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## REVIEW

# The finitude of life—How mortality salience affects consumer behavior: A review

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**Abstract**

The influence of mortality salience (MS) on consumer behavior has been well-established over the last 25 years. However, research findings have provided divergent insights with regard to the direction of its outcomes. This article provides a systematic review of the extant research stream thereby revealing how the differences are primarily due to the conceptualization and operationalization of MS. Based on a conceptual revision of MS, we suggest an extended definition of the concept. An extensive overview of empirical findings, together with a holistic presentation of influential factors, offers a foundation for further MS studies conducted in a consumer behavior context, concluding with an extensive research agenda.

## 1 | INTRODUCTION

“An awareness of one's mortality can lead you to wake up and live an authentic, meaningful life.”—Bernie S. Siegel, M.D. (author of “Love, Medicine and Miracles”).

Death can be more or less salient in life. Through various media, people can witness others either in mortal danger or dying, whether it is due to accidents, wars, terrorist attacks, homicides, natural disasters, or illnesses. During the COVID-19 pandemic, viewers have confronted infection rates and death counts in daily news reports, which powerfully remind them of their own mortality. Consequently, an awareness of the inevitability of death, or mortality salience (MS), has increased with the pandemic (Campbell et al., 2020; Silva et al., 2021), accompanied by the most drastic decline in consumer spending in more than 50 years (Low & Moran, 2020). In such trying times, a key question has gained substantial relevance: Does mortality salience affect consumer behavior, and if so, how?

Extant research has already established that MS induced by a near-death experience can prompt people to appreciate life more, express greater concern for others, and become less materialistic (Cozzolino et al., 2004). Furthermore, some studies also demonstrate that MS may result in an intrinsic value orientation (Huang

et al., 2018) and prosocial behavior (Dunn et al., 2020). However, when people are challenged to deeply think about their own mortality, it could also lead to death anxiety (DA) and prompt them to search for security through materialistic consumption (Arndt et al., 2004). Accordingly, we find evidence that MS also fosters greed (Kasser & Sheldon, 2000), spending on luxury goods (Chopik & Edelman, 2014), and indulgent behavior (Ferraro et al., 2005; Routledge et al., 2004). The key is to determine why studies arrive at such different results. Thus, an intense analysis of the existing literature is needed.

We posit that the different outcomes reflect the different conceptualizations and operationalizations of MS. It is a prevalent concept triggered by everyday situations and media exposure, as well as (likely unintentionally) by marketing stimuli (Fransen et al., 2008; Rangan et al., 2015). Two fundamental theories represent the underlying dimensions of MS: terror management theory (TMT), which refers to DA, and socioemotional selectivity theory (SST), which deals with time perception. TMT states that people experience anxiety when confronted by death and compensate this feeling by upholding their cultural worldviews or maintaining their self-esteem (Rosenblatt et al., 1989). SST posits that time perception guides people's goal selection, when confronted with a limited time horizon short-term and emotional meaningful goals are favored (Carstensen, 1995).

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Most operationalizations rely on TMT and exclude SST; even in the notable exception that refers to both TMT and SST, Huang et al. (2018) only base their operationalizations on TMT. By integrating both theoretical foundations in the current literature review, we seek to synthesize prior findings and demonstrate how doing so can establish insights and motives for continued MS research. To the best of our knowledge, we are the first to consider both theories together and present the overall extant results on consumer behavior.

Literature reviews on MS have been conducted but outside of consumer behavior context and mainly with a focus on TMT. A meta-analysis by Burke et al. (2010) determines the empirical approaches taken for the study of MS in terms of TMT and demonstrates how to enhance research designs. Their study focuses on the evaluation of the MS hypothesis from TMT, meaning how death anxiety affects various outcome variables; amongst others, political, social, and prosocial behavioral outcomes are included in this meta-analysis with the aim to examine the strength of MS effects in addition to the variations within research designs. However, their study does not solely focus on consumer behavior (includes only six studies), nor does it take MS as a broader concept, in terms of TMT and SST, into account. Other reviews concerning TMT research exist. A study by Hayes et al. (2010) provides insights on the conceptualization and operationalization of death-thought accessibility (DTA) within TMT research. Consumer behavioral aspects are nearly unaccounted for, apart from a single study which we included (Fransen et al., 2008). The same applies to the review by Pyszczynski et al. (2015) which does not include consumer behavioral studies. Since the publication of these literature reviews, other pertinent empirical articles on the topic that provide relevant insights have been published but are to date unaccounted for.

In turn, the contributions of our article are threefold. First, we identify different conceptualizations of MS based on theory and propose an extended definition including both TMT and SST views. We confirm that integrating SST can provide further insights for MS literature. Second, we analyze and synthesize the empirical results provided by relevant literature over the last 25 years pertaining to the effect of MS on consumer behavior as guided by the research question. This effort enables us to provide a comprehensive overview of different MS operationalizations, consumer behavioral outcomes, and both moderation and mediation effects. We note similarities and differences across studies, especially related to different conceptualizations and operationalizations. The overview of all articles and study components provides marketing managers with the opportunity to assess the impact on consumer behavior, among others, in the event of an MS increase in the population. Third, we propose a holistic framework of all individual components of the selected MS studies with effect on consumer behavior. This framework can be used as a foundation to develop further research. We also suggest future research recommendations pertaining to the three domains of theory, method, and context, in line with Kumar et al. (2020).

## 2 | METHOD

In line with prior literature reviews (e.g., Kumar et al., 2020; Vrontis & Christofi, 2019) and published review guidelines (e.g., Palmatier et al., 2018; Paul & Criado, 2020; Snyder, 2019), we conducted a systematic literature review.<sup>1</sup> Our review process is displayed in Figure 1 and described in detail in the following.

### 2.1 | Scientific database search

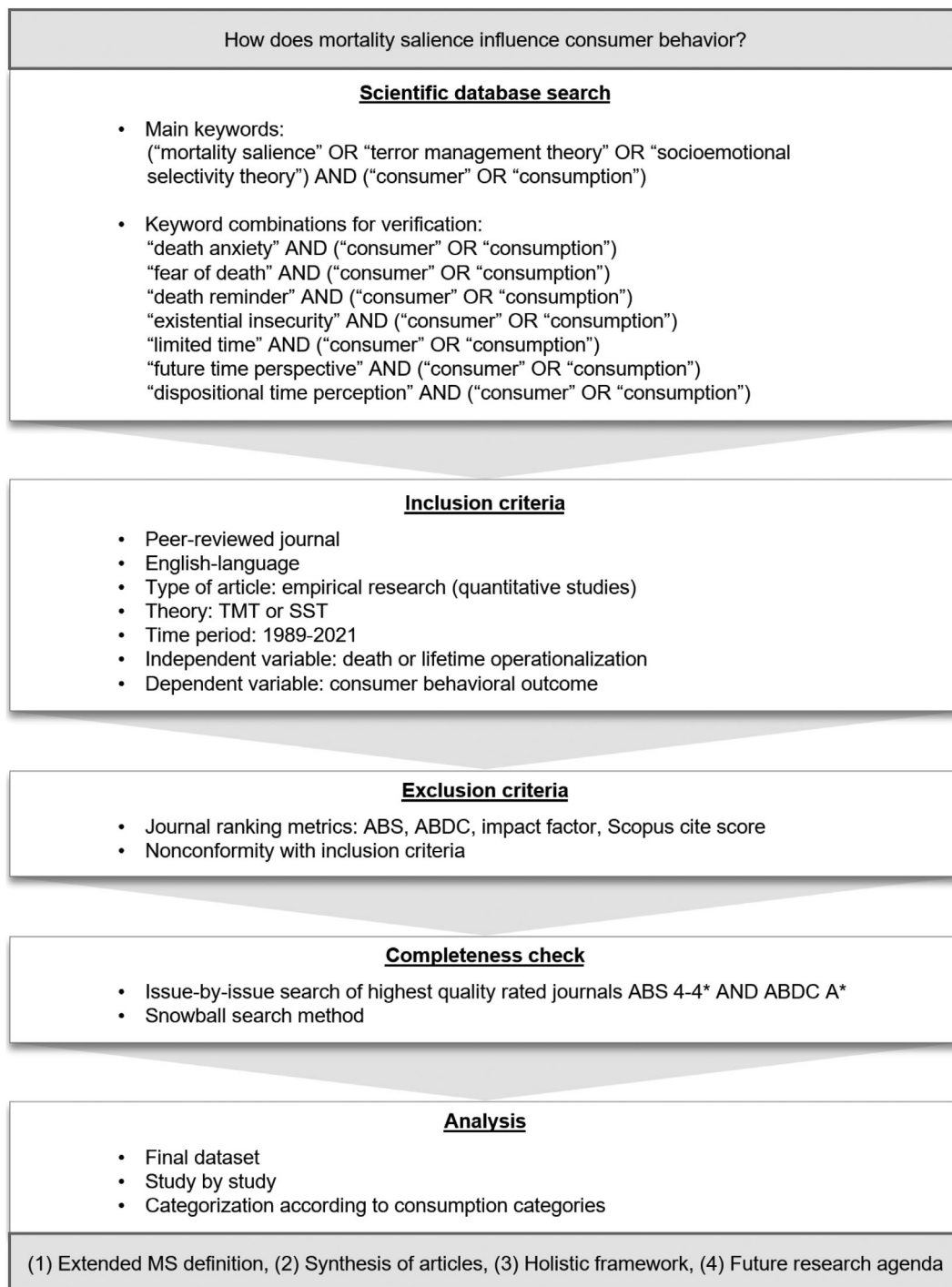
The research question of a review article guides the search process (Palmatier et al., 2018). We developed our research question: “How does MS influence consumer behavior?” with a focus on the broader concept of MS, including TMT and SST as underlying theories as well as consumer behavioral outcome variables, which narrows the scope of our search.

We searched for articles in scientific databases (i.e., EBSCO, Google Scholar, JSTOR, Web of Science, Scopus) frequently used by other scholars in the latest literature reviews (Gilal et al., 2019; Kumar et al., 2020). Then, to collect all relevant articles, we searched the databases for keywords such as *mortality salience*, *terror management theory*, *socioemotional selectivity theory*, *death anxiety*, *fear of death*, *death reminder*, *existential insecurity*, *limited time*, *future time perspective*, *dispositional time perception*, *consumer (behavior)*, and *consumption* in the title, abstract, keywords, or whole text. As our research question guides this review process, we conducted the keyword search using Boolean OR/AND operators to create distinct search strings. First, we searched for articles that include either MS or one of the main theories and consumer behavior. Then, we verified this search by including operational terms or synonyms frequently used within this literature stream (e.g., “death anxiety,” “existential insecurity,” or “future time perspective”). During this process, we screened the title, abstract, and keywords of all listed articles and their relevance to our research question (Paul & Criado, 2020; Phulwani et al., 2021).

### 2.2 | Inclusion and exclusion criteria

We included empirical articles published by peer-reviewed journals and written in English (Gilal et al., 2019; Vrontis & Christofi, 2019) that study TMT or SST accordingly with death or lifetime operationalization as independent variables. Evidence for TMT was first introduced in 1989 (Rosenblatt et al., 1989) and SST in 1995 (Carstensen, 1995), so we searched for articles from 1989–2021. We focused on studies with *consumer behavior* as the outcome variable. If the keyword searches identified articles that do not specifically involve the influence of MS on consumer behaviors, we excluded

<sup>1</sup>We conduct a systematic literature review and not an empirical review (such as a meta-analysis) as the research question calls for a deeper content rather than an empirical perspective. Furthermore, a meta-analysis requires multiple studies addressing a similar dependent variable, which does not apply to our scope of studies.



**FIGURE 1** Literature review process

them from the review. We further specified the sample according to distinct journal metrics, such as only including articles specified by these metrics (see Web Appendix A, Supporting Information). The Association of Business Schools (ABS) and Australian Business Deans Council (ABDC) offer well-recognized ratings, and the Scopus Cite Score as well as the Web of Science Impact Factor are frequently

listed by established review articles as well as review guidelines (Gilal et al., 2019; Paul & Criado, 2020; Vrontis & Christofi, 2019). Therefore, we determined that if either ranking metric fell below the recommended threshold (ABS <3 and ABDC < A; Paul & Criado, 2020) and the impact factor was also less than two, we would exclude articles from that journal.

### 2.3 | Completeness check

To ensure completeness of the relevant articles, we conducted an issue-by-issue search of highest quality rated journals as indicated by the ABS 4–4\* and ABDC A\* journals in the field of marketing and psychology, such as *International Journal of Research in Marketing*, *Journal of the Academy of Marketing Science*, *Journal of Applied Psychology*, *Journal of Consumer Psychology*, *Journal of Consumer Research*, *Journal of Experimental Social Psychology*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Personality and Social Psychology*, *Journal of Retailing*, *Journal of Service Research*, *Marketing Science*, *Personality and Social Psychology Bulletin*, *Psychological Bulletin*, *Psychological Review*, and *Psychological Science*. Furthermore, we performed the snowball search method, forward and backward search within references of all included articles (following Ter Huurne et al., 2017). The final sample consists of 33 articles published in 12 (mainly) marketing and psychology journals (see Web Appendix B, Supporting Information).

### 2.4 | Data analysis and presentation of findings

As elaborated in the introduction, research findings are divergent concerning the influence of MS on consumer behavioral outcome variables. This literature review has the aim to elaborate the factors for these different findings. Therefore, a full text analysis is necessary to understand the application of concepts in each article. For our analysis, we examined each article in depth study by study, guided by three main questions: (a) How is MS defined? (b) Which theory is the article based on? (c) How is MS operationalized? and (d) What is the outcome of each study and overall key finding? These questions guided our analysis and synthesis of articles and led to a comprehensive overview of all articles (see Web Appendix D, Supporting Information, for details). To ensure reliability in the analysis and synthesis process, as a first step, one author completed the table in Web Appendix D, Supporting Information, and then a second author repeated this process independently, comparing the results afterwards. Altogether, differences in the operationalization are distinguished and the divergence of outcomes explained (Section 4). The holistic framework then synthetically displays all constituent parts (Section 5).

Publication years of articles in the final sample range from 1997 to 2020, the majority of which (21) have been published after the latest MS meta-analysis by Burke et al. (2010). As our main research question is on how MS influences consumer behavior, we distinguished the articles based on the consumer behavioral outcome variables and their conceptual foundations. We then grouped the articles based on similarities and derived distinct consumption categories. Some articles include studies in which the outcome variable does not belong to the same consumption category, thus, the same article may appear in more than one consumption category (Ferraro et al., 2005; Fransen et al., 2008). We formed eight consumption categories which the articles are assigned to: domestic (4 articles), indulgent (6 articles), impulsive (4 articles), materialistic (6 articles), experiential (2 articles), hedonic (5 articles), innovative and nostalgic (4 articles), and prosocial

(5 articles) consumption. Out of all articles, only four are based on SST, the majority of the 29 articles are based on TMT.

## 3 | THEORETICAL CONCEPTUALIZATION OF MORTALITY SALIENCE

The term *mortality salience* has only appeared in studies based on TMT, though some recent research acknowledges the applicability of SST in this context, and one empirical effort seeks to compare the two theories (Fung et al., 2019; Huang et al., 2018). In support of our assertion that both theories should be considered as part of a broader MS concept, we first provide explanations of the central theories (TMT and SST) to predict which behaviors might arise when human mortality becomes salient. Then we integrate aspects of both theories to derive an extended definition of MS.

### 3.1 | Mortality salience in terror management theory

According to TMT, once people become aware that humans are mortal, they experience terror, or more precisely DA (death anxiety). In response, they adopt strategies to avoid this induced anxiety; for example, self-esteem and conformity with cultural worldviews can buffer against such anxiety. That is, when people experience MS, they defend their cultural beliefs and symbolic systems to maintain their self-esteem (Greenberg et al., 1990; Rosenblatt et al., 1989). People with high self-esteem do not respond with increased worldview defense when their mortality is made salient as their high levels of self-esteem already buffer their fear of death (Harmon-Jones et al., 1997). In turn, sources of self-esteem play a central role in TMT (Arndt et al., 2004; Ferraro et al., 2005). For example, wealth and material consumption are indicators of success and sources of self-esteem in capitalist cultures so materialism might protect consumers against DA (Kasser & Sheldon, 2000). Accordingly, when mortality becomes salient, consumers defend their beliefs by increasing their materialistic behaviors (Arndt et al., 2004; Kasser & Sheldon, 2000), especially if their self-esteem particularly depends on the consumption of material goods (Cozzolino et al., 2004; Ferraro et al., 2005). Conclusively, TMT assumes that people experience death anxiety after their mortality is made salient and they ultimately want to decrease their fear through certain consumption behaviors.

Studies in this tradition often use other terms in relation to MS, such as *existential insecurity* (Rindfleisch et al., 2009; Zhou et al., 2013), *death awareness* (Huang et al., 2018), *mortality anxiety* (Boeuf, 2019), *mortality threat* (Ruvio et al., 2014; Ulqinaku et al., 2020), *meaning threat* (Saral-Abi et al., 2017), or *life experience* (Dunn et al., 2020), even if they use the same operationalizations. For example, Rindfleisch, Burroughs, and Wong (2009, p. 1) define existential insecurity as “anxiety associated with the awareness of one’s mortality” and they manipulate existential insecurity through a writing task called “death essay,” and measure it through the fear of one’s

own death scale. Zhou et al. (2013, p. 2407) similarly define existential insecurity and also measure it with the fear of one's own death scale. Boeuf (2019, p. 44) uses a different term and defines "mortality anxiety as the awareness and fear of one's own mortality." He manipulates mortality anxiety through a death-related media video and death essay and measures it with the death-thought accessibility scale. Ulqinaku, Sarial-Abi, and Kinsella (2020, p. 1434) state that "mortality threats are activated by fear of one's own death, by fear of losing someone dear, and even by watching a movie or reading news or a story that reminds individuals of their mortality and how death is an imminent reality." They manipulate mortality threats by letting participants write about death, All Saints' and Day of the Dead, and Covid-19, and use the fear of one's own death scale as a measure. All four TMT studies use different terms but apply similar operationalizations. This simple indicator—that is, different terms used to reflect the same conceptualization and operationalization—highlights the need to review the concept.

### 3.2 | Mortality salience in socioemotional selectivity theory

As a motivation theory across the lifespan, SST should be relevant to the concept of MS but, to the best of our knowledge, only one study discusses both theories in a consumer behavior context (Huang et al., 2018). In general, SST posits that their time perception directs people's goal selection. When they perceive time as open-ended, they prioritize long-term goals and seek to expand their horizons through knowledge acquisition. When time is perceived as limited, people select short-term, emotionally meaningful goals (Fung & Carstensen, 2004). A limited time horizon, reflecting awareness of the inevitability of death, tends to be more salient later in life (Carstensen, 1995), although young people also confront time limitations. Carstensen et al. (1999) show that goal selection behavior changes among both younger and older people who have been exposed to a restricted future time horizon, for example, through terminal diseases.

Furthermore, when people perceive their future time as limited, they prioritize emotionally meaningful goals such as generativity and emotion regulation instead of autonomy (Lang & Carstensen, 2002). These findings align with some findings in studies based on TMT (Fransen et al., 2008; Huang et al., 2018) but contradict other TMT-based findings (Arndt et al., 2004; Kasser & Sheldon, 2000), so we recognize the need to consider both theories to conceptualize MS.

According to a TMT study by Routledge and Arndt (2009, p. 494), "Human beings realize that despite all efforts to thrive as organisms, life is finite," which represents death awareness. However, their claim does not explicitly encompass death because it instead relies on the finitude of life (i.e., death ends life). Accordingly, SST researchers Fung et al. (2019) state that "the awareness of mortality salience is comparable to perceived time limitation because death literally limits the time one can stay in this world." Through these studies, we seek to make it apparent that MS includes the awareness of death, and also

the consequential awareness that life is finite. This latter factor is central to SST but rarely mentioned in studies that solely rely on TMT (e.g., Goode & Iwasa-Madge, 2019).

### 3.3 | Extended definition of mortality salience

Existing definitions of MS vary across articles and are not always consistent (for an overview see Web Appendix C, Supporting Information). For example, an early definition, often adopted by TMT studies, relies on Becker's (1973) views and refers to "awareness of human vulnerability and mortality" (Rosenblatt et al., 1989, p. 681). This phrasing was later adjusted to the more commonly used description: "awareness of the inevitability of death" (Cai & Wyer, 2015, p. 102). Some authors only offer implicit definitions of MS (Arndt et al., 2004; Ferraro et al., 2005; Rosenblatt et al., 1989), and make vague reference to the concept in their elaborations. Others use the term "existential insecurity" referring to MS (Rindfleisch et al., 2009; Zhou et al., 2013), include "fear" and "anxiety" in their definitions (Boeuf, 2019; Rindfleisch et al., 2009; Zhou et al., 2013), or narrow the scope to a person's "own" death or mortality (Boeuf, 2019; Huang et al., 2018). We also find studies that include the finitude of life in their definition (Goode & Iwasa-Madge, 2019), especially if they are based on SST (Bhattacharjee & Mogilner, 2014).

In a recent editorial from *Journal of Marketing*, the editors highlight the importance of ecological value for academic marketing research and suggest ways to increase it (van Heerde et al., 2021). One factor within this elaboration is especially applicable to our context: the ecological value of literature reviews and theory development. That is, researchers must avoid studying identical constructs with different names or labels (i.e., jangle fallacy). The varied definitions of the articles in our review, and the varied names referring to MS, suggest that the jangle fallacy is prevalent in this literature stream. To address this concern, it becomes essential to broaden the concept and resolve the differences so that researchers recognize when they are investigating the same phenomenon with a specific name. We integrate TMT (death) and SST (time perspective) aspects to define MS more broadly as *the awareness that life is finite and one's death is inevitable*. We argue that the awareness about the finitude of life and one's own death go hand in hand; people presumably cannot think about one without thinking about the other. According to SST, a limited time horizon (such as the time until life ends) leads to the pursuit of emotional meaningful goals like engaging with close family and friends or with emotional and hedonic content such as movies and travel experiences. TMT posits that thoughts about death result in anxiety and worldview maintenance. Following these two theories, the consequences of a limited time horizon and death may be different. Especially, in Western cultures where materialistic values are a central part of the worldview. Under high MS, consumers may engage in emotional meaningful consumption like experiential or hedonic consumption according to SST, whereas TMT leads to anxiety and a materialistic consumption focus (Bhattacharjee & Mogilner, 2014;

Kasser & Sheldon, 2000; Wei et al., 2013). However, it is questionable whether MS as the thought about the time left until one's life ends (SST) or the thought about death in particular (TMT) leads to distinct psychological processes in peoples' minds as posited by the two theories. Do consumers not experience anxiety when thinking about the time left until one's life ends but only when thinking about death in particular? As SST has not yet been associated with MS, further empirical research is needed to enhance the conceptualization of MS (including SST and TMT). Our article and the articles summarized in the following provide a basis for further elaboration.

## 4 | CONSUMER BEHAVIOR IN RESPONSE TO MORTALITY SALIENCE: PRIOR FINDINGS

In this section, we offer an overview of empirical findings related to the effect of MS on consumer behavior outcome variables including MS inductions, essential manipulation checks (MS measures), and explanations, as well as boundary conditions for the effects. We summarize the main findings in Table 1 (see Web Appendix D, Supporting Information, for an extended version and Section 5 for a holistic framework). Based on our review, we propose that each article can be assigned, according to the consumer behavioral outcome variable or conceptual foundation, to one of eight distinct consumption categories: domestic, indulgent, impulsive, materialistic, experiential, hedonic, innovative & nostalgic, or prosocial.

### 4.1 | Domestic consumption

One way to mitigate DA induced by MS is to defend a cultural worldview, which is a basic assertion of TMT literature (Rosenblatt et al., 1989). When confronted by the idea of death, people adopt in-group favoritism and out-group rejection; they defend what is similar and despise everything in opposition (Greenberg et al., 1990). In a consumption context, applied stimuli of in-group favoritism and out-group rejection are domestic and foreign products and brands. Nelson et al. (1997) establish this mechanism in a consumer behavior setting, revealing that MS increases the blame people assign to a foreign car company after an accident. They blame domestic car companies less if they have thoughts about their own death rather than thoughts about death in general. Various MS reminders appear to be able to induce both domestic preferences and foreign rejections in subsequent studies.

Fransen et al. (2008) further demonstrate that subtle marketing cues, such as insurance brand logos, can induce MS. This leads consumers to express more (less) positive attitudes toward domestic (foreign) products. When they choose domestic products because they are experiencing MS, consumers show in-group favoritism and out-group derogation, in line with the basic TMT mechanism. Friese and Hofmann (2008) support this explanation by noting that MS decreases evaluations of foreign food and drinks but both evaluations and consumption of domestic products improve.

Using the dual-process model of defense against death-related thoughts<sup>2</sup> (Pyszczynski et al., 1999), Rangan et al. (2015) also demonstrate that, following an explicit MS inducement, attitude toward ads for foreign brands and the brands themselves are not negatively influenced if they appear within the first 2.5 min of the commercial block during a television program. Distal defense mechanisms fall into place after that delay, leading consumers to evaluate foreign brands and their ads more negatively. This effect of MS on brand attitudes appears sequentially mediated by death-thought accessibility (DTA) and attitude toward the ad. Domestic brands can instead appear anywhere in the commercial block because their evaluation is not initially affected, and then enjoys a positive influence from the middle onward.

### 4.2 | Indulgent and impulsive consumption

When people confront death, a variety of mechanisms may be ignited, including consumption. Consumers become more indulgent (e.g., eat more, engage in unhealthy behavior), compulsive, and impulsive (e.g., buy things they do not need, unplanned purchases); outcomes that can also be explained by the dual-process model of defense against death-related thoughts (Arndt et al., 2004). Even though consumers may objectively know that some forms of consumption are bad for their health, such as smoking, drinking, sunbathing, overeating, eating unhealthy food, when confronted by death and depletion of self-regulatory resources these consumption options provide a way to maintain self-esteem and avoid death-related thoughts.

#### 4.2.1 | Indulgent consumption

Arndt et al. (2004) conceptually apply the dual-process model (Pyszczynski et al., 1999) to consumer behavior contexts; Routledge et al. (2004) test it empirically and identify proximal versus distal defense mechanisms that result from MS inductions. For example, consumers who rely on tanning as a source of self-esteem indicate higher (lower) intentions to purchase sunscreen when asked immediately (following a delay) after MS induction. The reminder of death leads these consumers to first try to employ proximal defenses and deny their vulnerability by adopting high SPF sunscreen but as those death-related thoughts diminish, whether due to a proximal defense or a delay, they turn to distal defense mechanisms that enhance their self-esteem, such as getting a tan (without sunscreen). However, when tanning products and services are framed as a source of self-esteem, consumers' evaluations of tanning sessions or products increase even after the delayed MS induction. Hansen et al. (2010)

<sup>2</sup>The dual-process model established by Pyszczynski et al. (1999) states that death reminders are processed in two different ways. On the one hand, explicit death reminders that prompt the thought of death in people's focal attention are processed through proximal defense mechanisms such as the denial of death or distraction from those thoughts. On the other hand, subliminal death reminders are not consciously processed and lead to distal defense mechanisms in line with TMT, self-esteem maintenance, and cultural worldview.

**TABLE 1** Mortality salience effects on consumer behavior

Context	Reference	Theory	Key findings
Domestic Consumption	Nelson et al. (1997)	TMT	MS increases blame placed on foreign company in case of a car accident. Blame placed on domestic company is decreased only when thoughts about MS are personal.
	Fransen et al. (2008)	TMT	MS increases [decreases] attitudes toward domestic [foreign] food products.
	Friese and Hofmann (2008)	TMT	MS decreases evaluations of foreign products and increases consumption of domestic products. Evaluations of domestic products are accentuated.
	Rangan et al. (2015)	TMT	Lower attitude toward foreign brands only from 2.5 minutes onward after the death-related TV program, not before. Effect is sequentially mediated by DTA and attitude toward the foreign ad.
Indulgent Consumption	Routledge et al. (2004)	TMT	MS increases [decreases] intentions to use sunscreen when death thoughts are conscious [non-conscious]. MS increases evaluations of tanning products only when associated with self-esteem.
	Ferraro et al. (2005)	TMT	MS increases indulgent behavior only for females low on body-esteem and only when no previous coping strategy was employed.
	Goldenberg et al. (2005)	TMT	MS decreases the eating behavior, especially for women high on BMI, due the failure to attain one's ideal thinness.
	Fransen et al. (2008)	TMT	MS increases intentions to spend money on entertainment and food due to increased DTA.
	Mandel and Smeesters (2008)	TMT	MS increases consumption of food products, especially for consumers low on self-esteem because low self-esteem consumers want to escape from self-awareness.
	Hansen et al. (2010)	TMT	MS increases attitudes toward smoking only for consumers high in smoking-based self-esteem.
Impulsive Consumption	Sinha and Wang (2013)	SST	Emotional loneliness positively moderates the effect of MS on impulsiveness. Because emotional lonely consumers' self-regulatory resources are depleted.
	Ruvio et al. (2014)	TMT	Materialism positively moderates the effect of MS on compulsive consumption and impulsive buying, because materialistic consumers show lower levels of self-esteem.
	Salisbury and Nenkov (2016)	TMT	MS provokes proximal defenses in the case of annuities; thus consumers are less likely to put retirement savings into an annuity.
	Ulqinaku et al. (2020)	TMT	MS increases unhealthy consumption only when consumers are not reminded of a hero, because consumers feel less powerful.
Materialistic Value	Kasser and Sheldon (2000)	TMT	MS increases future financial expectations and greed.
	Cozzolino et al. (2004)	TMT	MS leads only extrinsically-oriented consumers to be more {less} greedy after death essay {death reflection}. *{does not pertain to TMT}
	Rindfleisch et al. (2009)	TMT	MS leads only materialistic consumers to form stronger brand connections.
	Fransen et al. (2011)	TMT	MS leads only under social presence to higher [lower] attitude toward [non-] luxury brands.
	Chopik and Edelman (2014)	TMT	MS leads to higher willingness to spend money on luxury products due to increased DTA.
	Huang et al. (2018)	TMT & SST	MS increases [decreases] sensitivity to marketing stimuli after death essay [death-related ads and media] due to consumers' increasingly extrinsic [intrinsic] value orientation.
Experiential Consumption	Bhattacharjee and Mogilner (2014)	SST	MS leads to increased report and purchase intention only of ordinary experiences.
	Goode and Iwasa-Madge (2019)	TMT	MS negatively influences reflection of emotional experiences and anticipation of consumption experiences because emotions are attenuated.

(Continues)



TABLE 1 (Continued)

Context	Reference	Theory	Key findings
Hedonic Consumption Attributes	Wei et al. (2013)	SST	MS increases [decreases] consumers evaluation of hedonic [utilitarian] product attributes.
	Williams and Drolet (2005)	SST	MS increases [decreases] liking and recall of emotional [rational] advertisements. Especially liking and recall of ads with a negative emotional appeal type are evaluated more positively.
	Das et al. (2014)	TMT	MS increases purchase intentions of the advertised product due to increased DTA.
	Rieger et al. (2015)	TMT	MS increases appreciation of meaningful movies and reduces self-esteem activation after consumption.
	Baek and Yoon (2020)	TMT	MS increases likelihood to sign wildlife conservation pledge, only when the ad is prevention focused.
Innovative & Nostalgic Consumption	Zhou et al. (2013)	TMT	MS increases preferences for nostalgic products. This preference is enhanced through an appearance or narrative nostalgic presentation of the product and explained by nostalgia proneness.
	Huang and Wyer (2015)	TMT	MS decreases [increases] variety seeking of consumers after death essay [death semantic task] due to increased DA [DTA]. The negative effect of DA can be reversed when consumers choose among familiar options or experience high cognitive load.
	Sarial-Abi et al. (2017)	TMT	MS increases preferences for vintage products due to increased thoughts about the past in relation to the present and future.
	Boeuf (2019)	TMT	MS increases [decreases] attitudes toward and purchase intentions of nostalgic and retro-innovative [innovative] products due to increased state nostalgia.
Prosocial Consumption	Jonas et al. (2002)	TMT	MS increases donations to charities only when the charitable organization is domestic.
	Ferraro et al. (2005)	TMT	MS increases intention to donate to charity and to engage in conscious consumers behaviors only for virtuous consumers.
	Fransen et al. (2008)	TMT	MS increases intentions to donate money to charity.
	Cai and Wyer (2015)	TMT	Deservingness positively mediates the effect of MS on bandwagon donation appeals. Consumer's donation intentions and actual donation behavior increases when a great amount of the overall donation goal has already been achieved by others.
	Dunn et al. (2020)	TMT	MS increases intentions to donate and actual donation of possessions only when donation act allows for transcendence.

concur that consumers engage in more unhealthy behavior after an MS reminder, such that consumers whose self-esteem is based on smoking express more positive attitudes toward smoking when seeing a cigarette package with a death-related slogan after a delay period; their attitudes appear indifferent right after their exposure to the package warning.

In these studies, consumers engage in unhealthy behavior to establish or maintain self-esteem but Ferraro et al. (2005) also find evidence of indulgent behavior in other domains that cannot provide important sources of self-esteem. In two choice experiments involving chocolate cake and fruit salad, they find that MS leads women with low body-esteem to choose chocolate cake more often than a control group would. The effects of MS for women with high body-esteem is marginally lower than in the control group. That is, MS effects arise only if anxiety gets evoked because people have no other coping strategy. However, if consumers are made aware of coping strategies for MS induction, their anxiety is buffered and the MS induction is

ineffective. The authors assert that women with poor body-esteem may also suffer from depleted self-regulatory resources which could explain their indulgent choices, but they do not conduct a mediation analysis to confirm this claim. They extend their findings to prosocial behavior in another study: If virtue is not an important source of self-esteem, consumers experiencing MS donate less money to charity and are less likely to engage in socially conscious consumer behavior.

In contrast, Goldenberg et al. (2005) do not find any moderating effect of body-esteem, although they note that body mass index (BMI) and figure discrepancy affect women's eating behavior; they also assert that consumers behave less indulgently when they experience MS. In detail, when women experience MS, those with higher BMIs restrict their eating and eat less of a provided snack than low BMI counterparts, which may reflect the perceived figure discrepancy experienced by high BMI women (i.e., their actual body is very different from what they perceive as an ideal body). This discrepancy becomes more evident in group settings with high and low BMI

women and consumers aim to fulfill societal norms, especially when they experience MS, so they restrict their eating. In contrast, low BMI women with low figure discrepancy remain unaffected.

Generally speaking, Fransen et al. (2008) report that consumers experiencing MS intend to spend more on entertainment and food in the following month. DTA appears to explain this relationship. Mandel and Smeesters (2008) extend these results, as well as findings by Ferraro et al. (2005), which show that the overall quantity of food consumption increases. Consumers experiencing MS not only increase their overall food consumption but also select more food items on a grocery list. Consumers with low (vs. high) self-esteem choose even more items. These authors propose that MS induces a need to escape self-awareness among consumers with low self-esteem, so they increase their consumption. If escape from self-awareness is prohibited, consumers reduce their consumption. Consumers high on self-esteem are unaffected by MS, in line with the basic theorem that self-esteem buffers DA (Pyszczynski et al., 1999). Thus, these findings resonate with Ferraro et al.'s (2005) assertion that MS leads to indulgent consumption if the domain is not an important source of self-esteem.

#### 4.2.2 | Impulsive consumption

The preceding studies all feature delays between the MS induction and the outcome variable. According to the dual-process model, delays can move death-related thoughts out of conscious awareness, so much so that they become unconscious death-related thoughts that evoke more distal defense mechanisms including behavior to enhance self-esteem sources. However, conscious death-related thoughts should result in immediate action and proximal defense mechanisms (Pyszczynski et al., 1999), such as impulsive consumption behavior. For example, Sinha and Wang (2013) find that consumers who are emotionally lonely (lack of intimate relationship/s) demonstrate an increase in impulsive behavior when MS is high but the effect reverses for consumers who are socially lonely (lack of social contacts). Emotional/intimate relationships (family, lovers) are considered more essential and required to satisfy basic human needs, whereas social contacts (friends) are not. Once emotionally lonely people's self-regulatory resources are depleted, they turn to impulsive behavior under MS, but they are less likely to do so if they can rely on the resources provided by emotional relationships. Notably, the authors in this study induce MS with a limited time view, in line with SST.

In a unique approach, Ruvio et al. (2014) explore real-life MS induced by a terrorist bombing. MS increased post-traumatic stress among participants located in an Israeli town where attacks took place which led to more compulsive and impulsive consumption behavior, especially among highly materialistic people who exhibited lower levels of self-esteem. They replicated their findings with a U.S. sample. For these investigations, the task delay is inherent: They could not survey participants after the actual attacks, and they asked participants about their perceived fear of death in the second study.

Rather than using real-world external events, Salisbury and Nenkov (2016) use products to induce MS and find that consumers are less likely to assign their retirement savings to an annuity because the product itself reminds them of their mortality. They consequently experience death-related thoughts and avoid annuities. Furthermore, altering the description only marginally reduces the likelihood of rejecting the annuity. More recently, Ulqinaku et al. (2020) provide evidence that thinking of a hero attenuates the effect of MS on unhealthy (impulsive) food consumption; meaning that consumers not reminded of a hero after an MS induction consume more unhealthy food, compared to those who are reminded, due to decreased perceptions of personal power.

### 4.3 | Materialistic, experiential, and hedonic consumption

In capitalist cultures, wealth and material consumption are indicators of success and a happy life so materialism as a source of self-esteem is deeply rooted (Kasser & Sheldon, 2000). Accordingly, materialistic behavior might buffer consumers' DA (Arndt et al., 2004). However, immaterial products have also gained relevance in contemporary liquid experiential settings over the last decades (Bardhi & Eckhardt, 2017). Similarly, MS studies also exhibit a shift toward greater considerations of intrinsic values (Huang et al., 2018). Therefore, we consider studies that focus on materialistic values and consumption, shifted value orientations, experiential consumption, and evaluations of hedonic consumption attributes.

#### 4.3.1 | Materialistic values

In an early consideration of MS related to materialism, Kasser and Sheldon (2000) identify greater expectations of overall financial worth and pleasure spending in the future, but people's expectations about the value of other possessions is not influenced by MS. People experiencing MS also show more greedy behavior, even when conscious of its negative consequences. Although these authors find no moderating effect of an extrinsic value orientation, subsequent studies link chronic materialism with consumption behavior under MS.

Cozzolino et al. (2004) propose a different way to induce MS, not based on TMT, and call it transcendence management theory. They find a moderating effect of people's value orientation. To manipulate MS, they asked people to write about their emotions when thinking about dying in a fire. This death reflection induction also asks consumers to consider the life they have lived up to the point of their death. Counterparts were asked to write about their thoughts and emotions when generally thinking about their own death (death essay). In turn, extrinsically-oriented consumers demonstrated less (more) greedy behavior after reflecting on death (describing death); intrinsically-oriented consumers did not. The authors suggest that the newly established death reflection operationalization allows people to overcome their death anxiety as proposed by TMT, and allows them

to reach a state of transcendence and with this embrace the inevitability of their death, thus, letting intrinsic values emerge.

Rindfleisch et al. (2009) provide further proof of the moderating effect of value orientation by detailing that MS leads to stronger self-brand and communal-brand connections among materialistic consumers. They form stronger connections with brands, which provide materialistic consumers a way to cope with DA.

Fransen et al. (2011) also show that consumers experiencing MS express more positive attitudes toward luxury brands, but only if they think others will see or judge their evaluation. Such social presence might be “an extra self-esteem boost serving as a buffer against existential anxiety” (Fransen et al., 2011, p. 31) so MS effects might arise only if the behavior is observable to others and provides a source of self-esteem. According to Chopik and Edelstein (2014), MS also leads consumers to spend more on luxury products but spending intentions for non-luxury products are not affected. They propose that DTA induced by MS produces this outcome.

In another elaboration, Huang et al. (2018) show that the type of MS induction strongly influences the direction of the subsequent variables. For example, whether participants view insurance company print ads that display fatalities due to natural disasters (death-related ads condition) or write down thoughts about their own death (death essay condition) determines their death-related thoughts and DA; death-related thoughts are higher after both manipulations but DA only increases in the death essay condition. Participants taking part in the death essay condition tend to sign up for a follow-up study with greater compensation, whereas participants from the death-related ads condition are less likely to sign up (regardless of the increased compensation) relative to a control condition. The authors posit that sensitivity to marketing stimuli is lower (higher) for consumers viewing death-related ads (thinking about their own death), which they confirm in a second study that shows how consumers perceive smaller (greater) differences in hotel prices after viewing death-related ads (thinking about their own death) compared to the control group. That is, death-related ads reduce sensitivity to the scope and prompt people to devote less attention to marketing stimuli, the effect is reversed when people think about their own death. In addition to these effects, consumers in the death-related ads condition shift their focus toward intrinsic values, seemingly as a result of death-related thoughts without DA. In the death essay condition, they emphasize extrinsic values, in line with their DA. Furthermore, they demonstrate that consumers can experience DA, not only in the death essay condition, but also when exposed to a death-related news article from which the death-related information is self-relevant. More specifically, the death essay condition or exposure to a self-relevant death-related news article leads to DA, whereas the exposure to death-related ads or a self-irrelevant death-related news article results in death-related thoughts, not anxiety. In line with their previous findings, consumers sensitivity to marketing stimuli is enhanced after a self-relevant death-related news article.

Huang et al. (2018) also attribute their findings to chronic materialism, arguing that consumers with high (low) chronic materialism exhibit greater (diminished) sensitivity to marketing stimuli associated

with extrinsic values when they experience DA. The moderating effect of chronic materialism does not hold for consumers who do not experience DA.

These fundamental findings establish that consumers focus on products associated with extrinsic values (e.g., materialistic consumption) only if they experience DA, in line with TMT (Cuzzolino et al., 2004; Kasser & Sheldon, 2000). If consumers experience death-related thoughts, through death-related ads or because the death-related information is not self-relevant, they instead focus on products associated with intrinsic values. Huang et al. (2018) provide evidence that varied MS inductions and their respective measures need to be precisely distinguished within MS studies. Their study is the first to show that MS may influence consumers' orientation from extrinsic to intrinsic values depending on the type of MS.

#### 4.3.2 | Experiential consumption

Bhattacharjee and Mogilner's (2014) findings provide insights on how MS may affect experiential consumption. They test whether age might influence the happiness achieved through ordinary and extraordinary experiences. Their results indicate that younger consumers attain more happiness from extraordinary experiences than ordinary ones, whereas ordinary experiences gain greater meaning in later life. For our study, three of the studies Bhattacharjee and Mogilner report are relevant in that they include future time perspective (FTP) (Lang & Carstensen, 2002) as a measure of psychological age. When consumers perceive their future time as limited (expansive), they are more likely to share ordinary (extraordinary) experiences and report that those ordinary (extraordinary) experiences make them happy.

Moreover, consumers who experience a limited FTP, hence MS, are more likely to purchase products that help them enjoy ordinary experiences. However, Bhattacharjee and Mogilner (Bhattacharjee & Mogilner, 2014) reveal no significant effect of MS on purchase intentions for products associated with extraordinary experiences. They cite self-definition, which also affects preferences for material versus experiential goods, to explain why ordinary experiences gain importance with age. An experience is self-defining if it represents a personal accomplishment and defines the person's place in the world. As younger people's self-concepts are not fully established, they seek unique achievements and experiences to define themselves; older people can rely on their better-established self-definition and focus on more mundane activities. They confirm that self-definition also significantly mediates the relationship between age and happiness due to experiences. Extraordinary experiences provide self-definition over the complete lifespan and ordinary experiences become more defining later in life, resulting in equal happiness achieved from both experience types. These authors' elaboration concerning the evaluation of experiences is based on SST.

Finally, Goode and Iwasa-Madge (2019) explicitly study experiential consumption related to TMT and propose that induced MS numbs consumers' emotions so their emotional responses diminish. In turn, they report past experiences and anticipate future experiences as less

emotional. This finding is interesting for the next category of studies which predicts when consumers assign more importance to hedonic attributes.

### 4.3.3 | Hedonic consumption attributes

When confronted with a limited time horizon, younger consumers note increased (decreased) attitudes toward, and recall of, emotional (rational) ads (Williams & Drolet, 2005). If the time view is expanded, both younger and older consumers prefer the rational ad. A similar pattern arises for negatively versus positively framed emotional ads, such that MS evokes more positive evaluations among younger consumers of the emotional ad and allows them to avoid their negative feelings. DA was likely not provoked in this study.

Evaluations of hedonic versus utilitarian product attributes might also depend on MS. According to Wei et al. (2013), when consumers experience MS, induced by a limited time horizon, they evaluate hedonic product attributes more positively but diminish their evaluations of utilitarian attributes. This effect is more intense among cognitively older consumers, in contrast to Williams and Drolet's (2005) finding of no significant effects for older consumers. A limited time perspective might thus induce particular behaviors within specific age groups, but even regardless of the age group, a focus on hedonic versus utilitarian attributes might shift. For example, marketing efforts for luxury products could benefit from a limited time perspective (Wei et al., 2013), in line with other TMT-based studies which indicate that people seek indulgent pleasure in response to DA. However, once more, a limited time perspective might not evoke DA.

Still, according to Das et al. (2014), death-related print ads increased purchase intentions for advertised products—which in their studies are mainly hedonic and experiential—due to the increased DTA evoked by the ads. Rieger et al. (2015) provide further insights by demonstrating that MS induced by a death essay increases the appreciation of meaningful movies because these products decrease the need for consumers to self-enhance. Pleasurable or informative movies do not provide the same benefits, so consumers still adopt self-esteem defenses after watching them. However, Wei et al. (2013) propose that such pleasurable attributes should be more important when experiencing a limited time horizon. Finally, Baek and Yoon (2020) note that even ads with dead animals increase the likelihood that consumers sign up for a wildlife conservation pledge but only if the ad is prevention focused.

## 4.4 | Innovative and nostalgic consumption

Efforts to determine why consumers resist new products might benefit from integrating the concept of MS. That is, MS increases consumers' nostalgia proneness and thus their preferences for existing nostalgic products (Zhou et al., 2013). Nostalgia-based strategies, such as a nostalgic product design or telling stories about the product, can enhance this effect, whereas providing information about nostalgic

manufacturing techniques has no such influence. Sarial-Abi et al. (2017) agree that MS evokes greater preferences for vintage products, whether induced by a death essay or death reflection—a notable insight considering other studies identify differences between these induction methods (Cuzzolino et al., 2004). The effect they find might reflect greater intertemporal connectedness, so consumers think about the past in relation to the present and future when engaging in vintage product consumption.

Boeuf (2019) instead focuses on the effect of mortality anxiety on attitudes toward innovative versus non-innovative versus retro-innovative products using nostalgia and consumer innovativeness as underlying mechanisms. The diminished (enhanced) attitudes that MS prompts toward innovative (non-innovative) products may be explained by greater state nostalgia due to MS, which encourages consumers to focus on the past and reject new products. Although, this mechanism through high state nostalgia appears mitigated for consumers who exhibit high innovativeness. Furthermore, MS negatively affects attitudes toward innovative products but positively affects attitudes toward the retro-innovative versions. Both products are innovations but the latter is more associated with the past. Such effects appear especially powerful among consumers of specific age cohorts who can associate the retro-innovative product with their own past.

Noting the various links, Huang and Wyer (2015) aim to disentangle different MS inductions. They find that MS decreases the number of items consumers consider within a choice set, meaning that they show reduced variety seeking behavior. However, this only applies when MS is induced by prompting consumers to think actively about their own death and their DA subsequently increases. If instead MS is unconsciously activated, consumers exhibit more variety-seeking behavior, so they may choose more items from a list of goods. The authors explain these effects as consequence of consumers who, while experiencing DA, want to avoid novelty. Indeed, when confronted with only familiar choices, DA effects could be attenuated and consumers' variety seeking behavior increased. The effects are similar when these authors manipulate consumers' cognitive load, such that those without sufficient mental resources cannot defend against their anxiety. If instead MS is unconsciously activated, consumers exhibit more variety-seeking behavior.

These findings are in line with those by Zhou et al. (2013) and Boeuf (2019) in that DA increases consumption of nostalgic products and decreases those of innovative products, that is, avoiding novelty. However, Sarial-Abi et al. (2017) do not distinguish between MS operationalizations so death essay and death reflection both lead to increased preferences for vintage products. According to the findings by Huang and Wyer (2015), these operationalizations do not produce the same outcome. As suggested by the authors, this might be due to the conceptual difference between variety seeking and novelty seeking and should be investigated further.

More importantly, Fransen et al.'s (2008) findings, concerning indulgent consumption (see Section 4.2.1.) align with this explanation in that spending intentions increase in response to death-related marketing cues that make death thoughts accessible (i.e., unconscious

death thoughts). Mandel and Smeesters (2008) argue for greater consumption after consumers write about their own death, whereas Huang and Wyer's (2015) findings imply they should have selected fewer items from their grocery list. However, Mandel and Smeesters do not measure DA or DTA so even if the participants in their study wrote about their own death, they might not have experienced DA. We need more studies that distinguish several MS operationalizations and their influence on novelty versus variety seeking accounting for different product categories, mixing material with experiential goods to ensure that the outcome does not depend on the product category, such as food (Fransen et al., 2008; Huang & Wyer, 2015; Mandel & Smeesters, 2008), beverages (Huang & Wyer, 2015; Mandel & Smeesters, 2008), entertainment (Fransen et al., 2008; Huang & Wyer, 2015), events (Huang & Wyer, 2015), or accessories (Sarial-Abi et al., 2017).

#### 4.5 | Prosocial consumption

Consumers not only increase materialistic behavior in response to MS (Section 4.3) but might also increase their prosocial behavior, signaling a notable contrast. We thus seek to establish when and why consumers donate to charity when they experience MS. Fransen et al. (2008) provide evidence of a main effect in that consumers indicate more intentions to donate when they experience MS, although they do not explore boundary conditions. According to Jonas et al. (2002), MS can induce more prosocial consumer behavior as a means to restore life's meaning. Therefore, charity ratings that are important to the consumer are increased under MS. However, in the end, consumers only actually donate money to charitable organizations that support a domestic cause. Donations to foreign charities do not significantly increase, even when people experience MS. Ferraro et al. (2005) also assert that MS leads consumers to express higher intentions to donate money to charity and engage in conscious consumption, though only if they rely on virtue as a source for their self-esteem; consumers who do not use virtue in this way are instead less likely to engage in conscious consumption when they experience MS. That is, consumers appear able to self-regulate their behavior if virtue is an important source of self-esteem for them but otherwise indulge.

In an effort to clarify the boundary conditions of these effects, Cai and Wyer (2015) demonstrate that donation intentions and actual donation behaviors increase if others have already donated, which provides an indicator that previous donors identify the cause as deserving. Consumers experiencing MS want to adopt such socially desirable behaviors, so bandwagon appeals may work better than need-focused appeals when encouraging donations.

Beyond monetary contributions, Dunn et al. (2020) show that consumers will give away meaningful possessions when they experience MS, arguably because of the transcendence potential that such behavior offers. In one study, they show that participants who experience MS indicate a significantly higher intention to donate a self-connected possession and a marginally lower intention to donate an

unconnected possession. Their actual donation behavior matches these intentions. After ruling out trait self-esteem as an explanation, they reiterate a transcendence effect: Consumers who experience MS and donate self-connected possessions perceive greater transcendence than those who donate unconnected possessions. If consumers can satisfy their transcendence needs in other ways though, then their donation intention for self-connected possessions is not higher due to MS. In addition, intentions to donate increase if the possessions are likely to be kept intact, in further support of an explanation based on a desire for transcendence. These MS effects also persist for monetary donations but only if those donations feature donors' names. Finally, Dunn et al. (2020) consider how consumers feel after their donations. If the donation of possessions or money provides transcendence, they perceive greater transcendence after the donation, in line with predictions that MS prompts consumers to seek ways to keep meaning in their lives (Arndt et al., 2004).

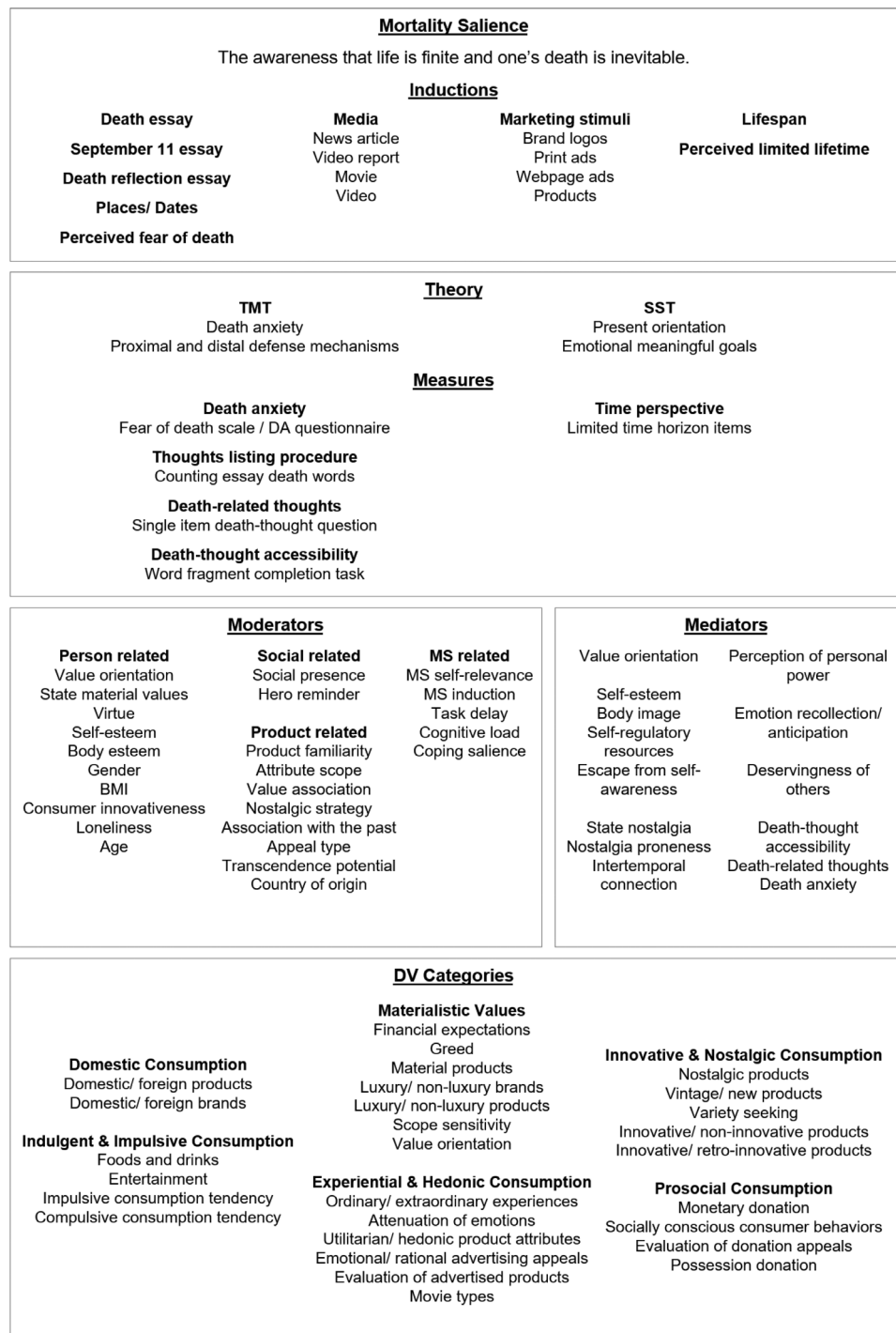
## 5 | HOLISTIC FRAMEWORK OF MS OPERATIONALIZATIONS AND CONSUMER BEHAVIOR OUTCOMES

The holistic framework that we propose in Figure 2 clarifies existing MS operationalizations and provides an overview of various moderators, mediators, and outcome variables, across multiple contexts studied. It also reflects the evidence that became apparent through our review of MS research. The topic, along with the dual-process model of defense against death-related thoughts (Arndt et al., 2004; Pyszczynski et al., 1999), is precarious and complex. The MS manipulations and measures vary across studies. For example, some studies use the standard death essay to induce MS, which the dual-process model would define as an explicit death reminder that should evoke proximal defenses. To contrast, more distal defenses require a time delay so that the conscious death-related thoughts can dissipate and unconscious versions can emerge. However, time delays do not often get integrated into survey designs. Furthermore, measures of death anxiety, death-related thoughts, and death-thought accessibility appear to be used interchangeably, despite their distinct positions and effects in the dual-process model. As our holistic framework shows, MS consists of separate components. Along with the postulates of TMT and SST, the holistic framework provides a basis for further research into these complex topics.

## 6 | CONCLUSION

The MS concept demands a broader approach that incorporates SST postulates along with TMT notions, as this literature review reveals. We propose an extended definition of MS and establish a basis for further research efforts by outlining the similarities and differences across prior studies. As we show, various consumer behavior outcomes result from unique conceptualizations and operationalizations of MS. To enhance our understanding of MS, consumer researchers

FIGURE 2 Holistic framework



must both acknowledge and specify these distinct processes. The data situation concerning SST in relation to MS is still insufficient and the theory has mainly appeared in psychology and social sciences literature. This review only includes four SST studies that investigate the influence of a limited time horizon on consumer behavioral outcomes. It is crucial to conduct further empirical studies to fully understand the relation between TMT and SST aspects in relation to MS and further enhance the concept. Practitioners could also derive insights from this review. They should realize that each moderator and

mediator, as well as the MS inductions themselves, can be influenced by marketing actions. There is room for further research concerning MS and consumer behavior, as we outline below.

## 7 | FUTURE RESEARCH AGENDA

As suggested by Kumar et al. (2020), we develop a research agenda in accordance with the theory, method, and context framework.

## 7.1 | Theory

According to the dual-process model of defense against death-related thoughts, when MS is explicitly induced, people adopt proximal defense mechanisms to distract themselves from their death anxiety or deny their vulnerability (Pyszczynski et al., 1999). In response to explicit MS inductions (e.g., terror attacks, death essay, COVID-19), consumers consequently exhibit increased impulsive buying behavior (Ruvio et al., 2014; Ulqinaku et al., 2020) and avoid important consumption decisions (e.g., Salisbury & Nenkov, 2016). In this context, referring to a limited lifespan (SST) also prompts consumers to respond by increasing their consumption of unhealthy food (Sinha & Wang, 2013).

If death-related thoughts move away from conscious awareness (after a delay, subliminal MS induction), unconscious thoughts instead evoke distal defense mechanisms, whether based on a source of self-esteem, a defense of a cultural worldview, or an attempt to find meaning in life (Pyszczynski et al., 1999). In this situation, consumers prefer domestic products over foreign ones (Friese & Hofmann, 2008; Rangan et al., 2015), consume to achieve sources of self-esteem (Ferraro et al., 2005; Routledge et al., 2004), respond with consumption that reflects their (changing) societal values and norms (e.g., Huang et al., 2018; Kasser & Sheldon, 2000), and make donations to add meaning to life (Dunn et al., 2020).

As the dual-process model reflects TMT, it is unclear where SST-based MS inductions (e.g., limited lifespan) might fall, that is, whether they are likely to elicit proximal or distal defense mechanisms. Adding SST postulates might therefore enhance the dual-process model; for example, after an MS induction, do people focus on the present or the past to avoid what is coming? Insights offered by Sarial-Abi et al. (2017) and Boeuf (2019) suggest that they engage in vintage and nostalgic consumption after an MS induction, focused on the past and present rather than the future. We offer the following future research recommendations:

- i. SST manipulations that refer to a limited time horizon induce MS, and their categorization as explicit or implicit MS reminders is necessary to predict the type of defense mechanism adopted in response.
- ii. TMT and SST postulates complement one another; integrating both theories in a dual-process model can increase understanding of proximal and distal defense mechanisms.
- iii. Overall value orientations and cultural values may change over time, resulting in a need to revise distal defense mechanisms.

The connections between TMT and SST manipulations are also not conceptually clear. Salisbury and Nenkov (2016) use different slogans to describe an annuity description, seeking a way to reduce product avoidance, with marginal success. The authors wanted to integrate a non-death-related slogan (“each year you live/ depending on how long you live”), however, as is evident in our literature review, this slogan also serves as an MS reminder and might explain the low success.

Furthermore, Micu and Chowdhury (2010) want to operationalize SST, inaccurately, they combine SST and TMT aspects in their manipulations. They apply a prevention-focused ad stimulus and the limited time condition states: “Life is short! Savor the moment!” However, the ad stimulus itself lies in the prevention of deadly illnesses: “Avoid disease with Desir: Our Best Chocolate! [...] may help prevent heart disease, cancer and other degenerative illnesses” (p. 638), which may serve as MS reminders according to TMT. This study by Micu and Chowdhury does not yield significant results in terms of our conceptualization of MS. Therefore, we were not able to report any of their findings in our literature review. One reason for this might be the confounding operationalization. It is evident in these examples that illustrating a limited lifetime or making death-related statements in SST manipulations may also evoke death-related thoughts. We call for efforts to develop manipulations that reflect both TMT and SST which would help reveal their similarities and differences (Fung et al., 2019). Therefore,

- iv Distinct MS inductions should include TMT aspects, SST aspects, and their combination, as required.

Future time perspective (a type of MS when limited) also functions as a measure for psychological age, and Bhattacharjee and Mogilner (2014) confirm that people perceive their future time to be more limited as they age. Age and MS are closely related (Lang & Carstensen, 2002) and when consumers anticipate a limited lifespan, they eat more unhealthy food (Sinha & Wang, 2013), prefer ordinary experiences (Bhattacharjee & Mogilner, 2014), evaluate hedonic product attributes more positively (Wei et al., 2013), and like and recall emotional ads better (Williams & Drolet, 2005). However, measures of MS that reflect TMT (e.g., death anxiety, death-thought accessibility) have not been applied in these studies. Researchers should incorporate an MS measure (death and time horizon-oriented) as a standardized demographic variable, along with chronological age, for which explanatory power may be questionable (Moschis, 2012). Multiple age concepts could also help clarify aging processes and reveal some behavioral causalities associated with age (Hettich et al., 2018). That is, people age not only biologically, but also psychologically (i.e., perception) and socially (i.e., social roles) (Moschis, 2012), so it is crucial to address various aspects of aging and capture the aging process more comprehensively. We offer the following recommendation:

- v An integrative MS measure, with TMT and SST aspects, may serve as a manipulation check for induced MS and a novel demographic variable in non-MS-related studies.

## 7.2 | Method

As outcomes vary depending on the method used to induce MS and the processing it invokes, according to the dual-process model, well-established manipulations and task delays are required (Huang et al., 2018; Huang & Wyer, 2015; Rangan et al., 2015). They might

result from uncontrollable circumstances, such as terrorist attacks or the COVID-19 pandemic, but can also be induced by marketing stimuli (brands, ads, products), death-related media (news reports, articles, movies), or dates and places (September 11, Day of the Dead, funeral homes).

The most widely administered MS manipulation is the death essay (see Web Appendix D, Supporting Information). In their effort to distinguish manipulations and their influences on outcomes, Huang and Wyer (2015) show that some inducements increase death-thought accessibility but not death anxiety, whereas others strongly increase death anxiety, which in turn determines the outcome. However, whether consumers experience death anxiety might also depend on other circumstances, such as sources of self-esteem, the availability of other coping mechanisms, or consumers' cognitive load (e.g., Ferraro et al., 2005; Huang & Wyer, 2015). In addition, (religious) beliefs in an afterlife might limit consumers' responses to MS inductions (Dechesne et al., 2003; Rindfleisch et al., 2009). Therefore, in line with Huang et al. (2018), we argue for the need to measure both death anxiety and death-thought accessibility to predict whether consumers' focus is likely to shift toward intrinsic values, because of their death-thought accessibility or extrinsic values, as a result of their death anxiety. If studies incorporate measures that reflect both TMT and SST, they might clarify the differences across MS manipulations, measures, and outcomes. Formally:

- vi Separately measuring death anxiety, death-related thoughts, death-thought accessibility, and time horizon perceptions is essential to establish MS effects on consumer behavior. The order of the measures and the inclusion of task delays should reflect the revised dual-process model.
- vii Inclusion of essential covariates such as self-esteem and religiosity in all MS studies should be considered.

Moreover, also of relevance and previously unaddressed, is the widespread use of student samples. More representative samples in terms of age are necessary considering the differences that arise according to age (Boeuf, 2019; Wei et al., 2013; Williams & Drolet, 2005). Most MS studies also rely on analyses of variance to deal with different treatment groups and moderators; thus, sufficient sample sizes are needed to ensure statistical power. Geuens and De Pelsmacker (2017) recommend 30–40 participants per treatment group; Hair et al. (2017) indicate that 20 participants is satisfactory. Although, neither criterion was met by some studies (Fransen et al., 2008, 2011; Mandel & Smeesters, 2008).

### 7.3 | Context

Consumers behave according to the sources of their self-esteem, such as bodily ideals, materialistic values, and virtue (Ferraro et al., 2005; Goldenberg et al., 2005; Routledge et al., 2004). In addition, Fransen et al. (2008) show that consumers experiencing MS are willing to donate money to foreign charities when prompted by a

bandwagon appeal. These findings are unique as foreign origins are likely to be devalued under MS (Section 4.1). An interesting comparison would be to include different appeal types across countries to determine if social desirability and in-/out-group mechanisms function together. As MS effects also depend on emotional and social contacts (Sinha & Wang, 2013), it might be interesting to investigate whether presence of, or thoughts about, emotional contacts attenuate MS effects the way thinking of heroes does (Ulqinaku et al., 2020). Our analysis indicates that MS induced in SST-based studies tends to lead consumers to focus on emotions and pleasure (Wei et al., 2013; Williams & Drolet, 2005), whereas emotions become attenuated and meaningfulness is valued more than pleasure when it is induced by TMT-based studies (Goode & Iwasamadage, 2019; Rieger et al., 2015). Future research should clarify these relationships, especially because meaningfulness and emotions do not necessarily conflict. Finally, our literature review identifies moderating and mediating factors; more room remains for clarifying these effects and researchers can use our holistic framework to find other factors to investigate. More broadly:

- viii Further sources of self-esteem, buffers of death anxiety, contingency factors for MS effects, and underlying mechanisms should be elaborated.

Meaningfulness is crucial in MS studies (Dunn et al., 2020; Jonas et al., 2002; Rieger et al., 2015) and meaning might be achieved through materialistic consumption (Arndt et al., 2004) or donations (Dunn et al., 2020) after MS inductions. Dunn et al. (2020) provide the only consideration of the consequence of such responses; they show that donating self-connected possessions gives consumers a sense of transcendence that provides meaning to their lives. Bhattacharjee and Mogilner (2014) argue that consumers faced with MS gain as much happiness from ordinary as they do from extraordinary experiences. In general, experiences make consumers happier than material purchases (Nicolao et al., 2009).

Thus, further research might investigate the effect of MS on material, experiential, and hedonic consumption combinations. Do these types of consumption decrease death anxiety or death-related thoughts? Do they also have effects on consumers' well-being after MS reminders? Boeuf (2019) indicates that consumers focus on the past rather than the future when MS is induced but innovative consumption is mostly linked to the future. The concept of age might also play a critical role in this context (e.g., Lambert-Pandraud & Laurent, 2010). According to SST, consumers are present-oriented under MS so immediate gratification is prevalent. This may also stand in the way of sustainable consumption under MS as rewards from this consumption form tend to appear in the distant future (van Dam & Fischer, 2015). The effects of MS on these outcomes have not been thoroughly investigated.

- ix Research should elaborate on consumers' responses to modern consumption concepts (experiential, liquid, sustainable) and innovative offerings when under MS.



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## DATA AVAILABILITY STATEMENT

Data sharing not applicable—no new data generated.

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#### SUPPORTING INFORMATION

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