005), distorts time perception (Twenge, Catanese, and Baumeister 2002), negatively influences logical reasoning (Baumeister, Twenge, and Nuss 2002), and causes pain that is equated to physical pain (MacDonald and Leary 2005).

Research in coping with social exclusion threats shows that individuals who are (vs. are not) socially excluded tend to buy products symbolic of group membership, spend money on an unappealing food favored by a peer, and even try cocaine if doing so will grant them an opportunity to start social connections (Mead et al. 2011). Research also shows that these individuals (vs. who are not socially excluded) prefer products that enhance their social inclusion (e.g., university wristband; Duclos, Wei Wan, and Jiang 2012). Duclos et al. (2012) show how social exclusion threat leads individuals to pursue riskier but potentially more profitable financial opportunities.

Brands can also help consumers cope with social exclusion based on the associations that consumers create with brands (e.g., Loughran-Dommer et al. 2013; Escalas and Bettman 2003, 2005; Fournier 1994, 1998; Swaminathan, Page, and Gürhan-Canli 2007; White and Argo 2009). Specifically, research has demonstrated that identities associated with brands can help consumers connect with others, reduce their feelings of social exclusion, and strengthen their belongingness to social groups. For example, Loughran Dommer and colleagues (2013) found that consumers can cope with social exclusion by choosing brands that are positioned in a way that differentiates them from others, such as Hollister (horizontal

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differentiation) or Armani Exchange (vertical – status differentiation). Consumers threatened by social exclusion pay more attention to brand personalities (Swaminathan, Stilley, and Ahluwalia 2009). For example, consumers who seek (do not seek) to create relationships with others create stronger bonds (i.e., attachment) with brands with sincere (vs. exciting) personalities.

Brands can also help individuals to cope with social exclusion threat either by striving for inclusion (e.g., AT&T using slogans like “Reach out and touch someone”; Loughran-Dommer et al. 2013) or by reinforcing uniqueness (e.g., Mercedes-Benz using slogans like “Unlike any other”; Loughran-Dommer et al. 2013).

Research indicates that when individuals experience social exclusion threats, their caregiving impulse (i.e., willingness to help others and take care of them) is endangered (Twenge et al. 2007). Twenge and colleagues (2007) demonstrate that social exclusion temporarily clogs emotional responses of threatened individuals, which, in turn, impairs the feelings of empathy towards others, thereby undermining their willingness to help others. A “caregiving emptiness” is hence created when individuals are exposed to social exclusion threats. Consequently, these individuals use emotional-coping strategies to cope with social exclusion threats (Han et al. 2015). These individuals need support of other members of the society (e.g., family members, friends, colleagues) to cope with the social exclusion threat. They need to rely on things that can provide care to them. A caregiver would be helpful to a socially excluded person. A person experiencing social exclusion is less likely to approach others and would typically expect a caregiver to provide social support (MacDonald and Leary 2005). Importantly, what a person needs in a social context, is to have someone to act prosocial and in a non-aggressive way (Twenge et al. 2001).

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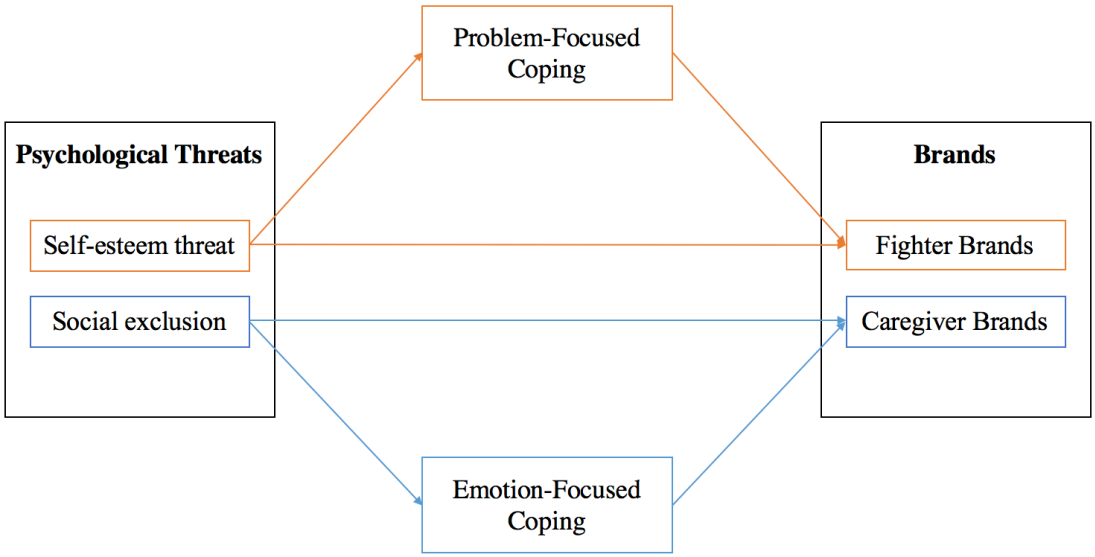
Applying the logic here, people who experience social exclusion threats may prefer brands that are caregivers. A caregiver brand will be one that is perceived to be gentle, helpful, friendly, and pleasant. As a result, we propose that consumers who experience social exclusion threats will prefer more caregiver brands (vs. fighter brands) as caregiver brands will help them to engage in emotion-focused coping (see figure 1 for the conceptual model). Hence, we propose H_{2a} and H_{2b}:

H_{2a}: Individuals who experience social exclusion threat (vs. self-esteem threat or no-threat) prefer brands that are caregivers.

H_{2b}: The effect of social exclusion threat on preference for caregiver brands is mediated by emotion-focused coping.

Figure 1. The Proposed Conceptual Model



We test the predictions using multiple empirical approaches including a correlational study (study 1), and three laboratory experiments (studies 2, 3, and 4). In study 1, we demonstrate the kind of brands that help individuals in threatened situations (i.e., social exclusion or self-esteem threats). In study 2 we test our

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hypotheses in a real choice setting. In studies 3 and 4, we replicate the findings of study 2 – both with brand attitudes measures and consequential dependent variable (i.e., actual consumption of the brand) – and find that individuals who experience self-esteem threats prefer fighter brands and individuals who experience social exclusion threats prefer caregiver brands. Moreover, our findings indicate that individuals who experience self-esteem threats engage in problem-focused coping and hence they prefer fighter brands. Additionally, the findings suggest that individuals who experience social exclusion threats engage in emotion-focused coping and hence they prefer caregiver brands.

Study 1: What Kinds of Brands Help in Threatening Situations?

In study 1, we tested the type of brands individuals prefer when they are exposed to self-esteem and social exclusion threats. This study uses a dimension reduction technique to determine the brands that individuals rely on when they are exposed to these types of threats.

Participants

One hundred and fourteen (50 male; M_{age} = 21.39, SD = 1.39) students of a major European university participated in an online study in exchange for course credit.

Materials and Procedure

We first determined the dimensions of brands that can provide relief under threats to better define and test the effects of brands on individuals who are psychologically threatened. Research suggests that construct investigation is crucial part of determining effects on consumers (Aaker 1997; Paharia et al. 2010). We

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conducted an open-ended elicitation procedure to investigate the traits of brands that individuals think of when they are psychologically threatened. To complete the list, we used a set of positive traits proposed by Anderson (1968). We only focused on the positive traits (and did not include any negative ones), because previous literature suggests that brands are typically linked to positive (versus negative) traits (Aaker 1997). We ended up with 150 traits that were the most prevalent ones and then reduced this pool to 70 statements by eliminating repetitive items (see table 1 in Appendix B for the full list of traits). The procedure we used for the item generation phase is consistent with that suggested by Paharia et al. (2011), Sullivan and Venter (2005), and Aaker (1997).

After defining the items, we conducted our main study. The aim of the study was to reduce the number of items and to refine the traits that brands should have when individuals are threatened by low self-esteem or social exclusion. Initially, we asked participants to think of an event that made them feel psychologically threatened (e.g., when they felt deficit in self-esteem or when they felt excluded from their closest group of friends). Next, we asked them to think of a brand that would be helpful to them in that particular moment (i.e., a brand that would provide them some kind of psychological relief). We then asked the participants the extent to which a brand should have the listed traits to provide them with psychological relief. Participants responded to a questionnaire containing the 70 items. The order of the items was randomized and all items were scored on a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*). All participants then indicated their age and gender and they were thanked.

Results and Discussion

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We conducted an exploratory factor analysis to determine the dimensions of brands that individuals express to prefer under psychologically threatening situations. Participants' Likert responses to the 70 items were subjected to principal factor analysis with the maximum number of iterations. In the first analysis, no restrictions were placed on the number of components to be extracted. Although several components with eigenvalues greater than one were extracted, the scree plot indicated a noticeable drop on dimensions after the first two components. We conducted a second factor analysis by putting the restriction of extracting two components (52.21 % of cumulative variance was explained). We named these two components as (1) caregiver and (2) fighter. The items loaded on the "caregiver" and the "fighter" dimensions made logical sense (i.e., they were logically related to either being a caregiver or a fighter).

Consistent with previous research (Paharia et al. 2010), we eliminated the items with the lowest loadings to reduce the number of items. As a result, we retained a total of 17 items. The caregiver dimension had 10 items (i.e., gentle, helpful, friendly, supporter, warm-hearted, protective, understanding, pleasant, kind, caregiver) and the fighter dimension had 7 items (i.e., fearless, courageous, determined, fighter, adventurer, powerful, daring). Please refer to tables 1 and 2 in appendix B for more details on the rotated factor loadings. The resulting coefficient alpha of internal reliability for the 10 items composing the caregiver dimension was 0.918, and the alpha for the 7 items composing the fighter dimension was 0.756.

The results of this study indicate that individuals who experience self-esteem or social exclusion threat prefer brands that have caregiver or fighter characteristics. The results of this study supported our conceptualization of these brands. To establish the practical relevance of these findings, we conducted a preliminary

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exploratory field study in the marketplace. For this, we visited a series of supermarkets in a large European city. The results of our exploratory study (see appendix B) reveal that brands that position themselves as fighters convey that by using words such as *combat* (e.g., combatting germs and bacteria in a cleansing detergent), *kill* (e.g., kill bacteria and allergens in pavement cleansing detergent), *barrier* (e.g., reinforcing barriers for a bleacher), and *protect* (e.g., skin defense for a face cream). These brands also convey the image of being a fighter by using fight-related words in their brand names (e.g., Air Action Vigorsol – Fresh Explosion) and logos (e.g., Wilkinson with a sword and a shield). For example, Mastro Lindo's main figure is positioned as a genie that offers full protection, killing germs, and coming for help when mostly needed.

The results of our field study also revealed that brands that position themselves as caregivers convey that by using words such as *care* (e.g., caring hand wash, crème care, extra care for a cleansing detergent), and *delicate* (e.g., delicate touch, sensible skin for epilation products and personal hygiene products). These brands also convey the image of being a caregiver by using care-related logos (e.g., caring hands for the Winnies detergent) or colors (e.g., light pink for the Infasil personal hygiene product).

While there are many ways of positioning fighter and caregiver brands in the marketplace, our initial results suggest that when individuals are psychologically threatened (i.e., when they experience a self-esteem threat or social exclusion threat), they will prefer brands that are fighter or caregiver (see figure 2 for fighter brand scorecard and caregiver brand scorecard).

Figure 2. Fighter and Caregiver Brand Component Plot in Rotated Space

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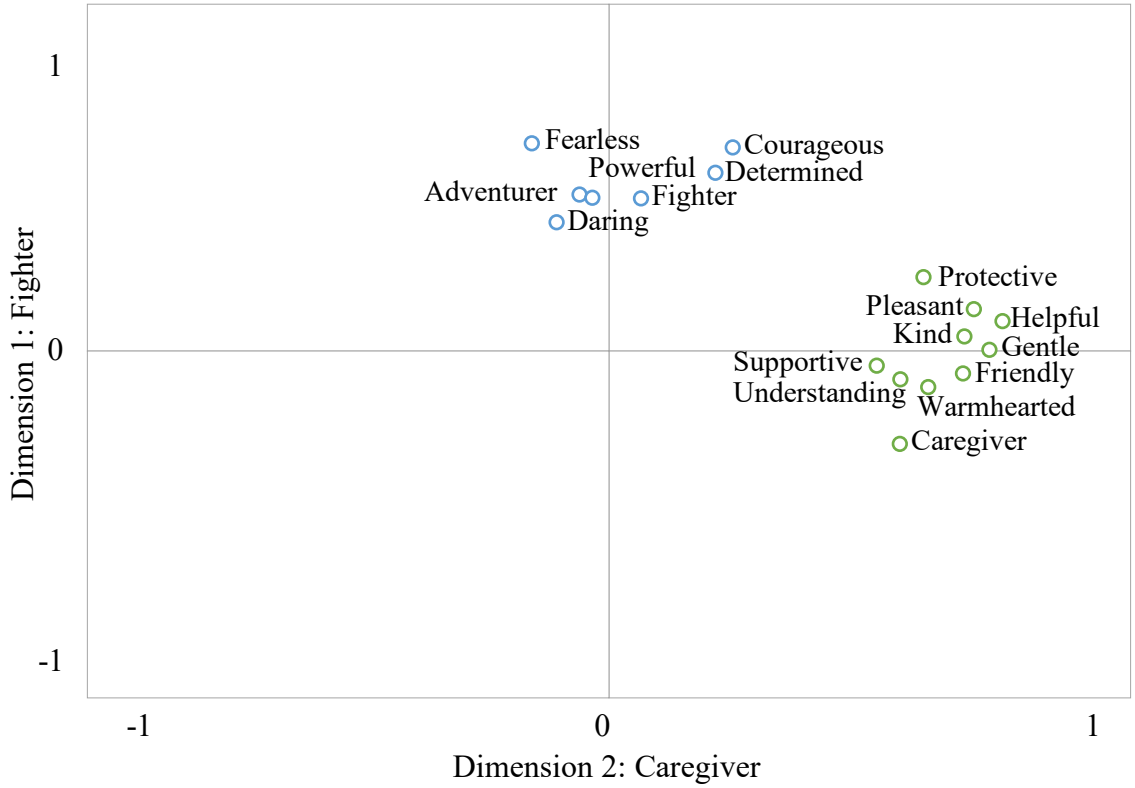

In the next study, we tested our prediction whether being exposed to a self-esteem or social-exclusion threat influences preferences for the fighter and caregiver brands differently. Specifically, we tested our prediction that individuals who experience self-esteem threats prefer fighter (vs. caregiver or control) brands (H_{1a}) and individuals who experience social exclusion threats prefer caregiver (vs. fighter or control) brands (H_{2a}).

Study 2: Real Choice of Brands Under Psychological Threats

Study 2 uses a behavioral experiment with a real choice situation to test our predictions that (a) individuals who experience (vs. do not experience) self-esteem threats prefer fighter brands, and (b) individuals who experience (vs. do not

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experience) social exclusion threats prefer caregiver brands. In this study, we used self-esteem threat, social exclusion threat, and control condition between-subjects design.

Participants

Ninety-one students (43 male; M_{age} = 21.77, SD_{age} = 2.73; sample power = .85) of a major European university participated in a lab experiment in exchange for course credit.

Materials and Procedure

At the beginning of the session, participants were told they would participate in a series of unrelated studies. Participants were first randomly assigned to either the self-esteem threat, social exclusion threat, or no threat condition. While there are different ways to manipulate self-esteem threat, asking participants to think of an event that has happened already and that made them feel as a failure is one of the most accurate ones (VanDellen et al. 2011). Hence, participants in the self-esteem threat condition read the following (Strelan and Zdaniuk 2015): “Please recall a time in which you experienced a failure in school or at work. Try to visualize in your mind the events that resulted in your failure. Try to visualize the failure and recall how you felt. Please write a detailed account of your failure below. In your description, discuss (a) the events that led up to your failure, (b) the nature of the failure, and (c) the context in which the failure occurred (i.e., did you experience the failure in school or at work?”

Consistent with previous research (Han et al. 2015), after the recall task, participants indicated the extent to which they felt that they were an incapable person; they felt that they were a useless person in that exact moment on 7-point scales (1 = *Not at All* and 7 = *Very Much*). Answers to the manipulation check

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questions were highly related so that we collapsed them into a single variable (i.e., self-esteem manipulation check) with higher rating indicating higher threat to self-esteem (α = .875).

Participants in the social exclusion threat condition read the following (Twenge et al. 2001): “You're the type who will end up alone later in life. You may have friends and relationships now, but by your mid 30s most of these will have drifted away. You may even marry or have several marriages, but these are likely to be short-lived and not continue into your 40s. Relationships don't last, and when you're past the age where people are constantly forming new relationships, the odds are you'll end up being alone more and more.”

Consistent with previous research (Han et al. 2015), after the recall task, participants indicated the extent to which they felt very close and connected to other people at that moment (reverse-coded); they felt very alone at that moment on 7-point scales (1 = *Not at All* and 7 = *Very Much*). Answers to these questions were highly related so that we collapsed them into a single variable (i.e., social exclusion threat manipulation check), with higher ratings indicating higher social exclusion threat (α = .77). In the no threat condition, participants described what they had for lunch in the last 3 days. Next, they indicated the extent to which they agreed with the statements that we used as manipulation checks in the other two threat conditions (i.e., self-esteem threat manipulation check and social exclusion threat manipulation check). We asked the manipulation check questions after the manipulation and not at the end of the study because we expected the exposure to the brand and brand preference questions afterwards would affect the ratings on the manipulation check questions.

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We next told participants that we would like to offer them a pack of tea bags – which they would keep (see appendix C) as a reward for their participation. This measure allowed us to observe the incentive-compatible nature of participants, who chose the brand that they consider as the best for them, based on their true preferences at that moment. We told them that there were four new brands that were about to be launched in the market. For privacy reasons, we told them that the brands were labeled as Brand A (positioned as a caregiver brand), Brand B (positioned as a fighter brand) and two more brands: Brand C and Brand D, used as control. Brand C (which we refer to as control-mix) was positioned as a brand that had some of the traits of caregiver and some of the traits of fighter combined; i.e., two traits of caregivers and two traits of fighters, and Brand D (which we refer to as control-none) was positioned as a control brand without words related to either caregiver nor fighter brands. We provided descriptions of each brand.

The caregiver brand was described as:

"Brand A makes tisane tea bags with health benefits. With its naturally flowery ingredients, Brand A has many **nurturing** properties for your wellbeing. Brand A **looks after** your skin, boosts your immune system, and it can be used to *help* relieve stress. Moreover, Brand A **keeps you safe** from the flu and the cold weather viruses."

The fighter brand was described as:

"Brand B makes tisane tea bags with health benefits. With its naturally flowery ingredients, Brand B can **fight** to provide benefits to the organism. It can also **defeat** fatigue and stress. Brand B **backs away** the toxins of your body and strengthens your immune system. Moreover, Brand B *clashes and* **fights the flu other cold weather viruses."**

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The control-mix brand was described as:

"Brand C makes tisane tea bags with health benefits. With its naturally flowery ingredients, Brand C has many **nurturing** properties for your wellbeing. Brand C **safeguards** skin, boosts your immune system, and it **combats** stress and fatigue. Moreover, Brand C **protects** you from the flu and the cold weather viruses."

The control-none brand was described as:

"Brand D makes tisane tea bags with health benefits. With its naturally flowery ingredients, Brand D assures **high-quality** properties for your wellbeing. Brand D is **good** for your skin and for your immune system, and **good** for your stress and fatigue. Moreover, Brand D **can be used** against the flu and the cold weather viruses."

These brands were previously pretested using an online panel of 120 participants (55 male; M_{age} = 36.06, SD_{age} = 12.26) on Mechanical Turk, in exchange for monetary reward. As expected, participants rated the caregiver brand as more caregiving ($M_{caregiver}$ = 5.87, $SD_{caregiver}$ = 1.27) than the fighter brand ($M_{fighter}$ = 4.49, $SD_{fighter}$ = 1.93, F = 11.1, p < .01) and the control brands ($M_{control}$ = 5, $SD_{control}$ = 1.96; F = 4.72, p = .03). Moreover, participants rated the fighter brand as more of a fighter brand ($M_{fighter}$ = 5.86, $SD_{fighter}$ = 1.004) than the caregiver brand ($M_{caregiver}$ = 4.54, $SD_{fighter}$ = 1.64, F = 12.82, p < .01) and the control brands ($M_{control}$ = 4, $SD_{control}$ = 1.96; F = 26.78, p < .01).

All the tea bags were packaged with white paper so that participants did not see the label of the tea bags. Participants were provided with four baskets each consisting of one of the brands and descriptions of each brand in the basket (please see appendix C). The order of the brand labels was counterbalanced. We then asked participants to

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choose one tea bag as part of the study and to take it home with them. Participants were then thanked.

Results and Discussion

Manipulation checks. As expected, participants who were in the self-esteem threat condition reported higher perceived lack of self-esteem ($M_{threat\text{-}selfesteem}$ = 3.16, $SD_{threat\text{-}selfesteem}$ = 1.76) than did participants in the no threat condition ($M_{no\text{-}threat}$ = 1.84, $SD_{no\text{-}threat}$ = .87; $t(58) = 3.37$, $p < .01$). Participants who were in the social exclusion threat condition reported higher on perceived social exclusion threat ($M_{threat\text{-}socialexclusion}$ = 3.37, $SD_{threat\text{-}socialexclusion}$ = 1.46) compared to those in the no threat condition ($M_{no\text{-}threat}$ = 2.71, $SD_{no\text{-}threat}$ = 1.17; $t(59) = 1.9$, $p = .06$).

Brand Preference. Initially, our results indicated an overall effect of threat conditions on brand choice ($\chi^2 = 27.83$, $p < .01$). Given the nature of our data (i.e., frequency ratio), we measured the effect size with the value of Phi, which is equivalent to the correlation coefficient (http://www.real-statistics.com/chi-square-and-f-distributions/effect-size-chi-square/). In our case, the value of Phi is equal to .55 ($p < .01$), which is considered a borderline between a medium and large effect. Moreover, the Cramer's V value is equal to .39 ($p < .01$), which is considered a large effect. Finally, Cohen's D value is equal to .22, considered borderline between small and medium effect.

Next, we conducted the analyses within conditions (i.e., with self-esteem threat, social exclusion threat, and no threat). Hence, we tested our predictions that individuals who experience self-esteem threat (vs. social exclusion or no threat) prefer fighter brands and individuals who experience social exclusion threat (vs. self-esteem or no threat) prefer caregiver brands. We conducted our analyses using a Chi-square test of frequency distributions in SPSS. Consistent with our predictions (H_{1a}

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and H_{2a}), the test of proportion results suggested that within the self-esteem threat condition, participants chose the fighter brand fighter (57.14%) more than the caregiver brand (13.79%; z = 6.89, $p < .01$), more than the control-mix brand (41.18%; z = 1.78, $p = .08$), and more than the control-none (32.97%; z = 2.82, $p = .01$). Moreover, within the social exclusion threat condition, participants chose the caregiver brand (58.62%) more than the fighter brand (21.43%; z = 5.05, $p < .01$), more than the control-mix brand (35.29%; z = 2.72, $p = .01$), and more than the control-none (11.76%; z = 8.1, $p < .01$). Within the no-threat condition, participants chose the control-none brand more frequently (70.79%) than the caregiver brand (27.59%; z = 5.27, $p < .01$) and more frequently than the fighter brand (21.43%; z = 6.56, $p < .01$).

As a robustness check, we repeated our analyses using a series of logistic regressions, using SPSS. The results of a series of logistic regression estimation also supported our predictions. Results indicated that the likelihood of choosing a caregiver brand increased when participants were in the social exclusion threat condition (vs. the other conditions; $\beta = .35$, $p < .01$). Experiencing social exclusion threats decreased the likelihood of choosing a fighter brand ($\beta = -.17$, $p = .07$), a control-none brand ($\beta = -.15$, $p = .03$), and it did not significantly affect the likelihood of choosing a control-mix brand (i.e., both fighter and caregiver; $p = .41$). Additionally, the likelihood of choosing a fighter brand increased when participants were in the self-esteem threat condition (vs. the other conditions; $\beta = .34$, $p < .01$). Experiencing a self-esteem threat did not significantly influence the likelihood of choosing a control-mix brand (i.e., $p = .16$). Moreover, it decreased the likelihood of

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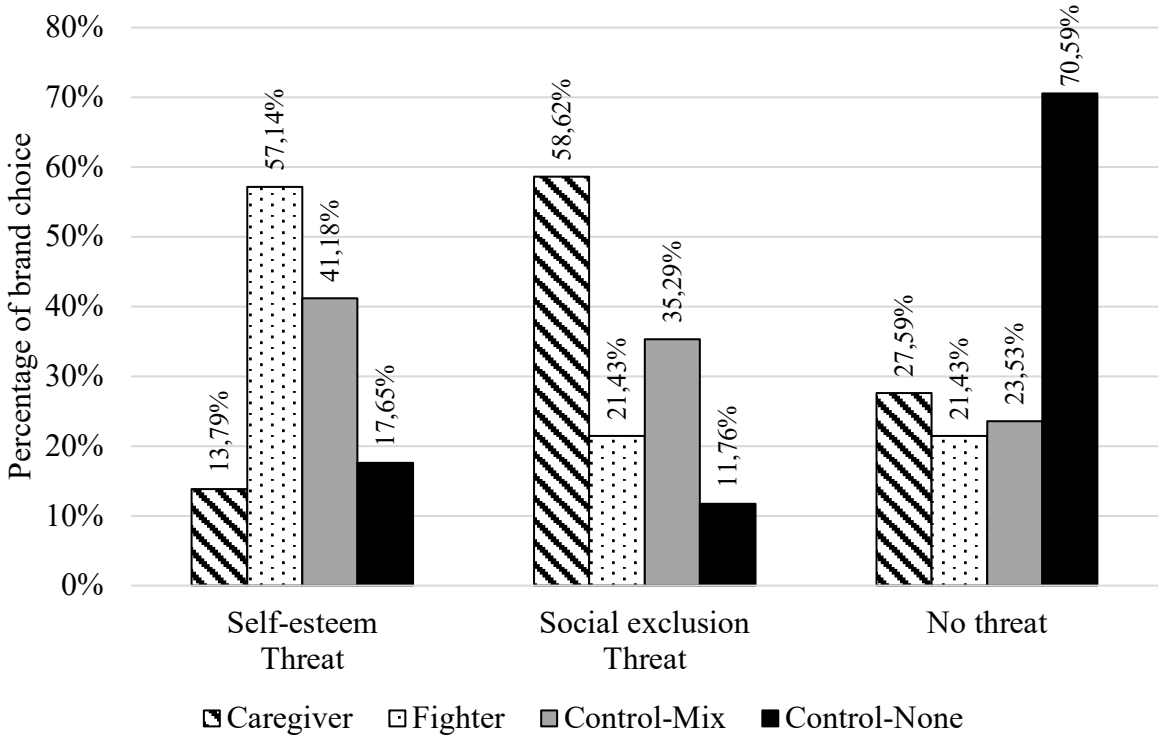
choosing a brand that is a caregiver (β = -.28, p < .01) and a control-none brand (i.e.,; β = -.2, p < .01), see figure 3.

Figure 3. Effect of Social Exclusion and Self-Esteem Threats on Brand Choice



In the next study, we test our comprehensive model by testing for the effect of problem-focused and emotion-focused coping as the mechanisms that explain the effect of self-esteem and social exclusion threats on preference for fighter and caregiver brands, respectively.

Study 3: A Comprehensive Test of the Proposed Model

Participants

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One hundred and twenty students (69 male; M_{age} = 21.72, SD_{age} = 1.7; sample power = .88) participated in a laboratory session in exchange for € 4.00. We used a 2 (threat: self-esteem threat, social exclusion threat condition) by 2 (brand positioning: fighter, caregiver) between-subjects design in the experiment. We measured problem-focused and emotion-focused coping strategies to test for the proposed mechanism (Han et al. 2015). Five participants were excluded from the analyses as they were considered as outliers by SPSS for providing either very high or very low scores on the self-reported measures (the results are robust to their inclusion).

Materials and Procedure

Participants were first randomly assigned to the self-esteem threat or social exclusion threat. Participants in the self-esteem threat condition read the text from Strelan and Zdaniuk (2015). As in the previous study, they were asked to think of a situation where they experienced a failure, what led to that, and how that made them feel. Participants in the social exclusion were asked to think of a situation in which they felt excluded from their social group and describe how they felt in that situation.

Next, participants completed the problem-focused and emotion-focused coping scale (Han et al. 2015) on how they dealt with the threatening situation they described. Sample items include: “I made a plan of action and followed it,” “I changed something so things would turn out better,” “I thought about possible ways to improve the situation” measured on 7-point scales (1 = *strongly disagree* and 7 = *strongly agree*). The items on emotion-focused coping were collapsed into a single variable with a Cronbach's alpha of .774, with higher values indicating higher emotion-focused coping. Similarly, the items on problem-focused coping were collapsed into a single variable with a Cronbach's alpha of .747, with higher values indicating higher problem-focused coping.

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Participants next indicated their perceptions of a logo that will be used by a brand that will be launched in the market. Participants were then randomly assigned to the brand that is positioned as a fighter, or as a caregiver (see appendix D for the logos). To measure attitudes toward the brand, we adapted the statements suggested by Paharia et al. (2011). We used 14-items (e.g., I would like to try this brand; I would buy this brand if I happened to see it in a store; I would actively seek out this brand in a store in order to purchase it), to measure brand preference and attitudes on 7-point scales (1 = *strongly disagree* and 7 = *strongly agree*). The 14 items on attitudes toward the brand were collapsed into a single brand attitude index with a Cronbach's alpha of .913, with higher values indicating higher attitude toward the brand (Paharia et al. 2011).

We pre-tested the brand logos before running the main study, adding also a control logo for comparison. A sample of 210 adults (116 male; M_{age} = 34.71, SD_{age} = 10.239) participated in the pre-test on MTurk. They randomly saw one of the two logos (i.e., fighter, caregiver). Only in the pre-test, we used also a control logo (represented by a flower, in order to see whether our proposed logos also differ from potential control brands in the market). Previous research used the flower image as a neutral stimulus (Hansen, Kutzner, and Wanke 2012). Participants indicated the extent to which they found the logo as perceiving the image of being a (1) fighter or (2) caregiver on two different 7-point scales (1 = *Not at all* and 7 = *Very much*). They also indicated the extent to which they liked the logo on a 7-point scale (1 = *Not at all* and 7 = *Very much*).

Results showed that participants in the fighter brand condition perceived the logo to be a fighter ($M_{fighter}$ = 5.23, $SD_{fighter}$ = 1.51 versus $M_{control}$ = 4.3, $SD_{control}$ = 1.71, $t(90) = 2.28$, $p = .03$; versus $M_{caregiver}$ = 4.3, $SD_{caregiver}$ = 1.82, $t(84) = 2.15$, $p = .03$).

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Participants in the caregiver brand condition perceived the logo to be a caregiver ($M_{caregiver}$ = 5.31, $SD_{caregiver}$ = 1.3 versus $M_{control}$ = 4.91, $SD_{control}$ = 1.4, $t(132) = 1.7$, p = .09; versus $M_{fighter}$ = 4.09, $SD_{fighter}$ = 2.02, $t(84) = 3.27$, p = .002). Additionally, participants did not differ to the extent to which they liked the brand logos ($p > .1$).

Results and Discussion

In this study, we tested our prediction that psychological threats individuals are exposed to (i.e., self-esteem threat, social exclusion threat) can affect their attitudes toward the brand (H_{1a}, H_{2a}) and the coping strategies (i.e., problem-focused or emotion-focused coping) that they use (H_{1b}, H_{2b}).

Attitudes toward the brand. We conducted an ANOVA on attitudes toward the brand. The analysis revealed a significant brand positioning by psychological threat interaction on attitudes toward the brand ($F(1,112) = 4.67$, $p < .01$). As predicted (H_{1a}, H_{2a}), when participants are exposed to a social exclusion threat, they have higher brand attitudes towards caregiver (vs. fighter) brands ($M_{socialexclusion\text{-}caregiver}$ = 4.36, $SD_{socialexclusion\text{-}caregiver}$ = .72 vs. $M_{socialexclusion\text{-}fighter}$ = 3.73, $SD_{socialexclusion\text{-}fighter}$ = 1.08; t = 2.61, p = .01, Cohen's D = .69). Analogously, when participants are exposed to a self-esteem threat, they have higher attitudes toward the fighter (vs. caregiver) brands ($M_{selfesteem\text{-}fighter}$ = 4.28, $SD_{selfesteem\text{-}fighter}$ = .91 vs. $M_{selfesteem\text{-}caregiver}$ = 3.65, $SD_{selfesteem\text{-}caregiver}$ = .9; t = 2.61, p = .01, Cohen's D = .7), see figure 4 below.

Figure 4. Attitudes Toward Fighter and Caregiver Brands Under Self-Esteem and Social-Exclusion Threats

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di ULQINAKU AULONA
discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2019
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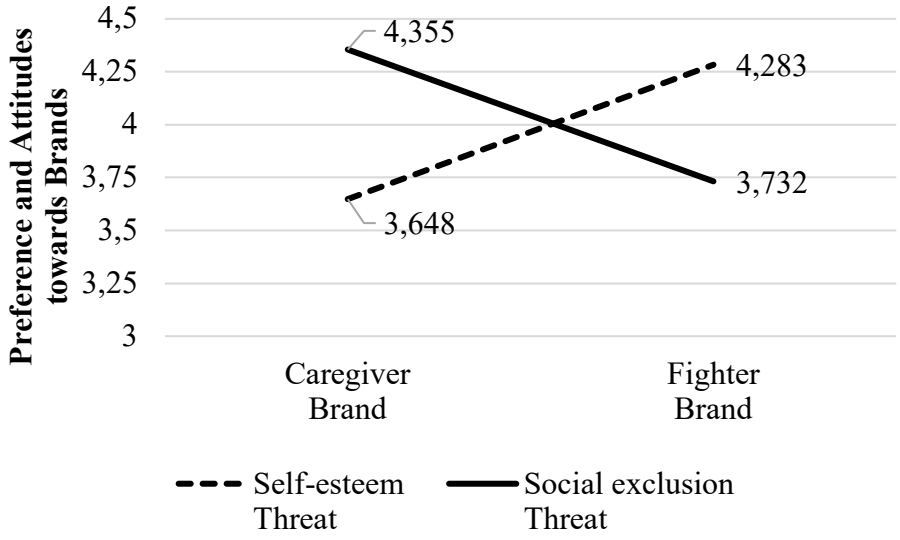

Used Coping Strategies. We next tested for our predictions that the effect of self-esteem threat on preference for fighter brands is mediated by problem-focused coping (H_{2a}) and the effect of social exclusion threat on preference for caregiver brands is mediated by emotion-focused coping (H_{2b}). Consistent with our prediction, participants in the self-esteem threat condition scored higher in problem-focused coping relative to participants in the social exclusion threat condition ($M_{\text{self-esteem}}$ = 4.41, $SD_{\text{self-esteem}}$ = .73 vs. $M_{\text{social-exclusion}}$ = 3.94, $SD_{\text{social-exclusion}}$ = .72; t = 3.44, p < .01, Cohen's D = .65). Moreover, participants in social exclusion threat condition scored higher in emotion-focused coping relative to participants in the self-esteem threat condition ($M_{\text{social-exclusion}}$ = 4.23, $SD_{\text{social-exclusion}}$ = .68 vs. $M_{\text{self-esteem}}$ = 3.86, $SD_{\text{self-esteem}}$ = .52; t = 3.25, p < .01, Cohen's D = .61), see figure 5. There was no significant correlation between the emotion-focused coping and problem-focused coping traits that could explain the previous results (p = .6).

Figure 5. Effects of Psychological Threats on Emotion-Focused and Problem-Focused Coping

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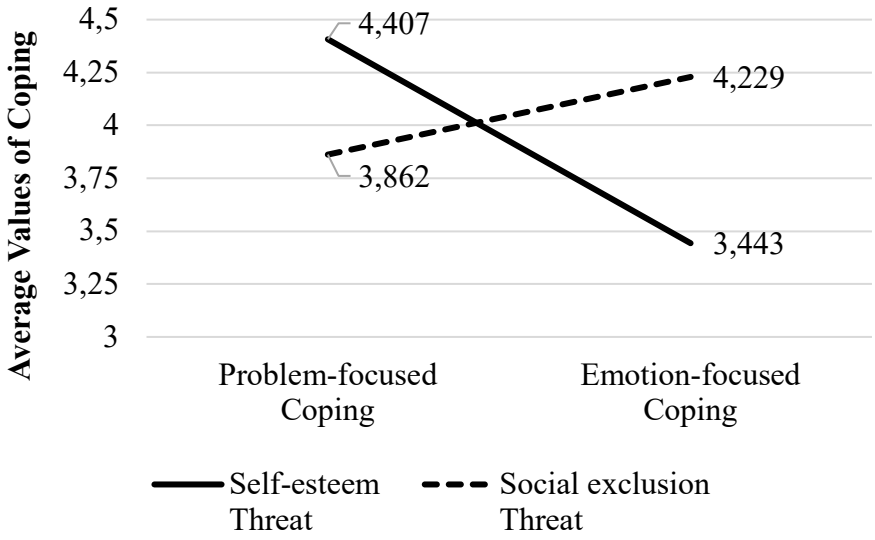

Results of a series of regression analyses revealed that participants exposed to social exclusion threats exhibit higher attitude towards caregiver brands (β = 1.1, p = .02). Being exposed to social exclusion increases emotion-focused coping (β = .37, p < .01). Emotion-focused coping and brand positioning as a caregiver do not significantly affect the attitudes toward the brand (p = .14). Participants exposed to self-esteem threats show higher attitude towards fighter brands (β = 1.01, p = .01). Being exposed to low self-esteem increases problem-focused coping (β = .47, p < .01). Moreover, problem-focused coping and brand positioning as fighter have a significant effect on the attitudes toward the brand (β = .56, p = .02).

To investigate the effect of each specific psychological threat (social exclusion vs. low self-esteem) on attitudes toward the brand and the mechanism behind these effects, we performed two bootstrap moderated mediation model analyses with SPSS using model 15, with 5000 iterations. We predicted that when individuals are exposed to social exclusion threats, attitudes toward the brand will be higher, but mainly for caregiver brands. We tested whether the mediating effect of the emotion-

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focused coping on attitudes toward the brand was moderated by caregiver brand. The bootstrap analysis results showed a significant moderated mediation effect (β = .16, CI: 95% = [.06; .41]).

Moreover, we predicted that when individuals are exposed to self-esteem threats, attitudes toward the brand will be higher, but mainly for fighter brands. We tested whether the mediating effect of the problem-focused coping on attitude towards the brand was moderated by fighter brands. The bootstrap analysis results showed a significant moderated mediation effect but only at the 90% level of confidence (β = .26, CI: 90% = [.1; .49]).

The results of this study support our predictions that individuals who experience self-esteem threat (vs. social exclusion threat or no threat) prefer brands that are fighter and the effect is mediated by problem-focused coping (H_{1a}, H_{2a}). The results also support our prediction that individuals who experience social exclusion threat (vs. self-esteem threat or no-threat) prefer brands that are caregivers and the effect is mediated by emotion-focused coping (H_{2a}, H_{2b}). In study 4, we test for whether fighter and caregiver brands can help individuals to mitigate the need for problem-focused and emotion-focused coping strategies.

Study 4: Fighter and Caregiver Brands Mitigate the Need for Coping Strategies

The aim of study 4 is to investigate whether fighter and caregiver brands can mitigate individuals' need for coping strategies following exposure to social exclusion and self-esteem threats. Specifically, we expect that consumption of a fighter brand

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by individuals exposed to self-esteem threats will mitigate the need for problem-focused strategies. Similarly, we expect that consumption of a caregiver brand by individuals exposed to social exclusion threats will mitigate the need for emotion-focused strategies.

Participants

One-hundred and twenty adults (61 male; M_{age} = 27.53, SD_{age} = 11.35; sample power = .9) participated in the study in exchange for $5. We used a 2 (threat: self-esteem threat, social exclusion threat condition) by 2 (brand positioning: fit, non-fit) between-subjects design. We measured problem-focused and emotion-focused coping strategies using the scale suggested by Han et al. (2015). Six participants were excluded from the analyses as they were considered as outliers by SPSS for providing either very high or very low scores on the self-reported measures (results were robust to their inclusion).

Materials and Procedure

Participants were randomly assigned to the self-esteem threat or social exclusion threat. Participants in the self-esteem threat condition read the text from Strelan and Zdaniuk (2015) as in studies 2 and 3. Participants in the social exclusion threat condition read the text from Twenge et al. (2001) as in study 2.

After finishing the task, participants were asked to move on with the second part of the study. They were told that a new company was launching a new iced tea and that they wanted to know how consumers would evaluate their communication strategies. We provided the participants with iced tea and asked them to consume at least 250 ml of the tea. We recorded the unconsumed amount and used it as control variable.

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We then randomly assigned participants to the caregiver, fighter, and control brand communication strategies conditions. We used the same texts that were pretested in study 2., Participants next completed the problem-focused and emotion-focused coping scale (Han et al. 2015) on how they would have dealt with the situation at that moment of time. Sample items include: “I would have made a plan of action and followed it,” “I would have changed something so things would turn out better,” “I would have thought about possible ways to improve the situation” measured on 7-point scales (1 = *strongly disagree* and 7 = *strongly agree*). The items on emotion-focused coping were collapsed into a single variable with a Cronbach's alpha of .86, with higher values indicating higher emotion-focused coping. Similarly, the items on problem-focused coping were collapsed into a single variable with a Cronbach's alpha of .87, with higher values indicating higher problem-focused coping. Finally, participants indicated age and gender, and they were thanked and paid for their participation and released.

Results and Discussion

We predicted that when participants who were exposed to self-esteem threats consume fighter brands, they would engage less in problem-focused coping strategies and when participants who were exposed to social-exclusion threats consume caregiver brands, they would engage in less emotion-focused coping strategies. As expected, a two-way ANOVA of threat (i.e., social exclusion vs. self-esteem) and brand (fit vs. non-fit) on problem-focused coping strategies and emotion-focused coping strategies revealed a significant interaction effect of threat and brand both on problem-focused coping strategies (F (1, 111) = 4.32, p = .04) and on emotion-focused coping strategies (F (1, 111) = 4.95, p = .003).

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Consistent with our prediction, the ratings of problem-focused coping were significantly lower after participants exposed to self-esteem threats consumed the iced tea positioned as a fighter brand compared to a non-fit brand (which is randomly positioned as either a caregiver or a control brand); $M_{\text{fighter}} = 3.85$, $SD_{\text{fighter}} = 1.14$ vs. $M_{\text{non-fit}} = 4.68$, $SD_{\text{non-fit}} = .81$, $t = 3.18$, $p < .01$, Cohen's $D = .84$). Ratings of emotion-focused coping were not affected by consumption of fighter, caregiver, or control brand when participants were exposed to self-esteem threats ($p = .5$), see figure 6.

We also predicted that participants in the social exclusion threat condition would score lower in emotion-focused coping when they consume the iced tea positioned as a caregiver brand (vs. fighter brand or control brand). Consistent with our prediction, the ratings of emotion-focused coping were significantly lower after participants exposed to social exclusion threats consumed the iced tea positioned as a caregiver brand compared to non-fit brand (which is randomly positioned as either a fighter or a control brand); $M_{\text{caregiver}} = 3.45$, $SD_{\text{caregiver}} = .48$ vs. $M_{\text{non-fit}} = 3.81$, $SD_{\text{non-fit}} = .76$, $t = 2.13$, $p = .04$, Cohen's $D = .57$). There was only a marginal main effect of fit (i.e., caregiver) (vs. non-fit; i.e., fighter or control) brand on problem-focused coping when participants were exposed to social exclusion threats ($p = .08$).

Figure 6. The Effect of Brands on Mitigating Problem-Focused and Emotion-Focused Coping

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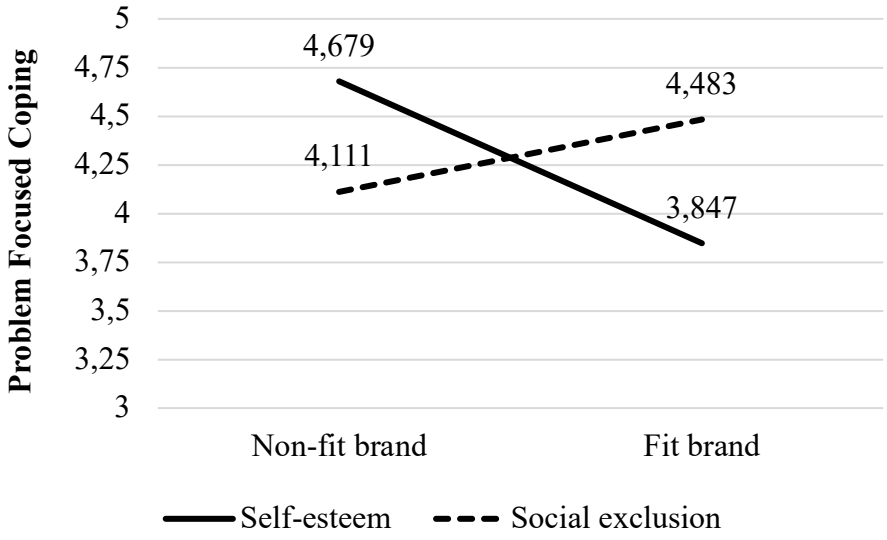

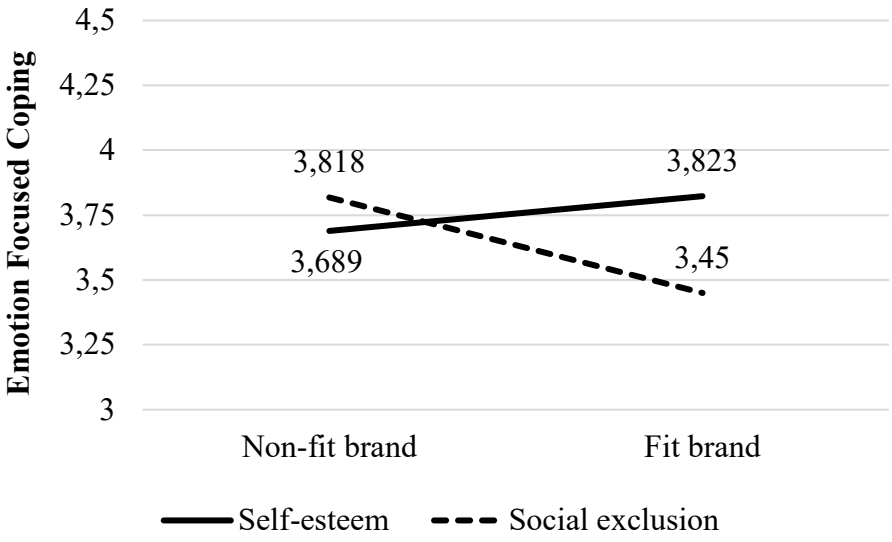

The results of study 4 support our thesis that the effects of self-esteem threats and social exclusion threats can be diminished by the actual consumption of a fit brand compared to a not-fit brand. Specifically, a fit brand in the self-esteem threat condition was a brand positioned as a fighter and a non-fit brand was a brand positioned as either a caregiver or a control. Moreover, a fit brand in the social

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exclusion threat condition was a brand positioned as a caregiver and a non-fit brand was a brand positioned as either a fighter or a control. We predicted that participants would show less need to cope with the threat exposed to, when consuming the brand that was a fit to cope with their threat (i.e., fighter for self-esteem threat and caregiver for social exclusion threat), relative to consuming the brand that was not in fit to cope with their threat (i.e., caregiver/control for self-esteem threat and fighter/control for social exclusion threat).

General Discussion

In this paper, we study the effect of distinct psychological threats on brand preferences, brand choices, and brand attitudes. Han and colleagues (2015) suggest that it is important to understand the effects of psychological threats on individuals as they can affect consumer behavior. While there is extant literature investigating the effects of psychological threats on consumer preferences (see table 1), overlooked in the literature is the type of brands individuals rely on to cope with the effects of the self-esteem and social exclusion threats. For this reason, we aimed to fill this gap by investigating the type of brands that can help individuals cope with these specific psychological threats. Across multiple studies that include laboratory behavioral experiments as well as a correlational study, we provide convergent evidence that individuals prefer, express more positive attitudes, and choose different types of brands (i.e., fighter or caregiver) depending on the psychological threat (i.e., social exclusion or self-esteem) they experience.

Our findings indicate that individuals who experience self-esteem or social exclusion threats prefer brands that are fighter or caregiver (study 1). Individuals who

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experience self-esteem threats prefer fighter brands (studies 2, 3, 4) because fighter brands help them to engage in problem-focused coping (studies 3, 4). Individuals who experience social exclusion threats prefer caregiver brands (studies 2, 3, 4) because caregiver brands help them to engage in emotion-focused coping (studies 3, 4). The results of this research has important theoretical implications and managerial implications, which we discuss next.

Theoretical Contributions

We discuss the contributions of the research's various findings to the literature on psychological threats, coping, and branding.

Psychological Threats. Existing literature on psychological threats demonstrates the consequences of psychological threats on consumer behavior. Specifically, past research shows that psychological threats increases preference for luxurious and prestigious brands (Mandel and Heine 1999), brands that are closer to one's culture (Liu and Smeesters 2010), and brands that are strongly connected to one's identity (Rindfleisch, Burroughs, and Wong 2009). This research's findings, which are robust using online and lab experiments indicate that individuals who are psychologically threatened prefer different types of brands depending on the type of threat. Specifically, this research's findings indicate that under self-esteem and social exclusion threats, individuals prefer fighter and caregiver brands, respectively. In doing so, this research's findings extend the literature on psychological threats in a novel way by showing how psychological threats, specifically self-esteem threat and social exclusion threat, significantly affect brand preferences.

Coping. Extant literature in psychological threats also indicates that individuals cope with these threats by engaging in problem-focused and/or emotion-focused coping strategies (Han et al. 2015). Specifically, past research shows that

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individuals cope with self-esteem threats by engaging in problem-focused coping and cope with the social exclusion threats by engaging in emotion-focused coping (e.g., Han et al. 2015). Our findings extend previous research by showing that individuals who experience self-esteem threats engage in problem-focused coping by preferring fighter brands and individuals who experience social exclusion threats engage in emotion-focused coping by preferring caregiver brands. In doing so, our findings extend the literature on coping with psychological threats in a novel way by showing how different types of brands help individuals cope with different psychological threats.

Branding. Existing literature in branding has identified how individuals who are threatened rely on brands to mitigate the effects of psychological threats (Han et al. 2015). Specifically, with respect to psychological threats, there is evidence of a relationship between psychological threats and preference for luxurious (Arndt et al. 2004) and status brands (Mandel and Heine 1999). Our findings extend this literature on branding, by identifying the hitherto unexamined types of brands in mitigating the effects of psychological threats. Specifically, this research's findings extend the previous literature in a novel way by showing how fighter and caregiver brands help individuals mitigate the effects of self-esteem and social exclusion threats, respectively.

Further, previous literature on branding indicates that brand archetypes are the heartbeat of a brand because they convey a meaning that makes individuals relate to a product as if it actually was alive in some way (Mark and Pearson 2011). Archetypes represent meaning to a brand (Hartwell and Chen 2012) and help individuals to build relationships with the brands. Previous literature suggests that brand archetypes are a powerful tool in brand design and communication because

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they create a short-cut to meaning by enhancing brand affinity, personification, and authenticity (Hartwell and Chen 2012, p. 17). Mark and Pearson (2001) identify 12 brand archetypes, namely: innocent, explorer, the sage, the regular guy, the hero, the outlaw, creator, ruler, magician, lover, caregiver, and jester. We extend the literature on brand archetypes, in a novel way, by showing how caregiver brand archetypes help individuals to cope with social exclusion threats. Extending this literature, we also identify a fighter archetype, which helps individuals cope with self-esteem threats to cope with these threats.

Managerial Implications

Our research also generates managerial implications. Self-esteem and social exclusion threats are commonly experienced at the individual level, but are hardly recognized by companies. Further, there are cases where a social exclusion threat is widespread. For example, Stephen Wagg (2004) explains how British football caused social exclusion for some football fans, who felt their needs and preferences were not taken into consideration by the team. Moreover, John Curtice, Professor of Politics at the University of Strathclyde, claimed Brexit was largely the result of social exclusion felt by the British people. Specifically, Britons did not feel included in the European decision-making processes, which made them feel excluded from the European community. This led to the result we have witnessed, i.e., the Brexit vote (Hunt 2017).

There are also particular events that can affect the self-esteem of citizens of a country as a whole. According to a handful of tweets from Italian fans (Squires 2017), when Italy did not qualify for the World Cup in 2017, it led Italian fans feeling psychologically distraught. They even referred to themselves as “rubbish” for not

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being able to qualify and perform at their expected standards not even in sports (besides politics, unemployment, and immigration). Events such as these can cause a widespread threat of lower self-esteem or social exclusion. For this reason, companies should recognize the threat and address it by positioning their brand according to the consumer needs in that moment.

Fighter Brands

The findings indicate that individuals who experience self-esteem threats prefer fighter brands. There are several examples of brands that are considered as fighters for what they stand for. Isantuary is a brand that hires victims of trafficking in India, helping them regain their dignity. Similarly, Sari Bari fights for and promotes human rights by hiring vulnerables or victims of sex-trafficing (Keith 2016). Other examples of fighter brands are: Mulxiply, Freeset, Malia Designs (Keith 2016), the Tote Project, Trades of Hope, Sudara (Youngs 2016).

From a managerial perspective, companies communicate with consumers in many different ways. Prior research shows that assertive language elicits negative responses and reactance and reduce brand liking (Brown and Levinson 1987; Dillard and Shen 2005; Quick and Considine 2008). Our findings indicate that not all consumers would dislike the assertive language. Specifically, consumers whose self-esteem is threatened would prefer brands that are perceived to be fighters (e.g., that use assertive language). Hence, companies can also use assertive language that shows them as fighters for those consumers whose self-esteem is threatened.

Caregiver Brands

There are several examples of caregivers in real life: Christ, Martin Luther King, Florence Nightingale, Mother Teresa. These are some examples of people who dedicated their lives caring about others. Our research reveals that the caregiver

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dimension is not something that only humans can have. Brands can also have caregiver archetypes. For instance, Dove, Amnesty International, and Allstate Insurance are described as caregiving brands (Hartwell and Chen 2012). Specifically, Dove has its *+Care* campaign where it promotes how the brand takes care of it customers. From a managerial perspective, our finding that when individuals experience social exclusion threats, they are more likely to prefer caregiver brands is important. This suggests that it might be wise for the brands to position themselves as caregiver for those who experience social exclusion threats. For example, brands in certain product categories (e.g., skin care, house care, auto care) might emphasize the caregiver attributes of their brands in their advertisements.

Opportunities for Future Research

In this research, we demonstrated that individuals who experience specific psychological threats prefer specific brands (i.e., fighter, or caregiver) and these brands help individuals to engage in problem-focused or emotion-focused coping. However, we do not examine whether and how product categories might influence the effect of psychological threats on brand preferences. An interesting opportunity for future research is whether there are some product categories (e.g., house cleaning products, skincare products) that trigger more preference for specific brands under different psychological threats.

This research investigates the effects of two brand perceptions: fighter and caregiver. Future research can investigate the effect of other types of brands on other types of threats individuals may be exposed to. One of these types can be heroic brands. There are several brands that are considered as heroic brands: the US Army,

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the Marines, the Olympics, the National Organization of Women, Nike, Federal Express, the Red Cross, Star Wars (Hartwell and Chen 2012; Mark and Pearson 2001). While heroic brands may include a broad array of traits (i.e., self-sacrificing, courageous, redemptive, transformative, faithful, strong, staminal, fighter, crusader, rescuer, soldier, dragon slayer, and team player; Hartwell and Chen 2012; Mark and Pearson 2001), the dimensions that are most strongly associated to providing relief in life-threatening situations are those related to physical safety and protection of others from death and enemies and those related more to emotional caring – like sacrificing and providing love – in death-fearing situations; (Hartwell and Chen 2012; Mark and Pearson 2001). We would predict that individuals who experience mortality threats would prefer heroic brands.

This research's findings indicate that self-esteem threats and social exclusion threats influence preference for brands in different and specific ways. However, we do not consider whether other psychological threats (e.g., power threats, resource scarcity, mortality salience) will also influence preference for brands, which emerges as an opportunity for future research.

In sum, the findings of this research indicate that individuals who experience psychological threats prefer brands that are perceived as fighter and caregiver. Further, the preference for these brands depends on whether individuals seek to engage in problem-focused or emotion-focused coping depending on the experienced psychological threat. Given the importance of psychological threats on individual well-being we hope that our research stimulates further work in this intriguing area.

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TABLES

Table 1

Literature review of the relationship between psychological threats and consumer behavior

Reference*	Dependent Variable	Psychological Threat	Brand Characteristics	Mechanism
Gollwitzer, P. M., Wicklund, R. A., & Hilton, J. L. (1982). Admission of failure and symbolic self-completion: Extending Lewinian theory. *Journal of Personality and Social Psychology*, 43(2), 358.	Inclination to display expensive watches and suits	Self-esteem threat	Indicators of business success	Symbolic self completion
Gao, L., Wheeler, S. C., & Shiv, B. (2008). The "shaken self": Product choices as a means of restoring self-view confidence. *Journal of Consumer Research*, 36(1), 29-38.	Choice of products that display intelligence (e.g., fountain pen vs. M&M package)	Self-esteem threat	Indicators of intelligence	Self-affirmation theory: "fluid compensation" procedure
Willer, R., Rogalin, C. L., Conlon, B., & Wojnowicz, M. T. (2013). Overdoing gender: A test of the masculine overcompensation thesis. *American Journal of Sociology*, 118(4), 980-1022.	Preference, willingness to pay for each one, and which they would be most likely to buy	Gender identity threat	Indicators of masculinity	Desire and support for dominance among threatened men
Rucker, D. D., & Galinsky, A. D. (2008). Desire to acquire: Powerlessness and compensatory consumption. *Journal of Consumer Research*, 35(2), 257-267.	Willingness to pay for high-status products (e.g., a silk tie, a rare portrait vs. microwave)	Power threat	Luxury, high-status	Compensatory hypothesis: sense of power provided
Levav, J., & Zhu, R. (2009). Seeking freedom through variety. *Journal of Consumer Research*, 36(4), 600-610.	Willingness to donate to lesser known brand charities	Personal freedom threat	Unknown/lesser known brands	Spatial confinement

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Cutright, K. M., Wu, E. C., Banfield, J. C., Kay, A. C., & Fitzsimons, G. J. (2011). When your world must be defended: Choosing products to justify the system. *Journal of Consumer Research*, 38(1), 62-77.	Choice of national brands (e.g., Nike vs. Adidas)	Social system threat	Defenders of the social system	System justification theory
Mandel, N., & Heine, S. J. (1999). Terror management and marketing: He who dies with the most toys wins. *Advances in Consumer Research*, 26, 527-532.	Preference for high-status (vs. low status) products/brands (e.g., Rolex vs. Pringles)	Mortality threat	Indicators of high-status	Feeling more valuable within the culture while consuming high-status products/brands
Arndt, J., Solomon, S., Kasser, T., & Sheldon, K. M. (2004). The urge to splurge: A terror management account of materialism and consumer behavior. *Journal of Consumer Psychology*, 14(3), 198-212.	Review of the literature on Terror Management Theory and consumer behavior	Mortality threat	Materialism and conspicuous consumption	Pursuit of wealth and culturally desired commodities, distal defenses from death thoughts
Duclos, R., Wan, E. W., & Jiang, Y. (2012). Show me the honey! Effects of social exclusion on financial risk-taking. *Journal of Consumer Research*, 40(1), 122-135.	Preference for riskier lottery options	Social exclusion	Associated with high risk, perceived as high investment	Money as motivational instrument
Mead, N. L., Baumeister, R. F., Stillman, T. F., Rawn, C. D., & Vohs, K. D. (2010). Social exclusion causes people to spend and consume strategically in the service of affiliation. *Journal of Consumer Research*, 37(5), 902-919.	Preference/spending for products symbolic of group membership	Social exclusion	Indicators of social affiliation	Need for social affiliation
Our paper	***Preference for specific brands***	***Self-esteem threat Social exclusion threat***	***Caregiver Fighter Heroic***	***Emotion-focused coping Problem-focused coping***

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Table 2

Summary of Hypotheses and Studies' Results

Study Number	Objective of Study	Type of Study	Testing Approach	Findings
Study 1	To test the effect of psychological threats on brand preferences, i.e., the kind of brands individuals prefer when they are psychologically threatened.	Lab survey N = 114	Factor analysis for dimension reduction with Principal Component Analyses rotation	Individuals who experience psychological threats prefer brands that have caregiver and/or fighter characteristics.
Study 2	To test our prediction that (a) individuals whose self-esteem is threatened (vs. whose self-esteem is not threatened) prefer brands that are fighters, and (b) individuals who experience social exclusion threats (vs. who do not experience social exclusion threats) prefer brands that are caregivers.	Lab experiment N = 91	Chi-square test of frequencies and logistic regressions to test for H1a, H2a	The results of this study supported our predictions (H1a, H2a) that psychological threats influence the preference of fighter, or caregiver brands.
Study 3	To test our prediction that specific brands help individuals to engage in problem-focused and emotion-focused coping to mitigate the effects of different psychological threats.	Lab experiment N = 120	Moderated mediation with bootstrapping on STATA and Mixed ANOVA to test for H1a, H1b, H2a, H2b	The results of this study replicated the results of the previous studies and supported our predictions that psychological threats influence the preference of brands. Moreover, it identified the mediating mechanisms.
Study 4	To test our prediction that consumption of caregiver and fighter brands lower individuals' need to cope with social exclusion and low self-esteem.	Lab experiment N = 120	ANOVA to test for H1a, H1b, H2a, H2b	The results of this study supported our predictions (H1a, H2a) that caregiver and fighter brands lower individuals' need to cope with social exclusion and low self-esteem.

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APPENDIX A

Coping brands that are fighters

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Coping brands that are caregivers

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APPENDIX B

Table 1
Full list of traits to investigate the coping brands' construct.

Active	Jester
Adventurer	Joker
Aggressive	Kind
Agreeable	Leader
Attentive	Lover
Brave	Loyal
Brilliant	Magician
Calm	Mature
Capable	Modest
Caregiver	Moralistic
Confident	Optimistic
Cordial	Outlaw
Courageous	Painstaking
Creator	Patient
Daring	Pleasant
Determined	Polite
Diligent	Popular
Efficient	Powerful
Energetic	Prideful
Entertaining	Protective
Enthusiastic	Prudent
Ethical	Rational
Expert	Reasonable
Explorer	Rebel
Fearless	Regular
Fighter	Reliable
Forgiving	Rescuer
Friendly	Ruler
Generous	Sage
Gentle	Self-sacrificing
Helpful	Sensible
Honest	Sincere
Innocent	Supporter
Intelligent	Understanding
Inventor	Warm-hearted

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Table 2
Factor loadings of the coping brand dimensions.

	Component	
	Caregiver	Fighter
Gentle	.830	
Helpful	.814	
Friendly	.786	
Supporter	.765	
Warm-hearted	.758	
Protective	.740	
Understanding	.737	
Pleasant	.728	
Kind	.725	
Caregiver	.724	
Fearless		.727
Courageous		.690
Determined		.669
Fighter		.620
Adventurer		.618
Powerful		.615
Daring		.520

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

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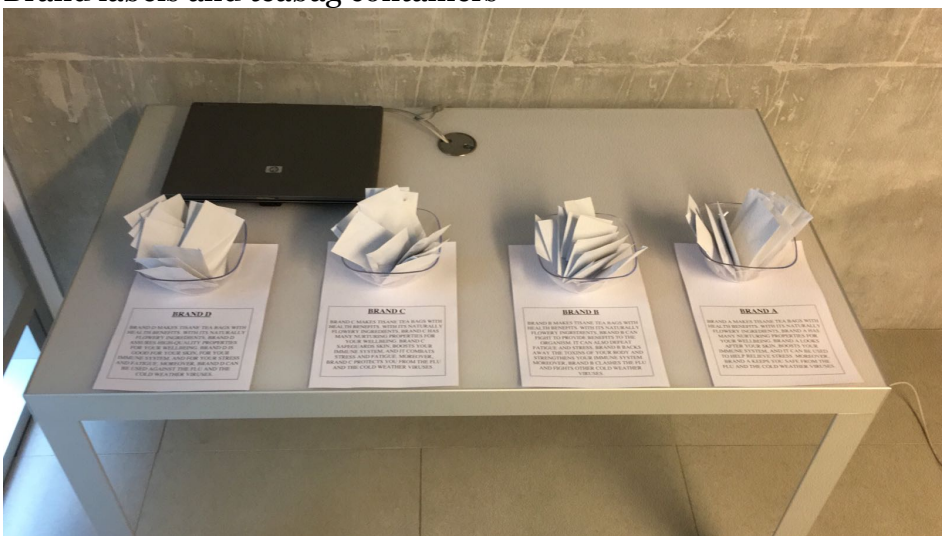
APPENDIX C

Coping brands in real choice situations under psychological threats

Brand labels and teabag containers



Participant 1 example

Participant 2 example

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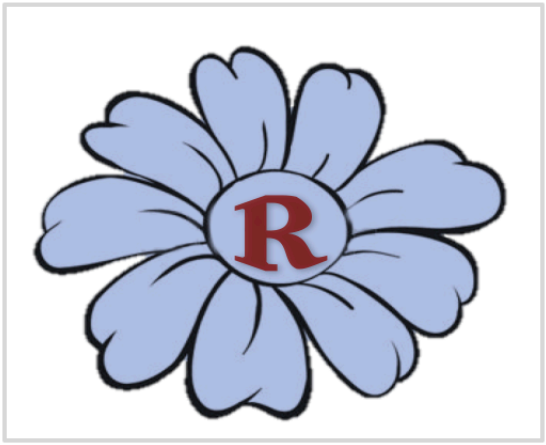
APPENDIX D

Brand logos

Fighter logo

Caregiver logo

Control logo



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HOLDING ON FOR A HERO:

EFFECTS OF HEROES IN MITIGATING MORTALITY THREATS

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Abstract

Extant research demonstrates that when people's sense of meaning is threatened, they attempt to shore up their existing mental structures. This paper investigates a novel avenue that people have for buffering themselves against meaning threats: getting personal power from heroes. This research demonstrates the beneficiary effects of heroes on individuals who are experiencing psychological threat, and explores the mechanism underpinning this relationship. Specifically, this research demonstrates, across nine studies, that (a) heroes help individuals to cope with meaning threats, such as mortality salience, existential threats, and low self-esteem, (b) personal power mediates the effect of heroes in mitigating meaning threats, and (c) human (but not non-human) heroes are more effective in mitigating the non-beneficiary effects of meaning threats, such as unhealthy eating and conspicuous consumption. We have tested our predictions in the field, using real consumption behavior, in the laboratory, and online, using both primary and secondary data (Twitter data). Our findings suggest that threats stimulate a desire for more personal power, a drive that human heroes satisfy.

Keywords: hero, meaning threats, meaning in life, personal power, social power

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Introduction

Individuals strive to organize their perceptions of the world and create meaning by developing expected relationships (e.g., fire is hot, good things happen to good people) and perceiving events through a prism of these mental representations (Heine, Proulx, & Vohs, 2006). According to the meaning maintenance model (MMM; Heine et al., 2006) and Terror Management Theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986), when people's sense of meaning is threatened, they attempt to reestablish back their existing mental structures. While TMT mainly suggests worldwide views and self-esteem confirmation as means to recover from fear of death, MMM considers a broader range of threats to the meaning (e.g., "self-esteem threats, feelings of uncertainty, interpersonal rejection, and mortality salience"; Heine et al., 2006, p. 88). Moreover, MMM suggests that threatened individuals "reaffirm alternative representations as a way to regain meaning (Heine et al., 2006, p. 88) and the source of meaning may be unrelated to the threat itself. Research on how people cope with meaning threats (e.g., self-esteem threats, mortality threats, social exclusion threats, etc.) has identified several strategies people use to reestablish or reinforce meaning structures. Some of these strategies may involve reinforcing social connections (Wildschut, Sedikides, Arndt, & Routledge, 2006), including membership in enduring structures like religions and nations (Arndt, Cook, & Routledge, 2004), or connecting the past with the present and the future (Sarial-Abi, Vohs, Hamilton, & Ulqinaku, 2017). Interestingly, Becker (1973) described how individuals can achieve symbolic immortality and a meaningful existence by revering in the lives of their heroes.

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The concept of heroes has existed since ancient times, and remains important in modern society. For instance, in a survey conducted in 25 countries, 66% of people reported having at least one hero in their lives (Kinsella, Ritchie, & Igou, 2015a), adding support to the idea that heroes are of psychological importance to humankind (Sullivan & Venter, 2005). Lay perceptions of heroes indicate that heroes enhance and inspire others, model morals and values, and offer physical and/or psychological protection, particularly during challenging times (Kinsella, Ritchie, & Igou, 2015b). Empirical research suggests that heroes provide psychological resources to people (e.g., helping individuals with self-identification, Veen & College, 1994; affecting self-perceptions, Sullivan & Venter, 2005; reducing death thought accessibility; McCabe, Carpenter, & Arndt, 2016). Specifically, previous research has shown that thinking about heroes, helps individuals identify with them more, and this reduces death-related thoughts (McCabe et al., 2016). Moreover, Sullivan and Venter (2005) have demonstrated that individuals incorporate as their own the characteristics that they think are congruent with their heroes' ones. In addition to these benefits, heroes can help individuals maintain and reestablish meaning in life when their sense of meaning is threatened (Coughlan, Igou, van Tilburg, Kinsella, & Ritchie, 2017; Kinsella, Igou, & Ritchie, 2017). McCabe, Carpenter, and Arndt (2015) have shown that individuals threatened by mortality salience who strived to strengthen their cultural views, were more willing to engage in heroic acts (such as resisting pain during a cold pressor task). Hence, there are a number of good reasons that support the scholarly, scientific, and practical interests on heroes.

Recent psychological research supports the link between heroes and meaning in life (Coughlan et al., 2017; Kinsella et al., 2017), and in particular, the role of heroes as a means to mitigate meaning threats (Kinsella et al., 2017). The present

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research extends previous work in this domain (e.g., Coughlan et al., 2017; Kinsella et al., 2017), by examining the possibility that in addition to providing psychological resources to people, heroes can serve to bolster *personal power* (i.e., the power to act in autonomy and to control your own resources; Van Dijke & Poppe, 2006) when one's sense of meaning is threatened. The rationale is that heroes imbue personal power (Kinsella et al., 2015a; Lash, 1995), and this sense of personal power can be extended to individuals when reminded of their heroes. The reason for this may be that when one's self-views are in line with heroes' views, then heroes are included into the self, and this effect does not persist for others (i.e., non-heroes; Sullivan & Venter, 2005). In line with this, when individuals are exposed to mortality threats, they identify more with heroes, and hence, include them even more into themselves (McCabe et al., 2016). Hence, if individuals' perception about their own personal power is in line with the perception that heroes are powerful, then, by previous reasoning (see Sullivan & Venter, 2005), it would be embraced into the self. When perceived personal power is higher, individuals are less affected by psychological threats (Anderson & Berdahl, 2002; Kay, Gaucher, Napier, Callan, & Laurin, 2008). Hence, it follows that thinking about a hero can mitigate the effects of meaning threats because heroes are vested with personal power and this power, when extended to threatened individuals, can reestablish meaning in life.

One question arises: is threat a necessary antecedent to study the effects of heroes on meaning in life? According to MMM, threat is a necessary antecedent if we are talking about reestablishing meaning in life. According to MMM, when individuals are exposed to any type of meaning threat, they will try to reestablish an alternative relationship network. Specifically, they will hang on relationship networks that are well-established, available, and intact (Heine et al., 2006). Hence, threat is

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an antecedent. According to MMM, when individuals receive a meaning boost, they are less fragile to meaning threats (Heine et al., 2006). So, heroes can enhance meaning in life both in general (in line with Kinsella et al., 2017), and when there is a meaning threat present, heroes can mitigate for this threat, because they are a source of meaning in life. The MMM suggests that if meaning is threatened, individuals will search for alternative and unrelated sources of meaning in order to reestablish back the lack of meaning. We suggest and demonstrate that heroes can be one source.

Moreover, we distinguish between the effect of heroes on meaning in life from the influence leaders and role models. Literature shows that the concept of heroes can be mistaken for that of leaders and role models (Kinsella et al., 2015a). According to Kinsella and colleagues (2015a), compared with leaders who tend to maintain the same line of behavior over time, heroes often act spontaneously. Compared with role models who can also engage in counter-attitudinal behaviors that prove to be incongruent with the moral beliefs of the individual, heroes instead are perceived to always have a positive effect on people's lives (Kinsella et al., 2015a). For this reason, we have also addressed the question whether the predicted effects of heroes on individuals' meaning in life would also hold for role models and leaders. Moreover, we make a further distinction in terms of types of heroes that can affect meaning in life. We argue that human (vs. non-human) heroes are more (vs. less) effective in mitigating the effects of threats on individuals.

Heroes and Psychological Threats

Meaning is crucial to individuals as it allows them to make sense of life (Proulx & Inzlicht, 2012). Heine et al. (2006, p. 90) define meaning in life as "the expected relationships or associations that human beings construct and impose on their worlds." However, meaning can be disrupted by incoming information and

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experiences that violate the beliefs and values that people have. For instance, the fear of death that embraces someone with a cancer diagnosed might violate meaning in life. Similarly, discrimination that some people face might violate the belief that life is fair, giving rise to meaning threats (Proulx & Inzlicht, 2012).

Meaning can also change due to many circumstances that may not be threatening (e.g., getting married or being exposed to a new cultural environment; Baumeister & Vohs, 2002). According to Proulx and Inzlicht (2012), meaning can be threatened and violated when there are inconsistencies between what people expect and what they experience. When the frameworks of mental representations are threatened, people cope with this psychological threat in a number of ways. For example, people whose cognitive meaning structures have been threatened when they are reminded of their impending death tend to experience increased nationalism (Greenberg, Solomon, & Arndt, 2008), a tendency to see the self as an integrated whole (Landau, Greenberg, & Solomon, 2008), feelings of increased closeness to compatriots (Proulx, Heine, & Vohs, 2010), an increased tendency to punish wrongdoers (Proulx et al., 2010), and an increased likelihood of endorsing stereotypes (Schimel et al., 1999). Past research has demonstrated that when people's frameworks are threatened, they cope with anxiety and psychological threats by purchasing nostalgic products (Routledge et al., 2011) or vintage products (Sarial-Abi et al., 2017), by engaging less in prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), or by engaging in conspicuous consumption (Lee & Shrum, 2012). A general characterization of these disparate responses is that when meaning frameworks are disturbed, people seek to reassert meaning by finding, affirming, and reinforcing meaning in some other domain that can be unrelated to the sources of threat (Heine et al., 2006). Although a number of these meaning

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framework-reinforcing strategies have been explored by previous research, this article proposes that heroes can serve this kind of salutary effect, providing relief from meaning threats bestowing individuals with personal power.

This raises the question: What is a hero? The concept of heroism is described with the ruggedness of the rebel while preserving the ideal of selflessness. Holt and Thompson (2004) suggest that the hero is seen as a caring character that fights to make a positive difference in someone's life, winning the respect and admiration of the masses at the end. Kinsella and colleagues (2015a) examined lay conceptions of heroes and identified their prototypical features: brave, fearless, selfless, self-sacrifice, honest, strong, and moral integrity. The concept of heroism is associated with 'having guts' (i.e., showing gumption), employing actions that are undertaken to help others, even though this may cause the helper's death or injury (Becker & Eagly, 2004). Harvey, Erdos, and Turnbull (2009) acknowledge that heroism can sometimes be confused with altruism. Altruism is indeed an important characteristic of heroes, but altruism does not equate heroism (Franco, Blau, & Zimbardo, 2011). In distinguishing the two concepts, Franco et al. (2011) explain that while altruism does not have to include any elements of risk or danger, heroism has to include some risk or danger. Hence, while heroism and altruism might have some overlapping characteristics (e.g., selfless behavior), they are different concepts.

Recent research has demonstrated that search for meaning in life, when threatened, can activate the hero concept (Coughlan et al., 2017; Kinsella et al., 2017). When activated, meaning in life can be reestablished or maintained. This may happen also because individuals tend to incorporate the positive virtues of heroes (Sullivan & Venter, 2005). In a similar vein, we suggest that heroes might bestow individuals with power and that this might be helpful when one's meaning is threatened.

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Next, we explain why our focus falls on power in particular. Moreover, we explain why, above of all hero virtues, power is the one to mitigate meaning threats and reestablish meaning in life of threatened individuals. Power is an important psychological factor because individuals might change their behaviors depending on their personal perceived sense of power (Rucker, Hu, & Galinsky, 2014). For instance, when individuals feel powerless, they tend to prefer bigger products or larger sizes (Rucker, & Galinsky, & Dubois, 2012). Moreover, power not only studies the relationship between two people (heroes and people reminded of heroes in our case), but it also captures how an individual – based on the psychological power perception she has of herself – can protect herself from influences (Galinsky, Rucker, & Magee, 2015). For instance, an enhanced psychological perception of own power, can protect individuals from threats (Anderson & Berdahl, 2002). This way, power seems to be one virtue that can psychologically be extended to others (Goldstein & Hays, 2011). Then, it follows that heroes might have this virtue (i.e., power) and they may extend it to others. When this happens (i.e., when individuals perceive the self to have more power), they will be able to mitigate meaning threats better, as power psychologically helps individuals have more control over what is happening around them (Anderson & Berdahl, 2002; Galinsky et al., 2015; Keltner, Gruenfeld, & Anderson, 2003; Rousseau & Garcia-Retamero, 2007).

Research suggests that there are two different types of power: social power and personal power (Lammers, Stoker, & Stapel, 2009). McClelland (1975) described personal power as power needs for personal goals. Personal power is moreover described as the need for agency, hence it is the need to act for yourself and to control the environment, overcoming resistances, reaching goals, and pursuing autonomy (Van Dijke & Poppe, 2006). On the other hand, social power is defined as the ability

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to make others behave in a way that they would not otherwise (e.g., a CEO over the employees), then it is the social power we are referring to (Van Dijke & Poppe, 2006). If, otherwise, power is defined as the ability to achieve what the individual desires without being influenced, then it is the personal power we referring to (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Van Dijke & Poppe, 2006). Although these concepts can coexist in life (Lammers et al., 2009), high personal power means more independence to behave irrespective of (or independently from) others, and high social power means that there is more control over others (Lammers et al., 2009).

In this research, we propose that individuals whose meaning is threatened get personal power, but not social power, from heroes. This prediction is also supported by examples from everyday life. For example, Ando Masahashi is a fictional character that is portrayed by James Kyson in the NBC science fiction series “Heroes.” Ando works as an employee at Yamagato Industries, but with his friend and co-worker Hiro Nakamura, he is involved in saving the world. In the “Villains” episode, Ando acquires the ability to enhance and increase the power of the others by simply touching them. Similarly, Carol Danvers is a fictional character appearing in American comic books, published by Marvel Comics in 1968 that can transmit her powers to others. For instance, Danvers, also known as Captain Marvel, is able to transfer her powers (i.e., flight, enhanced strength, durability, and ability to shoot energy) to others in order to fight evil.

Apart from these examples, research also supports our prediction that heroes can provide individuals with personal power. Heroes display “autonomy, not authority” (Lash, 1995, p. 6). Moreover, Lash (1995) explains that heroes are powerful and their power comes within them, it is not appointed by others to them.

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Hence, previous literature suggests that heroes are higher in autonomy (characteristic of personal power; Lammers et al., 2009), rather than authority (characteristic of social power; Lammers et al., 2009). Moreover, heroes employ their power for independence on their actions rather than for pushing others to do something (Lash, 1995). Based on these, it follows that heroes are higher in personal power, rather than in social power. While other heroic virtues – such as moral values and moral modelling – might help individuals achieve psychological relief and reestablish meaning after threats, we suggest that power is also one heroic characteristic that can help mitigate meaning threats and reestablish meaning in life.

But how can personal power be important to individuals when they are exposed to meaning threats? Anderson and Berdahl (2002) have shown that individuals with higher sense of power demonstrate lower tendency to feel threatened. Lammers et al. (2009) explain that individuals who have high personal power tend to bother less about what happens in their social environment, because people that are high in personal power perceive themselves as independent and free from others. According to Kay and colleagues (2008), when one's sense of personal control is threatened, people may start believing in someone or something else (e.g., God or an institution) that is perceived to be vested with lots of power. Similarly, Rousseau and Garcia-Retamero (2007) have demonstrated that self-power perceptions are negatively related to threat perceptions. Moreover, Keltner et al. (2003) have demonstrated that individuals who have more personal power (i.e., they are not dependent on others for managing their resources) are subject to fewer threats from the environment. The reason behind this is that individuals who have high sense of power tend to incorporate less threatening information (Anderson & Berdahl, 2002).

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Hence, research has demonstrated personal power as a mechanism to handle difficult situations and to control the environment. Previous literature suggests that a strategy that individuals may apply to regain control is identifying with powerful entities, such as God, for instance (Kay et al., 2008). Similarly, Goldstein and Hays (2011) suggest that even a mere association with powerful others is enough to enhance individuals' perceived sense of power. This increase in individual sense of power leads to more optimistic feelings, overconfidence in characteristics and abilities, greater action orientation, and more risk-taking behavior (Goldstein & Hays, 2011). So, if heroes could bestow individuals with personal power, then they would be able to mitigate the effects of threats. Holt and Thompson (2004) suggest that during an interaction with the hero, the individual feels a strong connection that leads to vicariously experienced attributes. These vicarious attributes in turn lead to a change of behavior. In a similar vein, we propose that a similar mechanism can be activated when someone experiencing psychological threats is reminded of heroes because heroes are vested with personal power (Becker, 1973), and they can bestow others with their power. Consequently, in line with these examples and previous research, we show that reminder of heroes can help individuals to mitigate threats.

However, do all heroes equally affect individuals and meaning in life? The concept of heroism is mainly related to human traits (i.e., characteristics that describe normal people) rather than non-human ones (e.g., super powers or super skills). According to Zimbardo (2011), heroes are described as individuals of any age and gender who are not extraordinary (e.g., common people) but who engage in activities that can be classified as extraordinary (e.g., engaging in intentional behavior in service to others in need when they are aware of potential risks and personal costs). Heroes are born into society as normal human beings, afterward

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robed with the “hero” title, based on what they do and what they stand for (i.e., what they believe in; Lash, 1995; Zimbardo, 2011). Heroes have human characteristics that are neither superior nor beyond the human traits (Lash, 1995). Lash (1995) explains that others see heroism in the human dimension of someone, rather than the impressive actions that one can do. To remind individuals of heroes in their experiments, Kinsella et al. (2015a) used human faces, rather than non-human ones. According to Holt and Thompson (2004), the hero may display some above-average human skills and some inimitable personal style, even though these may come from a normal mortal person.

In all these definitions, it seems obvious that the figure of heroes is closer to that of humans rather than non-humans, since they are vested with human characteristics (e.g., altruism, courage, motivation), rather than non-human ones (e.g., flying ability, laser eyes, etc.). By *non-humans*, we refer to fictitious characters (e.g., Superman, Wonder Woman, Flash, etc.), rather than animals. Following on previous literature, we predict that human heroes, rather than non-human ones, would affect individuals’ reactions to threats and their meaning in life, by increasing individuals’ perceived sense of power. We have employed different reactions to threats to test our hypotheses: acceptance of threatening information (e.g., that the life people are living in this universe is meaningless) and preference for conspicuous consumption (i.e., preference for luxury and prestigious products and brands). Previous research has demonstrated that when individuals receive threatening information messages, they tend to reject (i.e., deny) those threatening messages as a defensive measure (Routledge et al., 2011). Since we expect human heroes to mitigate the effects of threats, then we predict that threatened individuals that are reminded

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of human (vs. non-human) heroes would be accepting more of threatening information because human heroes create a barrier from the threat.

In this paper, we test our hypotheses in a variety of contexts. We test them both in the field, in the laboratory, and using an online platform. Moreover, we test our hypotheses using both behavioral data with real choices and self-reported measures of relief from threat. An additional and novel context in which we test the effects of heroes on mitigating threats is that of compensatory consumption. Previous literature suggests that individuals try to mitigate psychological threats related to the self by engaging in compensatory consumptions (Lisjak, Bonezzi, Kim, & Rucker, 2015). For instance, research demonstrates that individuals whose self-esteem is threatened tend to prefer conspicuous products and brands as a reaction to the threat (Wicklund & Gollwitzer, 1981). People try to compensate the discrepancy that is created in them by the threat through consuming conspicuous products and brands (Lisjak et al., 2015). Kim and Rucker (2012) found that consumers could rely on products to vest them with a protective layer from threats. Moreover, Gao, Wheeler, and Shiv (2009) have also found that individuals whose intelligence is threatened display higher willingness to pay for intelligence-signaling products (e.g., *National Geographic* magazine vs. *People* magazine). Similarly, we expect heroes to be able to mitigate compensatory consumption, as a proxy for mitigating the psychological threat in per se. Hence, if we are able to show that hero reminder can decrease the tendency to engage in compensatory consumption after exposure to a psychological threat, then we can sustain that heroes can mitigate the effects of psychological threats.

The Present Research

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We tested our predictions in a series of nine studies (three are pilot studies) conducted in the real-world (i.e., field study), with real consumption and choice, in the laboratory, and using an online platform for participants' recruitment. In these studies, we tested our hypotheses that heroes can mitigate meaning threats and that happens through the activation of personal power (instead of social power) that is enhanced in threatened individuals when reminded of heroes. Moreover, we demonstrate that while this effect holds for heroes, it does not hold for leaders and role models. Finally, we show that not all heroes equally help individuals mitigate threats, human (vs. non-human) heroes are more effective at it, as people more and more consider everyday people as potential heroes, rather than fictitious ones.

Pilot Study 1 – Heroes Decrease the Need to Search for Meaning in Life

In pilot study 1, we tested our prediction that individuals who are (vs. are not) reminded of heroes need to search less (vs. more) for meaning in life. To measure search for meaning in life, we have used the scale suggested by Steger, Frazier, Oishi, and Kaler (2006). The Meaning in Life scale is composed of the Search subscale and the Presence subscale. The Search subscale is a better fit for our study because it can measure the immediate extent to which purpose and meaning in life can be affected by stimuli (Steger et al., 2006). Hence, we would expect the variations between the two conditions in their levels of Search subscale. The Meaning in Life Presence subscale instead provides a better proxy for psychological health, depression, anxiety, and appreciation of life. We would not want our participants in different conditions to differ in their presence of meaning in life, but in their search for meaning in life. The reason for this is that presence of meaning is related to a

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subjective view that life is meaningful overall and is a general stable view, while search for meaning in more driven towards finding meaning and reflects the feelings in the specific moment (Steger et al., 2006). While presence of meaning may not vary, search for meaning in life tends to be volatile when individuals have to cope with traumatic events (such as fear of death; Steger et al., 2006). Hence, we predicted that participants in the hero reminder condition would score lower on the Search for Meaning in Life scale compared to those in the control condition, indicating that these participants need to search less for meaning.

Our prediction is in line with previous research from Kinsella and colleagues (2017) who suggest that reminder of heroes would reduce search for meaning in life and engagement in heroic behavior would help create and maintain meaning in life. In this pilot study, we test this hypothesis empirically. In order to test our prediction, we used the Search for Meaning in Life subscale, which is an attitude scale that was specially designed to instill responses believed to be linked to the degree to which individuals search for more meaning in life (Steger et al., 2006).

Participants

Fifty-two (19 male) undergraduate students participated in a European university laboratory session in exchange for a course credit. All participants indicated that they were between 19 and 30 years of age (M = 21.23, SD = 1.567). Statistical power (1-β = .993) was calculated post hoc using G*Power 3.1 and it was greater than the threshold of .80 (Faul, Erdfelder, Lang, & Buchner, 2007). This pilot study used a two-cell design with hero and non-hero conditions. Participants were randomly assigned to one of the conditions.

Materials and Procedure

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Upon agreeing to participate in the study, participants were first randomly assigned to either the hero or the non-hero condition. The definitions we have used in the treatment and the control condition were adopted from Kinsella et al. (2015a) for heroic manipulation and a control condition. More specifically, participants in the hero condition read: *"A hero shows features of bravery, selflessness, moral integrity, and courage throughout his or her life. S/he exerts conviction and determination. S/he shows willingness to protect and save others. Many people describe her/him as honest, altruistic, inspiring, and self-sacrificing."*

Participants in the non-hero condition read: *"A person may show features of focus, stability, assurance, and balance throughout his or her life. S/he exerts common sense, rationality, and diligence. S/he also shows purpose and maturity. People may describe her/him as talkative, reasonable, gentle, and nice."* After that, participants were asked to specify three people they know who share the characteristics of the person described in the text and briefly describe them. Next, participants were instructed to move on to the second part of the study.

In the second part of the study, in order to measure search for meaning in life, we used a 5-item (e.g. "I am searching for meaning in my life; I am always searching for something that makes my life feel significant; I am always looking to find my life's purpose") attitude scale that was specially designed to measure how much respondents strive to find meaning and understanding in their lives: Search for Meaning in Life (Steger et al., 2006). We decided to use this scale because "given its brevity and un-confounded measurement of meaning, this scale appears to be a superior choice for exploring the theoretical space and functioning of meaning in life" (Steger et al., 2006, p. 89).

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Respondents answered each item on a 7-point Likert-type scale (1 = *Absolutely true* and 7 = *Absolutely untrue*). Participants' responses were strongly related to each other, so we collapsed them to form a single Search for Meaning in Life score, with lower scores indicating less need to search for meaning in life (α = .776). Participants then indicated their gender and age. Finally, they were debriefed about the purpose of the study and thanked.

Results and Discussion

We tested the hypothesis that participants who were asked to think about their heroes (i.e., hero condition) would score lower in their search for meaning in life than participants in the non-hero condition. For the analyses, we conducted a one-way ANOVA in IBM SPSS software (version 25) to test for the main effect of hero on search for meaning, and a two-way ANOVA to test for possible interactions with age and gender. As expected, participants in the hero condition scored lower in Search for Meaning in Life compared to those in the non-hero condition (M_{Hero} = 4.746, SD_{Hero} = 1.195 vs. $M_{Non\text{-}Hero}$ = 5.362, $SD_{Non\text{-}Hero}$ = .893, $t(50) = 2.103$, p = .04, d = .625, r = .298). Next, we tested for differences in the ratings of presence of meaning in life. Differences in the presence of meaning in life could indicate a confound of our previous results on different search for meaning in life scores between the hero and non-hero condition. The results suggest a non-significant difference in general presence of meaning in life between the hero and the control condition (M_{Hero} = 4.58, SD_{Hero} = 1.437 vs. $M_{Non\text{-}Hero}$ = 4.63, $SD_{Non\text{-}Hero}$ = 1.362, $t(50) = .139$, p = .89, d = .038, r = .019). The results revealed that there was no significant effect for gender (p = .328) or age (p = .520) on search for meaning in life. Furthermore, neither age (p = .658) nor gender (p = .324) significantly interacted with the experimental conditions to influence search for meaning in life scores.

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The results of pilot study 1 supported our prediction that individuals report lower levels of searching for meaning in life when they are reminded of heroes compared to those who are not. This is an initial demonstration that heroes may be able to affect meaning in life (as suggested by Kinsella et al., 2017), which may then reduce the effects of threats on individuals.

Pilot Study 2 – Heroes Affect Power but not the Other Related Constructs

In pilot study 2, we wanted to test the effect of heroes on perceptions of personal power of individuals. Moreover, we wanted to test whether heroes also affect other power-related concepts (e.g., self-control, future time perspectives, and life satisfaction). This is because the existing literature shows that perceptions of personal power can be related with other constructs, such as self-control (Anderson & Berdahl, 2002), future time perspectives (e.g., Hirschi, 2009), and life satisfaction (Martin & Hill, 2012). Hence, we investigated whether ratings of personal power would be correlated with self-control, future time perspectives, and life satisfaction. Moreover, we investigated whether reminding individuals of heroes would have an effect on the perceived sense of personal power, but also on self-control, future time perspectives, and life satisfaction.

Participants

Ninety participants (44 male) drawn from an online pool participated in exchange for 10 cents. Participants were recruited through Amazon Mechanical Turk, and all participants indicated that they were between 19 and 66 years of age (M = 36.68, SD = 11.262). This study uses a two cells design: hero versus acquaintance

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reminder condition. Statistical power (1-β = .999) was calculated post hoc using G*Power 3.1 and it was greater than the threshold of .80 (Faul et al., 2007).

Procedure and Materials

Upon agreement to participate in the study, participants were randomly asked to either think of a person that they consider heroic or an acquaintance (i.e., someone they somehow know but are not friends with) and to write down a description of that person. We used the manipulations of Kinsella et al. (2015a) for the heroic and control conditions. As a manipulation check for heroism and to control for the fact that acquaintances could be considered heroes, we asked participants the extent to which the person they were describing was considered heroic and the extent to which this person shows heroic behaviors on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). Participants' responses on both items were strongly related to each other, so we collapsed them to form a heroism score, with higher scores indicating higher heroism (α = .977). We then administered the 7-item Personal Power scale adapted from Lester (2009), which included items such as "In this moment, I perceive myself to have control over my own choices"; "In this moment, I feel like I have control over my own destiny)" on a 7-point scale (1 = *Strongly Disagree* and 7 = *Strongly Agree*). Participants' responses were strongly related to each other, so we collapsed them to form a single personal power index, with higher scores indicating more personal power (α = .927).

Next, participants were asked about the extent to which they agreed, in that specific moment, to each of the 10-items of the scale for measuring self-control suggested from Tangney, Baumeister, and Boone, (2004). The scale included statements: "I have very strong self-discipline"; "I do things that feel good in the moment but regret later on." Participants answered the statements on 7-point scales

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(1 = *Strongly Disagree* and 7 = *Strongly Agree*). Again, since participants' responses were strongly related to each other, we collapsed them to form a single self-control index, with higher scores indicating more self-control (α = .902). Afterwards, participants were shown the 10-items of the Future Time Perspective scale suggested from Carstensen and Lang (1996), which included statement such as "Many opportunities await me in the future," or "I have the sense that time is running out". Participants answered the extent to which they agreed with the statements in that moment on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). Responses were strongly related to each other, so we collapsed them to form a future time perception index (α = .934).

After that, participants were asked to indicate the extent to which they agreed in that moment with the 5 items of the Satisfaction with Life scale (Diener, Emmons, Larsen, & Griffin, 1985), which included items such as "In most ways my life is close to my ideal" or "If I could live my life over, I would change almost nothing", on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). The responses were averaged to form a single life satisfaction index, with higher scores indicating a greater satisfaction with life (α = .952). Finally, participants were asked to report their gender and age.

Results and Discussion

Ratings of personal power were marginally and positively correlated to self-control (β = .195, p = .066). Moreover, personal power was positively correlated to future time perspective ratings (β = .471, p < .001), and to life satisfaction ratings (β = .534, p < .001). We showed thus that the ratings of individuals on personal power were correlated to all the other constructs; hence, those of self-control, future time perspective, and life satisfaction.

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Moreover, we predicted that heroism would affect power, but not the other constructs. For the analyses, we conducted a one-way ANOVA with IBM SPSS software (version 25) to test for the effect of heroes on perceptions of personal power. As predicted, participants in the hero condition scored higher in personal power compared to those in the control condition (M_{Hero} = 5.543, SD_{Hero} = 1.16 vs. $M_{Control}$ = 4.669, $SD_{Control}$ = 1.404, $t(88) = 3.234$, $p = .002$, $d = .679$, $r = .321$). No differences were observed between the ratings of self-control (M_{Hero} = 4.605, SD_{Hero} = 1.282 vs. $M_{Control}$ = 4.31, $SD_{Control}$ = 1.295, $t(88) = 1.08$, $p = .28$), between the ratings of future time perspectives (M_{Hero} = 4.603, SD_{Hero} = 1.333 vs. $M_{Control}$ = 4.378, $SD_{Control}$ = 1.383, $t(88) = .778$, $p = .567$, $d = .16$, $r = .08$), and between the ratings of life satisfaction (M_{Hero} = 4.52, SD_{Hero} = 1.548 vs. $M_{Control}$ = 4.036, $SD_{Control}$ = 1.806, $t(88) = 1.368$, p = .106).

The results of this pilot study demonstrated that reminding individuals of their heroes (rather than their acquaintances in the control condition) affects ratings of personal power, but not ratings of self-control, future time perspective, or life satisfaction, although the later three concepts are related to personal power. This is indicative of the discriminant validity of our predictions on the effect of heroes on individuals. The purpose of the Pilot Study 3 was to replicate our findings on the effect of heroes on meaning in life and distinguish between heroes and similar figures. Specifically, we tested whether the effect of heroes on individuals only stand for heroes, or also for leaders and role models.

Pilot Study 3 – Do Role Models and Leaders Also Affect Meaning in Life?

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Literature shows that the concept of heroes can be mistaken for that of leaders and role models (Kinsella et al., 2015a). According to Kinsella et al. (2015a), compared to leaders who tend to maintain the same line of behavior over time, heroes often act spontaneously. Compared to role models who can also engage in counter-attitudinal behaviors that prove to be incongruent with the moral beliefs of the individual, heroes instead are perceived to always have a positive effect on people's lives (Kinsella et al., 2015a). However, are leaders and role models able to affect meaning in life? In this third pilot study, we tested whether the role of heroes is distinct from the role of leaders and role models, given that these three concepts might show overlapping characteristics (e.g., Dalai Lama is a leader that may be considered heroic; Kinsella et al., 2015a). We predicted that participants in the hero condition would score lower on the Search for Meaning in Life scale, compared to both those in the leader and the role model condition, indicating that the results of pilot study 1 hold for heroes, but not for leaders and role models.

Participants

Eighty adults (26 male) drawn from an online pool participated in exchange for 20 cents. These participants were recruited through Amazon's Mechanical Turk. They indicated that they were between 19 and 74 years of age (M = 36.09, SD = 12.181). This study used a three-cell design with a hero description, a leader description, and a role model description. Participants were randomly assigned to one of the conditions. Statistical power (1-β = .728) was calculated post hoc using G*Power 3.1 and it was slightly below the threshold of .80 (Faul et al., 2007).

Procedure and Materials

Upon agreeing to participate to the study, participants were first randomly assigned to one of the three conditions. Participants in the hero condition read: *"A*

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hero shows features of bravery, selflessness, moral integrity, and courage throughout his or her life. S/he exerts conviction and determination. S/he shows a willingness to protect and save others. Many people describe her/him as honest, altruistic, inspiring, and self-sacrificing." Participants in the leader condition read: *"Leaders are defined as most powerful, strong, fearless, demonstrating conviction, displaying leadership, proactive, determined, intelligent, inspiring, and willing to risk people. Leadership is rarely characterized by spontaneity, and it tends to occur over time."* Participants in the role model condition read: *"Role models are defined as influential people who are geographically close and from the same generation and who share experiences similar to the follower's. Role models are considered very talented, honest, personable, exceptional, and humble individuals, and they can affect others in positive or negative ways."* These manipulations were adapted from previous literature on lay conceptions of heroes, role models, and leaders (Kinsella et al., 2015a, 2015b).

Next, participants were asked to list three people they know who share the characteristics of the person described in the text and briefly describe them. As a manipulation check, participants were asked to what extent they perceive the people they just described as heroes, leaders, and role models on three 5-point scales (1 = *Not at all* and 5 = *Totally*). We then measured participants' search for meaning in life. We used the same 5-item Search for Meaning in Life scale (Steger et al., 2006) as in pilot study 1. Since the answers were highly correlated, we collapsed them into a single variable, with lower values indicating less need to search for meaning (α = .715).

Results and Discussion

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In this study, we tested the effect of heroes (vs. leaders and role models) on search for meaning in life. For the analyses, we used the SPSS IBM software (version 25) one-way ANOVA for the main effects and the two-way ANOVA for the interactions between conditions.

Manipulation checks. As expected, the hero perception was marginally higher in the hero condition compared to the leader condition (M_{Heroes} = 4.070, SD_{Heroes} = .917 versus M_{Leader} = 3.59, SD_{Leader} = 1.047, $t(52) = 1.797$, p = .078) and compared to the role model condition, although this last difference was not significant (M_{Heroes} = 4.070, SD_{Hero} = .917 versus $M_{RoleModel}$ = 3.69, $SD_{RoleModel}$ = 1.473, $t(1,52) = 1.473$, p = .147). There was no difference in the mean values for hero perception in the leader condition and role model condition (M_{Leader} = 3.59, SD_{Leader} = 1.047 versus $M_{RoleModel}$ = 3.69, $SD_{RoleModel}$ = 1.473, $t(51) = .359$, p = .721).

The leader perception was higher in the leader condition compared to the leader perception in hero condition, although the difference was not significant (M_{Leader} = 4.52, SD_{Leader} = .580, versus M_{Heroes} = 4.19, SD_{Heroes} = .921, $t(52) = 1.591$, p = .118) and was significantly higher compared to the leader perception for the role model condition (M_{Leader} = 4.52, SD_{Leader} = .580 versus $M_{RoleModel}$ = 4.04, $SD_{RoleModel}$ = .999, $t(51) = 2.149$, p = .036). There was no difference in the mean values for the leader perception in the hero condition and in the role model condition (M_{Heroes} = 4.19, SD_{Heroes} = .921 vs. $M_{RoleModel}$ = 4.04, $SD_{RoleModel}$ = .999, $t(51) = .556$, p = .581).

The role model perception was marginally higher in the role model condition compared to that in the hero condition ($M_{RoleModel}$ = 4.38, $SD_{RoleModel}$ = .752 versus M_{Heroes} = 3.89, SD_{Heroes} = 1.281, $t(51) = 1.709$, p = .093) and to the leader condition ($M_{RoleModel}$ = 4.38, $SD_{RoleModel}$ = .752 versus M_{Leader} = 4.07, SD_{Leader} = .829, $t(51)$ = 1.427, p = .16). There was no difference in the mean values for role model perception

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in the hero condition and leader condition (M_{Heroes} = 3.89, SD_{Heroes} = 1.281 vs. M_{Leader} = 4.07, SD_{Leader} = .829, $t(52)$ = .631, p = .531).

Search for meaning in life. This pilot study tested the effect of heroes, leaders, and role models on search for meaning in life. As expected, there was a significant effect of conditions on search for meaning in life, $F(2, 77) = 4.262$, p = .018 (the overall effect size d = 0.326). More specifically, participants in the hero condition scored marginally lower in search for meaning in life compared to the participants in the leaders condition (M_{Heroes} = 11.111, SD_{Heroes} = 3.965 vs. M_{Leader} = 12.703, SD_{Leader} = 2.35, $F(2,77) = 3.07$, p = .08, d = .196). Furthermore, they scored significantly lower in search for meaning in life compared to the participants in the role model condition ($M_{RoleModels}$ = 13.769, $SD_{RoleModels}$ = 3.502, $F(2, 77) = 8.390$, p = .005, d = .325). There was no significant difference in mean values of search for meaning in life between leader and role model conditions ($F(2, 77) = 1.348$, p = .249).

We also tested whether age or gender had any effects on our predicted results. First, there was no statistically significant difference in the search for meaning in life between males and females ($F(2, 77) = 1.663$, p = .302). Second, there were also no statistically significant differences between ages ($F(2, 77) = .937$, p = .336). Furthermore, the interaction between gender and the conditions was not statistically significant ($F(2, 77) = .382$, p = .684) and the same stands for the interaction between age and the condition ($F(2, 77) = .192$, p = .826).

The results of this pilot study demonstrated that heroes influence one's search for meaning in life. Moreover, pilot study 3 tested whether the role of heroes is distinct from the role of leaders and role models, given that these three concepts are sometimes mixed up in the literature and in everyday life. We demonstrated in this

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study that heroes can affect individuals' meaning in life, but this effect does not hold for leaders and role models. This pilot study contributes to our overall model by demonstrating the effect of heroes on search for meaning in life and by distinguishing this effect from other people's reminder who are not heroes, but may resemble them.

Study 1 – The Effect of Heroes on Personal Power and Meaning in Life

In the pilot studies, we have provided evidence of the fact that heroes can affect meaning in life and they can enhance the perception of personal power. Moreover, we have demonstrated that while heroes are able to do so, acquaintances, role models, and leaders are not. The aim of study 1 was to provide replicating evidence of the effect of heroes on meaning in life and personal power, and to demonstrate that the effect of heroes on threatened individuals is mediated by personal power. Hence, in the present study, we tested our prediction that it is the perception of having personal power, but not social power, that heroes provide to individuals, and that results in less need to search for meaning in life.

Participants

One hundred and eighty-three participants (83 male) (3 missing values) participated in a university laboratory session during a three-day period of data collection. All participants indicated that they were between 19 and 46 years of age (3 missing values) (M = 23.385, SD = 3.756). The study used a 2 (hero vs. non-hero) x 2 (power: personal vs. social) between-subjects design. Statistical power (1-β = .85) was calculated post hoc on the lowest effect size obtained (i.e., d = .224), using G*Power 3.1 and it was greater than the threshold of .80 (Faul et al., 2007).

Materials and Procedure

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Participants were first randomly assigned to either the hero or the non-hero condition. In this study, we used a scenario, describing the person in the non-hero condition as one having "common sense" rather than a "purpose." More specifically, participants in the non-hero condition read: "*Some people show features of focus, stability, assurance, and balance throughout their lives. They exert common sense, rationality, and diligence. They also show maturity. These people can be described as talkative, reasonable, gentle, and nice."*

Participants in the hero condition read the same scenario as in the previous studies. Next, participants were asked to describe a person they know who shares the characteristics of the hero or the other person described in the text.

We then administered in one condition the 7-item Personal Power scale that was adapted from Lester (2009), which included items such as "In this moment, I perceive myself to have control over my own choices"; "In this moment, I feel like I have control over my own destiny)". Ratings were based on a 7-point scale (1 = *Not at all* and 7 = *Extremely*). Participants' responses were strongly related to each other, so we collapsed them to form a single personal vicarious power index, with higher scores indicating more personal power (α = .781). In the other condition, we administered the 7-item Social Power scale that was adapted from Lester (2009), which included items such as "In this moment, I feel as if I had power over someone else," "In this moment, I feel like I have power over other people's destiny." Ratings were based on a 7-point scale (1 = *Not at all* and 7 = *Extremely*). Participants' responses were strongly related to each other, so we collapsed them to form a single social vicarious power index, with higher scores indicating more social power (α = .883).

Next, we asked participants to indicate the extent to which they believe the statements concerning search for meaning in life were true for them. The items were

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strongly correlated to each other (α = .89). Thus, we collapsed them into a single Search for Meaning in Life scale, with lower values indicating that participants need to search less for meaning in their life. Participants then indicated age and gender. Finally, they were thanked about their participation.

Results and Discussion

For the analyses, conducted a one-way ANOVA with IBM SPSS software (version 25) to test for the main effects and the two-way ANOVA for the interactions between hero (vs. control) and power (personal vs. social) on search for meaning in life.

As expected, there was a significant effect of hero (vs. control) condition on personal power (M_{Hero} = 4.92, SD_{Hero} = 1.056 vs. $M_{Non\text{-}Hero}$ = 4.176, $SD_{Non\text{-}Hero}$ = 1.308, t = 3.051, p = .003, d = .622, r = .299), but no effect of heroes (vs. control) on social power (p = .367). This suggests that reminder of heroes does not provide evidence to affect ratings of social power. As predicted, results revealed a two-way interaction effect of hero (hero, non-hero) and power (personal, social) conditions on search for meaning in life, (F(1,179) = 7.985, p = .033). The average ratings for search for meaning in life were lower in the hero condition compared to the non-hero condition among the personal power condition (M_{Hero} = 4.522, SD_{Hero} = 1.565 vs. $M_{Non\text{-}Hero}$ = 5.182, $SD_{Non\text{-}Hero}$ = 1.281, F(1,179) = 6.024, p = .015, d = .462, r = .225). Results demonstrated that there was no difference in the average ratings of search for meaning in life in the hero and non-hero conditions among the participants in the social power condition (M_{Hero} = 5.081, SD_{Hero} = 1.27 vs. $M_{Non\text{-}Hero}$ = 4.916, $SD_{Non\text{-}Hero}$ = 1.082, F(1,179) = .363, p = .548, d = .14, r = .07).

Moreover, among the hero condition, participants in the personal power condition scored lower on search for meaning in life compared to the participants in

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the social power condition ($M_{Personal}$ = 4.522, $SD_{Personal}$ = 1.565 vs. M_{Social}= 5.081, SD_{Social} = 1.27, F(1,179) = 4.319, p = .039, d = .392, r = .193). No difference in the ratings of search for meaning in life was observed among the personal and social power conditions between the non-heroic (i.e., control) conditions ($M_{Personal}$ = 5.182, $SD_{Personal}$ = 1.281 vs. M_{Social}= 4.916, SD_{Social} = 1.082, F(1,179) = .942, p = .333, d = .224, r = .111).

Personal power as the underlying mechanism. We next tested whether personal power mediated the effect of heroes on search for meaning in life. We created a binary variable that had value 1 if participants were exposed to hero condition and value 0 if they were exposed to control (i.e., non-hero) condition. Moreover, we dummy coded the type of power participants were exposed to (1 for personal power and 0 for social power). There was no direct effect of hero (vs. non-hero) on search for meaning in life (p = .356). When we regressed the mediator (i.e., power) on our independent variable (i.e., hero versus non-hero condition), there was a significant effect of hero on personal power, moderated by type of power (personal vs. social; β = .941, p = .005). Finally, there was an effect of power on search for meaning in life, moderated by type of power (personal vs. social; β = -.373, p = .031). Specifically, the conditional effects of power on search for meaning in life at the values of the moderator were negative and significant for personal power (β = -.352, p = .002) and non-significant for social power (p = .875). We next followed the recommendations of Preacher and Hayes (2004), who suggested using a bootstrapping procedure to compute a confidence interval around the indirect effect. We tested our prediction using model 58 (moderated mediation with the moderator – i.e., personal vs. social power – affecting the link between the independent variable and the mediator and the link between the mediator and the dependent variable)

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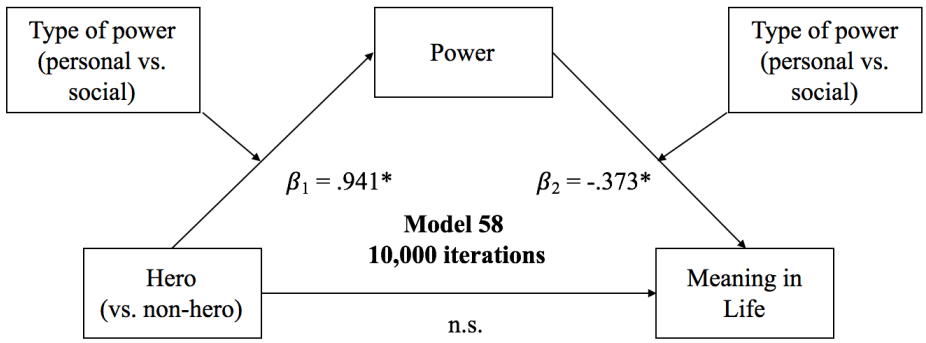
with 10,000 iterations. Results revealed a significant indirect effect via personal power, moderated by personal (vs. social) power (95% CI: [-.62, -.019]).

The overall moderated mediation indirect effect is significant through personal power (β = -.262, 95% CI: [-.612, -.03]), but not through social power (β = .004, 95% CI: [-.081, .08]), see figure 1.

Figure 1. The Effect of Heroes on Personal Power and Meaning in Life



Index of moderated mediation = -.257; 95% CI = [-.62, -.019]

The results of this study demonstrate that heroes (vs. non-heroes) can lead to less search for meaning in life. However, heroes only affect individuals' search for meaning by enhancing personal sense of power, and not social power to others. Hence, in this study we addressed one potential mechanism through which heroes might affect search for meaning in life.

Study 2a – Heroes Help Individuals to Cope with Psychological Threats

In the previous studies, we have shown that heroes can affect meaning in life and that it happens through the mechanism of personal power. In the next studies, we test our predictions in a psychologically threatened context. Study 2a tested the prediction that heroes mitigate the effects of mortality salience using data collected

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from Twitter after the terrorist attacks that occurred in Turkey, Israel, and Germany between November 2016 and January 2017. Previous research suggests that news on terrorist attacks result in enhanced mortality salience (Landau et al., 2004). For instance, reminding individuals of the 9/11 terrorist attack in New York, made people more conscious about their death and hence, made mortality salient (Landau et al., 2004). Hence, we used terrorist attacks as a setting for testing the relationship between hero reminder and mortality salience. In line with the previous literature, we predicted that those who are reminded of heroes (i.e., who post about heroes) would experience less mortality salience compared to those who are not reminded of heroes.

While this study presents some empirical limitations that we are well-aware of (e.g., lack of causality claims, potential endogeneity resulting from the same person reminding the hero and the score on mortality salience, lack of longitudinal data, etc.), we believe this study can provide some interesting insights coming from the real world, rather than a laboratory setting.

Materials and Procedure

We used Twitter application programming interface (API) to download posts and information (i.e., text and hashtags, author identification name and number, number of likes, number of retweets, number of previous posts of the author, number of friends and followers of the author). API allows tweets related to a key word (or a series of words) to be downloaded in real time (e.g., Rossi & Rubera, 2018). Given that the data was freely available online, no permission was required for further use (Tripathy, 2013). However, to ensure full compliance with the ethics of analyzing publicly available data, we did not include in any of our datasets the real name of the authors of the posts. The author's Twitter username was only used for the purpose of controlling whether multiple tweets were posted by the same user.

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We collected data after the terrorist attacks that occurred in the period between November 24th, 2016 and January 10th, 2017, for a total of 154,390 tweets. These terrorist attacks occurred in Turkey (i.e., Adana – November 24th 2016; Istanbul Atatürk Airport – December 10th 2016; Kayseri – December 17th 2016; Ankara – December 19th 2016; Reina – December 31st 2016; and Izmir – January 5th 2017); in Germany (i.e., Berlin – December 20th 2016); and in Israel (i.e., Jerusalem – January 8th 2017). We collected posts published by users of Twitter immediately after the news of terrorist attacks were released on major media channels (e.g., BBC, CNN). We collected them using the hashtags related to the city where the attack occurred.

We used the Linguistic Inquiry and Word Count (LIWC2015) software to obtain a proxy for mortality salience. LIWC2015 is composed of a dictionary, which includes approximately 6,400 words that are commonly used in everyday language and adapted to verbal speech that is common in social networks (also known as "netspeak"; Pennebaker, Boyd, Jordan, & Blackburn, 2015). LIWC2015 provides a score of the relative frequency of words in a tweet that are categorized in a series of clusters (e.g., risk, achievement, present, past, or future tense). We used LIWC2015 to measure the mortality salience of Twitter users during terrorist attacks. We composed the mortality salience measure by using the relative frequency of words in each tweet that were classified as related to *Death* (e.g., bury, coffin, fatal, kill, dead, death; Pennebaker et al., 2015; $M = 1.631$, $SD = 2.729$).

To compose the *Hero* variable, we created a dummy variable that measured whether the word *hero* (or derivatives of it, such as *heroic*, *heroism*, *heroes*) was mentioned in the tweet content or in the hashtags of each tweet posted during the

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identified time period. This variable took the value of 0 if the word *hero* was not contained in the text or hashtags, and 1 if it was included (M = .045, SD = .208).

We tested our prediction that reminder of heroes may be related to lower mortality salience with the model below:

$$MS = \beta_0 + \beta_1 Hero + \beta_2 Likes + \beta_3 Retweets + \beta_4 AuthorID + \beta_5 Statuses + \beta_6 Followers + \beta_7 Friends + \varepsilon$$

where *MS* represents the mortality salience score (i.e., our dependent variable), *Hero* represents whether the word *hero* was mentioned in the text or hashtags of tweets, *Likes* and *Retweets* are the respective times a post was liked and shared by other online users, *AuthorID* is the identification number of each user who posts on Twitter, *Statuses* is the number of posts that each user has shared on Twitter, and *Followers* and *Friends* is the number of respective followers and friends that each user has on his or her Twitter account. We predicted that reminders of heroes would be associated to lower mortality salience scores, considering each individual's post after terrorist attacks. Hence, we expected β_1 to be negative and significant.

Results and Discussion

The results revealed that posts that included *hero* scored lower in mortality salience (β = -.999, p < .001) when we controlled for the author of the post, number of likes and retweets, number of friends, followers, and previous posts shared by that author. As a robustness check, we repeated the analyses without the controls, and the results persisted (β = -.954, p < .001). These results provided further evidence that the reminder of heroes might mitigate the effects of mortality salience by lowering it.

We then ran a series of robustness checks to measure the consistency of our results. We first tested whether two research assistants, blind to our hypotheses, would categorize the words related to *Death* into the same clusters as suggested by

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LIWC2015. We gave the research assistants a list of randomly ordered words (i.e., all the words contained in the *Death* group) and asked them to specify whether these words would belong to the category *Death*. The research assistants agreed on 85.385% of the classifications and correctly guessed 80.769% of the classifications. This level of agreement is higher than the 80% threshold suggested by the previous literature (Marques & McCall, 2005). Hence, the analyses of the two research assistants supported the robustness of the LIWC2015's classification of *Death* (i.e., mortality salience) score.

Next, we decided to re-run our analyses by *winsorizing* our main variable of interest (i.e., *Death* as a proxy for mortality salience). *Winsorization* refers to a technique that is similar to the removal of outliers; however, instead of removing them (Malik, 2017), *winsorization* consists of replacing them with the values next to these outliers on either side of the *winsorized* distribution (Malik, 2017). The previous literature suggests this method to ensure that extreme observations (i.e., 5% in this case) do not affect the results (Rego, Morgan, & Fornell, 2013). Hence, we used the *winsor* STATA syntax on our main variable of interest (i.e., *Death* as a proxy for mortality salience). The results persisted and suggest that the reminder of heroes reduces mortality salience (β = -.964, p < .001). Again, as a robustness check, we repeated the analyses without the controls, and the results persisted (β = -.92, p < .001).

Overall, these results suggest that when threatened with mortality, those people who are reminded of heroes score lower in mortality salience.

Study 2b – Field Study Showing that Heroes Mitigate the Effects of Meaning Threats (Mortality Salience)

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The aim of this study was to test the effect of heroes when individuals are exposed to mortality salience. We predicted that hero reminder would help individuals mitigate the effects of being reminded (vs. not being reminded) of death. The important contribution of this study is that it was conducted in the field, in a context when mortality salience is naturally high. Moreover, this study used a peculiar context for testing the effects of mortality salience on individuals: compensatory consumption. To our best of knowledge, there is no previous research on the effects of heroes on individuals in the context of compensatory consumption.

To run the study, we chose two particular days – the 1st and 2nd of November. These two days are known as All Saints' Day and the Day of the Dead, respectively, in most Catholic countries (e.g., Italy, Poland), where the 1st of November is an official holiday. On these particular days, people are expected to remember their dead loved ones (http://www.calendarpedia.com/when-is/day-of-the-dead.html). Hence, we predicted that mortality salience would be high on these dates. As a control condition, we also collected data on the 5th and 6th of November.

In this study, we randomly assigned people to heroes (versus no hero) conditions and we measured compensatory consumption. The literature suggests that when people are reminded of existential threats, they make unhealthy food consumption choices and overconsume unhealthy food to mitigate the effects of the existential threats (e.g., mortality threat; Ferraro, Shiv, & Bettman, 2005; Mandel & Smeesters, 2008). Consequently, we predicted that people would consume less unhealthy food (i.e., candies) on the 1st and 2nd of November if they were reminded (versus not reminded) of heroes.

Participants

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Ninety-six participants (50 male) participated in our field study on the 1st, 2nd, 5th, and 6th of November, 2017. All the participants indicated that they were between 19 and 82 years of age (M = 37.95, SD = 13.9). Statistical power (1-β = 1) was calculated post hoc using G*Power 3.1, on the lowest significant effect size obtained (i.e., d = .796) and it was greater than the threshold of .80 (Faul et al., 2007).

Materials and Procedure

We conducted the study in a major European city on the 1st, 2nd, 5th, and 6th of November, 2017. Upon agreement to participate in the study, the participants who participated in the study on the 1st and 2nd of November were asked to indicate the extent to which they were thinking about death in that specific moment and the extent to which they felt that their life was threatened on two different 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). The responses to these two questions were highly related; thus we collapsed them into a single variable– mortality salience manipulation check – with higher ratings indicating higher mortality salience (α = .686). The participants who participated in the study on the 5th and 6th of November responded to these two questions at the end of the survey as exposure to these questions regarding the fear of death might raise mortality salience (Florian & Mikulincer, 1997).

The participants in the mortality salience condition (i.e., the 1st and 2nd of November) were then asked to recall the All Saints' and Day of Dead festivity and write something about it and how they cope with the fear of death. Sample replies include: "this day reminded me of dear people who do not live anymore, my grandparents for example;" "It is good that we take some time to remember them and visit their graves;" "Death scares me, especially on days like this;" "I hope people will remember me too when I'm not around anymore." The participants in the control

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condition were immediately directed to the hero (versus no hero) reminder conditions.

In the hero reminder condition, we asked the participants to think of a person they considered to be a hero and asked the reasons for why they consider that particular person to be a hero. Sample replies include: “My hero is my mother. She is the hero of my life because during all her life she tried to fulfill every need of mine, although she was all alone;” “My hero is Angela Merkel. She is a strong and independent woman who now has the power to rule the world and change it for the better.” In the no-hero condition, the participants were directed to the last part of the study.

In the last part of the study, we offered the participants a bowl of candies to thank them for their participation. We recorded the number of candies (M = 1.14, SD = 1.245) that was consumed by each participant as a measure of compensatory consumption. This measuring is in line with previous research suggesting that when participants are exposed to mortality salience threats, they would choose or consumer greater amounts of unhealthy food (Ferraro et al., 2005), as a way to compensate for the threat.

Results and Discussion

In this study, we tested the effects of heroes (vs. no hero) on meaning threats, mortality salience in particular. We used a natural context where mortality salience is high (vs. low) and we used real consumption behavior to test our prediction that heroes can mitigate meaning threats, such as mortality salience. We used two-way ANOVA with SPSS to test our prediction in this study.

Manipulation check. As expected, the ratings of mortality salience were higher during the 1st and 2nd of November compared to the control condition

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collected during the 5th and the 6th of November (M_{MS} = 2.982, SD_{MS} = 1.989 versus $M_{Control}$ = 1.65, $SD_{Control}$ = .849, $t(94) = 3.981$, $p < .001$, $d = .872$, $r = .399$).

Compensatory consumption. As predicted, a two-way ANOVA on the number of candies consumed revealed the predicted interaction ($F(1, 93) = 10.609$, $p = .002$). There was no main effect of threat ($p = .264$) or hero reminder ($p = .544$) conditions on the number of candies consumed. Furthermore, date (i.e., 1st versus 2nd of November) had no effect on the compensatory consumption of individuals in the mortality salience condition ($p = .107$).

A two-way ANOVA with IBM SPSS software (version 25) on the number of consumed candies demonstrated that those who were in the mortality salience condition consumed a greater number of candies when they were not reminded of their hero relative to those reminded of their hero ($M_{MS\text{-}Hero}$ = .79, $SD_{MS\text{-}Hero}$ = .978 versus $M_{MS\text{-}NoHero}$ = 1.74, $SD_{MS\text{-}Nohero}$ = 1.375, $F(1, 93) = 8.975$, $p = .004$, $d = .796$, $r = .369$). In the control condition (i.e., 5th and 6th of November), there was no significant difference in the candies consumed among the participants who were reminded (not reminded) of heroes ($M_{Control\text{-}Hero}$ = 1.32, $SD_{Control\text{-}Hero}$ = 1.336 versus $M_{Control\text{-}No\ Hero}$ = .67, $SD_{Control\text{-}No\ Hero}$ = 1.017, $F(1, 93) = 3.004$, $p = .09$), please refer to figure 2.

Figure 2. Effect of heroes on compensatory consumption of individuals threatened (not threatened) with mortality salience (study 2b).

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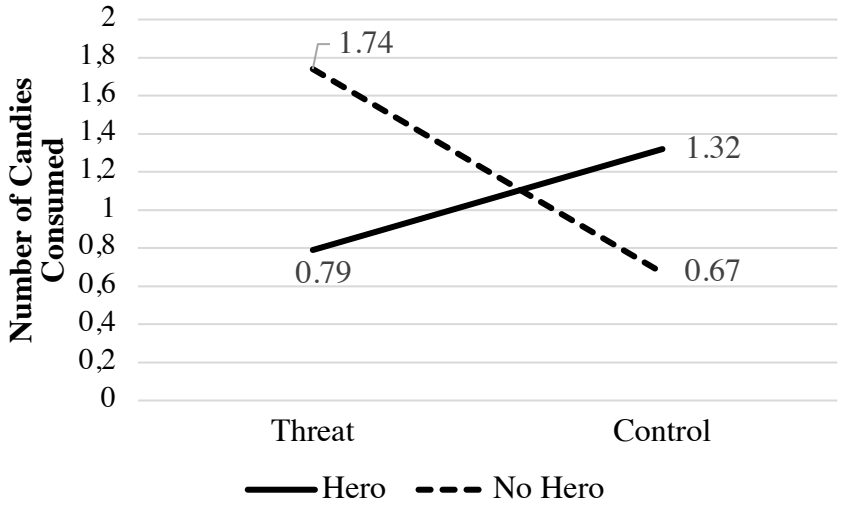

The results also demonstrated that when reminded of heroes, the number of candies consumed did not significantly differ among the participants in the mortality salience and control conditions ($M_{MS\text{-}Hero}$ = .79, $SD_{MS\text{-}Hero}$ = .978 versus $M_{Control\text{-}Hero}$ = 1.32, $SD_{Control\text{-}Hero}$ = 1.336, $F(1, 93) = 2.242$, p = .138). This suggests that reminding people of their heroes might mitigate the effects of mortality salience. The results also suggest that when the participants were not reminded of heroes, the number of candies consumed significantly differed among the participants in the mortality salience and control condition ($M_{MS\text{-}NoHero}$ = 1.74, $SD_{MS\text{-}Nohero}$ = 1.375 versus $M_{Control\text{-}No\ Hero}$ = .67, $SD_{Control\text{-}No\ Hero}$ = 1.017, $F(1, 93) = 9.74$, p = .002, d = .885, r = .405), suggesting that threatened individuals not reminded of their heroes tend to overconsume candies as a reaction to the threat, relative to non-threatened ones.

Overall, the interaction between gender and the experimental conditions was not statistically significant ($F(1, 93) = .002$, p = .962). The interaction between age and the experimental conditions was also not significant ($F(1, 93) = 2.183$, p = .132). The results of this study demonstrated that those who are reminded of heroes when mortality salience is high engage in less compensatory consumption compared to those who are not reminded of heroes. We tested our predictions during two

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particular days when mortality salience would be high and found supporting evidence for our predictions in the field. These results imply that when individuals are reminded of heroes, mortality salience effects might be mitigated.

Study 3a– Human Heroes Have a Stronger Influence in Mitigating the Effects of Meaning Threats (Existential Threat)

So far, we have empirically established that heroes can affect meaning in life and help individuals reestablish it when experiencing meaning threats. Moreover, we have demonstrated that one mechanism through which heroes can affect meaning is personal power. However, we wondered if all heroes are equally effective in reestablishing meaning levels of individuals. Heroes can be human (i.e., coming from everyday life, with human characteristics and virtues) or non-human (i.e., fictitious with non-human characteristics, like flying abilities and laser eyes; think of the Marvel characters for a moment). But do they have the same effect on the meaning levels of threatened individuals? In study 3a, we wanted to test whether there would be any differences in the predicted and found results between human and non-human heroes. Moreover, wanted to test the effect of heroes using another meaning threat, a broader one: existential threat. Routledge and colleagues (2011) have manipulated meaning threat by asking participants to read a short paragraph by a (fake) Professor of Oxford University, who stated the meaninglessness of us as individuals in the universe. The authors demonstrated that when individuals receive messages that threaten their meaning frameworks, they often reject (i.e., deny) those threatening messages as a defensive measure (Routledge et al., 2011). In line with this, we would expect individuals that are affected by meaning threats to have a lower

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tendency to accept information stating their meaninglessness in life, as a defensive measure from the threat. On the contrary, if the meaning threat is mitigated (e.g., by reminder of heroes), the tendency to accept information regarding meaninglessness in life would be greater, as there is less need for defensive measures.

Hence, we predicted that participants in the human hero condition would be more accepting of the information coming from a nihilistic persuasive essay (i.e., presenting facts about meaninglessness of life), in which the author argues that life has no meaning, compared to participants in the non-human hero condition. Hence, we expect participants in the human hero condition to have more accepting evaluations of the threatening message than those participants in the non-human hero condition. However, we expect no differences in the willingness to accept information between human hero and non-human hero conditions when participants are not exposed to threats.

Participants

One hundred and forty-three adults (65 male) drawn from an online pool participated in exchange for 20 cents. Participants were recruited through Amazon's Mechanical Turk, and all participants indicated that they were between 20 and 64 years of age (M = 35.43, SD = 11.403). The number of participants is in accordance with our research budget. This study used a 2 (hero: human, non-human) by 2 (meaning threat: yes, no) between-subjects design. Statistical power (1-β = .999) was calculated post hoc using G*Power 3.1, on the lowest significant effect size obtained (i.e., d = .537) and it was greater than the threshold of .80 (Faul et al., 2007).

Materials and Procedure

Participants were first randomly assigned to either a human hero or a non-human hero condition. Participants in the human hero condition saw an image of a

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firefighter saving the life of a young boy. Participants in the non-human hero condition saw an image of non-human hero (i.e., Superman) saving the life of a young boy. The reason why the human hero is an actual image and the non-human one is a cartoon is exactly because the non-human condition should convey the non-human idea. If we had used as non-human hero manipulation an image of a human version of Superman saving a child, it would have confused the idea of non-human heroes.

Next, as a check for manipulation, we asked participants to indicate the extent to which they think that the character they have seen in the image shows non-human features, has capabilities that are above the average of other humans, has superpowers, on a 5-point scale (1 = *Very Slightly or Not at All* and 5 = *Extremely*). Given that participants' responses were strongly related to each other, we collapsed the three items to form a single non-human characteristics index, with higher scores indicating more non-human characteristics (α = .650). As a further manipulation check, we asked participants to indicate the extent to which the character they saw in the image can be considered a hero, saves other people's lives, behaves in an altruistic way, on a 5-point scale (1 = *Very Slightly or Not at All* and 5 = *Extremely*). Participants' responses were strongly related for the first two items (i.e. can be considered a hero, saves other people's lives) (α = .710), but not for the three items together (i.e. can be considered a hero, saves other people's lives, behaves in an altruistic way) (α = .450). For this reason, we collapsed the first two items on a single heroic dimension index (α = .710), with higher values indicating more heroic perception. We considered the third item alone (i.e., behaves in an altruistic way), with higher values indicating higher altruistic perception.

We then assigned participants to either meaning threat or no meaning-threat conditions. We adapted the essays from Routledge et al. (2011). Participants in the

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meaning threat condition read an "extract from an essay written by the philosopher Dr. John W. Williams of Harvard University." The nihilistic essay, used in previous research to induce a meaning threat (Routledge et al., 2011), argued that life has no meaning: "*I first glimpsed the meaninglessness of life in my late teens, when I began to look deeply into my future, trying to decide what to do with my life. It was a time of deep searching and questioning. These questions have remained until today; let me share them with you. There are approximately 7 billion people living on this planet. So take a moment to ponder the following question: In the grand scheme of things, how significant are you? The Earth is 5 billion years old and the average human life span across the globe is 68 years. These statistics serve to emphasize how our contribution to the world is paltry, pathetic and pointless. What is 68 years of one person's rat race compared to 5 billion years of history? We are no more significant than any other form of life in the universe.*"

Participants in the no meaning threat condition read an essay about computers, which was designed to not threaten meaning structures, and read, in part: "*Computers are able to recognize, remember, store, and manipulate many forms of abstract symbols, including every human language and the special mathematical languages of the sciences. In fact, the words you are looking at right now were put through a machine which stored them electronically and which allowed me, the author, to manipulate them several times before they were finally printed out by another machine. …*" As a manipulation check, all participants were asked to indicate the extent to which the essay cast any doubts on the belief that life is full of meaning, as suggested by Routledge et al. (2011) on a 5-point scale (1 = *Very Slightly or Not at All* and 5 = *Extremely*).

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After reading the essay, we asked participants to evaluate the essay and the author. Specifically, participants indicated the extent to which "the author is a reliable source," "the author makes a strong case," "I would like to have the author as my course instructor," "I would like to meet with the author," "I agree with the author's opinion," "The essay is convincing in conveying its point," and "I believe that the information in the essay is true" on 5-point scales. We averaged the scores on these items to compose a level of acceptance of information score (α = .904). Previous research has found that defensiveness is one reaction to meaning threats: when individuals feel their meaning in life is threatened, they become more defensive (and hence less accepting) to the threatening information conveyed (Sherman & Cohen, 2002). Hence, higher scores of acceptance signal more favorable attitudes toward the author and essay and thus a less defensive response. At the end, participants indicated their age and gender. They were finally thanked for their participation.

Results and Discussion

In this study we tested our prediction that not all heroes are equally effective in mitigating meaning threats, nihilism in particular in this study. More specifically, we predicted that human heroes would be more effective than non-human heroes in mitigating the effects of meaning threats. We tested our hypothesis using two-way ANOVA with IBM SPSS software (version 25).

Manipulation check. As expected, in the non-human condition, participants indicated higher values of non-human characteristics, compared to the human condition ($M_{Non\text{-}human}$ = 3.986, $SD_{Non\text{-}human}$ = .641 versus M_{Human} = 2.54, SD_{Human} = .881, $t(141) = 11.236$, $p < .001$, $d = 1.877$). There was no difference of the heroic perception between the human and non-human conditions ($M_{Non\text{-}human}$ =

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4.465, $SD_{Non\text{-}human}$ = .613 versus M_{Human} = 4.479, SD_{Human} = .714, $t(141) = .122$, p = .903). There were no differences of the altruistic perception between the two conditions ($M_{Non\text{-}human}$ = 3.93, $SD_{Non\text{-}human}$ = 1.191 versus M_{Human} = 3.97, SD_{Human} = 1.146, $t(141) = .211$, p = .833). Hence, we can be confident that Superman was not perceived as less a hero or less altruistic than the firefighter image. Moreover, regarding the manipulation check on the extent to which the essay cast any doubts on the belief that life is full of meaning, as expected, the doubts were higher in the threat condition compared to the control condition (M_{Threat} = 3.29, SD_{Threat} = 1.374 versus $M_{Control}$ = 2.27, $SD_{Control}$ = 1.397, $t(141) = 4.364$, $p < .001$, d = .678).

Level of acceptance of information. As predicted, results of the two-way ANOVA revealed a marginal two-way interaction effect of hero (human, non-human) and meaning threat (threat, no-threat) on level of acceptance, ($F(1, 139) = 3.113$, p = .08). Supporting our prediction, participants who were exposed to the meaning threat condition showed a higher acceptance of information level when the hero was framed as human versus non-human, (M_{Human} = 3.368, SD_{Human} = .883 versus $M_{Non\text{-}human}$ = 2.863, $SD_{Non\text{-}human}$ = .996, $F(1, 139) = 5.670$, p = .019, d = .537, r = .259). As predicted, participants who were exposed to the human hero condition did not differ on their level of acceptance across meaning threat and no meaning threat conditions, suggesting that human heroes mitigate the effects of psychological threats because both the threatening information, and the control information are accepted equally, ($M_{Human\text{-}Threat}$ = 3.368, $SD_{Human\text{-}Threat}$ = .883 versus $M_{Human\text{-}Control}$ = 3.606, $SD_{Human\text{-}Control}$ = .799, $F(1\ 139) = 1.276$, p = .261). Had the human-hero not mitigated the meaning threats, we would have observed a significantly less accepting behavior of the threatening information conveyed. In the non-human hero condition, level of acceptance was significantly higher in the no threat condition compared to the threat

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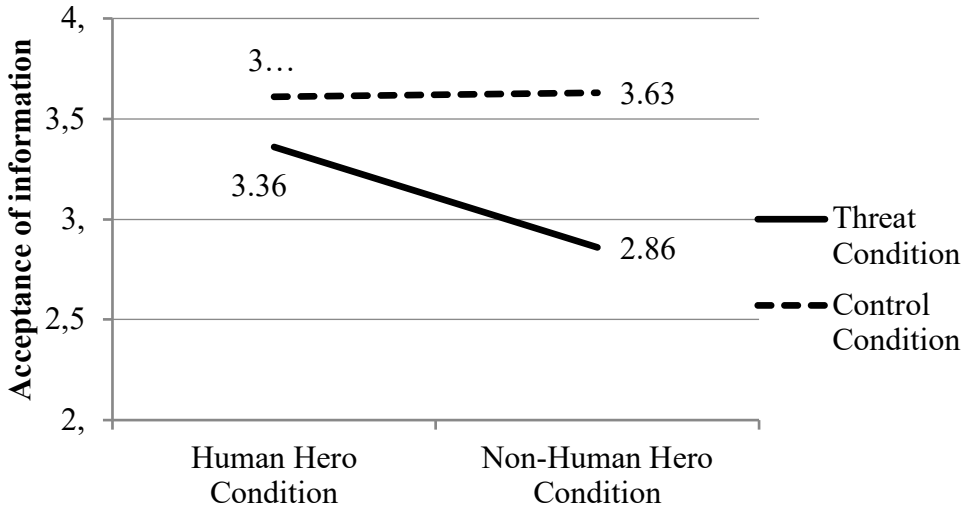
condition, ($M_{Non\text{-}human\text{-}Threat}$ = 2.863, $SD_{Non\text{-}human\text{-}Threat}$ = .996 versus $M_{Non\text{-}human\text{-}Control}$ = 3.625, $SD_{Non\text{-}human\text{-}Control}$ = .857, $F(1, 139) = 13.194$, $p < .001$, $d = .82$, $r = .379$). No differences were revealed between the human and non-human hero conditions in the no-threat condition, ($F(1, 139) = 0.008$, $p = 0.928$), see figure 3.

Figure 3. Human Heroes Have a Stronger Influence in Mitigating the Effects of Meaning Threats (Existential Threat)



We also tested whether age or gender had any effect on our predicted results. Age had a negative effect on the level of acceptance of information, (β = -0.018, p = .006). Gender did not significantly influence the level of acceptance ($F(1,139) = .546$, $p = .461$). The interaction between gender and the threat versus non threat conditions was not statistically significant ($F(1,139) = 1.323$, $p = .252$) and the interaction between age and the experimental conditions was also not statistically significant ($F(1,139) = 3.539$, $p = .069$). Moreover, the interaction between gender and the human versus non-human hero conditions was not statistically significant ($F(1,139) = 0.455$, $p = .501$) and the interaction between age and the conditions was also not statistically significant ($F(1,139) = 0.094$, $p = .76$).

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The results of this study demonstrate that when meaning is threatened, people benefit from heroes. Heroes help individuals mitigate situations that threaten their meaning. Hence, in this study we addressed the role of human heroes when meaning is threatened by examining whether heroes can attenuate people's previously demonstrated acceptance responses to information that threatens their sense of meaning in life.

Study 3b – Human Heroes Have a Stronger Influence in Mitigating the Effects of Meaning Threats (Mortality Salience)

In study 3b, we test our prediction that if human (versus non-human) heroes mitigate the effects of mortality salience, then, under mortality salience, individuals would show less of a preference for status-signaling products when exposed to human (versus non-human) heroes. We used a two-way ANOVA in IBM SPSS software (version 25) to test the predicted interaction.

Participants

Two hundred and sixteen adults (101 male) drawn from an online pool participated in exchange for 20 cents. The participants were recruited through Amazon's Mechanical Turk, and all the participants indicated that they were between 18 and 70 years of age (M = 34.12, SD = 11.165). Statistical power (1-β = 1) was calculated post hoc using G*Power 3.1, on the lowest significant effect size obtained (i.e., d = .532) and it was greater than the threshold of .80 (Faul et al., 2007). This study used a 2 (threat: mortality salience, control) by 2 (hero reminder: human, non-human) between-subjects design.

Materials and Procedure

The participants were first randomly assigned to either mortality salience or control conditions. The participants in the mortality salience condition read: "*Think*

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for a moment of going to your favorite band's concert. You purchased the ticket months ago, you queued for hours, and you are finally enjoying the concert. Imagine for an instant that one's worst nightmare comes true; imagine people entering the concert hall with covered faces and heavy guns, starting to threaten lives of the people who are gathered there to peacefully enjoy the concert. How would you feel in that moment, when you feel that death may be imminent? What do you think would happen to you in those moments? Please describe the emotions and feelings that would accompany you in those moments."

The participants in the control condition described what they had for lunch in the last three days. As a manipulation check, the participants indicated the extent to which they were feeling their life was threatened and the extent to which they were thinking about death in that moment on two different 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). Since the responses to these two questions were highly correlated, we collapsed them into a single variable – mortality salience manipulation check – with higher ratings indicating higher mortality salience (α = .805).

The participants were then randomly assigned to either the human hero or the non-human hero reminder condition. The participants were asked to think of their human [non-human] hero and describe their hero in detail. In the human hero condition, the participants mostly wrote about a family member who sacrificed, cared for, and fought for them. Sample responses include: "the one who saved my life by just being there and being attentive;" "my human hero is my mother… she's always by our side and supports and defends us in everything we do. She guides us in all our plans and decisions. Whenever one is in a hard situation, she is always there to give us a helping hand. She is a person who believes in charity and helping the

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disadvantaged in society. She fights for those who are not able to fight for themselves." They also wrote about someone famous who aimed to provide a change. Sample responses include: "Maya Angelou;" "Dr. Vandana Shiva, who is an advocate for farmers around the world who rejected GMOs and save people's own heirloom seeds;" "Barack Obama;" or "Nelson Mandela, who helped to bring about a peaceful transition in South Africa."

In the non-human hero condition, the participants mostly described heroes with superhuman powers. Sample responses include: "Superman because he is good looking, can fly, good costume, and manly;" "Logan also known as Wolverine is the best non-human superhero. He has the ability to heal his wounds and also not die. He is also very strong;" "My personal non-human hero is Samantha Stevens from Bewitched. She is a witch in a classic TV sitcom. She and her husband try to keep her true identity a secret but she still gets into hi-jinks;" "My superhero has the ability to control time. With this ability he can freeze time and everything in it or he can speed it up. He has the ability to move forward and backward through time and teleport himself anywhere he can think of in an instant. He would use these powers to save lives. He would do this by being able to interact with objects and people that are frozen in time while he is able to move freely. His age would not change but he would not be immortal, so he would still have to avoid death."

Next, the participants were shown a list of 5 high-status products (i.e., Rolex watch, Dom Perignon champagne, plasma high definition TV, Netflix membership, and Lexus car) and a list of 5 non-status products (i.e., an agenda, library membership, fruit mixer, golf membership, and Pringles potato chips). The participants were then asked the extent to which they liked each of these products in a randomized order on separate 7-point scales (1 = *Dislike a Great deal* and 7 = *Like*

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a Great Deal). The participants' responses on the high-status items were correlated to each other. Hence, we collapsed them to form a single attitude towards a high-status products index, with higher scores indicating higher liking for high-status consumption (α = .792). Similarly, we averaged the preferences for non-status items to create a unique attitude for a non-status products index, with higher scores indicating higher liking for non-status consumption (α = .664). Finally, the participants indicated their age and gender.

Results and Discussion

Manipulation checks. As predicted, the participants who were in the mortality salience condition scored higher on the mortality salience manipulation check measure (M_{MS} = 4.274, SD = 1.682) than did the participants in the control condition ($M_{Control}$ = 2.392, SD = 1.717; $t(214) = 7.881$, $p < .001$, $d = 1.107$).

Status consumption. An ANOVA on attitude towards high-status products revealed the predicted interaction, $F(1,213) = 6.758$, $p = .01$. There was no main effect of threat ($p = .173$) or hero reminder ($p = .31$) conditions. Among the participants in the mortality salience condition, those who were in the human hero condition scored lower on attitude towards high-status products relative to those who were in the non-human hero condition ($M_{MS\text{-}Human}$ = 4.405, $SD_{MS\text{-}Human}$ = 1.558 versus $M_{MS\text{-}Non\text{-}human}$ = 5.107, $SD_{MS\text{-}Non\text{-}human}$ = 1.019, $F(1,213) = 7.716$, $p = .006$, $d = .533$, $r = .258$). For the participants in the control condition, there were no significant differences on attitude towards high-status products among the participants in the human versus non-human conditions ($M_{Control\text{-}Human}$ = 5.11, $SD_{Control\text{-}Human}$ = 1.039 versus $M_{Control\text{-}Non\text{-}human}$ = 4.969, $SD_{Control\text{-}Non\text{-}human}$ = 1.009, $F(1,213) = .479$, $p = .489$; please refer to figure 4).

Similarly, among the participants in the human hero condition, the attitude towards high-status products was lower in the mortality salience threat condition

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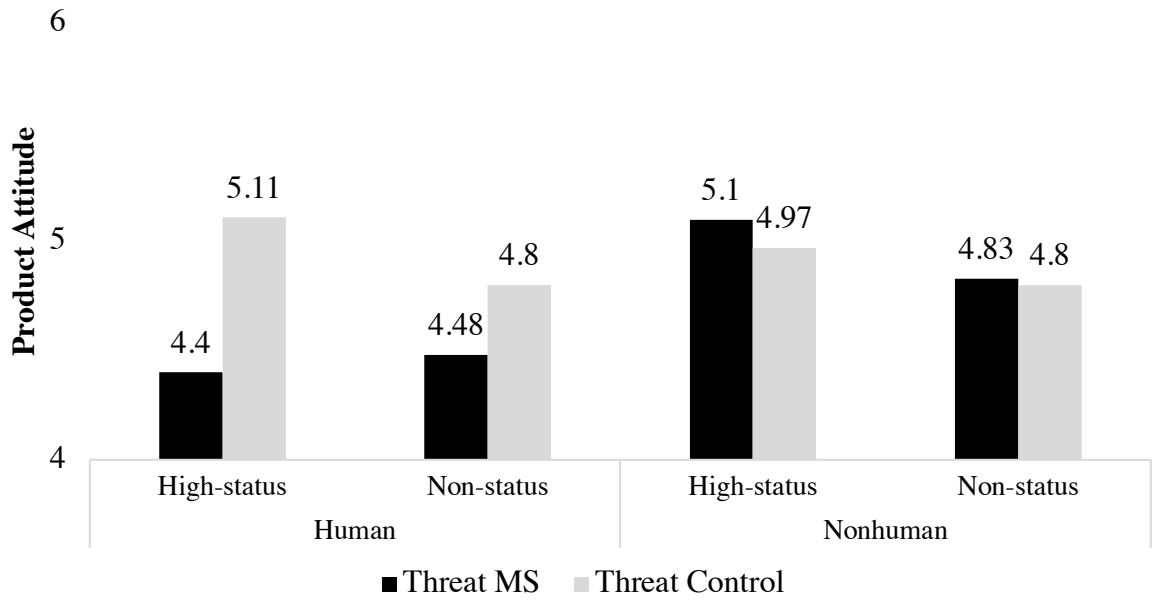
(versus control; $M_{MS\text{-}Human}$ = 4.405, $SD_{MS\text{-}Human}$ = 1.558 versus $M_{Control\text{-}Human}$ = 5.11, $SD_{Control\text{-}Human}$ = 1.039, $F(1,213) = 10.359$, $p = .001$, $d = .532$, $r = .257$. There was no difference among the participants in the non-human hero condition ($M_{MS\text{-}Non\text{-}human}$ = 5.107, $SD_{MS\text{-}Non\text{-}human}$ = 1.019 versus $M_{Control\text{-}Non\text{-}human}$ = 4.969, $SD_{Control\text{-}Non\text{-}human}$ = 1.009, $F(1,213) = .333$, $p = .564$) across mortality salience and control conditions, see figure 4. An ANOVA on attitude towards non-status products revealed no interaction ($p = .325$).

Figure 4. Human Heroes Have a Stronger Influence in Mitigating the Effects of Meaning Threats (Mortality Salience)



The results of this study added to the results of the previous studies by demonstrating that the effect of heroes in mitigating mortality salience is stronger when the hero is a human (versus non-human). We particularly demonstrated the effects for people's desire for high-status products.

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Study 3c – Human Heroes Have a Stronger Influence on Mitigating the Effects of Meaning Threats (Self-Esteem Threat)

In this study we tested the hypothesis that human heroes, but not non-human ones, would prevent conspicuous consumption as a reaction to the threats individuals may be exposed to. We also tested for the underlying mechanism behind this effect (i.e., personal power). We used two-way ANOVA with SPSS IBM software (version 25) to test the predicted interactions and PROCESS macro model 4 (Preacher & Hayes, 2004) with 10,000 iterations to test the predicted mediator.

Participants

One hundred adults (55 male) drawn from an online pool participated in exchange for 20 cents. Participants were recruited through Amazon's Mechanical Turk, and all participants indicated that they were between 20 and 61 years of age (M = 33.12, SD = 10.212). The number of participants is in accordance with our research budget. This study used a 2 (hero: human, non-human) between-subjects design. Statistical power (1-β = .999) was calculated post hoc using G*Power 3.1 and it was greater than the threshold of .80 (Faul et al., 2007).

Materials and Procedure

Upon agreement to participate to the study, participants were first randomly assigned to either the human hero or the non-human hero condition. Participants were asked to think of their human [non-human] hero and draw or find an image that represents the hero and upload online it on the Qualtrics platform. They were told that this image would be printed on a t-shirt. To boost the manipulation, they were asked to imagine that they would be wearing the t-shirt they designed and to describe how they would feel wearing it. Images are available upon request.

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Next, participants were asked to carefully read and respond to the following text, taken from Strelan and Zdaniuk (2015), that manipulated self-esteem threat: "*Please recall a time in which you experienced a failure in school or at work. Try to visualize in your mind the events that resulted in your failure. Try to visualize the failure and recall how you felt. Please write a detailed account of your failure below. In your description, discuss (a) the events that led up to your failure, (b) the nature of the failure, and (c) the context in which the failure occurred (i.e., did you experience the failure in school or at work?"*

Next, participants were shown a list of 5 conspicuous brands and products (i.e., Rolex watch, Dom Perignon, Golf Club membership, Plasma High Definition TV, and Lexus car) and a list of 5 neutral brands and products (i.e., an agenda, library membership, fruit mixer, Netflix membership, and Pringles potato chips) consistent with the previous literature (Mandel & Heine, 1999). Participants were asked the extent to which they liked each of these items (in a random order) on 7-point scales (1 = *Dislike a Great deal* and 7 = *Like a Great Deal*). Participants' responses on the conspicuous products and brands were strongly related to each other, so we collapsed them to form a single conspicuous consumption index, with higher scores indicating higher preference for conspicuous consumption (α = .825). Similarly, we averaged the preferences for the neutral (i.e., non conspicuous products and brands) to create a unique non-conspicuous consumption index, with higher scores indicating higher preference for non-conspicuous consumption (α = .579). We then asked participants to indicate their mood at that specific moment on a 7-point scale (1 = *Far Too Negative* and 7 = *Far Too Positive*). Finally, participants completed the personal power scale as in study 1, they indicated age and gender, and were thanked for their participation in the study.

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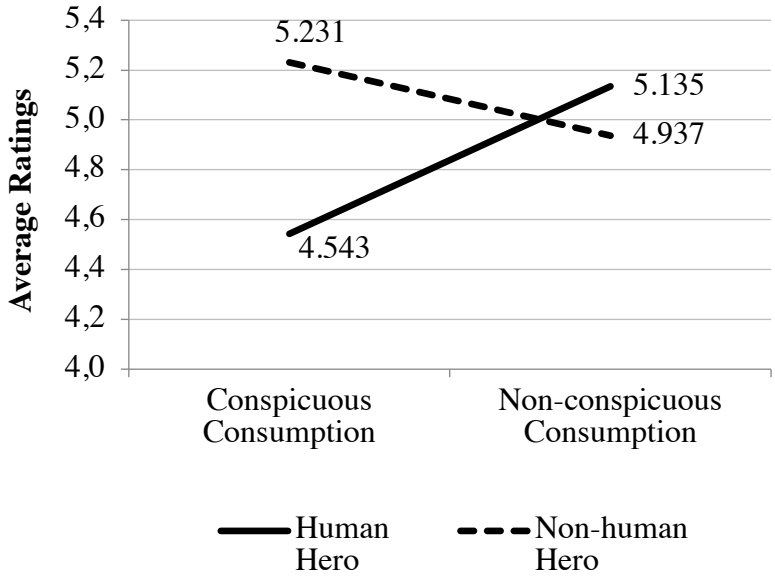
Results and Discussion

Conspicuous consumption preferences. As predicted, participants in the human hero condition scored lower on conspicuous consumption preferences than those in the non-human hero condition (M_{Human} = 4.543, SD_{Huamn} = 1.018 vs. $M_{Non\text{-}Human}$ = 5.231, $SD_{Non\text{-}Human}$ = 1.382, $t(98) = 2.827$, $p = .006$, $d = .566$, $r = .272$). No significant differences were observed between the human hero and non-human hero conditions in non-conspicuous consumption preferences (M_{Human} = 5.135, SD_{Huamn} = .616 vs. $M_{Non\text{-}Human}$ = 4.937, $SD_{Non\text{-}Human}$ = 1.148, $t(98) = 1.066$, $p = .289$), see figure 5.

Figure 5. Human Heroes Have a Stronger Influence in Mitigating the Effects of Meaning Threats (Self-Esteem Threat)



Personal power as the underlying mechanism. We next tested whether personal power mediated the effect of heroes on conspicuous consumption under threats. We created a binary variable that had value 1 if participants were exposed to human hero condition and value 0 if they were exposed to non-human hero condition. When we regressed the dependent variable (i.e., conspicuous consumption) on our independent variable (i.e., human hero versus non-human hero

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conditions), there was a main effect of the independent variable on the dependent variable, (β = -.689, p = .006). When we regressed the mediator (i.e., personal power) on our independent variable (i.e., human hero versus non-human hero condition), there was a significant effect of human hero on personal power (β = .589, p = .049). Finally, when we regressed the dependent variable (i.e., conspicuous consumption) on the independent variable and the mediator, there was a significant effect of the mediator (i.e., personal power) on the dependent variable (i.e., conspicuous consumption), (β = -.165, p = .047), and a significant effect of the independent variable (i.e., human hero vs. non-human hero condition) on the dependent variable (i.e., conspicuous consumption), (β = -.591, p = .018). Since the effect of the independent variable (i.e., human hero vs. non-human hero) is reduced in absolute size, but it is still significant, we can conclude that personal power partially mediates the effect of human heroes on conspicuous consumption (Baron & Kenny, 1986). We next followed the recommendations of Preacher and Hayes (2004), who suggested using a bootstrapping procedure to compute a confidence interval around the indirect effect. We used model 4 with 10,000 iterations. Results revealed a significant indirect effect via personal power (β = -.0971, 90% CI: [-.2895, -.0044]), see figure 6.

Figure 6. The Effect of Human Heroes on Personal Power and Conspicuous Consumption

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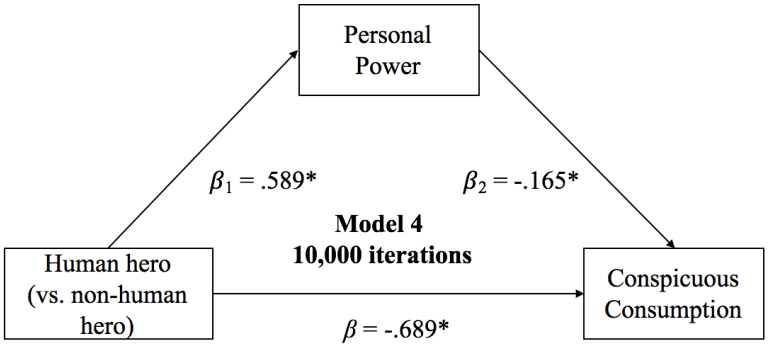

Index of mediation = β = -.0971, 90% CI: [-.2895, -.0044])
*p < .05

Study 3c found further evidence of our predictions. Moreover, this study introduced a different meaning threat (i.e., threat to self-esteem) from the ones used in the previous studies (i.e., mortality salience and the fear of being meaningless in the universe). The results suggest that human heroes can prevent conspicuous consumption when individuals are threatened, because heroes provide individuals with an increased sense of personal power.

General Discussion

The aim of this paper was to investigate whether and, if so, how can heroes affect meaning in life. We predicted that heroes can help enhance and reestablish meaning in life of threatened individuals, demonstrating this effect with different meaning threats (e.g., existential threat, mortality salience, self-esteem threat), and different contexts (e.g., compensatory consumption through unhealthy eating and conspicuous consumption). Moreover, we predicted that heroes could affect meaning in life through the enhancement of the psychological perception of personal power. Finally, we predicted that not all heroes are equally effective in mitigating meaning threats, showing that human heroes are more effective than non-human ones.

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In a series of studies, our predictions were supported with empirical data. In three pilot studies, we demonstrated that heroes can affect search for meaning in life, personal power (but no other related constructs), and that other constructs similar to heroes (i.e., leaders and role models) do not have the same effects on search for meaning in life. The established effect of heroes on meaning in life is in line with previous research (Kinsella et al., 2017). In the next studies, conducted both in the field, in the lab, with Twitter data, and online, we replicated the effect of heroes on meaning in life for threatened individuals. Moreover, we distinguished between personal power and social power as the underlying mechanism and demonstrated that it is personal power (but not social power) that explains the effect of heroes on individuals' search for meaning in life. Specifically, in study 2a, we demonstrated that heroes mitigate the effects of mortality salience using data collected from Twitter after the terrorist attacks that occurred in Turkey, Israel, and Germany between November 2016 and January 2017. In study 2b, we demonstrated when individuals are reminded of heroes, mortality salience effects might be mitigated in the field.

Finally, we distinguished between human and non-human heroes. In study 3a, the findings supported our prediction that whether participants in the human hero condition would be more accepting of the information coming from a nihilistic persuasive essay, in which the author argues that life has no meaning, than participants in the non-human hero condition. In study 3b, the findings supported our prediction that if human (versus non-human) heroes mitigate the effects of mortality salience, then, under mortality salience, individuals would show less of a preference for status-signaling products when exposed to human (versus non-human) heroes. Finally, in study 3c, the findings supported the hypothesis that human heroes, but not non-human ones, would prevent conspicuous consumption as

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a reaction to the threats individuals may be exposed to. The findings of our studies (pilot study 2, study 1, and study 3c) supported our prediction for the underlying mechanism behind this effect (i.e., personal power). Our studies have always had the aim to include a wide diversity of respondents that represent as much as possible the population. While this has sometimes presented a challenge, given the difficulty in finding a generalizable sample using the students' subject pool in the laboratory, we have not included geographical, sex, ethical, or age restrictions on the online platforms and on Twitter.

This work contributes to work on meaning maintenance as a fundamental psychological motive. This research is the first to posit and empirically test that heroes serve as a buffer against meaning threats. Prior research has demonstrated how people cope with meaning threats by building social connections (Loveland, Smeesters, & Mandel, 2010), building intertemporal connections (Sarial-Abi et al., 2017), and by making consumption choices (Kasser & Sheldon, 2000). The current findings provide a new insight within this class of research that heroes can offer psychological value to individuals by providing them with personal power. Hence, the results of this research demonstrate that while individuals try to have social connections or time connections when their meaning in life is threatened, they might also try to structure themselves by finding a perception of personal power. We demonstrate that heroes might provide this sense of personal power. Hence, this paper contributes to the literature on meaning threats. The contributions to this stream of literature are enhanced by demonstrating how individuals can mitigate meaning threats, blocking thus compensatory consumption that can result non-beneficiary to the consumer (e.g., unhealthy eating, overconsumption, or overspending in conspicuous consumption).

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The current findings also contribute to the growing body of research on heroes. The concept of heroes in past research is linked to the concept of strength, altruism, moral values, and immortality (Becker, 1973; Kinsella et al., 2015a). In this research, we demonstrate that (a) human, mortal heroes can help individuals cope with threats to their meaning in life, and (b) heroes can invest individuals whose meaning in life is threatened with their personal power. Hence, this work goes beyond previous work to assess the psychological benefits that individuals can derive from heroes in their lives.

We further contribute to the literature on heroes by distinguishing among human and non-human heroes. Previous literature on heroes has mainly treated heroes as non-human characters that have super-human traits (Campbell, 1949). Although there have been calls to conduct more investigations on human heroes (Zimbardo, 2011), the literature on psychology has less forthcoming with research examining the effects of human heroes. The results of this paper demonstrate that human heroes are more effective in mitigating the effects of mortality salience, existential threats, and self-esteem threats.

Implications, Limitations, and Future Research

This research predicts that heroes would be remembered when people experience meaning threats. Recent interest in heroes in the movies, in song lyrics, or in fashion items is perhaps more than coincidental. Given the last 15 years' terrorist attacks (e.g. September 11, 2001); and natural disasters (e.g. the earthquake in Haiti in 2010, Hurricane Katrina in 2005, the tsunami in Sumatra in 2004); and the very recent terrorist attacks in Paris (France) in November 2015, and in Istanbul (Turkey),

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Brussels (Belgium), and Lahore (Pakistan) in March 2016, the importance of heroes is becoming crucial. While there's no doubt that there might be many reasons for the popularity of heroes, the current work suggests one possible explanation for this trend. Major economic and political uncertainty creates existential unease and presents a threat to meaning, and in our view, that might well have led individuals to think about their heroes in order to assuage the meaning threats. However, on the contrary, when in need, people tend to find heroes everywhere. This can result in creating false (i.e., fake) heroes (Brown, 2017). In the movie Layla M., (released in 2016, by Dutch director Mijke De Jong), a girl that lived in the uncertainty and confusion about her own identity, who had to deal with social rejection and exclusion, with racism and stereotyping, started idealizing the radical Islamic thoughts, perceiving its practitioners as real heroes. This is only a representative story of the many that have joined ISIS in the last years. This example is to explain how certain circumstances can lead people to heroes, who in fact are dangerous "pseudoheroes" (i.e., false heroes). This research and future research on this topic can be valuable in providing insights into these processes (i.e., the effect of heroes on meaning threats).

We believe that given the recent psychological and empirical interest on heroes, future research can investigate further their psychological impact on individuals. Because of the nature of our primary data samples, which is composed mainly of Americans and Europeans, our research does not allow for cultural comparisons or worldwide generalization of results. Future research could investigate more the cultural background of individuals and how it affects not only perceptions of heroes, but also the virtues of heroes that may have the greatest impact on reestablishing and enhancing meaning in life.

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Moreover, this research does not consider all types of heroes. For instance, we have not considered the difference between heroes that are very personal, like a parent, a sibling, the spouse, or some unknown-from-the-mass person and heroes that are less personal, a well-known figure. This research also does not consider some other types of threats that can affect meaning in life, such as social rejection or exclusion.

While this research, in line with previous one (e.g., Kinsella et al., 2017), has demonstrated the effects of heroes on meaning in life, heroes might have other beneficiary effects on individuals. Previous research has shown their effect on moral enhancing, moral modeling, and psychological protection (Kinsella et al., 2015a, 2015b; Sullivan & Venter, 2005). Future research might investigate the role that heroes can play in facilitating the achievement of goals via the mechanism of goal contagion. Goal contagion is defined by Aarts, Gollwitzer, and Hassin (2004) as "the automatic adaptation and pursuit of goals that others are perceived to strive for" (p. 24). In one of their studies, Sullivan and Venter (2005) have defined heroes as "people who possess a skill, trait, or position that inspires an individual to imitate or strive to attain goals" (p. 104). Thus, future research can try to explore the possibility that heroes can have an effect on individuals' goal achievement through the mechanism of goal contagion.

Future research could also explore the possibility that a reminder of heroes can help individuals cope with restrictions through the mechanism of hope. Hope has been defined as a mechanism that "enables one to persevere toward their goals in spite of numerous hurdles" (Gopaldas, 2014, p. 1000). Hope may be particularly important to people who have sustained permanent physical losses accompanying chronic disease or debilitating injuries (Elliot, 1991; Snyder, 1995), because they have

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to maintain a sense of self-worth in spite of their losses, as well as engage in behaviors conducive to optimal psychological and physical adjustment (Elliot, 1991). We suggest that future research can focus on the possibility that heroes might provide individuals with hope to overcome restrictions.

Conclusions

The concept of heroes plays several important psychological benefits to individuals reminded of them. They represent the "ideal self-image" (Sullivan & Venter, 2010, p. 437), evoke moral and socially acceptable behavior (Goethals & Allison, 2012), help reestablish meaning in life (Coughlan et al., 2017; Kinsella et al., 2017), give people a sense of purpose in life and hopefulness when experiencing threats (Kinsella, Ritchie, & Igou, 2016), provide psychological protection and moral guidance (Kinsella et al., 2015a, 2015b). The present research adds to previous literature by demonstrating that heroes can also enhance the psychological perception of personal power of individuals reminded of them. Moreover, we demonstrate that due to this increased sense of perceived personal power, individuals are able to mitigate meaning threats in a more effective way. Finally, we distinguish between human (i.e., non-fictitious) and non-human (i.e., fictitious) heroes, by showing that the first ones have a stronger effect on individuals in reestablishing meaning in life after threats. We hope that this research will inspire further research on the effects of heroes on meaning in life, showing their effect on other types of meaning threats too (e.g., social exclusion or rejection, identity threats, etc.). Moreover, we hope that this research would expand the field of research on heroes, from psychology to consumer behavior also. In this paper, we have demonstrated the

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effects of heroes also in the context of consumer behavior, by showing how heroes can block compensatory consumption after exposure to threats. Finally, by demonstrating that human heroes are more effective than non-human ones, we hope to encourage people to act heroically for the greater good — at the end of the day, heroes are simply extraordinary actions coming from ordinary people (Zimbardo, 2011).

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Table 1.
Details on specific ANOVA results of study 4.

	Human Hero		Non-Human Hero		
High-Status Product	**Threat**	**Control**	**Threat**	**Control**	**ANOVA Result**
Netflix membership	4.88 (2.015)	5.78 (1.37)	5.68 (1.404)	5.5 (1.379)	$F(1, 213) = 6.35$, $p = .012$
Plasma TV	4.85 (1.957)	5.63 (1.419)	5.76 (1.374)	5.37 (1.387)	$F(1, 213) = 7.403$, $p = .007$
Lexus	4.32 (2.055)	5.15 (1.751)	5.24 (1.546)	4.94 (1.406)	$F(1, 213) = 5.51$, $p = .02$
Rolex	3.76 (1.947)	4.59 ((1.839)	4.51 (1.599)	4.69 (1.553)	$F(1, 213) = 2.653$, $p = .192$
Dom Perignon	4.22 (1.904)	4.4 (1.562)	4.34 (1.543)	4.35 (1.356)	$F(1, 213) = .158$, $p = .691$
Non-Status Product					**ANOVA Result**
Agenda	4.05 (1.731)	4.3 (1.411)	4.27 (1.597)	4.37 (1.329)	$F(1, 213) = .141$, $p = .707$
Library membership	5.2 (1.778)	5.26 (1.763)	5.44 (1.484)	5.23 (1.262)	$F(1, 213) = .35$, $p = .555$
Fruit mixer	4.54 (1.063)	5.13 (1.691)	5.1 (1.428)	5.13 (1.085)	$F(1, 213) = 1.528$, $p = .218$
Golf membership	3.71 (2.25)	3.96 (1.972)	4.1 (1.855)	4.08 (1.607)	$F(1, 213) = .257$, $p = .613$
Pringles	4.9 (1.908)	5.37 (1.652)	5.27 (1.415)	5.19 (1.373)	$F(1, 213) = 1.417$, $p = .235$

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"THE BREAKING BAD EFFECT":

EXPOSURE TO ANTIHEROES INCREASES SENSATION SEEKING

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Abstract

The presence of antiheroes in fashion (e.g., VK Nagrani, Rita Ora for Adidas), movies (e.g., Breaking Bad, Batman, Dexter), and information technology (e.g., the Anonymous) industry is increasing. Yet, research on the effects of antiheroes on individual behavior (e.g., psychological mechanisms and consumption preferences) is limited. This paper investigates the effects of the exposure to antihero (vs. hero, control) characters on individuals' behaviors. Specifically, this paper analyzes the effect that antiheroes (vs. heroes) have on individuals' sensation seeking behavior – a combination of risk-taking and excitement. Extending prior research on sensation seeking and temporal focus, studies 1a and 1b found that exposure to an antihero character, compared to a heroic one, increased sensation seeking (Study 1a) and present (vs. past, future) temporal focus (Study 1b). Studies 2a and 2b established the mediating role of present temporal focus on the relationship between antihero reminder and sensation seeking. Finally, Study 3 introduced the role of socio-economic status of antiheroes by presenting participants with an antihero coming from low (vs. high) socio-economic conditions. As hypothesized, reminding individuals of antiheroes with low (vs. high) socio-economic conditions enhanced even more (vs. decreased) their sensation seeking.

Keywords: antiheroes, sensation seeking, temporal focus, socio-economic status

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Introduction

Tony Soprano, Don Draper, Walter White, Deadpool, are few examples of antiheroes that caught the attention of a large TV audience (Bender, 2013). Why does this happen? They are not heroes and they did not do anything heroic. Heroes have always been worshiped by others. This is because heroes have always been willing to take risks and to make sacrifices for others (Becker & Eagly, 2004), to stand against external pressures of conformity (Zimbardo, 2007), to protect wellbeing of individuals (McAdams, 2008), to demonstrate moral will, and to do good for others (Kinsella et al., 2015, Sullivan & Venter, 2005), to reestablish end enhance meaning in life (Coughlan et al., 2017; Kinsella et al., 2017). A hero is the character that acts selflessly. It shows compassion, bravery and strength. Not all heroes follow the law, but all of them fight for the "people". The hero is the character in the story whom the viewer is supposed to identify with and does good things throughout the story. The classic phrase for the hero is "the good guy". They represent the forces of what is morally right against the forces of evil. Captain America is the archetype of the hero: A principled warrior against those who do harm to the innocent.

However, there is wide and growing interest in antiheroes instead (Bancroft, 2016). Antiheroes are defined by Wikipedia as people who even if they “may sometimes do the right thing, it is not always for the right reasons, often acting primarily out of self-interest or in ways that defy conventional ethical codes.” The pervasiveness of antiheroes in everyday life and their growing importance suggest that further examination and clarification about the concept of “antihero” is warranted (Jonason et al., 2012). Antiheroes are not entirely villains but they break the law and seek for revenge. They are flawed. They reject the societal expectations

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that are imposed on people. They do things that most people are afraid to do. They do as they want and they are who they are. Tony Soprano, Don Draper, Walter White, and Ray Donovan are few examples of antiheroes that caught many TV audience (Bender, 2013). In the winter 2017 season, H&M, the giant of low-cost fast-fashion in clothing industry, launched a t-shirt with the slogan: "*The Anti-Heroes Hero: An antihero is a flawed hero, much more interesting than the traditional heroes. They can be working on the side of good, but with a tragic flaw, or a horrible past, or for reasons that are selfish and not entirely "pure". They can also be working for the side of evil, but with hidden noble intentions, or other underlying complexities*" (see appendix A). Despite their growing importance in the society, antiheroism has been a neglected topic in psychology. The pervasiveness of antiheroes in everyday life and their growing importance suggest that further examination and clarification about the concept of "antihero" is warranted (Jonason et al., 2012). In this paper, we examine the effect of antiheroes on individuals. Our focus falls mainly on understanding what happens to individuals when they are reminded of antiheroes. What happens to them when reminded of antiheroes might also be the reason why they prefer antiheroes to heroes.

We suggest that antiheroes enhance sensation seeking of individuals reminded of them. Sensation seeking is a combination of excitement and willingness to engage in risk-taking activities. We predict that antiheroes shift individuals' temporal focus to the present (vs. past or future), and this results in greater sensation seeking. The effect of antiheroes on present temporal focus is tightly linked to the life history theory. Life history theory (MacArthur and Wilson 1967; Wilson 1975) is pertinent to this paper's focus on the effects of antiheroes on individuals. First, research on life history theory indicates that humans tend to evidence slower life history strategies

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than many other species (Rushton 1985). However, findings also suggest that human survival is mostly affected by changes in the availability of resources in the environment. For example, cues that indicate that the current environment is harsh (e.g., news about terrorism, news about an economic crisis) lead people that resources in the world are scarce, which consequently lead people to seek and consume more filling and high-calorie foods that will help them sustain for longer periods of time (Laran & Salerno, 2012). Fast life history strategies area adaptive in environments that are harsh, where resources are scarce (Ellis et al., 2009). Future is uncertain in these environments and it is evolutionarily adaptive to use fast strategies associated with investment in immediate gains instead of long-term payoffs.

Applying the developments in life history theory and addressing a research gap in antiheroes, we suggest that antiheroes lead individuals to focus on the present, which consequently leads individuals to adopt a fast-life strategy, focusing on the present (vs. past or future). Antiheroes – characterized by their focus on present – increase individuals' focus on the present; in turn this heightened focus on the present drives the effect of antiheroes on individuals' sensation seeking tendencies.

Theoretical Background

The first definition of what an antihero is dates back to 1992, when the American Heritage Dictionary defined an antihero as "a character in a narrative work without heroic qualities." Similarly, Merriam-Webster's Collegiate Dictionary defines an antihero as "a protagonist lacking in heroic qualities." Although there is very limited definition of what an antihero is, Erickson (2004) defines antiheroes as "protagonists that live by the guidance of their own moral compass, striving to define

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and construe their own values as opposed to those recognized by the society in which they live. Ultimately, their methods may depict how they alter over time, either leading to punishment, unheroic success, or redemption" (p. 7).

The antihero is someone with some of the qualities of a villain by showing brutality, cynicism, and ruthlessness. However, it has the soul or motivations of a more conventional hero. The antihero is a character who uses questionable and usually illegal means to do good in the world, most often for selfish reasons. These are the people outside of a control structure, such as a police department or military unit, who commit crimes against villains. An antihero is a protagonist that lacks many of the qualities required to be considered a hero, most likely the compassion and the desire to help other people no matter the cost. The antihero will still help if needed, but most likely to defeat the villain. Classic examples of antiheroes are Batman, the A-Team, Dexter and The Punisher (TV Tropes, n.d.).

Previous literature links the concept of antiheroes to fast life strategy (Jonason et al., 2012). Specifically, Jonason and colleagues (2012) explain how antiheroes like Batman engages in behaviors that are considered violent, rude, antisocial, narcissistic. Similarly, MD Gregory House in Dr. House engages in drug addiction, he is impolite to others, frequents prostitutes, and so on. These are typical behaviors of the fast life strategy, promoting the present to the future or the past. In line with this, fast life strategy suggests that individuals focus more on the present (vs. past, future) when living with fast life strategy. Hence, antiheroes are more focused on the present (vs. past, future). Indeed, Jonason and colleagues (2012) suggest that antiheroes are not interested in achieving something that can be remembered in the future – instead they live for the present (Jonason et al., 2012). In contrast, heroes are linked with symbolic immortality (Becker, 1973). What they do tends to resist over time, even

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after their death. Hence, although they act in the present and take risks in the present, they do so for a better future and a continuum of their deeds (e.g., Becker, 1973). However, antiheroes live for the present. They give a break to individuals from hurriedness and worrisome of future demands and plans, leading people to more sensation seeking in the present.

When exposed to someone focusing in the present (vs. past future), individuals' temporal focus is shifted to the present too. Having a present-focused orientation, individuals that are reminded of antiheroes can engage in risk-taking, thrill-seeking activities, which maximize their pleasure sensations (Shipp et al., 2009).

When individuals live in the present (vs. past, future), their tendency to engage in sensation seeking is enhanced (vs. decreased). People who adopt a fast life strategy that is based on immediate rewards and gratification (Figueredo et al., 2005; Jonason, Koenig, & Tost, 2010).

There is anecdotal evidence that supports this argument that antiheroes might lead individuals to focus on the present and consequently have a fast-life strategy. For example, evidence suggests that: "*Just as our favorite television shows allow us to live vicariously through the antihero's struggles and victories, donning the apparel of a rebellious brand lets us "put on" that attitude and adopt a bit of antiheroism in our day to day life. It's a way to stand out against the retail mass machinery and stand for something different.*" (Olensky, 2015); "*And for 60 minutes each week, we live vicariously through them. Without apology.*" (Bender, 2013). Thus, exposure to antiheroes might triggers behaviors associated with a fast life-history strategy. Given the extant body of evidence that priming cues might influence individual behavior nonconsciously (Chartrand, Fitzsimons, and Fitzsimons 2008; Kay, Wheeler, Bargh,

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and Ross 2004; Laran 2010), we suggest that this phenomenon may be quite pervasive. In line with these arguments, we present H_1 and H_2:

H_{1a}: Exposure to antiheroes increases sensation seeking of individuals.

H_{1b}: Exposure to antiheroes increases present temporal focus of individuals.

H_2: The effect of exposure to antiheroes (vs. heroes, control) on sensation seeking is mediated by present (vs. past, future) temporal focus.

Is this reasoning enhanced in any case? Are there specific antiheroes that may present an even greater focus in the present, and hence greater sensation seeking tendency of individuals? Based on previous literature on fast life strategy, we would expect that if antiheroes are vested with difficult socio-economic status background, they will be able to affect even more the present temporal focus and, hence, even more the sensation seeking behavior of individuals. Non-human organisms that develop in harsh environments tend to exhibit more fast life history orientation that is characterized by risk-taking, boldness, impulsivity, and aggression, compared to those who do not, (Giudice et al., 2015). Similarly, humans that exhibit a fast-life history engage in present-oriented behavior, including sensation seeking (Copping, Campbell, & Muncer, 2014; Ellis et al., 2012). Adoption of a fast or slow life strategy depends on factors like parental abuse or lack of resources during childhood (Figueredo et al., 2006). In such environments, the benefits of long-term developmental growth are minimized because people focus on how they can acquire and benefit from the resources in the present (Laran & Salerno, 2012).Research in life history strategies demonstrate that individuals who grow up in poor and difficult socio-economic conditions tend to adopt a fast (vs. slow) life strategy (Griskevicius et al., 2011). They engage in more risk-taking behavior and greater sensation seeking. Because these individuals lived in low SES in their childhood, their mortality cues are

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higher, which causes them to engage in more risk-taking, both financially and not (Griskevicius et al., 2011). Social-economic status (SES) is typically defined as "one's relative economic and social position in the social structure" (Bobo & Zubrinsky, 1996; Yoon & Kim, 2017, p. 1142). Previous research has shown that SES can affect individuals' life in several ways, such as making them act more impulsively (Haisley, Mostafa, & Loewenstein, 2008), deteriorating their cognitive performance (Nisbett, 2009) and subjective well-being (Daly, Wilson, & Johnson, 2013). Moreover, it can affect social relationships (Kraus, Piff, & Keltner, 2009), and political participations (Gimpel, Lay, & Schuknecht, 2003). SES has been shown to also affect consumer behavior, by resulting in greater variety seeking, when individuals feel they have low SES and low economic mobility (Yoon & Kim, 2017).

Applying this idea here, we suggest that antiheroes adopt a fast life strategy when they have a low SES background. For instance, Walter White (from Breaking Bad) was "forced" by the threat of poverty to engage in methamphetamine production and commercialization, to avoid leaving his family in economic disgrace. Moreover, previous research links low SES to higher sensation seeking behavior (Jonason et al., 2012). In this research, we propose that the effect of antiheroes on adopting a fast-life strategy will be moderated by the SES of the antihero. Specifically, we propose that exposure to antiheroes with low (vs. high) SES will influence sensation seeking behavior of individuals. Hence, we propose H_3:

> H_3: The effect of exposure to antiheroes on sensation seeking is moderated by the SES of the antihero, so that low (vs. high) SES enhances (vs. diminishes) the effect of antiheroes on sensation seeking behavior of individuals.

Figure 1. Proposed conceptual model

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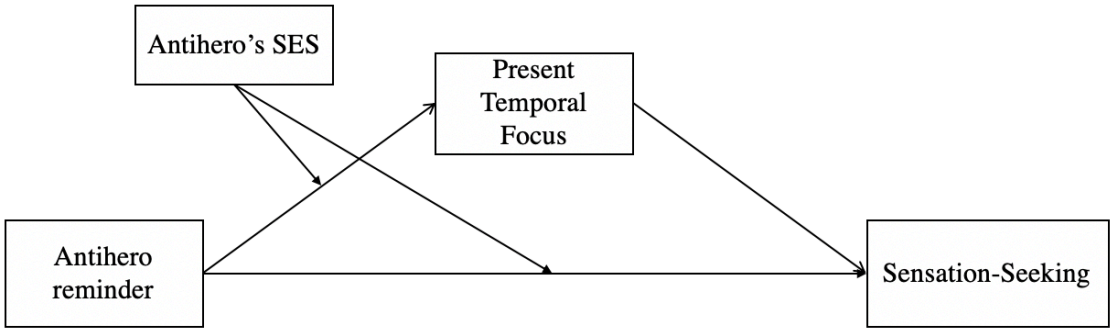

The Present Research

Although prior findings suggest the possibility of a link between antiheroes and adopting a fast life strategy, these are primarily correlational or speculative in nature. The present research examines whether – and through what mechanism – exposure to antiheroes exert a causal impact on adopting a fast life strategy. We present evidence from several experimental studies designed to test our account that exposure to antiheroes increases sensation seeking by heightened focus on the present.

In study 1a and 1b, we test our prediction that exposure to an antihero (vs. hero, control) increases the sensation seeking behavior (H_{1a}) and present (vs. past, future) temporal focus (H_{1b}). In studies 2a and 2b, we replicate the results of study 1a and 1b with an online and a behavioral study and further support our prediction that the effect of exposure to an antihero (vs. hero) on sensation seeking is mediated by present-temporal focus. Finally, in study 3, we demonstrate a boundary condition for the effect of exposure to an antihero (vs. hero) on the use of fast-life strategies – SES of the antihero (vs. hero).

Across the studies, we report all variables collected and all conditions included in the study designs. No participants who completed our studies were excluded from

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the analyses unless otherwise noted for reasons identified prior to conducting the research.

Study 1a - The effect of exposure to antiheroes on sensation seeking

In study 1a, we tested the main effect predicted in H_{1a}. Hence, we examined the effect of exposure to antiheroes (vs. heroes) on respondents' sensation seeking behavior. The aim of this study was to demonstrate that participants exposed to antihero (vs. hero) reminder, would score higher (vs. lower) in sensation seeking rates. In study 1, we randomly assigned participants to antihero or hero conditions and measured sensation seeking behavior. For this study, we used the context of the TV series Breaking Bad. In that series, there is a hero (Hank, who fights drug cartels and loses his life in the attempt to do so) and an antihero (Walter, who engages in drug production and selling to give his family an economic safety for when he is no longer living).

Participants

One hundred and twenty undergraduate students (52 male; M_{age} = 21.77, SD = 3.088) participated in a laboratory experiment in exchange for course credit. One participant was excluded for leaving all the answers in blank. This experiment used the antihero (vs. hero) condition as a between-subjects design.

Materials and procedure

Participants were randomly assigned to either the antihero or hero condition. Participants in the antihero condition read the following: "*Walter White is a character of the TV series called Breaking Bad. He has been considered from the critiques as the typical antihero. An antihero is a character who uses questionable*

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and usually illegal means for a good reason, usually for selfish purposes. Walter joined a drug cartel after finding out he's terminally ill, in order to provide economic stability to his family after his death. Through all of his mental and physical struggles, Walter was the main character who sold all his principles short for convenience or self-preservation. Please take a moment to think of Walter as an antihero and describe your feelings towards antiheroes to us."

Participants in the hero condition read the following: "*Hank Schrader is a character of the TV series called Breaking Bad. He has been considered from the critiques as the typical hero. A hero is a character who uses unquestionable and always legal means for a good reason, always for selfless purposes. Through all of his mental and physical struggles, Hank may be the only character who doesn't sell his principles short for convenience or self-preservation. To fight the drug cartels, Hank even loses his life in a police action. Please take a moment to think of Hank as a hero and describe your feelings towards heroes to us.*"

We pretested these manipulations post-hoc with 51 participants (29 male; M_{age} = 33.37, SD_{age} = 12.278) on the Prolific Academic online platform, who evaluated both texts in randomized order. Participants expressed the rate to which they considered Hank and Walter a hero, an antihero, and a villain. As expected, Hank ranked higher on the hero perception, compared to Walter ($M_{Hank\text{-}hero}$ = 5.75, $SD_{Hank\text{-}hero}$ = 1.111 vs. $M_{Walter\text{-}hero}$ = 3.53, $SD_{Hank\text{-}hero}$ = 1.88; $t(1, 50) = 6.369$, $p < .001$). Moreover, Walter ranked higher on the antihero perception, compared to Hank ($M_{Walter\text{-}antihero}$ = 5.61, $SD_{Hank\text{-}antihero}$ = 1.387 vs. $M_{Hank\text{-}antihero}$ = 2.25, $SD_{Hank\text{-}antihero}$ = 1.398; $t(1, 50) = 10.803$, $p < .001$). Finally, Walter was perceived more as an antihero, compared to a villain ($M_{Walter\text{-}villain}$ = 4.25, $SD_{Walter\text{-}villain}$ = 2.067; $t(1, 50) = 4.176$, $p < .001$), and compared to a hero ($t(1, 50) = 6.231$, $p < .001$).

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Next, we measured participants' sensation seeking intentions using the Brief Sensation Seeking (BSSS; Hoyle et la., 2002). Sample items include: "I would prefer friends who are excitingly unpredictable," "I would like to try bungee jumping," and "I would love to have new and exciting experiences, even if they are illegal." Participants answered all the questions on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). We averaged the scores on the 8-items and composed the sensation seeking score (α = .719). Next, participants provided their demographic information, including age and gender.

Results and discussion

A one-way ANOVA on sensation seeking behavior indicated that participants in the antihero (vs. hero) condition scored higher on sensation seeking behavior (M_{antihero} = 4.737, SD_{antihero} = .974 vs. M_{hero} = 3.865, SD_{hero} = .926; $t(1, 117) = 5.002$, $p < .001$).

The results of this study support our prediction that exposure to antiheroes (vs. heroes) increases the use of fast-life strategies. More specifically, the results show the effect in the context of sensation seeking. One limitation of this study is that it lacks a control condition. This is something we address in the next study. Moreover, in study 1b, we test the main effect of antiheroes (vs. heroes, control) on temporal focus (past vs. present vs. future).

Study 1b – The effects of antiheroes on individuals' temporal focus

Study 1a showed a preliminary effect of antiheroes (vs. heroes) on willingness to engage in sensation seeking behaviors by individuals exposed to each of the characters. However, study 1a lacks a control condition and it uses very specific

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movie characters. Moreover, while study 1ab showed the effect of antiheroes (vs. heroes) on sensation seeking, it did not test their effects on temporal focus. In study 1b, we addressed these limitations by including a control condition and by using a more general description of antiheroes and heroes. Specifically, in study 1b, we tested the effect of antiheroes (vs. heroes, control) on temporal focus. The aim of this study was to demonstrate that participants exposed to antihero (vs. hero, control) reminder, would be more focused in the present, rather than past or future. In study 1a we empirically showed that when individuals think and write about antiheroes (vs. heroes), they express greater (vs. lower) tendency to engage in sensation seeking behavior. The aim of study 1b is to add on the previous findings by demonstrating that antiheroes (vs. heroes, control) enhance focus in the present temp. We tested our predictions using a mixed ANOVA.

Participants

One hundred and ten undergraduate students (32 male; M_{age} = 21.47, SD = 1.379) participated in a laboratory experiment in exchange for course credit. This experiment used a mixed design with three between-subject conditions: character reminder (antihero, hero control) and three within-subjects measures: temporal focus (past, present, future).

Materials and procedure

Upon entering in the lab, participants were exposed to a text that reminded them of an antihero character, a hero character, or no reminder (i.e., control condition). Participants in the antihero condition read the following text: "*The presence of antiheroes and preference for them has been recently increasing. The antihero is a character who uses questionable and usually illegal means to do good in the world, sometimes for selfish reasons. Think for instance of the main character*

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of Breaking Bad, Batman, Dexter, or the Anonymous. Please take a moment to think of your favorite antihero and describe him/her to us (what does s/he do, what is s/he like, why do you like him/her)."

Participants in the hero condition read the following text: "*The presence of heroes and preference for them has been recently increasing. The hero is a character who uses unquestionable and legal means to do good in the world, always for selfless reasons. Think for instance of the main character of Luke Skywalker or Obi-Wan Kenobi in Star Wars, Braveheart, or John Snow in Game of Thrones. Please take a moment to think of your favorite hero and describe him/her to us (what does s/he do, what is s/he like, why do you like him/her).*" Participants in the control condition were not exposed to any text and directly asked to answer to the temporal focus scale, taken from Shipp et al. (2009).

As anticipated, to measure temporal focus, we used the 12-items scale suggested from Shipp et al. (2009). Individuals were asked about the extent to which they agreed with the items measuring temporal focus. Sample items included: "I'm replaying memories of the past in my mind," "I'm focusing on what is currently happening in my life," "I'm imagining what tomorrow will bring for me." Participants answered all the questions on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). The items regarding the past temporal focus were highly related to each other (α = .859), hence we merged them into the same variable – past temporal focus – with higher variables indication more focus on the past. The items measuring present temporal focus were also highly related to each other (α = .782), so we merged them into the same variable - present temporal focus – with higher values indicating more focus on the present. Finally, the items measuring future temporal

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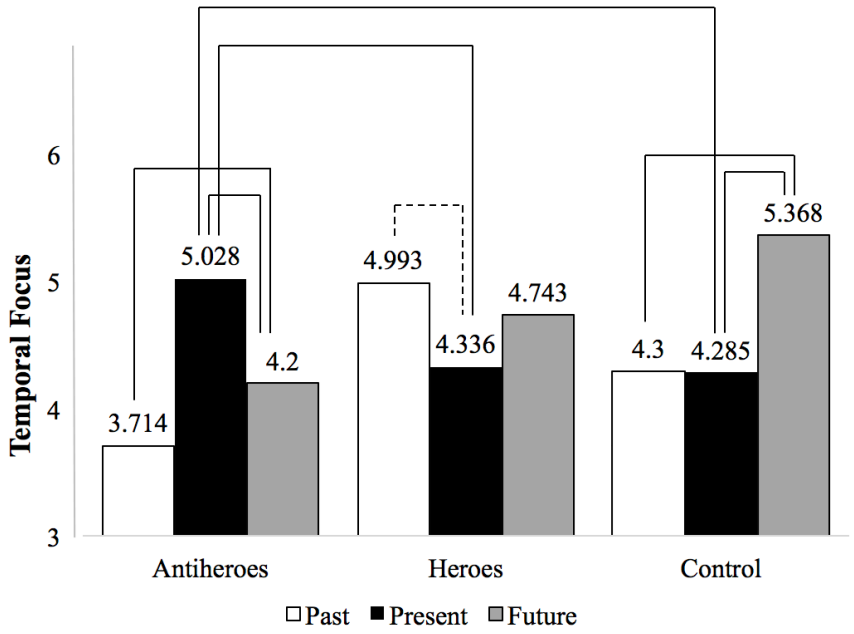
focus were again highly correlated to each other (α = .939), so we again merged them into the same variable – future temporal focus – with higher values indicating more focus on the future. A reduction factor analyses supported the reliability analyses, by showing that the past temporal focus items, the present temporal focus items, and the future temporal focus items loaded into different separate factors. The factor analyses resulted in three separate factors (i.e., past, present, and future) with total cumulative variable explained = 73.729 percent and KMO = .785.

Results and discussion

Consistent with our prediction, exposing participants to antihero reminder, led them to a more present temporal focus compared to hero reminder ($M_{present\text{-}antihero}$ = 5.028 vs. $M_{present\text{-}hero}$ = 4.336; t = 2.66, p = .01) and control ($M_{present\text{-}control}$ = 4.285; t = 6.71, p = .021), see figure 2.

Figure 2. Effect of antiheroes on individuals' temporal focus



Undashed line indicates significant statistical difference (p < .05)
Dashed line indicates marginal statistical difference (p < .1)

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We ran paired t-test means comparisons using the SPSS Statistics 25 IBM software of the temporal focus scores of participants reminded of antiheroes, heroes, or none (i.e., control). For antiheroes, the results suggest a significant difference between the present temporal focus scores and the past temporal focus scores and ($M_{present\text{-}antihero}$ = 5.028 vs. $M_{past\text{-}antihero}$ = 3.771; t = 3.743, p = .001) and a significant difference between the present temporal focus scores and the future temporal focus scores (vs. $M_{future\text{-}antihero}$ = 4.194; t = 2.64, p = .012).

Moreover, we ran paired comparisons of the temporal focus scores of participants reminded of heroes. The results suggest a marginally significant difference between the present temporal focus scores and the past temporal focus scores ($M_{past\text{-}hero}$ = 4.993 vs. $M_{present\text{-}hero}$ = 4.336; t = 1.950, p = .059), but no significant difference between the past temporal focus scores and the future temporal focus scores (vs. $M_{future\text{-}hero}$ = 4.743; t = .749, p = .458). No significant difference was observed also between the present and future temporal focus scores of participants reminded of a hero ($M_{present\text{-}hero}$ = 4.336 vs. $M_{future\text{-}hero}$ = 4.743; t = 1.358, p = .183). These findings may suggest that heroes can create a continuum of temporal focus, given their symbolic immortality, which prevails on the past, but continues on future focused thinking.

No significant differences in the temporal focus scores were observed in the control condition between past and present ($M_{past\text{-}control}$ = 4.3 vs. $M_{present\text{-}control}$ = 4.285; t = .035, p = .972). However, a significant difference was observed between past and future temporal focus (vs. $M_{future\text{-}control}$ = 5.368; t = 3.373, p = .002), and between present and future (t = 3.101, p = .004), indicating that participants in the control condition focus more on future, rather than the present or past.

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A weighted planned contrast of the expected positive effect of antiheroes (coeff. = 1), of the expected negative effect of heroes (coeff. = -1), and of the expected neutral effect of the control condition (coeff. = 0), on present temporal focus was investigated with the One-way ANOVA. The results confirm our prediction that reminder of antiheroes would shift temporal focus towards the present, reminder of heroes would shift temporal focus away from the present, and the control would not affect the present temporal focus (t = 2.673, p = .009).

A subsequent weighted planned contrast of the expected negative effect of antiheroes (coeff. = -1), of the expected positive effect of heroes (coeff. = 1), and of the expected neutral effect of the control condition (coeff. = 0), on past temporal focus was investigated with the One-way ANOVA. The results confirm our prediction that reminder of antiheroes would shift temporal focus away from the past, reminder of heroes would shift temporal focus towards the past, and the control would not affect the present temporal focus (t = 3.604, p = .001).

Finally, a weighted planned contrast of the expected negative effect of antiheroes (coeff. = -1) on future, of the expected positive effect of heroes (coeff. = .5), and of the control condition (coeff. = .5), on future temporal focus was investigated. The results confirm our prediction that reminder of antiheroes would shift temporal focus away from the future, but reminder of heroes or the control condition would shift focus towards the future temporal focus (t = 2.636, p = .018).

The results of this study suggested that normally, individuals tend to focus more on the future. However, when reminded of antiheroes, individuals tend to display greater temporal focus to the present. When reminded of heroes instead, their temporal focus tends to be spread as a continuum of past and future, providing support for H_{1b}. In studies 2a and 2b, we replicated the findings of study 1a and 1b

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and further investigated the mediating mechanism that explains the effect of exposure to antiheroes (vs. heroes) on sensation seeking behavior: present temporal focus.

Study 2a – Mediating Role of Present Temporal Focus

Previous studies (i.e., study 1a and study 1b) provided evidence of the effect of antiheroes (vs. heroes) on individuals' sensation seeking and of the effect of antiheroes (vs. heroes, control) on individuals' temporal focus. In study 2a we test the relationship predicted in H_2. We tested whether the effect of antiheroes (vs. heroes) on sensation seeking is mediated by present temporal focus. We randomly assigned participants to antihero and hero exposure by showing them movie trailers and measured their present temporal focus and their willingness to engage in sensation seeking.

Participants

Two hundred and three (106 male; M_{age} = 30.69, SD_{age} = 9.582) participated in experiment using the online platform of Prolific Academic in exchange for .5 £. The experiment used a between-subjects design with conditions: character exposure (antihero, hero). We measured present temporal focus and sensation seeking.

Materials and procedure

Participants were randomly assigned to watch either a 2.5 minutes trailer of the movie Deadpool or a 2.5 minutes trailer of the movie Superman. Deadpool is considered to be the typical antihero movie and Superman is considered to be the typical hero movie. After watching the trailer, all respondents were asked to write minimum 500 characters of why Deadpool (Superman) is considered an antihero

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(hero) and their thoughts about the main movie character. All respondents agreed with this labelling (antihero for Deadpool and hero for Superman) in their open answers. As a control, participants were asked how much they liked the main character they saw in the movie trailer (i.e., extent to which they agreed with the statement "I like the movie character I saw in the trailer") on a 7-points scale (1 = *Strongly Disagree* and 7 = *Strongly Agree*). No significant differences were found between the liking of Deadpool and Superman (p = .224), excluding liking as a possible explanation of our findings.

Next, participants completed in a random order the present temporal focus and sensation seeking. We measured present temporal focus using the items from Shipp et al. (2009). Sample items included: "I feel like setting my mind on the present," and "I'm focusing on what is currently happening in my life." Participants answered all the questions on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). We averaged the items to compose the present temporal focus score (α = .877). As in study 1a, we measured participants' sensation seeking intentions using the BSSS (Hoyle et la., 2002). Participants answered all the questions on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). We averaged the scores on the 8-items and composed the sensation seeking score (α = .878). As a preliminary evidence of the effect of SES on liking of antiheroes (to be fully tested in study 3), we asked respondents to answer to the following question "Think of the slide below as a ladder that represents where people stand in their community regarding their social-economic status. At the right (top) of the level, there are the people who have the highest standing in their community. At the left (bottom) are people who have the lowest standing in their community. Think of an antihero (hero) - not necessarily the

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one you were shown - it can be any antihero (hero), where should the antihero (hero) be on this ladder for you to like him/her even more?". Participants answered to the question on an 11-points ladder from 0 (bottom) to 10 (top). Next, participants provided their age and gender and they were thanked for the participation.

Results and discussion

Sensation seeking. As predicted, results showed that exposure to and antihero (vs. hero) movie trailer resulted in greater scoring on sensation seeking ($M_{\text{sensationseeking-antihero}}$ = 3.308, $SD_{\text{sensationseeking-antihero}}$ = 1.394 vs. $M_{\text{sensationseeking-hero}}$ = 2.861, $SD_{\text{sensationseeking-hero}}$ = 1.128; $t(1, 202) = 2.482$, $p = .014$, Cohen's d = .353).

Temporal focus. In line with previous findings (study 1b), results showed that exposure to antihero (vs. hero) reminder condition resulted in marginally greater present focus ratings ($M_{\text{present-antihero}}$ = 5.014, $SD_{\text{present-antihero}}$ = 1.027 vs. $M_{\text{present-hero}}$ = 4.721, $SD_{\text{present-hero}}$ = 1.291; $t(1, 202) = 1.783$, $p = .076$, Cohen's d = .251).

Mediating Role of Temporal Focus. We next tested for H_2 and examined the effect of exposure to antiheroes (vs. heroes) on sensation seeking behavior and whether this effect is mediated by present temporal focus. We first regressed the present temporal focus on the antihero (vs. hero) reminder condition. The results suggested that being exposed to an antihero (vs. hero) reminder condition marginally increased the present temporal focus ($\beta = .293$, $p = .076$). We next regressed sensation seeking on present temporal focus. The results suggested that present temporal focus increased sensation seeking ($\beta = .323$, $p < .001$). Similarly, being exposed to an antihero (vs. hero) movie trailer increased sensation seeking ($\beta = .447$, $p = .014$).

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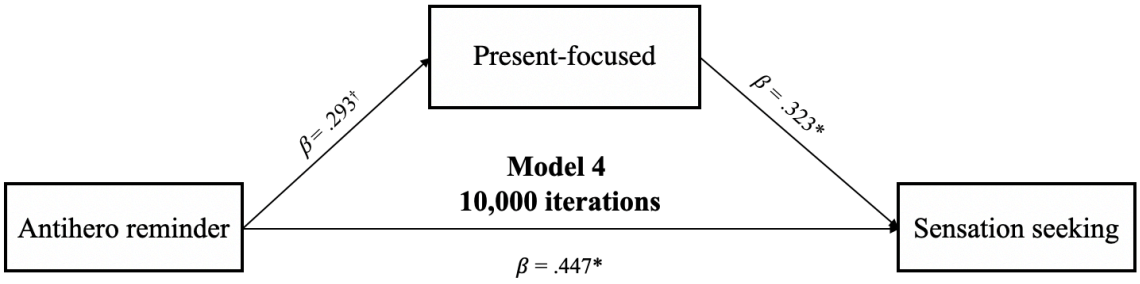
Next, we conducted a mediation analyses to test for our H_2. We tested the effect using model 4 of Process with 5000 iterations of bootstrap. Antihero (vs. hero) reminder condition was the independent variable. Sensation seeking was the dependent variable, and present temporal focus was the mediator. The results suggested a significant mediation through present temporal focus (CI: 90% = [.007; .188]); see figure 3). Given the marginal mediation result, we tested the mediation model also with bootstrapping in STATA 15, using bias-corrected confidence intervals. The results suggested a significant indirect effect (CI: 95% = [.002; .217]); and a significant total effect (CI: 95% = [.116; .859]).

Figure 3. Present-focused thinking mediates the effect of antiheroes on sensation seeking



* sign indicates significant statistical effect ($p < .05$)
† sign indicates marginal statistical effect ($p < .1$)
Index of mediation = β = .089, 90% CI: 90% = [.007; .188]

In this study, we showed that present-focus mediates the effect of antihero reminder on sensation seeking. However, one may suggest that arousal can be a mechanism that affects choice for excitement and thrill, i.e., sensation seeking. Hence, one may argue that reminder of antiheroes can cause higher arousal states in individuals, which would lead to greater sensation seeking. For this reason, in a separate study, we aimed to test – and eventually rule out – the mediating role of arousal in explaining the effect of antiheroes on sensation seeking. Hence, we

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conducted a separate study on Mechanical Turk with 110 participants (49 male; M_{age} = 37.3, SD_{age} = 12.039). We tested the effect of exposure to antihero (vs. hero) condition on arousal. Participants were randomly assigned either to antihero (vs. hero) condition as in study 1. Then, we asked participants the extent to which they felt aroused in that particular moment on a 100-points slides (-50 = *Very Relaxed*, 0 = *Neither Relaxed nor Aroused*, and 50 = *Very Aroused*; Noseworthy et al., 2014). Results suggested that exposure to antihero (vs. hero) condition did not affect the level of arousal ($M_{antihero}$ = -9.353, $SD_{antihero}$ = 3.345 vs. M_{hero} = -8.814, SD_{hero} = 3.092; t = .118, p = .906). Hence, we excluded the possible alternative explanation of arousal as the reason why individuals might show higher sensation seeking behavior when reminded of antiheroes (vs. heroes).

Socioeconomic Status. In line with our predictions, respondents reported that to like an antihero (vs. hero) more, the latter one should have a lower (vs. greater) SES ($M_{SES\text{-}antihero}$ = 4.93, $SD_{SES\text{-}antihero}$ = 1.808 vs. $M_{SES\text{-}hero}$ = 5.52, $SD_{SES\text{-}hero}$ = 2.644; $t(1, 202)$ = 1.849, p = .066, Cohen's d = .26).

The results of this study support our prediction that exposure to antiheroes (vs. heroes) increases sensations seeking (H_{1a}) and present temporal focus (H_{1b}). The results also support our prediction that the effect of exposure to antiheroes (vs. heroes) on behavior that is related to sensation seeking is mediated by focusing on the present (H_2). In study 2b, we test the mediation effect of temporal focus on the relationship between antiheroes and sensation seeking in the context of consumer behavior.

Study 2b – Mediating Role of Temporal Focus: A Consumer Behavior Context

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Previous study (i.e., study 1a and study 1b) provided evidence of the effect of antiheroes (vs. heroes) on individuals' sensation seeking and of the effect of antiheroes (vs. heroes, control) on individuals' temporal focus. Study 2 merges these effects into one study, by using an alternative measure of sensation seeking and a behavioral context. Hence, the aim of study 2 was to investigate the psychological mechanism behind the effect of antiheroes on sensation seeking of individuals. In study 2, we examined the mediating role of temporal focus on the effect of exposure to antiheroes (vs. heroes) on sensation seeking. We randomly assigned participants to antihero and hero conditions and measured temporal focus. In this study, we used brand choice as our context for testing the effect of antiheroes on sensation seeking. This allowed us to prospect our findings in a consumer behavior setting, with real behavioral choice. Sensation seeking is highly related to excitement and thrill (Shipp et al., 2009). Given that we want to test our hypothesis in a branding context, we decided to use the brand personality. The brand personality that is closer to sensation seeking is the exciting personality (Aaker, 1997). Hence, our main dependent variable consists in the choice of an exciting brand (vs. control and sincere).

Participants

Sixty-five undergraduate students (21 male; M_{age} = 22.43, SD = 2.091) participated in the laboratory experiment in exchange for course credit. The experiment used a mixed design with two between-subject conditions: character reminder (antihero, hero) and three within-subject measures: temporal focus (past, present, future).

Materials and procedure

Participants were randomly assigned to either the antihero or hero conditions

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as in study 1a. Participants then completed the 12-item temporal focus scale (Shipp et al., 2009). Sample items included: “I’m replaying memories of the past in my mind,” “I’m focusing on what is currently happening in my life,” “I’m imagining what tomorrow will bring for me.” Participants answered all the questions on 7-point scales (1 = *Strongly Disagree* and 7 = *Strongly Agree*). We averaged items related to past temporal focus to compose past temporal focus score (α = .862). We used the same procedure to compose present temporal focus score (α = .906) and future temporal focus score (α = .939). A reduction factor analyses supported the reliability analyses, by showing that the past temporal focus items, the present temporal focus items, and the future temporal focus items loaded into different separate factors. The factor analyses resulted in three separate factors (i.e., past, present, and future) with total cumulative variable explained = 77.109 percent and KMO = .781.

Next, participants were thanked. As a way to thank them, the experimenter offered participants a chocolate bar, which was a cover story for measuring our dependent variable (choice of a brand that relates to sensation seeking vs. not). In accordance with Sundar and Noseworthy (2016), participants were told that a new chocolate brand was being introduced by a local company and that this study was commissioned on behalf of the company to gain feedback about the brand and the product. The chocolate bar was presented as a prototype of what might be considered.

Three claims of brands were introduced to them in three different bowls with a label in front of the bowl (brand personality: control [no brand personality manipulation] vs. sincere vs. exciting; please see appendix B). For the control we used a white background with handwritten font, and the label page included no

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pictures, content, or a brand tagline. For the sincere and exciting brands, we followed the procedures suggested by Aaker et al.'s (2004), Noseworthy, Di Muro, and Murray (2014), and Sundar and Noseworthy (2016). Specifically, we wrote the following: *sincere brand* tagline ("Because Life Is Too Meaningful to Let You Pass It By" vs. the following *exciting brand* tagline "Because Life Is too Exciting to Let You Pass It by"; appendix B). These manipulations were already pretested from Sundar and Noseworthy (2016). Next, participants indicated their age and gender and they were thanked for their participation.

Results and discussion

Brand choice. A Pearson Chi-square test on the dependent variable using the SPSS Statistics 25 IBM software revealed a significant overall effect of exposure to antihero (vs. hero) reminder condition on brand choice ($\chi^2 = 15.464$, $p < .001$). More specifically, the difference in choice frequency of exciting brand was significant for those exposed to antihero (vs. hero) reminder condition ($\chi^2 = 16.095$, $p < .001$).

We conducted a multinomial regression to further examine the effect of exposure to antihero (vs. hero) reminder condition on brand choice. Being exposed to an antihero (vs. hero) condition increased the likelihood of choosing an exciting brand compared to a sincere ($\beta = 2.303$, $p < .001$), and control brand ($\beta = 2.079$, $p = .009$).

Next, we coded the choice of an exciting brand as 1 and the choice of a non-exciting brand (i.e., either sincere or control) as 0 to test for the effect of antihero (vs. hero) reminder on the likelihood of choosing an exciting brand (vs. sincere or control). The results showed that exposure to antihero (vs. hero) condition increases the likelihood

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of choosing an exciting brand (β = 2.234, p < .001) compared to sincere and control brand.

These results support our H_1 and demonstrate that exposure to antiheroes (vs. heroes) increases behavior that is related to fast-life strategy.

Temporal focus. In line with previous findings (study 1b), results showed that exposure to antihero (vs. hero) reminder condition resulted with more present focus ($M_{\text{present-antihero}}$ = 5.852 vs. $M_{\text{present-hero}}$ = 4.455; t(1, 64) = 4.879, p < .001).

We then ran paired comparisons of the temporal focus scores of participants reminded of antiheroes (vs. heroes). Among participants exposed to the antihero reminder condition, the results suggested a significant difference between the present temporal focus scores and the past temporal focus scores ($M_{\text{present-antihero}}$ = 5.852 vs. $M_{\text{past-antihero}}$ = 4.477; t(1, 64) = 5.149, p < .001). There was a marginally significant difference between the present temporal focus scores and the future temporal focus scores (vs. $M_{\text{future-antihero}}$ = 5.117; t(1, 64) = 2.219, p = .034) among participants who were exposed to the antihero reminder condition.

Among participants exposed to hero reminder condition, the results suggested a marginally significant difference between the present temporal focus scores and the past temporal focus scores ($M_{\text{past-hero}}$ = 5.144 vs. $M_{\text{present-hero}}$ = 4.455; t(1, 64) = 1.851, p = .073). There was a very marginal significant difference between the past temporal focus scores and the future temporal focus scores (vs. $M_{\text{future-hero}}$ = 5.629; t(1, 64) = 1.758, p = .088) among participants exposed to the hero reminder condition, see figure 4.

Figure 4. Effect of antiheroes on individuals' temporal focus

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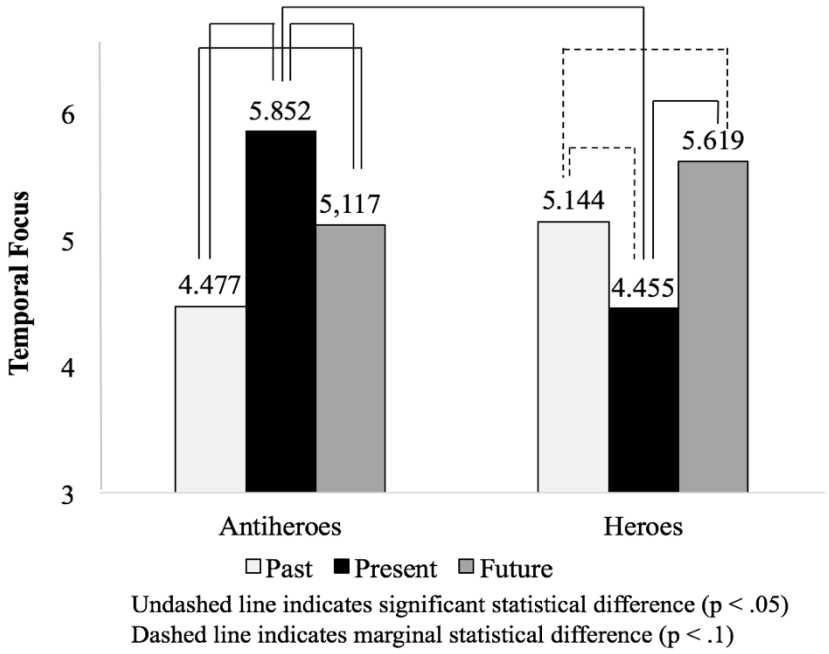

Mediating Role of Temporal Focus. We next tested for our prediction H_3 and examined the effect of exposure to antiheroes (vs. heroes) on sensation seeking behavior and whether this effect is mediated by present temporal focus. We first regressed the present temporal focus on the antihero (vs. hero) reminder condition. The results suggested that being exposed to an antihero (vs. hero) reminder condition increased the present temporal focus (β = 1.397, p < .001) and decreased past temporal focus (β = -.667, p = .04). Exposure to an antihero (vs. hero) reminder condition did not significantly affect future temporal focus (p = .223).

We next regressed exciting brand choice on present temporal focus with a multinomial regression. The results suggested that present temporal focus increased the likelihood of choosing an exciting versus sincere brand (β = 1.7, p < .001). It also increased the likelihood of choosing an exciting brand versus control brand (β = 1.562, p = .001). Moreover, present temporal focus increased the likelihood of

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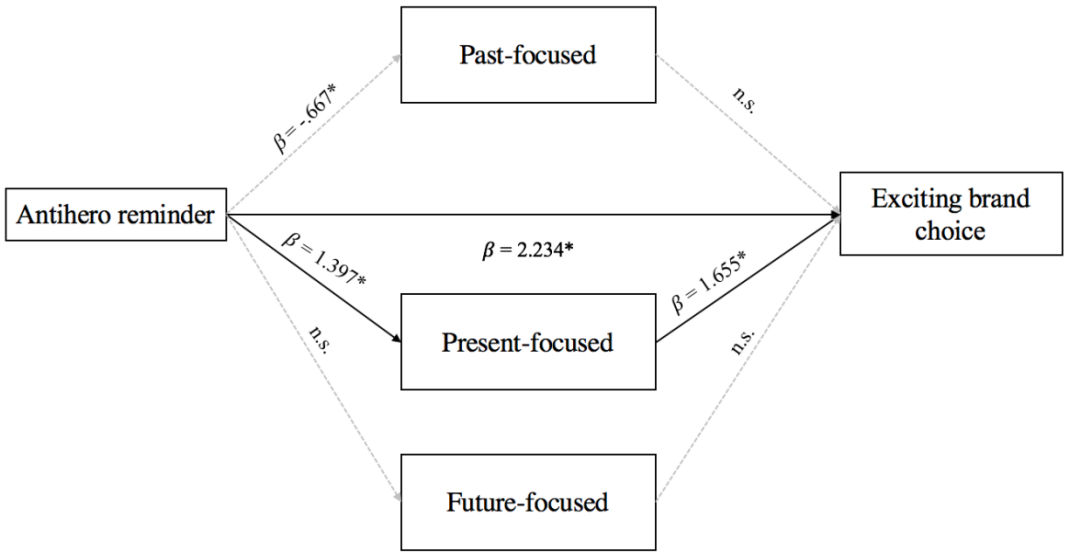
choosing an exciting brand over another brand (i.e., either sincere or control; β = 1.655, $p < .001$).

Next, we conducted a series of mediation analyses to test for our H_3. We tested the effect using model 4 of Process with 5000 iterations of bootstrap. Antihero (vs. hero) reminder condition was the independent variable. Brand choice (exciting vs. non-exciting brand) was the dependent variable, and past, present, and future temporal focus were the possible mediators. The results suggested a significant mediation through present temporal focus (CI: 95% = [.537; 5.084]). However, there was no mediation effect through past (CI: 95% = [-.423; .897]), or future (CI: 95% = [-.443; .355]) temporal focus. The results also replicated with 99% confidence interval (.335; 7.351; see figure 5).

Figure 5. Present-focused thinking mediates the effect of antiheroes on brand choice



In this study, we showed that present-focus mediates the effect of antihero reminder on sensation seeking, measured with the choice of an exciting (vs. sincere or control) brand. However, one may suggest that arousal can be a mechanism that

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affects choice for excitement and thrill, i.e., sensation seeking. Hence, one may argue that reminder of antiheroes can cause higher arousal states in individuals, which would lead to greater sensation seeking. For this reason, in a separate study, we aimed to test – and eventually rule out – the mediating role of arousal in explaining the effect of antiheroes on sensation seeking. Hence, we conducted a separate study on Mechanical Turk with 110 participants (49 male; M_{age} = 37.3, SD_{age} = 12.039). We tested the effect of exposure to antihero (vs. hero) condition on arousal. Participants were randomly assigned either to antihero (vs. hero) condition as in study 1. Then, we asked participants the extent to which they felt aroused in that particular moment on a 100-points slides (-50 = *Very Relaxed*, 0 = *Neither Relaxed nor Aroused*, and 50 = *Very Aroused*; Noseworthy et al., 2014). Results suggested that exposure to antihero (vs. hero) condition did not affect the level of arousal ($M_{antihero}$ = -9.353, $SD_{antihero}$ = 3.345 vs. M_{hero} = -8.814, SD_{hero} = 3.092; t = .118, p = .906). Hence, we excluded the possible alternative explanation of arousal as the reason why individuals might show higher sensation seeking behavior when reminded of antiheroes (vs. heroes).

The results of this study support our prediction that exposure to antiheroes (vs. heroes) increases behavior that is related to fast-life strategy (H_1). The results also support our prediction that the effect of exposure to antiheroes (vs. heroes) on behavior that is related to sensation seeking is mediated by focusing on the present (H_2). In study 3, we test for the moderating effect of SES.

Study 3 – Which Type of Antiheroes Drive Sensation seeking Behavior?

In study 3, we examine the moderating effect of SES on consumers' sensation seeking behavior following an exposure to antiheros (vs. heroes). Specifically, we

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tested our H_3, which suggests that the effect of exposure to antiheroes on fast-life strategy will be moderated by the SES of the antihero. In study 3, we randomly assign participants to exposure to antiheroes (vs. heroes) condition and high (vs. low) SES condition and measured sensation seeking behavior.

Participants

Two hundred and fifty adults participated in the experiment on MTurk in exchange for 25 cents. Twenty participants were excluded prior to the analyses as they either failed the attention check in the beginning of the survey, or they failed to provide a sensible written text to the manipulation. We did all the analyses with the remaining two hundred and thirty participants (101 male, M_{age} = 37.57, SD_{age} = 12.485). This study used 2 (antihero, hero) and 2 (SES: high, low) between-subjects design.

Materials and Procedure

The movie character manipulation was the one used in study 1a and study 2. To manipulate low SES, participants were told that the character they were exposed to was to be considered either RICH or POOR. More specifically, participants in each read: "The presence of **antiheroes** [**heroes**] and preference for them has been recently increasing. The **antihero [hero]** is a character who uses **questionable [unquestionable]** and usually **illegal** [**legal**] means to do good in the world, sometimes [mostly] for **selfish [selfless]** reasons. A new movie launching company is trying to build a new **ANTIHERO [HERO]** character to be used in a TV series. This **ANTIHERO [HERO]** should have a good purpose but [and] reach for it in either [both] an **illegal [a legal]** way or [and] for a **selfish** [**selfless**] reason. Moreover, this **ANTIHERO [HERO]** should be coming from a **RICH** [**POOR**] social and economic status." Then, participants were asked to describe how you

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imagine this character in a few sentences.

Next, we measured sensation seeking – as in study 1a – using the Brief Sensation Seeking Scale (BSSS; Hoyle et al. 2002). We averaged the items on BSSS and composed sensation seeking behavior score (α = .815). Finally, participants provided their demographic information, including age and gender.

Results and Discussion

Sensation Seeking. An ANOVA on sensation seeking behavior revealed the predicted interaction effect of exposure to antihero (vs. hero) and high (vs. low) SES condition (F (1, 127) = 5.243, p = .023). There was no main effect of antihero (vs. hero) reminder (p = .352) condition or SES (high, low) condition (p = .402) on sensation seeking behavior.

We ran the Johnson-Neyman moderation test with Process bootstrapping. The results suggested that when SES takes the value 1 (i.e., when the character is described as having low SES), there was a conditional effect of being exposed to antiheroes on sensation seeking behavior. Specifically, when the antihero was described as having low SES, sensation seeking behavior of participants increased (β = .506, p = .02). When the antihero was described as having high SES, exposure to antihero condition did not significantly affect sensation seeking behavior of participants (β = -.213, p > .1).

Surprisingly, there was a significant effect of hero condition on sensation seeking. When the hero was described as having a low (vs. high) SES, sensation seeking behavior decreased ($M_{\text{hero-poor}}$ = 3.983, $SD_{\text{hero-poor}}$ = 1.05 vs. $M_{\text{hero-rich}}$ = 3.755, $SD_{\text{hero-rich}}$ = 1.012, F = 5.1, p = .025) (see figure 6). Neither age (p = .34) nor gender (p = .174) had any significant effect on sensation seeking behavior.

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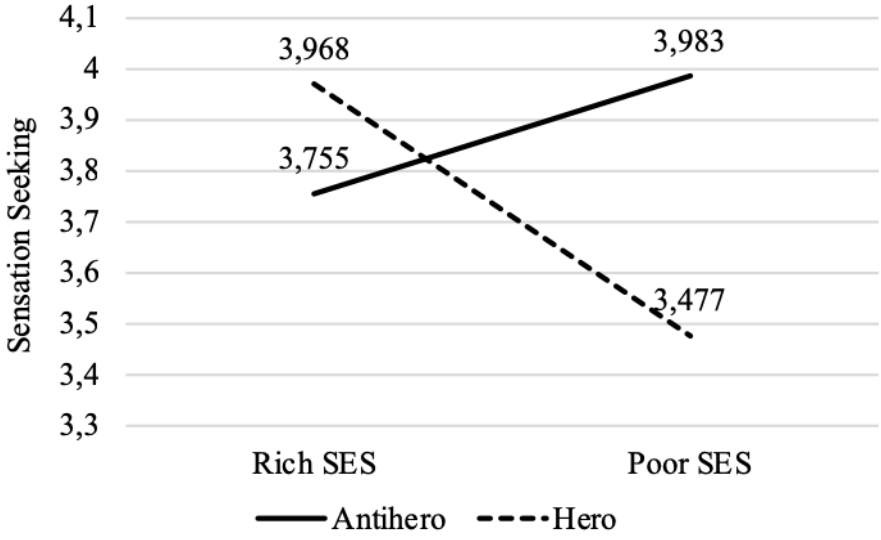
Figure 6. Effect of SES of antiheroes on sensation seeking of individuals



The results of study 3 support our prediction that the effect of exposure to antiheroes on fast-life strategy will be moderated by the SES of the antihero (H_3). Specifically, sensation seeking behavior increased when the antihero was described to have a low (vs. high) SES. Interestingly, the results also showed that the sensation seeking behavior decreased when the hero was described to have a low (vs. high) SES.

General Discussion

To our knowledge, this is the first empirical assessment of the effects of exposure to antiheroes on individual sensation seeking behavior. In a series of studies that include both online and laboratory experiments, the results of this paper show that exposure to antihero (vs. hero, control) increases the present temporal focus (studies 1b, 2a, and 2b) and sensation seeking (studies 1a, 2a, and 2b). The results further indicate a boundary condition for the effect of exposure to antihero (vs. hero) on the use of fast-life strategies – SES of the antihero (studies 2a and 3). Specifically,

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exposure to an antihero with low (vs. high) SES increases sensation seeking. However, surprisingly, the results show that exposure to a hero with low (vs. high) SES decreases sensation seeking.

The results of this paper extend the previous literature on antiheroes. Although prior findings suggest the possibility of a link between antiheroes and adopting a fast life strategy, these are primarily correlational or speculative in nature. The results of this study show that exposure to an antihero (vs. hero) increases sensation seeking behavior. We tested the sensation seeking behavior by using the Brief Sensation Seeking (BSSS; Hoyle et la., 2002) and by measuring participants' preferences for an exciting (vs. sincere, control) brand. To our knowledge, this is the first paper that empirically shows the causal relationship between exposure to an antihero (vs. hero) and sensation seeking behavior. However, sensation seeking behavior is not limited to only preference for a sincere (vs. exciting) brand. High sensation seeking reaches into every aspect of people's lives affecting relationship satisfaction before and during marriage, engagement in risky sports, tastes in music, art and entertainment, driving habits, food preferences, job choices and satisfaction, humor, creativity, and social attitudes (Munsey, 2006). Future research can test for the effect of exposure to an antihero (vs. hero) on consumers' food preferences, driving habits, tastes in music, art, and entertainment as well as engagement in risky sports.

The results of this paper also extend the literature on life history theory. Research suggests that people adopt a fast strategy when they perceive themselves to be in an environment that is currently harsh (Griskevicius et al., 2011). Exposure to cues indicating harsh environment such as news about mortality or economic problems, even words of adversity or struggle, are associated with fast life-history

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strategies (Laran & Salerno, 2012). The results of this study empirically demonstrate that exposure to an antihero (vs. hero) influences the use of fast life-history strategies. Although previous literature suggests that antiheroes look for more immediate rewards and gratification (Figueredo et al., 2005; Jonason, Koenig, & Tost, 2010), this paper is among the first to empirically show the causal relationship between antiheroes and the use of fast life-history strategies. Interestingly, the results of this paper demonstrate that exposure to a hero does not lead people to adopt a fast life-history strategy. Future research can extend the findings of this paper and test for the causal relationship between exposure to a hero and the use of slow life-history strategies.

Extant work on inter-temporal decision making indicates that individuals are biased toward the present (Thaler, 1981; Zauberman, 2003). Interventions that encourage individuals to elaborate on future outcomes (e.g., consider future uses for money) increase patience in intertemporal decisions (Weber et al., 2007). Similarly, the vividness of the image of the future self makes individuals to engage in less present-focused behavior (Hershfield, 2011). The results of this paper demonstrate another factor that leads individuals to focus more on present (vs. past or future) – being exposed to the antihero. Interestingly, the results of study 2 also demonstrate that being exposed to a hero lead people to focus more on the future compared to the past. Hence, future research can extend the findings of this paper and test for the effects of being exposed to a hero and engaging in future-focused behavior. Similarly, future research can also test for the effects of being exposed to a antihero and engaging in present-focused behavior.

In study 3, the results show that people engage in more sensation seeking behavior when the antihero is positioned as having low SES. On the other hand,

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people engage in less sensation seeking behavior when the hero is positioned as having a low SES. One might argue that underdog positioning might also moderate the effects of being exposed to an antihero (vs. hero) on the use of fast life-history strategies. Paharia et al. (2011) show that associating a brand with an underdog biography increases consumer preference. Research also shows that underdog positioning may work for moral brands but not for either competent or warm brands (Kirmani, Hamilton, Thompson, & Lantzy, 2017). In the context of being exposed to an antihero (vs. hero), we suggest that since antiheroes are more vested with immoral characteristics, positioning them as an underdog will not increase attitudes or preferences for them. However, since heroes are more vested with moral characteristics, positioning them as an underdog might increase consumer attitudes towards them. Future research might investigate the effects of positioning an antihero (vs. hero) as an underdog and test for the effects on consumer preferences.

Our research findings have some limitations. First, in studies 1a, 2a, and 3, we tested the effect of exposure to an antihero (vs. hero) on sensation seeking behavior by using the Brief Sensation Seeking (BSSS; Hoyle et la., 2002). While BSSS is a commonly used scale to test for sensation seeking behavior, future research can test the effects on real behavior by using different behavioral measures. Although in study 2a and study 3, we used participants from the US, the first two studies included participants from Europe. It is not clear whether there is any effect of culture on the effects of being exposed to an antihero (vs. hero) in using fast life-history strategies. Future research can test if there are any cultural effects explaining the effect of antiheroes on the use of fast life-history strategies.

In short, the findings of this paper demonstrate that exposure to an antihero (vs. hero) influences the use of fast life-history strategies. Given the increasing

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appearance of antiheroes in movies and books, it is interesting how being exposed to these characters will increase consumer behavior. We believe that the findings of this paper will foster future research in understanding the effects of antiheroes on consumer behavior.

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Appendix A

Fig.1. H&M t-shirt

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Appendix B

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