

# The role of consumer mindsets to reduce health-related stress

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## Abstract

Medical professionals often struggle to persuade patients to adopt a healthy lifestyle. Despite consumers' increased interest in adopting a healthy lifestyle, the pursuit of wellness could make consumers feel stressed, which can cause or lead to many diseases. To reduce their stress, consumers can use either a problem-focused or emotion-focused coping strategy. A problem-focused coping strategy focuses on potential actions one can take in response to stress. In contrast, an emotion-focused coping strategy focuses on the emotional consequences of the situation and regulating the resulting emotions. Based on implicit self-theories, this research suggests that consumers' different mindsets, either a growth or fixed mindset, influence their preferences for coping strategies to mitigate stress. The results of this study indicated that consumers with a growth mindset (vs. a fixed mindset) prefer to use a problem-focused coping strategy (vs. emotion-focused coping strategy) to reduce health-related stress. Process evidence suggests that the findings are driven by differences in consumers' mindsets and how much they attribute their stress to controllable factors. Practical implications are discussed and include approaches medical professionals can use to implement a tailored messaging strategy based on the patient's mindset.

## 1 | INTRODUCTION

Well-being is a significant concern and interest for consumers and has increased consumers' desire to start or maintain a healthy lifestyle. In response to this substantial interest, markets have offered many health-related products promoting consumer wellness. It is estimated that the global wellness market was more than \$1.5 trillion in 2021, with an annual growth rate of about 10 percent (Callaghan et al., 2021). Despite the increased interest in and awareness of a healthy lifestyle among consumers, previous studies have revealed that many individuals do not engage in health-promoting behaviors (e.g., physical activity or eating a healthy diet) or they fail to meet healthy goals (Ford et al., 2011), which may lead consumers to feel stressed. Moreover, although the wellness market will continue to grow even more as consumers prioritize their health after the Covid-19 pandemic, pursuing a health goal or watching health messages can create stress for individuals (Han et al., 2016). The pandemic seriously impacted our lives, and many people face challenges that have caused overwhelming stress (Kujawa et al., 2020). Thus, it is vital for people

to cope with stress to receive physical and mental health benefits that allow them to sustain their health and well-being. The Centers for Disease Control and Prevention (CDC) also encourages people to learn to cope with stress to become more resilient.

The American Psychology Association (2019) reported that Americans suffer from stress in everyday life. Stress is due to various factors, but health-related concerns are a major reason for increased consumer stress (American Psychology Association, 2019). Consumers are often faced with decisions related to healthy lifestyles in everyday life, such as choosing a salad versus French fries or going to the gym versus watching television. The U.S. Department of Health and Human Services (2020) also promotes healthy lifestyles to help prevent diseases and promote well-being.

Pursuing a healthy lifestyle requires behavioral changes, but consumers often experience difficulties translating their intentions to actual behaviors despite their increased interest in a healthy lifestyle (Rhodes & de Bruijn, 2013). For example, consumers participating in weight-loss programs often fail to exercise or give up on attempts to eat a healthy diet, which leaves them feeling stressed. Thus, the

pursuit of a healthy lifestyle could overwhelm consumers, and they may struggle to cope with the stress (de Ridder et al., 2007). As stress negatively affects consumers' well-being, it is crucial for healthcare providers to deliver effective health messages that are presented in ways that help consumers cope with their stress and persuade them to make healthy choices (Han et al., 2016). Motivating people to engage in positive health behavior is a significant challenge for public health practitioners. Physicians often encourage patients to live healthier but are too often unable to deliver a message that leads to positive behavioral change (Sakib et al., 2020). This communication gap highlights the need to frame health messages effectively. Therefore, the current study proposes that effective health messages for stress reduction can be delivered by matching consumers' mindsets with effective coping strategies.

Psychology and consumer behavior theories posit that consumers cope with stress through two different types of coping strategies: problem-focused coping and emotion-focused coping strategies (Lazarus & Folkman, 1984). A problem-focused coping strategy is aimed at constructive problem-solving to control the causes of stress. In contrast, an emotion-focused coping strategy addresses the emotional consequences of the situation and regulating the emotions related to stressors. When consumers are confronted with a stressful situation, different coping strategies are used that involve either cognitive or behavioral efforts to reduce stress (Agarwal & Wan, 2009; Lazarus & Folkman, 1984). Han et al. (2016) also noted that people cope with health-related stress differently, and the authors stressed the importance of integrating coping theory into the health context. Applying appropriate coping strategies (i.e., problem-focused or emotion-focused) to reduce consumers' health-related stress enables them to continue participating in activities that mitigate their stress, which is essential for long-term well-being.

Although previous data seems to indicate that problem-focused coping is a more effective strategy, this is not always the case (Baker & Berenbaum, 2007). For example, Baker and Berenbaum (2007) found that an emotion-focused coping strategy was more effective for women, people with interpersonal stressors, and people with low emotional attention. Numerous studies have shown that engaging in or success with a specific coping strategy is determined by consumers' unique characteristics, personality, situation, and context (Baker & Berenbaum, 2007; Miller et al., 2008; Pleyers & Vermeulen, 2020). Thus, it is crucial for healthcare professionals to consider individual factors including patients' mindsets and preferred coping strategies in responding to stress to improve patients' wellness and well-being. For example, for people who experience obesity-related stress, the healthcare professional could recommend a problem-focused coping strategy, which would include weight control behaviors, such as changing eating habits and sticking to a strict dietary plan. In contrast, they could recommend an emotion-focused coping strategy, which would involve the use of emotional support from friends and family and positive reinterpretation to improve their self-esteem.

The present study aims to examine how specific mindsets are systematically associated with different coping strategies to cope with

health-related stress. A consumer's mindset is an individual factor reflecting particular beliefs about the nature of human characteristics (Dweck, 2000). Individuals with a fixed mindset view human traits as predetermined and stable characteristics; thus, not much can change. In contrast, individuals with a growth mindset believe that human traits are malleable; thus, traits can change substantially (Murphy & Dweck, 2016). These two mindsets influence a variety of judgments and evaluations about oneself (Chiu et al., 1997). They shape consumers' motivation, perceptions, and behavior, and guide how consumers accept changes or adaptations (Beruchashvili et al., 2014; Murphy & Dweck, 2016). In consumer research, a consumer's implicit mindset has been examined as a factor that influences how the consumer pursues a goal, processes information, and adopts behavioral changes (Mathur et al., 2014; Murphy & Dweck, 2016). Previous studies have also examined how consumer mindsets influence the effectiveness of messages (Bandyopadhyay et al., 2021; Carnevale et al., 2018). Murphy and Dweck (2016) further found that individuals' mindsets influence their preferences regarding health and wellness. Although the literature suggests that consumers' mindsets could be an essential driver to understand their behaviors in health-related domains, little research has focused on understanding how coping strategies for stress reduction are associated with consumers' different mindsets.

The current research proposes that consumers' mindsets based on implicit self-theories (Dweck, 2000; Dweck et al., 1995; Dweck & Leggett, 1988) influence their selection of coping strategies to manage health-related stress. Consumers who have a growth mindset believe that they can substantially change and develop strategies to solve problems (e.g., Dweck, 2000). In contrast, consumers with a fixed mindset tend to believe that individuals' dispositional factors never change or improve (e.g., Dweck, 2000). By integrating coping strategies with implicit self-theories, we aim to examine how these two distinct mindsets shape consumers' responses to cope with their health-related stress. In the health-related stress context, we specifically propose that consumers with a growth mindset will prefer to engage in a problem-focused coping strategy because they tend to directly focus on the source of the problem and improve their health by changing their behaviors. In contrast, consumers with a fixed mindset will prefer an emotion-focused coping strategy to mitigate their stress because they tend to avoid thoughts about undesirable outcomes.

This study also investigates the underlying mechanism of this relationship. Given that health-related stress can lead to negative outcomes caused by the pressures and imbalance of seeking a healthy lifestyle, we propose that consumers with a growth mindset will attribute the cause of stress to their lack of effort to manage healthy habits while those with a fixed mindset will attribute the source of stress to their inability to control their habits. We begin with a review of the relevant literature on coping strategies and consumer mindsets and then develop hypotheses about how consumers' mindsets guide their coping strategies and how the mechanisms can be explained. Finally, we close with a discussion of the theoretical contributions and implications for practitioners.

## 2 | CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

### 2.1 | Coping strategy for stress

Coping refers to the cognitive and behavioral efforts to manage specific external and/or internal stresses caused by exceeding the individual's resources (Lazarus & Folkman, 1984). Coping literature suggests that individuals deal with stress through either problem-focused coping or emotion-focused coping strategies depending on their personality or situation (Broadbridge, 2002; Lazarus & Folkman, 1984). Problem-focused coping addresses the cause of stress directly to mitigate the stress. Individuals focus on action-oriented efforts to improve the stressful situation and try to find a way to handle the problem. For example, problem-focused coping allows people to determine the cause of the problem and reduce stress by changing their behaviors, planning actions to handle the source of the stress, and examining various options. In contrast, emotion-focused coping attempts to regulate the emotional responses of the cause of the stress (Lazarus & Folkman, 1984), which entails avoiding thoughts about negative outcomes, focusing instead on removing the negative emotions to feel better, or reinterpreting the cause of the stress to reduce the stressful impact. In sum, problem-focused coping addresses the source of stress directly, whereas emotion-focused coping is regulating emotional responses to the stress (Duhachek & Iacobucci, 2005).

Prior literature has shown that individuals' preference for a coping strategy to reduce stress could be influenced by how consumers evaluate their ability to manage the stress and how they understand the situation (e.g., Lazarus & Folkman, 1984; Suján et al., 1999). For example, in a consumption context, Suján et al. (1999) indicated that consumers encounter stress while purchasing, such as having too many brands to choose from, comparing information across alternatives, or making a decision under financial budget constraints. They further identified consumer self-efficacy as a factor that drives specific coping strategies and found that more efficacious consumers are more likely to focus on problem-solving strategies, and less efficacious consumers rely on emotion-focused strategies. Other studies have also shown that engaging in different types of coping strategies is related to the consumer's personality (e.g., extraversion), psychological status (e.g., confidence), or context (e.g., service context or cultural context) (Connor-Smith & Flachsbart, 2007; Miller et al., 2008; Pleyers & Vermeulen, 2020; Suján et al., 1999). The present research suggests that engaging in specific coping strategies is associated with consumer mindsets, which reflect beliefs about the nature of human characteristics (Dweck, 2000). Specifically, consumer mindsets—whether consumers believe their personal qualities are immutable or flexible—are expected to influence their coping strategies. Although previous research has examined when consumers use specific coping strategies based on various factors, little is known about how consumers' coping strategies are influenced by their mindsets to mitigate the stress. Thus, the current research suggests that a consumer's mindset is a critical factor that

influences the effectiveness of coping strategies to reduce health-related stress.

### 2.2 | Consumers' mindsets via implicit self-theories

Mindsets or implicit self-theories are the beliefs about the nature of human characteristics or the malleability of human attributes (Dweck et al., 1995). Implicit self-theories (or mindset theory) suggest that individuals have different assumptions in how they perceive and understand personality, intelligence, and morality. The assumptions then influence a variety of judgments and evaluations about the self and others (e.g., Chiu et al., 1997; Dweck et al., 1995). Specifically, people who believe in fixed traits (i.e., entity theorists) tend to rely on initial trait information when making subsequent judgments. They tend to think that there is little that can be done to change an individual's disposition (Levy et al., 1998). In contrast, people who believe that personal attributes are malleable (i.e., incrementalists) are more likely to focus on psychological factors such as goals, motivations, or intentions rather than dispositional factors when making causal attributions (Chiu et al., 1997). Incrementalists have a growth mindset and believe that learning and experiences can significantly change their character and behavior (Levy et al., 1998).

These two contrasting mindsets influence consumers' motivation and behavior as the views about the nature of human attributes are distinct (e.g., Dweck, 2000; Mathur et al., 2016; Murphy & Dweck, 2016). For example, individuals who believe that their personal qualities are malleable work toward self-enhancement and seek opportunities to learn to improve their personal attributes. As an example, college students with a growth mindset tend to take challenging classes to improve their abilities (Dweck & Leggett, 1988). Consumers with a growth mindset tend to have a learning goal orientation, which allows them to favor cues that provide information about the progress of their learning during the task (Mathur et al., 2014). In contrast, individuals who believe personal qualities are fixed and unchangeable seek opportunities to signal their positive attributes to enhance their ability. Hence, college students with a fixed mindset prefer to take relatively easier classes so they can earn high grades, which signals their competence (Dweck & Leggett, 1988). Consumers with a fixed mindset tend to have a performance goal orientation, so they prefer cues that affirm their competencies by focusing on the completion of the task (Mathur et al., 2014).

In sum, an implicit mindset has been examined as a factor that influences how a consumer pursues a goal, processes information, and adopts behavioral changes (Mathur et al., 2014; Murphy & Dweck, 2016). A consumer mindset has also been examined as a factor influencing the effectiveness of messages (Bandyopadhyay et al., 2021; Carnevale et al., 2018).

Prior studies have investigated consumers' mindsets in health-related domains to understand the influence of consumers' mindsets on wellness behavior (e.g., Bunda & Busseri, 2019; Kaufman et al., 2018; Murphy & Dweck, 2016; Thomas et al., 2019). Specifically, consumers with a growth mindset are more interested in

messages that require them to work on achieving their wellness goals. In contrast, messages that portray the ability of health products to minimize health problems are likely to be most appealing to consumers with a fixed mindset (Murphy & Dweck, 2016). Kaufman et al. (2018) found that individuals with a growth (vs. fixed) mindset showed stronger intentions to engage in positive health behaviors (Bunda & Busseri, 2019; Thomas et al., 2019) and higher rates of changing unhealthy habits.

Based on this prior research, we apply consumer mindsets to explain how consumers would engage in a particular coping strategy to cope with health and wellness issues. We suggest that consumers with a growth mindset will prefer to use a problem-focused coping strategy because, as incremental theorists, they believe that they can change their behaviors and improve the situation to solve the problems. Incremental theorists' attitudes are more malleable and adaptive (Dweck, 2000; Petrocelli et al., 2010); thus, they are likely to directly address the source of the stress by changing their behaviors or taking action to make the stressful situation better. When there is a failure, consumers with a growth mindset tend to extend their efforts to improve the situation (Robins & Pals, 2002).

In contrast, consumers with a fixed mindset, as entity theorists, are less likely to use problem-focused coping. Rather, they will prefer emotion-focused coping to reduce their stress. They are likely to admit that they cannot change their ability, so they will focus on the cause of stress, which cannot be managed and controlled by themselves. Thus, consumers with a fixed mindset are more likely to regulate their emotional responses to the stress or seek emotional support to mitigate their stress. We present the first hypothesis:

**H1.** *Consumers with a growth mindset prefer a problem-focused coping strategy to reduce stress, whereas those with a fixed mindset prefer an emotion-focused coping strategy.*

The current study also aims to explain the underlying mechanism in the relationship between consumer mindsets and different coping strategies. Different mindsets help individuals understand and cognitively respond to negative outcomes. For instance, consumers who have a fixed mindset tend to blame their personal attributes and abilities for negative outcomes, and they tend to adopt performance goals that support favorable judgments of their competence (Ashill et al., 2015; Dweck et al., 1995; Dweck & Leggett, 1988). Since consumers with a fixed mindset believe that people cannot change their characteristics and innate qualities, they are more likely to attribute the failure to their lack of personal ability and uncontrollable causes (Robins & Pals, 2002). In other words, people with a fixed mindset explain the negative outcomes in terms of their lack of ability rather than their lack of effort (Hong et al., 1999), so they will rely on strategies that do not require that they change their behaviors or improve their abilities. Instead, fixed mindset consumers will seek to relieve their emotions (i.e., emotion-focused coping strategy) by attributing the stress to uncontrollable causes and their predetermined ability or skills that are unchangeable.

Unlike a fixed mindset, consumers who have a growth mindset are more likely to interpret negative outcomes in terms of a lack of effort or personal strategies and thus focus on learning to increase their competence because they believe in self-enhancement through self-improvement (Levy et al., 1998; Mathur et al., 2016). Consumers with a growth mindset attribute the cause of stress to their own low efforts and thus look for ways to change the stressful situation by formulating detailed plans to address the problem (Hong et al., 1999). Consumers with a growth mindset are also more likely to understand that the cause of the stress is manageable and controllable by themselves. Therefore, consumers with a growth mindset put effort into solving the problems (i.e., problem-solving coping strategy) by attributing the cause of the stress to their low efforts. Based on these concepts, we hypothesize that:

**H2.** *Consumers with a growth mindset (vs. a fixed mindset) attribute the cause of stress to effort (vs. ability), which in turn leads to a preference for a problem-focused (vs. emotion-focused) coping strategy to mitigate stress.*

### 3 | METHODOLOGY

Overall, three studies were conducted to test the hypotheses. Study 1 demonstrates the effects of consumers' mindsets on coping strategies to mitigate stress and test hypothesis 1, which proposes that consumers with a growth mindset (vs. a fixed mindset) would engage in a problem-focused coping strategy over an emotion-focused coping strategy. Study 2 investigates the influence of consumers' mindsets on choosing coping strategies by manipulating consumers' mindsets. We replicate the results of Study 1 and establish a causal relationship between consumers' mindsets and coping strategies for health-related stress. Lastly, Study 3 investigates the underlying reasons for consumers' preference for a coping strategy depending on their mindset.

#### 3.1 | Study 1

The purpose of Study 1 is to investigate the effect of consumers' mindsets on coping strategies for stress reduction. Specifically, we expect that consumers with a growth mindset (vs. a fixed mindset) prefer to engage in a problem-focused (vs. emotional-focused) coping strategy. To test our hypotheses, we used a sample of average consumers drawn from the Amazon Mechanical Turk (MTurk) pool of participants.

##### 3.1.1 | Research design and procedure

We recruited 120 participants from Amazon MTurk. Careless responses were strictly controlled as we asked attention questions in the middle of the survey (Meade & Craig, 2012). A total of 118 participants (male = 65%; female = 35%;  $M_{\text{age}} = 35$ ) successfully completed this online survey, and they were compensated. First, participants

were informed that the survey included two unrelated studies in different sections. In the first part of the study, participants identified their mindset orientation based on the implicit self-theory measure of personality including eight items. The scale includes four items representing a fixed mindset and four statements representing a growth mindset (Levy et al., 1998). For example, a growth mindset was measured by four items including, “People can substantially change the kind of person they are,” “People can change even their most basic qualities.” A fixed mindset was measured by four items including, “People can do things differently, but the important parts of who they are cannot truly be changed,” and “The kind of person someone is, is something basic about them, and it can't be changed very much.” Participants responded to these items based on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree) (see [Appendix C for the summary of measurement items used in this research](#)).

In the second part of the survey, participants read a scenario that prompted them to imagine that they were experiencing health-related stress (adapted from Han et al. (2016)). Specifically, participants were asked to imagine that they were suffering from stress from maintaining a healthy lifestyle. For example, they could become stressed if they decided not to go to the gym and to get a bunch of cupcakes rather than working out regularly or eating healthy food. As the stress made them uncomfortable, they wanted to release the stress by engaging in an appropriate coping strategy. Then, we provided information about two different types of coping strategies. We explained that the Psychology Department at a North American university recently found that employing problem-focused coping or emotion-focused coping strategies helped people cope with stress. Problem-focused coping entails efforts such as improving the situation, planning actions, or thinking about the problem to improve healthy behaviors. In contrast, emotion-focused coping involves avoiding thinking about unpleasant thoughts regarding the health-related situation, and letting negative emotions out so they can feel better (adapted from Han et al. (2016) and Miller et al. (2008); see [Appendix A](#)). After reading the brief description of coping strategies, participants indicated their coping strategy preference to reduce their stress on a bipolar 7-point Likert scale, for either a problem-focused or emotion-focused coping strategy (e.g., 1 = “Emotion-focused coping is very helpful to mitigate problems.”; 7 = “Problem-focused coping is very helpful to mitigate problems.”). The results allowed us to understand the direction and intensity of the respondent's position on their coping strategy preference. The midpoint indicates a similar preference between an emotion-focused coping strategy and a problem-focused coping strategy. Instead of using a nominal scale (i.e., choice of a coping strategy), we used a 7-point Likert scale with two endpoints to provide more information as it shows more variance in the responses. Lastly, we gathered participants' demographic information such as gender, age, and income as control variables.

### 3.1.2 | Results and discussion

Responses to the implicit self-theory measure of all eight items were combined to form a composite measure of consumers' mindset.

Higher scores on the composite measure indicate a stronger orientation toward a growth mindset. In contrast, lower scores indicate a stronger orientation toward a fixed mindset. To test H1, we ran multiple regressions with the implicit self-theory composite measure as the independent variable and coping strategy preference as the dependent variable. We included gender, age, and income as control variables. The regression results indicated that consumers with a growth mindset were more likely to think a problem-focused strategy would be very helpful to reduce the stress ( $\beta = .20, t = 2.21, p < .05$ ). The results were consistent without control variables ( $\beta = .21, t = 2.28, p < .05$ ). Therefore, H1 was supported in Study 1.

Regarding the effects of each control variable on coping strategies, we found that only gender had a significant effect on the relationship. Specifically, female consumers tended to prefer an emotion-focused coping strategy over a problem-focused coping strategy ( $\beta = .22, t = 2.41, p < .05$ ). However, there was no interaction effect between gender and consumers' mindsets on coping strategy. Although this is an interesting finding, the focus of this study is the effect of consumers' mindsets on coping strategies to reduce stress. Therefore, we will leave this finding for future research and control it for further analysis.

Prior literature suggests that although individuals are predisposed to one of the implicit self-theories, individuals can also be persuaded to adopt a particular mindset after being exposed to relevant information (e.g., Chiu et al., 1997; Park & John, 2012). Therefore, we further tested hypothesis 1 by manipulating the different mindsets of consumers in Study 2. In doing so, we provide robust evidence to confirm that consumers' different mindsets affect their coping strategies for stress reduction.

## 3.2 | Study 2

In Study 2, consumers' mindsets were manipulated to test the influence of a particular mindset on coping strategies to reduce stress (H1). As a dependent variable, we measured consumers' willingness to visit a clinic offering either a problem-focused or an emotion-focused coping. Consistent with the previous finding, we predicted that consumers with a growth mindset would be more willing to visit a clinic, which indicates a problem-focused coping strategy. In contrast, consumers with a fixed mindset would be more willing to visit a clinic that offers an emotion-focused coping strategy. By manipulating consumers' mindsets, we aimed to establish a causal relationship between consumers' mindsets and their preference for a coping strategy to mitigate the stress and thus provide more practical implications.

### 3.2.1 | Research design and procedure

We recruited 130 subjects from Amazon MTurk to participate in an online survey. Careless responses were strictly controlled by including attention questions in the middle of the survey (Meade & Craig, 2012). A total of 128 participants (male = 52%; female = 48%;  $M_{\text{age}} = 41$ ) successfully completed the online survey, and they were



compensated. Participants were randomly assigned to one of four conditions in a 2 (Mindset: Growth vs. Fixed)  $\times$  2 (Coping strategy: Problem-focused vs. Emotion-focused) between-subjects design.

We told participants that the survey included two unrelated studies. In the first part of the survey, participants read part of a news article with a summary of a talk by a psychologist at the *American Psychological Association* conference. Depending on the mindset condition, either a fixed or a growth mindset, participants read that people can change (or not change) their character (adapted from Chiu et al. (1997); see Appendix B). For example, participants in the fixed mindset condition read the following example statement: "In most of us, by the age of ten, our character has set like plaster and will never soften again. In other words, one's character cannot be changed even with great determination and effort." In contrast, participants in the growth mindset condition read the following example statement: "No one's character is as 'hard as a rock.' In other words, one's character can be changed. Only for some, greater effort and determination are needed to effect changes." To ascertain whether reading the news article evoked a specific mindset for participants, we asked participants to write a short paragraph to support the main arguments of the talk.

In the second part of the survey, similar to Study 1, participants read a scenario about stress in the pursuit of a healthy lifestyle. Participants were asked to imagine that they were considering employing a specific coping strategy to reduce stress, and they were randomly assigned to either a problem-focused or an emotion-focused coping strategy condition. The description for coping strategies was the same as in Study 1, but participants could read only one of the coping strategies depending on their assigned condition. After reading the explanation of either a problem-focused coping strategy or an emotion-focused coping strategy, participants identified their level of willingness to visit a healthcare clinic that provided a specific coping strategy to reduce their stress based on a 7-point Likert scale (1 = "Not at all willing"; 7 = "Very much willing"). Lastly, participants answered questions on the orientation of implicit self-theories (Levy et al., 1998) as a manipulation check on consumers' mindsets and provided demographic variables such as gender, age, income, and health consciousness, which were controlled in the analysis.

### 3.2.2 | Results and discussion

A 2 (Mindset)  $\times$  2 (Coping strategy) ANOVA revealed only a significant main effect of the mindset, as expected. The results indicated that participants with a growth mindset had higher scores on implicit self-theory orientation than those with a fixed mindset ( $M_{\text{growth}} = 4.9$  vs.  $M_{\text{fixed}} = 4.2$ ,  $F(1, 124) = 6.7$ ,  $p < .05$ ). This finding confirmed that participants with a growth mindset believe that people can change their characteristics with effort. Our manipulation worked successfully as intended.

A 2 (Growth mindset vs. Fixed mindset)  $\times$  2 (Problem-focused coping vs. Emotion-focused coping) ANOVA revealed that there was no significant main effect of consumers' mindsets ( $F(1,124) = .11$ ,

$p = .74$ ) nor coping strategy ( $F(1,124) = .29$ ,  $p = .59$ ) on participants' willingness to visit a health clinic to reduce stress. More interestingly, there was a significant interaction effect of participants' mindset and coping strategy on their willingness to visit a healthcare clinic to reduce stress ( $F(1,124) = 17.6$ ,  $p < .05$ ; with control variables,  $F(1,120) = 18.77$ ,  $p < .05$ ). Specifically, when participants were primed to a fixed mindset, they were more willing to visit a healthcare clinic that provided an emotion-focused coping strategy than a problem-focused coping strategy to mitigate their health-related stress ( $M_{\text{emotion-focused}} = 4.88$  vs.  $M_{\text{problem-focused}} = 3.85$ ,  $p < .05$ ). In contrast, when participants were primed to a growth mindset, they were more willing to visit a healthcare clinic that offered a problem-focused coping strategy than an emotion-focused coping strategy ( $M_{\text{problem-focused}} = 4.94$  vs.  $M_{\text{emotion-focused}} = 3.61$ ,  $p < .05$ ). Therefore, the findings lend support to H1.

Alternatively, a problem-focused coping strategy was preferred by participants with a growth mindset more than participants with a fixed mindset ( $M_{\text{fixed mindset}} = 3.85$  vs.  $M_{\text{growth mindset}} = 4.94$ ,  $p < .05$ ), whereas an emotion-focused coping strategy was more likely to be pursued by participants with a fixed mindset than a growth mindset ( $M_{\text{fixed mindset}} = 4.88$  vs.  $M_{\text{growth mindset}} = 3.61$ ,  $p < .05$ ). As we proposed, the findings indicate that consumers with a growth mindset prefer to reduce stress by using a problem-focused coping strategy, while consumers with a fixed mindset prefer an emotion-focused coping strategy to lower stress. A problem-focused coping strategy allows consumers to focus more on the problem, which is consistent with an incrementalist's (i.e., growth) mindset. Since incrementalists believe that they can change and improve their attributes and character, they would prefer to engage in a problem-focused coping strategy, which focuses on solving the problems by improving the situation and challenges or changing their behaviors to reduce the cause of the stress. In the following study, we further investigate the underlying mechanism to explain the relationship between different mindsets and preferences for coping strategies to reduce stress.

## 3.3 | Study 3

Study 3 aims to test the mediation effect as proposed in H2. Specifically, a growth (vs. a fixed) mindset prompts consumers to attribute the cause of stress differently, either effort or ability, and explore different attributes of stress that lead to participants' coping strategy preferences. We expected that participants with a fixed mindset would attribute health-related stress to their own ability, so they would prefer to engage in an emotional coping strategy. In contrast, participants with a growth mindset would attribute health-related stress to their own efforts that can be managed and controlled by themselves, so they would prefer a problem-focused strategy.

### 3.3.1 | Research design and procedure

We recruited 120 participants from the MTurk pool (male = 63%; female = 37%,  $M_{\text{age}} = 40$ ) to take our survey. Five people failed to

complete the attention test and were excluded from the analyses ( $N = 115$ ). Using the same procedure as in Study 1, we explained to participants that the survey included different sections that were unrelated. In the first part of the survey, participants answered the questions to measure their implicit self-theory orientation with eight items (Levy et al., 1998). In the second part, participants read a health-related stress scenario. As in Study 1, participants were asked to imagine that they were experiencing stress as they attempted to maintain a healthy lifestyle and wanted to reduce the stress by engaging in a stress coping strategy. We provided brief descriptions for both problem-focused and emotion-focused coping strategies. Participants indicated their preferred coping strategy to reduce stress as in Study 1.

Next, we asked participants to answer questions about the attribution of the stress to measure the process of our prediction (adapted from McAuley et al. (1992)). Specifically, participants indicated if the cause of health-related stress is something that reflects their manageable and controllable ability with six items using a 7-point bipolar scale. For example, participants answered if health-related stress is due to a cause they can regulate (they cannot regulate) and is manageable by themselves (not manageable by themselves). A higher score indicates that participants attributed health-related stress to a lack of effort. Lastly, we measured participants' health consciousness and gathered demographic data on gender, income, and age, which served as control variables.

### 3.3.2 | Results and discussion

Responses to the implicit self-theory measure were combined ( $\alpha = .96$ ); a higher score indicates a growth mindset, whereas a lower score indicates a fixed mindset. We ran multiple regressions on consumers' mindsets as an independent variable and the participants' preference for a coping strategy as the dependent variable. We included gender, income, age, and health consciousness as control variables. The regression results showed that consumers with a growth mindset preferred a problem-focused coping strategy to reduce health-related stress, which supports H1 ( $\beta = .23$ ,  $t = 2.54$ ,  $p < .05$ ). This result was consistent without the covariates ( $\beta = .22$ ,  $t = 2.38$ ,  $p < .05$ ). We also investigated if consumers with a growth mindset thought the cause of stress was related to their effort and could be managed and controlled. The results indicated that participants with a growth mindset attributed the cause of stress to more effort-related factors, which prompted them to take a problem-focused strategy to improve the situation ( $\beta = .29$ ,  $t = 3.1$ ,  $p < .05$ ; without the covariate  $\beta = .30$ ,  $t = 3.3$ ,  $p < .05$ ).

We tested whether the attribution of stress mediated the effect of participants' mindsets on their coping strategy. We used model 4 of the PROCESS macro (5000 bootstrap samples) to test the direct and indirect effects of participants' mindsets on the coping strategy (Hayes, 2013). This analysis included procedures to compute a 95% confidence interval (CI) around the indirect effect (the effects of consumers' mindsets via the attribution of stress on the preference of coping strategy) (Table 1).

Specifically, the effect of a participants' mindset on the attribution, the mediating variable, was significant ( $F(1,113) = 14.99$ ,  $p < .05$ ,  $\beta = .37$  [.1790, .5540]). The effect of attribution of stress, the mediating variable, on coping strategy was also significant ( $F(2,112) = 5.24$ ,  $p < .05$ ,  $\beta = .25$  [.0196, .4798]), but the effect of participants' mindsets on the coping strategy to reduce stress was not significant ( $F(2,112) = 5.24$ ,  $p < .05$ ,  $\beta = .19$  [−.0551, .4377]). If a CI does not include zero, it indicates that attribution of stress played a role as a mediator. The indirect effect results revealed that the CI ranged from 0.0025 to 0.2147, providing evidence that attribution of health-related stress mediated the interaction effects on coping and consumer mindsets. The indirect effect was significant ( $\beta = .095$ , [.0025, .2147]). Therefore, the results support H2.

Consumers with a growth mindset tend to think that health-related stress occurs due to their lack of effort, which prompts them to believe they did not put in enough effort, so they preferred a problem coping strategy to improve the situation and mitigate stress. Since participants with a growth mindset in our study believed that the stress came from manageable factors that were within their control, they focused on a problem coping strategy to improve their stress. In contrast, participants with a fixed mindset thought that health-related stress resulted from factors that were out of their control and they could not change their ability. Thus, they preferred to engage in an emotion-focused coping strategy to reduce stress since the emotion-focused coping strategy focuses on participants' current emotional situation and helps them reduce uncomfortable feelings instead of improving the external situation.

### 3.4 | General discussion

As suggested by implicit self-theories, consumers have different mindsets of either a growth mindset or a fixed mindset. Participants' different mindsets influenced their decisions about how to cope with the stress. From the results, it can be inferred that consumers' belief in the attribution of the stress based on their different mindsets leads them to cope with their stress differently. Integrating implicit self-theories with coping theories, the findings from our three studies collectively suggest that consumers' growth mindset (vs. fixed mindset) leads to a higher preference for problem-focused coping (vs. emotion-focused coping) to reduce health-related stress. In the Study 1, we found that participants with a growth mindset preferred a problem-focused coping strategy (vs. emotion-focused coping) to mitigate their stress. In Study 2, we manipulated participants' mindsets, either growth or fixed, and investigated their preferences for coping strategies to reduce health-related stress. Consistent with the results of Study 1, we found that those with a growth mindset (vs. a fixed) believed that a problem-focused strategy (vs. emotion-focused) was the most helpful strategy to reduce stress. In Study 3, we provided the underlying mechanism to explain why different mindsets influence preferences for stress reduction strategies. We found that participants with a growth mindset thought the stress from the imbalance of their healthy lifestyle was due to their own lack of effort. They believed

**TABLE 1** Mediation results in study 3

Antecedent	Consequent					
	M (Attribution)			Y (Coping strategy)		
	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>
X (Mindset)	0.37	0.09	<.001	0.19	0.12	.129
M (Attribution)	—	—	—	0.25	0.12	<.05
Constant	2.01	0.47	<.001	3.02	0.63	<.001
	$F(1,113) = 14.99, p < .05$			$F(2,112) = 5.24, p < .05$		

that this stress could be managed and controlled, so they were more willing to engage in a problem-focused strategy over an emotion-focused strategy. In contrast, participants with a fixed mindset attributed their stress to their lack of ability (i.e., cannot be managed or controlled), so they did not believe they could solve the problem by changing their behaviors or the situation. Instead, they were more likely to engage in emotion-focused coping to help relieve their negative emotions.

### 3.4.1 | Theoretical implications

This research contributes to the existing literature in several ways. First, this research extends the application of implicit self-theories in consumer behaviors. Past research has documented that consumers' different mindsets influence consumer behaviors in different contexts (e.g., Mathur et al., 2016; Park & John, 2012). This research adds new insights to the existing literature of implicit self-theories by providing evidence that consumers' different mindsets influence their preference for coping strategies to reduce stress. The current research also contributes to the coping literature by documenting how different mindsets motivate consumers to employ different coping strategies in stressful health-related situations. Extant research has been conducted in the fields of consumer mindsets and coping strategies, respectively. However, despite suggesting that consumers' mindset is a powerful tool to explain how consumers engage in a certain coping strategy to deal with stress, to the best of our knowledge, no research has integrated the two theories to examine how consumer mindsets are associated with coping strategies in health-related domains.

We showed that the use of particular coping strategies to mitigate health-related stress is influenced by one's mindset. For example, a consumer with a growth mindset who was told to lose weight at a recent healthcare visit might change his/her eating habits to handle the problem. In contrast, a person with a fixed mindset could seek emotional support from family to relieve the stress associated with weight loss. This research also identifies the underlying cognitive mechanism (i.e., effort vs. ability) of the effect of different mindsets in the health context. The current study examined the attribution of the stress as a mediator to explain the underlying mechanism of the relationship. The findings from Study 3 confirmed that different consumer mindsets prompt consumers to attribute the stress to different

factors: either a lack of effort (growth mindset) or lack of ability (fixed mindset). These different mindsets could prompt them to choose different coping strategies to reduce stress. These findings further contribute to the relationships between implicit self-theories and attribution theory (Heider, 1958). Lastly, the present research enriches consumer health and well-being literature by showing the moderating role of consumers' mindsets in the effectiveness of coping strategies in the health-related stress context. This study adds a new perspective to the health literature nomological net by showing that matching the consumer mindset with a specific coping strategy is an important factor to increase consumers' engagement in health-related medical problems.

### 3.4.2 | Practical implications

This research also has significant practical implications for healthcare marketing professionals and public health policy. Given the growing concerns and interest in consumer health and wellness, health professionals and marketers should identify ways to enhance the effectiveness of health messages to persuade consumers to change their behaviors in effective ways to relieve their stress and improve their well-being. Our findings suggest that marketers should consider delivering appropriate coping strategies based on consumers' different mindsets.

Our research provides beneficial insights for healthcare professionals who want to create effective health messages to convince patients to follow preventative medical directives (Sakib et al., 2020). Preventive advice from medical professionals is often delivered from a medical point of view, and thus the message may be a one-size-fits-all solution. Social science literature has documented that how the message is framed significantly influences the outcomes (Gamson & Modigliani, 1989). Previous studies have shown that matching the message frame with the consumer's mindset promotes persuasion (Labroo & Patrick, 2009; White et al., 2011). Our findings suggest a preventive message in health and wellness sectors can be framed differently by understanding and tailoring it to the patient's pre-existing mindsets. We suggest market segmentation could help medical providers deliver a more tailored message that will better resonate with audiences who have different mindsets.

To deliver targeted messages, healthcare clinicians need to understand that consumers with a growth mindset and a fixed mindset have



different preferences for coping strategies. Once clinicians understand their patient's mindset, the clinician can then suggest an appropriate coping strategy to reduce stress and encourage the patient to engage in health and wellness programs to achieve the best health outcomes. While people may naturally adopt one mindset or the other, the current research provides additional evidence that consumers' mindsets can be situationally activated by exposing them to materials, such as scientific articles (Nussbaum & Dweck, 2008). Therefore, clear and salient information in health messages can shift consumers' mindsets and facilitate effective coping strategies. Additionally, healthcare managers should market their programs by targeting consumers with different mindsets. For consumers with a fixed mindset, marketers should emphasize emotional well-being to reduce consumers' stress and uncomfortable feelings (e.g., "You're still winning. Let's keep your goal in mind!"). In contrast, marketers should include messaging that is problem-focused by emphasizing that the clinics can help consumers change their behaviors and abilities to reduce stress for consumers with a growth mindset (e.g., "What you need do is to follow our special healthcare plans for you!"). Understanding which mitigation strategies resonate with consumers to reduce stress is important to improve health-related medical problems.

### 3.4.3 | Limitations and future research

Although this research provides exciting findings, several issues offer opportunities for future research. First, even though we found that gender influenced participants' coping strategy preference, we only analyzed it as a control variable. The findings in Study 1 revealed that female consumers preferred to engage in an emotion-focused coping strategy more than a problem-focused coping strategy, which is consistent with previous findings (Baker & Berenbaum, 2007). However, our study focused on the role of consumers' mindsets, and we did not elaborate on differences by gender. In future research, it would be interesting to examine gender effects in dealing with health-related stress as there may be a preferred or propensity for a particular approach by gender. The second limitation is related to the issue of using a single-item scale to measure willingness to visit clinics (Study 2) and preference of coping strategies (Study 1 & Study 3). To improve the reliability and validity of the measure, future studies could examine the associations by measuring those variables with a multiple-item instrument including more anchors, such as "not at all likely to very likely" and "would not consider to would very much consider." This will also enable to capture the intensity and the direction of the preference for each coping strategy. Next, we examined the attribution of health-related stress as the underlying mechanism of the relationship between mindsets and coping strategies. We adapted the established attribution scale to measure these constructs, but we explained them with an emphasis on effort and ability depending on consumers' perceptions of manageability and controllability. Although this helps us understand consumers' underlying reasons for the stress based on their mindset, a future study would benefit from directly investigating the cause of stress using consumers' effort versus ability

focus when thinking about health-related stress. Lastly, in the current study, we limited the stress to health-related concerns as it is a primary source of consumer anxiety. Future research can expand the scope of consumer stress (e.g., financial stress, life-event stress, decision-making stress; Moschis, 2007) to investigate the relationship between consumers' mindsets and coping strategies.

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### CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## APPENDIX A

### The scenario for health-related stress

Our daily life is fun but stressful. Just think about your life this year. You are taking a bunch of classes or working and need to

#### Problem-focused coping

Entails efforts such as thinking about possible ways to improve a situation, thinking about one part of the problem at a time, planning actions regarding how to handle the stressful situation, or getting advice from others regarding how to find the solution.

successfully manage multiple tasks at home, school, or work at the same time. You may not get enough sleep or have to drink a lot of coffee to stay awake. That is, it is often hard to balance your health and work or social life. To be healthy, a lot of people try to work out to maintain their health (e.g., go to the gym, eating healthy food, etc.). Although being healthy is an important and enjoyable goal, it sometimes creates stress. For example, you may feel stressed when you decide not to go to the gym but eat a bunch of cupcakes or when you drink a lot of alcohol rather than eat healthy food. In other words, pursuing a health goal itself also creates stress.

### Coping strategy

Given the prevalence of stress elicited by pursuing health goals in our life, the Psychology Department at a North American university has funded important stress research and clinical advances. The psychology department has recently found that employing PROBLEM-FOCUSED COPING strategies (or EMOTION-FOCUSED COPING strategies) can be the best way to deal with stress related to pursuing health goals effectively.

## APPENDIX B

### The scenario for a growth mindset condition

#### American Psychological Association Science Observer

Psychology Today

#### Characters can be changed

By AMERICAN PSYCHOLOGY ASSOCIATION

MARCH 7, 2019



In his talk at the American Psychological Association's annual convention held at Washington D.C. in August 2016, Dr. George Medin argued that **"no one's character is as 'hard as a rock'."** In other words, **"one's character can be changed. Only for some, greater effort and determination are needed to effect changes."**

.....

He reported numerous large longitudinal studies showing that people **"can mature and change their characters."**

#### Emotion-focused coping

Involves efforts such as stopping or avoiding thinking about unpleasant thoughts regarding the stressful situation, letting negative emotions out somehow to feel better, trying to think about the bad side of the situation, or telling others how they feel.

## The scenario for a fixed mindset condition

**American Psychological Association Science Observer**

Psychology Today

**Characters are stable**

By AMERICAN PSYCHOLOGY ASSOCIATION

MARCH 7, 2019



In his talk at the American Psychological Association's annual convention held at Washington D.C. in August 2016, Dr. George Medin argued that **"in most of us, by the age of ten, our character has set like plaster and will never soften again."** In other words, **one's character cannot be changed even with great determination and effort.**

.....

He reported numerous large longitudinal studies showing that people **"age and develop, but their characters are stable."**

## APPENDIX C

## Summary of measures

**Mindsets (Levy et al., 1998) (1 = strongly disagree; 7 = strongly agree)**

1. People can substantially change the kind of person they are
2. People can do things differently, but the important parts of who they are cannot truly be changed
3. Everyone, no matter who they are, can significantly change their basic characteristics
4. The kind of person someone is, is something basic about them, and it cannot be changed very much
5. People can change even their most basic qualities
6. As much as I hate to admit it, you cannot teach an old dog new tricks. People cannot really change their deepest attributes
7. No matter what kind of person someone is, they can always change very much
8. Everyone is a certain kind of person, and there is not much that they can do to really change that

**Preference of coping strategy (Study 1 & Study 3)**

After reading the scenario and description of the coping strategy, please tell us which coping strategies you would like to use to reduce your health-related stress.

(1 = "Emotion-focused coping is very helpful to mitigate problems."; 7 = "Problem-focused coping is very helpful to mitigate problems.")

**Willingness to visit clinics (Study 2)**

Willingness to visit a healthcare clinic that provides a specific coping strategy (either a problem focused coping strategy or emotion focused coping strategy) to reduce their stress based on a 7-point Likert scale (1 = "Not at all willing"; 7 = "Very much willing").

**Attribution of the stress (McAuley et al., 1992)**

Health-related stress is due to the cause of something that:

1. they can regulate (they cannot regulate)
2. manageable by themselves (not manageable by themselves)
3. over which they have power (over which they have no power)
4. inside of you (outside of you)
5. something about you (something about others)
6. reflections as an aspect of yourself (of the situation)

**Health consciousness (Gould, 1988) (1 = does not describe you at all; 5 = describes you very well)**

1. I reflect about my health a lot.
2. I'm very self-conscious about my health.
3. I'm generally attentive to my inner feelings about my health.

**Health consciousness (Gould, 1988) (1 = does not describe you at all; 5 = describes you very well)**

4. I'm constantly examining my health.
5. I'm alert to changes in my health.
6. I'm usually aware of my health.
7. I'm aware of the state of my health as I go through the day.
8. I notice how I feel physically as I go through the day.
9. I'm very involved my health.