When Hope Helps More: The Incidental Effect of Hope and Pride on Compliance with Health-Care Warning Messages

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Resumo

Previous research shows that incidental emotions impact on individuals? judgment of risk, through cognitive appraisals tendencies. However, most of the specific emotions studied are of negative valence. This research proposes that incidental future-oriented positive emotions (i.e., hope), when compared to incidental past-oriented positive emotions (i.e., pride), are more likely to increase compliance with warning messages through self-risk perception. Study 1 tests our predictions checking the temporal focus of positive emotions as expressed in emotion-elicitation essays and demonstrating that incidental hope, compared to pride, shows higher levels of self-risk perception when exposed to a health-care warning ad (STDs), which in turn increases compliance intention with the ad appeal. Study 2 replicates the previous finding in another health-care domain (hepatitis). Study 3 shows that the impact of temporal focus on risk and compliance is contingent on the emotion-focused orientation, and the opposite effect is observed when the temporal focus is not associated with specific emotions. This study contributes theoretically to research on temporal construal level and risk-taking behavior and to the cognitive appraisal tendencies of positive emotions. Additionally, it has implications for public policy actions.

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ABSTRACT

Previous research shows that incidental emotions impact on individuals' judgment of risk, through cognitive appraisals tendencies. However, most of the specific emotions studied are of negative valence. This research proposes that incidental future-oriented positive emotions (i.e., hope), when compared to incidental past-oriented positive emotions (i.e., pride), are more likely to increase compliance with warning messages through self-risk perception. Study 1 tests our predictions checking the temporal focus of positive emotions as expressed in emotion-elicitation essays and demonstrating that incidental hope, compared to pride, shows higher levels of self-risk perception when exposed to a health-care warning ad (STDs), which in turn increases compliance intention with the ad appeal. Study 2 replicates the previous finding in another health-care domain (hepatitis). Study 3 shows that the impact of temporal focus on risk and compliance is contingent on the emotion-focused orientation, and the opposite effect is observed when the temporal focus is not associated with specific emotions. This study contributes theoretically to research on temporal construal level and risk-taking behavior and to the cognitive appraisal tendencies of positive emotions. Additionally, it has implications for public policy actions.

Keywords: Hope, Pride, Warning messages, Temporal focus, Risk perception.

INTRODUCTION

Health literature states that individuals are differently persuaded by warning messages due to their differently self-risk perception. Thus, one of the biggest challenges in health-care advertising is overcoming the audience's underestimated vulnerability and raising personal risk estimates, especially when the target is in a positive mood state (Agrawal, Menon, & Aaker, 2007). For example, Carnival is a festival held in Brazil every year in the summer season. The party includes live music, street performances, dancing, but also abusive drinking and inconsequential sexual behavior. Against these public health problems, the Brazilian government promotes advertising campaigns every year during the festive season to alert the public about the consequences of risky behaviors (Governo do Brasil. Ministério da Saúde, 2018). This audience is usually in a more positive mood state when exposed to the warning messages during this festive season, making the effectiveness of these preventive ads even more challenging. That is, besides the advertisement itself (i.e., the message content and how it is framed), the individuals' emotional state is commonly associated with message effectiveness (Agrawal, Menon, & Aaker, 2007; Agrawal & Duhachek, 2010).

Extant research has given some attention to the incidental impact of specific emotions on outcomes involving risk judgments (e.g. Lerner & Keltner, 2001; Kouchaki, Oveis, & Gino, 2014; Ferrer, Maclay, Litvak & Lerner, 2016). Such findings underscore the important role of incidental emotions in influencing subsequent risk-related outcomes, yet most of the specific emotions studied are of negative valence. Even tough negative affective state seems to be more efficient in getting individuals to process information about health risks, it could lead people without apparent health problems typically engage in defensive tendencies. Additionally, a negative affective intervention may increase the chance of backfire or even respond with reactance (Cho & Sands, 2011).

Moreover, we also observe that there is scarce research investigating the incidental impact of specific positive emotions on individuals' judgment of risk (for an exception, see Agrawal, Menon, & Aaker, 2007). Further exploring specific positive emotions is a matter of interest since the audience of preventive health communication is often in a positive mood state (e.g. STDs campaign in Carnival season) and positive affective state leads individuals to a lower risk perception (less cognitive effort and higher self-positive bias). Not to mention, the incidental effect of specific emotions may increase self-risk perception through cognitive appraisal tendencies, but most of the emotions studied are of negative valence.

To address this gap, we draw on health communication literature to propose that the extent to which people's mindset is future-oriented is likely to have a positive impact on preventive information processing (Simons, Vansteenkiste, Lens, & Lacante, 2004; Bearden, Money, & Nevins, 2006). Our premise is that the future appraisal tendency of specific positive emotions has a positive impact on individuals' self-risk perception when exposed to health-care warning messages, which in turn increases compliance with the warning appeal.

Therefore, to show how incidental positive emotions may differentially affect compliance with warning messages, we consider two specific positive emotions with contrasting temporal focus – hope (future-oriented) and pride (past oriented). We reasoned that the warning message generates more self-risk perception and compliance when the consumer's mindset is more future- than past-oriented. When individuals are less concerned about the future, they may consider the potential hazard as less probable and the warning appeal may not be so effective in getting their compliance. We conduct three experiments to show that a hopeful (vs. proud) mindset better recognizes the self-risks inherent in a health-care warning message and leads to increased compliance with the requested preventive behaviors. Moreover, we show that the impact of temporal focus on risk perception and compliance with warning messages is contingent to the emotion-focused orientation, and the opposite effect is true for the temporal focus not associated with specific emotions.

This study contributes to the literature on temporal construal level and risk-taking behavior showing evidence that highlight the opposite effect for temporal focus when it is driven by emotions. Also, this study contributes to the literature of positive emotions and cognitive appraisal tendencies by demonstrating the affective influence on perceptions about possible consequences in the future, such as in preventive information processing. Finally, this study adds to extant work in health literature the role of specific positive emotions (i.e., hope and pride) as a factor that affects individuals' compliance with health-care warning messages. Given the prevalence of hope and pride in consumer experience, it seems interesting to understand how these two positive emotions impact the way consumers process information and make subsequent decisions in the preventive domain. This is especially important in public policy action because managers may appeal to incidental positive emotions as a persuasive strategy for preventive ads that are particularly harder to reach the public that is in a positive emotional state.

THEORETICAL BACKGROUND

Emotions and Cognitive Appraisal Tendencies

There is a consensus that emotions are characterized by specific patterns of cognitive appraisals that influence the perceptions of subsequent situations and guide behaviors (Lazarus, 1991). According to the Appraisal-Tendency Framework (ATF), central appraisal patterns associated with each emotion activate a cognitive predisposition, called cognitive appraisal tendency, that leads individuals to evaluate the subsequent event consistent with the fundamental appraisal that characterizes the emotion. Appraisal tendencies are affective

processes through which emotions exert effects on judgment and choice until the emotion-eliciting problem is resolved. Although the exact number of appraisals and the precise terminology used to describe appraisal dimensions differ, researchers agree that emotions are characterized by a specific pattern of cognitive appraisals that shape perceptions of subsequent situations and guide behaviors. These processes have been found to influence subsequent events' judgments and choices even when such events are not related to the emotion cause–what is called incidental effect (Lerner & Keltner, 2001; So, Achar, Han, Agrawal, Duhachek, & Maheswaran, 2015).

Past research has already shown that emotions of the same valence can sometimes influence the judgment in opposite ways – a proposition that contradicts predictions from valence accounts and therefore provides a useful point for comparing valence and appraisal-tendency approaches. Therefore, each emotion present tendencies to perceive new events and objects in ways that are consistent with the original cognitive-appraisal dimensions of the emotion, beyond valenced-mood states only. In this research, we draw on cognitive-appraisal theories of emotion to outline how specific emotions of the same valence (i.e., positive) differentially influence judgments and choice outcomes because of variation on another cognitive appraisal – temporal dimension (Lazarus, 1991; Lerner & Keltner, 2001; Ferrer et al., 2016).

Temporal Appraisal Dimension: Temporal Focus of Hope and Pride

The temporal appraisal dimension represents the temporal focus of emotions. That is, it is a cognitive appraisal that represents the extent to which an emotion results in future-, present- or past-oriented action tendencies. The central idea of appraisal theories is that emotions exist in bipolar categories, forming a set of dimensions along which emotions can be organized and identified as similar or different from each other. As the main effect of interest in our research is the carry-over impact of temporal appraisal, we will consider two positive emotions – hope and pride – which are characterized by contrasting temporal focus (Lazarus, 1991; Winterich & Haws, 2011).

Hope is defined as a positive emotion evoked in response to an uncertain, but possible goal-congruent outcome. Specifically, hope includes agency – goal-directed energy, and pathways – planning to achieve the goal. It is induced through the identification of the desired outcome that is believed to be possible and predicated for events in the future. As an anticipatory emotion, hope is currently experienced due to the prospect of a future event will happen or not. From an evolutionary perspective, hope is responsible for the activation of perceptions that goals can be met. People feeling hope to imagine the behaviors they can perform to reach the goal and visualize the pleasure when the desired outcome materializes (Snyder Harris, Anderson, Holleran, Irving, Sigmon, 1991).

Similar to hope, pride is also a pleasurable goal-oriented emotion, but it comes after the goal attainment; that is, pride is also associated with success, but it is typically experienced when people have already achieved important goals in life. In the case of pride, the event also must be congruent with positive self-representations, and individuals then must make a series of causal attributions. Individuals experiencing pride tend to think that they, not external factors, are controlling and are responsible for the positive outcomes in their lives, which might promote positive behaviors in the achievement domain and contribute to the development of a genuine and deep-rooted sense of self-esteem. Contrary to the future appraisal of hope, pride arises from a past situation and shows a high level of certainty and control about the event. Consistent with this description, pride is also described as a goal-oriented, positive-valenced, but past-oriented emotion (Lazarus, 1991; Tracy & Robins, 2007; Tong, 2015; Mantovani, Andrade, & Prado, 2018).

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Hope and pride share some similarities, such as the positive valence, the goal orientation, but distinguished temporal focus. Therefore, the literature states that hope as an experienced emotion tends to be characterized by a future-oriented temporal focus whereas pride is characterized by a past-oriented temporal focus. That is, incidental feelings of hope, compared to pride, tend to lead individuals to construe events with greater future-oriented temporal focus. Therefore, we theorize that such temporal cognitive appraisal tendency may have an impact on subsequent behaviors, such as self-risk perception in the preventive domain.

The Impact of Temporal Focus on Risk Perception

The concept of temporal focus affects how people incorporate perceptions about past experiences, current situations, and future expectations into their attitudes, cognitions, and behaviors. Past research on temporal construal already demonstrated that individuals can construe events in different temporal perspectives. An event is psychologically distant as it takes place into the future, whereas an event is psychologically closer as it takes place into the present or past. That is, people can experience different temporal perspectives as they mentally construe events psychologically distant or closer in the dimension of time (Liberman, Trope and Wakslak, 2007; Winterich & Haws, 2011).

Individuals experiencing different temporal perspectives may also show different subsequent outcomes. Liberman, Trope, and Wakslak (2007) state that the perspective of future temporal distance raises the questions of taking actions for future goals (e.g., self-control). For instance, Winterich and Haws (2011) show that consumers experiencing a future-oriented positive emotion demonstrates higher self-control in subsequent decisions compared to past- or present-oriented positive emotions.

Typically, future orientation has been considered as a general concern with the future. For instance, Simons et al. (2004) state that future temporal orientation serves as a cognitive-motivational factor that may result in a greater ability to construe distant events. The authors explain that people with a future temporal orientation experience the psychological distance toward a given future event as psychologically much closer than people with a past or present temporal orientation. As such, the extent to which people's mindset is future-oriented is likely to have an important impact on information processing, with important psychological consequences, such as beliefs about personal vulnerability to future threats (Bearden, Money, & Nevins, 2006).

Perception of vulnerability that a negative event can happen in the future is one of the two dimensions that form the construct of risk, along with the perceived severity of the negative event. Both vulnerability and severity need to reach adequate levels in order to elicit risk perception. In consumer behavior literature, risk is generally understood as negatively-valenced likelihood assessment that an unfavorable event will occur and is closely associated with greater precautionary behaviors of individuals (Menon, Raghubir, & Agrawal, 2006).

Past research suggests that high levels of perceived self-risk would result in higher intentions to engage in preventive behaviors (e.g. Chandran & Menon, 2004). For that matter, we argue that self-risk perception may depend on how concerned individuals are with their future. Based on the suggestion of further examining if it is possible to prime temporal orientation in the context of warning advertising, we propose that temporal orientation can be primed through incidental emotions due to their temporal appraisal tendencies: future *versus* past temporal-focused emotions lead individuals to present contrasting temporal orientations. Thereby, we theorize that the temporal orientation of emotions may impact subsequent self-risk perceptions in the preventive domain.

The impact of specific emotions on outcomes involving risk judgments have already been explored (e.g. Lerner & Keltner, 2001; Kouchaki, Oveis, & Gino, 2014; Ferrer et al., 2016). However, most of the emotions studied are of negative valence and/ or their effects are related to cognitive appraisals other than temporal focus. For example, Lerner and Keltner (2001) found that the sense of certainty and control associated with anger should lead angry individuals to make risk-seeking choices, whereas the sense of uncertainty and lack of control associated with fear should lead fearful individuals to make risk-averse choices. Ferrer et al. (2016) compared anger to sadness and found that anger also leads to increased risk-taking behavior because of the higher levels of certainty and control cognitive appraisals. Kouchaki, Oveis, and Gino (2014) showed that guilt influences risk-taking behavior by enhancing one's sense of control and optimism about risks for the self.

Note that risk judgment's outcomes involving risk-taking behavior are subtly different from those involving the domain of our research – preventive behaviors. Prevention behaviors focus on averting the development of a problem, providing people with the opportunity to maintain their present status and reduce the risk of such future threats (Chandran & Menon, 2004). That is, in the preventive behavior's domain, the choice of not adopting the requested behavior is the risky option.

One of the few examples that we have found so far in the literature that analyzes the effect of incidental positive emotions on the perception of risk involving preventive behaviors, is the study by Agrawal, Menon, and Aaker (2007). The authors showed that the compatibility between the relatedness appraisal dimension of incidental positive emotions (happiness/ self, peacefulness/ other) and the message referent (consequence to the self or to the others) fostered the processing of health information and the perception of risk.

Nevertheless, studies analyzing the effect of temporal perspective on risk perception involving preventive behaviors are frequent, but at the message framing analysis level. For example, Chandran and Menon (2004) used the construal level theory (CLT) to demonstrate that temporal frame describing threat events as happening either "every day", compared to "every year", was perceived as the closer in time, more concrete, and more probable, which increased risk perceptions.

Thereby, to fill this theoretical gap, our research combined the literature of emotional cognitive appraisals and compliance with warning messages by analyzing the incidental impact of specific positive emotions with contrasting temporal focus on preventive behaviors domain. As such, given that hope is characterized by a future temporal focus (Lazarus, 1991; Winterich & Haws, 2011) and recalling that a future orientation enhances the awareness about long-term goals (Simons et al., 2004; Liberman, Trope, & Wakslak, 2007), we argue that temporal focus underlies the extent to which positive emotions impact perceptions of self-risk. Therefore, we propose that individuals primed with a positive future-oriented mindset (i.e., incidental hope) should better recognize potential risk events in a warning message by showing greater self-risk perception when compared to those individuals primed with a positive past-oriented mindset (i.e., incidental pride).

Thus, we propose the first hypothesis of our research: *H1: The incidental effect of hope, compared to pride, leads consumers to show higher self-risk perception when exposed to health-care warning messages.*

The Mediating Role of Self-Risk Perception in Compliance with Warning Messages

According to our theorization so far, temporal aspects of consumers' mindsets may play an important role in individuals' judgment, especially when it comes to self-risk perceptions. Every day people are confronted with a wide variety of uncertain situations, and

how they will solve them depends on their likelihood judgment of such events occurring (Menon, Raghubir, & Agrawal, 2006).

Previous literature suggests that consumers' compliance with warning messages may be influenced by their self-risk judgments. Theories of health behavior suggest that the greater is an individual's perceived risk, the greater is their intention to alter behavior to reduce such risk. Therefore, it is imperative to take risk perceptions into consideration when ensuring the persuasiveness of a health-care warning message (Chandran & Menon, 2004).

Additionally, the literature suggests that differences in temporal orientation may cause consumers to respond differently to time-oriented messages in advertising (Bearden, Money, & Nevins, 2006). For that matter, we argue that the effectiveness of a warning message may depend on how concerned individuals are with their future. That is, we propose that the extent to which people are future-oriented tends to have a positive impact on information processing of self-risk judgment and that the effectiveness of a warning message depends on this level of self-risk perceptions generated.

As such, we hypothesized that individuals primed with a positive future-oriented mindset (i.e., incidental hope), when compared to those individuals primed with a positive past-oriented mindset (i.e., incidental pride), will present greater compliance with the warning appeal due to a greater self-risk perception. Thus, we state as our second research hypothesis as follows: *H2: The incidental effect of hope, compared to pride, leads consumers to show higher compliance with health-care warning appeals (a) mediated by self-risk perception (b).*

Temporal Focus, Emotions and Risk Perception

There is a vast literature that explores individuals' risk-judgment in order to respond to the question as to what generates people's inconsistency in risk-taking/ -aversion behavior. That is, what factor contributes to the common observation that one sometimes chooses to play it safe when faced with risky situations and other times not (e.g. Sagristano, Trope & Liberman, 2002; Chandran & Menon, 2004; Lerner et al., 2015).

For that matter, Sagristano, Trope, and Liberman (2002) have shown the first evidence about the influence of CL on risk preferences by manipulating temporal distance and demonstrating that participants were willing to take more risks in distant-future (abstract CL) than in the near-future (concrete CL). Furthermore, the study of Lerner et al. (2015) have also revealed that abstract mindset (higher CL) increases, and concrete mindset (lower CL) decreases risk-taking behaviors in the gain domain. That is, past studies have evidenced that future temporal perspective (psychologically distant) leads to more abstract CL processing, which in turn lead to greater risk-taking behavior than individuals primed with present/past temporal focus (psychologically closer).

Controversially, we argue that temporal perspective mind-set, when associated with specific emotions, should take into account the emotion cognitive appraisals above the CL when processing risk-related information. We suggest that future-oriented hopeful mindset (that is characterized by an abstract CL processing style) should lead individuals to lower risk-taking (i.e., greater risk perception and preventive behavior) when compared to past-oriented proud mindset (that is characterized by a concrete CL processing style). This is the opposite effect predicted by CLT and we argue that this occurs because cognitive appraisals of hope and pride are temporal oriented and are also related to goal attainment.

Cognitive appraisals of hope are related to goals to be achieved in the future and those of pride are related to goals already achieved in the present or recent past. The appraisals and corresponding action tendencies of pride are indeed related to greater risk-taking because the certainty about the success in the past and stronger appraisals of responsibility and control lead the individual to attempt to a greater reward in the future.

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Therefore, the temporal focus associated with this emotion (pride) is likely to decrease risk perception in the future when compared to hope. On the other side, hope is characterized by low perception of control and responsibility and stronger uncertainty about being successful at reaching the goal because it has not been achieved yet, which increase the risk perception that something wrong could happen in the future (Lazarus, 1991; Tracy & Robins, 2004; Winterich & Haws, 2011; Tong, 2015; So et al., 2015).

We argue that the impact of temporal focus on risk perception and compliance with warning messages are contingent on the emotion-focused orientation. That is when individuals are future-oriented with hope feeling, the risk perception and compliance should be higher compared to those that are past-oriented with pride feeling. The opposite should be observed for the temporal focus not associated with specific emotions, where CLT is the information processing mechanism that will prevail.

Thus, we propose the third hypothesis of our research: *H3: The incidental effect of temporal focus on individuals' risk judgment outcomes shows an opposite effect when associated with a specific emotion. That is, future temporal focus associated with hope feeling shows higher self-risk perception and compliance compared to past temporal focus associated with pride feeling; whereas future temporal focus not associated with emotion shows lower self-risk perception and compliance when compared to past temporal focus not associated with emotion.*

OVERVIEW OF STUDIES

Across three experiments, we test our basic hypotheses that incidental hope results in higher self-risk perception and compliance intention relative to pride. Study 1 demonstrates the positive impact of incidental hope (vs. pride) on self-risk perception and compliance intention with a health-care warning message. Study 2 replicates the previous findings in a different domain of health-care warning message. Finally, Study 3 shows that when the future temporal focus is associated with the feelings of hope (vs. no emotion), self-risk perception and compliance intention are higher. However, self-risk perception and compliance intention are higher in the past temporal focus when it is not emotion-oriented (vs. pride-oriented).

Pre-test

Writing tasks are frequently used to induce emotions (Lerner & Keltner, 2001). We pre-tested the use of written essays to induce the intended emotional states and to check their expected temporal focus.

Participants and design. A total of 100 undergraduate students (m_{age}: 21.2, SD: 4.6; 54% male) completed the lab study in exchange for course credit. The experiment employed a single factor (hope vs. pride vs. neutral) between-subjects design. The students were randomly assigned to one of the three emotional state conditions.

Procedure. We induced the relevant emotional state by asking participants to write about a situation in which they felt hope or pride (Tracy & Robins, 2007; Winterich & Haws, 2011). Right after the writing task, participants indicated the extent to which they were experiencing each of four emotion words (happiness, hope, pride, sadness), which were randomly ordered, on a 7-point scale (1 = I do not feel the emotion at all, and 7 = I really feel the emotion). Next, participants of the pre-test rated their essays' temporal focus (Winterich & Haws, 2011), using one item on a 7-point scale (1 = in the past, and 7 = in the future). The temporal focus of participants' essays was examined to check the temporal focus appraisal triggered by the intended emotions, that is a suggested mechanism through which positive emotions influence subsequent risk-related outcomes.

Results

Manipulation Checks. For the emotions manipulation check a one-way ANOVA shows that self-reported hope presents a significant difference between the three emotional state conditions (F (2, 97) = 115.79, $p < .001$), as well as self-reported pride (F (2, 97) = 44.52, $p < .001$). Planned contrasts indicated that self-reported hope in the hope condition (M_{hope} = 6.36; SD = .86) was greater than for pride (M_{pride} = 5.32; SD = 1.39, $p < .001$) and neutral conditions ($M_{neutral}$ = 1.88; SD =1.43, $p < .001$). As well as self-reported pride was greater for those in the pride condition (M_{pride} = 6.79; SD = .41) than for hope (M_{hope} = 5.36; SD = 1.41, $p < .001$) and neutral conditions ($M_{neutral}$ = 3.73; SD = 1.79, $p < .001$). In addition, there was no effect of sadness across conditions (p's > .20). Also, there was no statistical difference on happiness score between the two positive emotion conditions (M_{hope} = 5.97; SD = 1.10; vs. M_{pride} = 6.47; SD = .788, p = .246), but there was statistical difference for happiness between the positive emotional state and the neutral condition ($M_{neutral}$ = 2.73; SD = 1.50, p's < .001). This is not surprising, since happiness is one of the least differentiated positive emotions and that it is often used as a generic description of positive affect (Winterich & Haws, 2011). Therefore, it was expected that individuals in a positive affective state could self-report high scores of happiness as well. As such, these results indicate that the writing task successfully induced the intended emotional states of hope, pride and neutral.

For temporal focus manipulation check a one-way ANOVA showed a significant difference between the three emotional state conditions (F (2, 97) = 22.95, $p < .001$). Planned contrasts showed that participants in the hopeful writing task condition reported a greater future-focus on their essays (M_{hope} = 5.70; SD = 1.55) than those in pride (M_{pride} = 3.62; SD = 1.52, $p < .001$) and neutral conditions ($M_{neutral}$ = 3.55; SD = 1.32, p = < .001). There were no differences in self-reported temporal focus for those in the neutral condition compared to pride condition ($M_{neutral}$ = 3.55 vs. M_{pride} = 3.62, p = 1). These results provided evidence that the emotional state of hope leads individuals to construe events with a greater future-oriented temporal focus when compared to pride and neutral conditions. Therefore, this pre-test indicates that the writing task successfully induced hope, pride and neutral emotional states, which in turn triggered the expected temporal focus.

Study 1

Study 1 demonstrates that a hopeful mindset (i.e., incidental hope), compared to a proud mindset (i.e., incidental pride) and a baseline condition (i.e., neutral) shows higher self-risk perception (H1) when exposed to a health-care warning message. Additionally, it shows that incidental hope, compared to incidental pride and neutral condition, demonstrates higher compliance with the warning appeal (H2a) mediated by self-risk perception (H2b).

Participants and design. A total of one 105 undergraduate students (m_{age}: 21.3, SD: 3.5; 56% male) completed the lab study in exchange for course credit. The experiment employed a single factor (hope vs. pride vs. neutral) between-subjects design. The students were randomly assigned to one of the three emotional state conditions.

Procedure. Participants were told that they were taking part in two unrelated studies: an emotions experiment and a marketing survey on health (Agrawal, Menon, & Aaker, 2007). We induced the emotional state using the previously tested writing task. Next, participants indicated the extent to which they were experiencing each of four emotion words (happiness, hope, pride, sadness), which were randomly ordered, on a 7-point scale (1 = I do not feel the emotion at all, and 7 = I really feel the emotion), and one item on a 7-point scale to assess the emotion's temporal focus (1 = in the past, and 7 = in the future).

Ensuing, participants took part in a survey about a health-care advertising campaign that contained a warning ad about Sexually Transmitted Diseases (STDs). Participants were

told that the Brazilian Health Ministry was designing a health-care warning campaign target to undergraduate students like them. Participants read in the ad title: *Condom serves to more than preventing unwanted pregnancy. Have you thought about it?* The ad information about the disease was: *In recent years, Brazil has reported an increase in the spread of sexually transmitted diseases (STDs), due to a decrease in the use of condoms. According to data from the Health Ministry, only 56.6% of young people use condoms. It is very important to remember that, in addition to avoiding an unplanned pregnancy, the use of condom prevents the spread of STDs such as syphilis, chlamydia, gonorrhea, and HIV.* The ad appeal was: *Condoms are one of the safest methods for STDs prevention. Prevent yourself. Use condom.*

After reading the ad, participants rated their self-risk perception about contracting an SDT in unprotected sex: *In your opinion, what are the chances (0 to 100% probability) that you will get an STD during sex without using a condom?* Then, based on Agrawal, Menon, and Aaker (2007), participants rated their compliance with the health-care ad and evaluated its content (*Informative; Credible; Useful; Efficient*), on a 7-point scale. Finally, they were thanked and dismissed.

Results

Manipulation Checks. A one-way ANOVA shows a significant difference between the three emotional state conditions ($F_{(2, 102)} = 87.41$, $p < .001$). Self-reported hope in the hope condition ($M_{hope} = 6.06$; SD = 1.03) was greater than for pride ($M_{pride} = 4.97$; SD = 1.60, $p < .005$) and neutral conditions ($M_{neutral} = 2.06$; SD = 1.23, $p < .001$). The feeling of pride was higher for those in the pride condition ($M_{pride} = 6.09$; SD = 1.25), compared to hope ($M_{hope} = 4.74$; SD = 1.80, $p < .005$) and neutral conditions ($M_{neutral} = 2.63$; SD = 1.38, $p < .001$). In addition, there was no negative mood effects in our main comparison since there was no statistical difference on sadness score between the two positive emotion conditions ($M_{hope} = 2.46$; SD = 1.65; vs. $M_{pride} = 1.91$; SD = 1.04, $p = .235$), and there was no statistical difference between the two positive emotional state conditions and the neutral condition ($M_{neutral} = 2.17$; SD = 1.38, $p = 1$). Also, there was no statistical difference on happiness score between the two positive emotion conditions ($M_{hope} = 5.17$; SD = 1.67; vs. $M_{pride} = 5.71$; SD = 1.20, $p = .323$), but there was statistical difference between the two positive emotional state conditions and the neutral condition ($M_{neutral} = 2.20$; SD = 1.28, $p < .001$).

Additionally, for self-reported temporal focus a one-way ANOVA showed a significant difference between the three emotional state conditions ($F_{(2, 102)} = 7.44$, $p < .001$). Participants in the hopeful writing task condition reported a greater future-focus on their essays ($M_{hope} = 5.06$; SD = 1.53) than participants in pride ($M_{pride} = 3.91$; SD = 1.67, $p < .01$) and neutral conditions ($M_{neutral} = 3.71$; SD = 1.51, $p < .005$).

Self-Risk Perception. The one-way ANOVA showed a significant difference between the three emotional state conditions ($F_{(2, 102)} = 4.168$, $p < .05$) on self-risk perception. Planned contrasts indicated that self-risk perception in the hope condition ($M_{hope} = 52.86$; SD = 32.19) was greater than for pride condition ($M_{pride} = 34.28$; SD = 26.70, $p < .05$). There were no significant differences between hope and neutral conditions ($M_{neutral} = 37.46$; SD = 27.14, $p = .08$). There was no statistical difference between pride and neutral conditions ($M_{pride} = 34.28$ vs. $M_{neutral} = 37.46$, $p = 1$). These results corroborate H1, which proposes that incidental hope, compared to pride, shows higher self-risk perception when exposed to a health-care warning message.

Compliance Intention. The one-way ANOVA showed significant difference between the three emotional state conditions ($F_{(2, 102)} = 3.531$, $p < .05$) on compliance intention. Planned contrasts indicated that compliance intention was higher for those in the hope condition ($M_{hope} = 89.17$; SD = 25.13) compared to pride ($M_{pride} = 72.94$; SD = 32.31, $p < .05$) and neutral conditions ($M_{neutral} = 74.40$; SD = 26.85, $p < .05$). There was no statistical difference between pride and neutral conditions ($M_{pride} = 72.94$ vs. $M_{neutral} = 74.40$, $p = .977$).

These results corroborate H2a, which proposes that incidental hope, compared to pride, shows higher compliance with the health-care warning appeal.

   Mediation Analysis. The mediation analysis was tested through bootstrapping (Model 4 - Hayes, 2013). We coded 1 = hope and 0 = pride; a 95% confidence interval (CI) of the parameter estimates was obtained by running the resampling 10,000 times. The results indicate that self-risk perception mediation was significant for the pairwise hope vs. pride (*Coef* = 5.15; CI = .368 to 12.103). It shows a positive impact of hope on self-risk perception (*Coef* = 18.57; CI = 4.463 to 32.679). Self-risk perception also had a positive impact on consumers' compliance intention (*Coef* = .28; CI = .048 to .506). The expected indirect effect of self-risk perception between emotions and compliance intention was statistically significant (indirect effect = 5.15, 95% CI = .368 to 12.103). There was no direct effect of emotions on compliance intention (direct effect = 11.07; CI = -2.929 to 25.076) and no other result has emerged. We additionally run the pairwise comparison between hope vs. neutral (*Coef* = 5.131; CI = .310 to 12.038) that was also significant. These results corroborate H2b, which proposes that incidental hope, compared to pride, demonstrates higher compliance with the health-care warning appeal mediated by self-risk perception. It also demonstrates that the effect of the future-oriented emotion on compliance is driven by the risk perception. The main effect disappears with the risk perception.

   Ad Evaluation (α = .72). A one-way ANOVA was conducted to rule out an alternative explanation to our hypothetical framework. The results indicate that there was no statistical difference on ad evaluation between the three emotional state conditions (M_{hope} = 5.75; SD = .86; vs. M_{pride} = 5.49; SD = 1.13; vs. $M_{neutral}$ = 5.85) (F (2, 102) = 1.354, *p* = .263). Therefore, emotions have no incidental effect on ad evaluation, and this is not the mechanism by which the proposed emotions impact the compliance with health-care warning messages.

Discussion

   The results of study 1 provide initial support for hypotheses H1 and H2. Incidental hope, compared to incidental pride, demonstrates greater self-risk perception when exposed to the STDs warning message, supporting H1. Similar effect is observed for the compliance intention with the health-care warning appeal, supporting H2a. The study also shows first evidence that self-risk perception completely mediates the relationship between emotions and compliance intention. That is, incidental hope shows higher self-risk perception when exposed to the STDs warning message, which in turn increases compliance intention with the preventive behavior requested in the STDs ad appeal, supporting H2b.

Study 2

   Study 2 attempts to replicate our previous results in a different health-care domain (Hepatitis) with a more heterogeneous audience than study 1 (using Amazon M-Turk).

   Participants and design. A total of one 108 participants (m_{age}: 38.1, SD: 12; 59% female) completed the M-Turk study. Twelve participants failed the attention check and were eliminated from further analysis, leaving a final sample of 96 respondents. The experiment employed a single factor (hope vs. pride vs. neutral), between-subjects design. The participants were randomly assigned to one of the three emotional state conditions.

   Procedure. The procedure followed was similar to that used in experiment 1, except for the warning ad was about Hepatitis disease instead of STD. The emotional state was induced through the writing task. After reading the ad, participants indicated their self-risk perception about contracting hepatitis, on a 7-point scale (1 = not at all likely, and 7 = very likely. Then participants indicated their compliance intention to the health-care ad appeal (based on Agrawal, Menon, & Aaker, 2007; Chandran & Menon, 2004), on a 7-point scale.

We included Google's reCAPTCHA system and two attention checks based on Reich, Beck, and Price (2018). Finally, they were thanked for their and dismissed.

Results

Manipulation Checks. A one-way ANOVA showed that self-reported hope presents a significant difference between the three emotional state conditions (F (2, 93) = 34.31, $p < .001$), as well as self-reported pride (F (2, 93) = 29.58, $p < .001$). Planned contrasts indicated that self-reported hope in the hope condition (M_{hope} = 6.52; SD = .712) was greater than for pride (M_{pride} = 5.39; SD = 1.69, $p < .005$) and neutral conditions ($M_{neutral}$ = 3.34; SD =2.01, $p < .001$). The feeling of pride was higher for those in the pride condition (M_{pride} = 6.32; SD = .91), compared to hope (M_{hope} = 5.24; SD = 1.71, $p < .01$) and neutral conditions ($M_{neutral}$ = 3.34; SD = 1.86, $p < .001$). In addition, there were no negative mood effects of sadness between the two positive emotion conditions (M_{hope} = 2.55; SD = 1.90; vs. M_{pride} = 1.87; SD = 1.36, $p = .234$), and there was no statistical difference between the positive emotional state conditions and the neutral condition ($M_{neutral}$ = 1.88; SD = 1.41 vs. M_{hope} = 2.55; SD = 1.90, $p = .247$, neither vs. M_{pride} = 1.87; SD = 1.36, $p = 1$). Also, there was no statistical difference on happiness score between the two positive emotion conditions (M_{hope} = 5.76; SD = 1.60; vs. M_{pride} = 6.03; SD = .836, $p = .663$), but there was statistical difference between the positive emotional state conditions and the neutral condition ($M_{neutral}$ = 3.94; SD = 1.86, $p's < .001$).

In addition, the one-way ANOVA results showed that the temporal focus had a significant difference between the three emotional state conditions (F (2, 93) = 26.38, $p < .001$). Participants in the hopeful writing task condition reported a greater future-focus on their essays (M_{hope} = 5.39; SD = 1.69) than participants in pride condition (M_{pride} = 2.52; SD = 1.59, $p < .001$). There was no differences between hope and neutral conditions ($M_{neutral}$ = 4.47; SD = 1.54, $p = .069$).

Self-Risk Perception. A one-way ANOVA showed a significant difference between the three emotional state conditions (F (2, 93) = 4.582, $p < .05$). Planned contrasts indicated that self-risk perception in the hope condition (M_{hope} = 3.85; SD = 1.84) was greater than for pride condition (M_{pride} = 2.65; SD = 1.25, $p < .01$), but there was no statistical difference between hope and neutral conditions ($M_{neutral}$ = 3.19; SD = 1.61, $p = .294$). Also, there was no difference between pride and neutral conditions (M_{pride} = 2.65 vs. $M_{neutral}$ = 3.19, $p = .541$).

Compliance Intention. A one-way ANOVA indicated a significant difference between the three emotional state conditions for compliance intention (F (2, 93) = 4.364, $p < .05$). Planned contrasts indicated that the compliance intention was higher for those in the hope condition (M_{hope} = 4.36; SD = 1.73), compared to those in the pride (M_{pride} = 3.13; SD = 1.61, $p < .05$), but there was no statistical difference to those on neutral condition ($M_{neutral}$ = 3.66; SD = 1.69, $p = .279$). There was no statistical difference between pride and neutral conditions (M_{pride} = 3.13 vs. $M_{neutral}$ = 3.66, $p = .648$).

Mediation Analysis. The mediation analysis was tested in the same model as the previous study. The results indicate that self-risk perception mediation was significant for the pairwise comparison between hope vs. pride (*Coef* = .776; CI = .289 to 1.321). It shows a positive impact of hope on self-risk perception (*Coef* = 1.203; CI = .4119 to 1.994). Self-risk perception also had a positive impact on consumers' compliance intention (*Coef* = .645; CI = .431 to .859). The expected indirect effect of self-risk perception between emotions and compliance intention was statistically significant (indirect effect = 7.76, 95% CI = .289 to 1.321). There was no direct effect of emotions on compliance intention (direct effect = .458; CI = -.256 to 1.172) and no other result has emerged. We additionally run the pairwise comparison between hope vs. neutral (*Coef* = .3421; CI = -.089 to .836) that was not statistically significant, and also no direct effect was found. These results also corroborate H2b.

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Discussion

The results of study 2 successfully replicated those obtained in study 1 with a different health-care domain (hepatitis) and with a more heterogeneous audience (MTurk respondents). The compliance of participants was positively affected by feelings of hope, compared to pride. The results provide further support for the mediating role of risk perception.

Study 3

In study 3 we manipulate temporal focus eliciting future vs. past perspective with the respective presence and absence of emotions to test our hypotheses H3. We expect to replicate the results of studies 1 and 2 when the temporal focus is associated with the respective emotion (i.e., hope vs. pride conditions).

Participants and design. A total of 129 undergraduate students (m_{age}: 21.8, SD: 3.42; 50% male) completed the lab study in exchange for course credit. Seventeen participants failed the attention check and were eliminated from further analysis, leaving a final sample of 113 undergraduate students. The experiment employed a 2 (temporal focus: future vs. past) x 2 (emotion: present vs. absent), between-subjects design. Respondents were randomly assigned to one of the four conditions.

Procedure. The procedure was similar to that used in the previous experiments, except for the temporal focus manipulation, which was induced using the writing task procedure (Lerner & Keltner, 2001; Tracy & Robins, 2007; Winterich & Haws, 2011), only changing the presence and absence of the emotion-oriented temporal focus.

Right after the writing task, participants indicated the extent to which they were experiencing each of four emotion words (happiness, hope, pride, sadness), which were randomly ordered, on a 7-point scale (1 = I do not feel the emotion at all, and 7 = I really feel the emotion), and one item on a 7-point scale to assess the essay's temporal focus (1 = in the past, and 7 = in the future). Next, saw the STDs advertising campaign, as employed in study 1. After reading the ad, participants rated their self-risk perception about contracting an SDT and rated their compliance with the health-care ad (Agrawal, Menon, & Aaker, 2007).

We used two attention checks, based on Reich, Beck, and Price (2018). Finally, they were thanked for their participation and dismissed.

Results

Manipulation Checks. A two-way ANOVA of temporal focus and emotion presence shows only a main effect of emotion presence on self-reported hope ($F_{(1,112)}$ = 5.525, $p < .05$; $\eta_p^2 = .048$) and self-reported pride ($F_{(1,112)}$ = 6.421, $p < .05$; $\eta_p^2 = .056$). Within emotion present condition participants show significant difference in their self-reported hope ($M_{future-hope}$ = 6.40; SD = .814 vs. $M_{past-pride}$ = 5.36; SD = 1.54) ($F_{(1, 109)}$ = 7.958, $p < .01$; $\eta_p^2 = .068$) and self-reported pride ($M_{past-pride}$ = 5.96; SD = 1.62 vs. $M_{future-hope}$ = 5.07; SD = 2.01) ($F_{(1, 109)}$ = 3.08, $p < .05$; $\eta_p^2 = .028$). Within future temporal focus condition participants show significant difference in their self-reported hope ($M_{future-hope}$ = 6.40; SD = .814 vs. M_{future} = 5.33; SD = 1.710 ($F_{(1, 109)}$ = 8.169, $p < .005$, $\eta_p^2 = .070$) and self-reported pride ($M_{past-pride}$ = 5.96; SD = 1.62 vs. M_{past} = 4.25; SD = 2.03 ($F_{(1, 109)}$ = 11.852, $p < .001$, $\eta_p^2 = .098$). Any other effects were observed (Fs <1).

Additionally, a two-way between-subjects ANOVA on self-reported temporal focus shows only a main effect of temporal focus ($F_{(1,112)}$ = 3.461, $p < .05$; $\eta_p^2 = .031$). Within emotion absent condition, those in the future condition showed a higher focus in the future (M_{future} = 5.48; SD = 1.36) compared to those in the past condition (M_{past} = 3.86; SD = 1.88) ($F_{(1, 109)}$ = 16.014, $p < .001$; $\eta_p^2 = .128$). There was no difference among those in the future temporal focus condition (M_{future} = 5.48; SD = 1.36 vs. $M_{future-hope}$ = 6.00; SD = .910, (F

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$(1,109) = 1.687$, $p = .197$) and among those in the past temporal focus condition ($M_{past} = 3.86$; SD = 1.88 vs. $M_{past-pride} = 4.39$; SD = 1.707, p = 197, (F $(1,109) = 1.774$, $p = .186$). Any other effects were observed (Fs <1).

Self-Risk Perception. A two-way ANOVA indicated no main effect of emotion presence (F $(1, 109) = .033$, $p = .856$), or temporal focus on self-risk perception (F $(1, 109) = .972$, $p = .326$). However, the expected interaction effect was significant (F $(1, 109) = 9.359$, $p < .005$, $\eta_p^2 = .079$). Within the emotion present condition, self-risk perception was higher for those in the "future temporal focus" condition ($M_{future-hope} = 56.17$; SD = 5.35) than for those in the "past temporal focus" condition ($M_{past-pride} = 33.82$; SD = 5.55) (F $(1, 109) = 8.400$, $p < .005$, $\eta_p^2 = .072$). Within the emotion absent condition, no difference was observed for self-risk perception between "future temporal focus" ($M_{future} = 38.26$; SD = 28.74) and "past temporal focus" conditions ($M_{past} = 49.71$; SD = 29.79) (F $(1, 109) = 2.095$, $p = .151$).

Within the "future temporal focus" condition, the self-risk perception was higher for those in the "emotion present" condition ($M_{future-hope} = 56.17$; SD = 5.35) than for those in the "emotion absent" condition ($M_{future} = 38.26$; SD = 28.74; SD = 29.79) (F $(1, 109) = 5.294$, $p < .05$, $\eta_p^2 = .046$). Within the "past temporal focus" condition, the self-risk perception was lower for those in the "emotion present" condition ($M_{past-pride} = 33.82$; SD = 5.55) than for those in the "emotion absent" condition ($M_{past} = 49.71$; SD = 29.79) (F $(1, 109) = 4.108$, $p < .05$, $\eta_p^2 = .036$).

Compliance Intention. Similar analyses were performed for compliance intention. The results indicate that there was no main effect of emotion condition (F $(1, 109) = .384$, $p = .537$), or temporal focus condition on compliance intention (F $(1, 109) = .512$, $p = .476$). However, the expected interaction was significant (F $(1, 109) = 13.364$, $p < .001$, $\eta_p^2 = .109$). Within the "emotion present" condition, compliance intention was higher for those in the "future temporal focus" ($M_{future-hope} = 85.10$; SD = 27.29) than for those in the "past temporal focus" condition ($M_{past-pride} = 59.36$; SD = 37.42) (F $(1, 109) = 9.811$, $p < .005$, $\eta_p^2 = .083$). For those in the "emotion absent" condition, compliance intention was lower for those in the "future temporal focus" condition ($M_{future} = 67.22$; SD = 36.61) than for those in the "past temporal focus" condition ($M_{past} = 84.54$; SD = 21.40) (F $(1, 109) = 4.212$, $p < .05$, $\eta_p^2 = .037$). Within the "future temporal focus" condition, compliance intention was higher for those in the "emotion present" condition ($M_{future-hope} = 85.10$; SD = 27.29) than for those in the "emotion absent" condition ($M_{future} = 67.22$; SD = 36.61) (F $(1, 109) = 4.643$, $p < .05$, $\eta_p^2 = .041$). For those in the "past temporal focus" condition, the compliance intention was lower for those in the "emotion present" condition ($M_{past-pride} = 59.36$; SD = 37.42) than for those in the "emotion absent" condition ($M_{past} = 84.54$; SD = 21.40) (F $(1, 109) = 9.072$, $p < .005$, $\eta_p^2 = .077$).

Discussion

Overall, study 3 provides the following contributions. First, study 3 replicates the previous findings of studies 1 and 2. Second, it provides initial evidence that the impact of temporal focus on risk perception and compliance with warning messages are contingent to the emotion-focused temporal orientation, corroborating H3. When individuals are future-oriented with hope feeling, the risk perception and compliance are higher compared to the past-oriented with pride feeling. The opposite is observed for the temporal focus not associated with specific emotions.

GENERAL DISCUSSION

Through a series of three experiments, the present research demonstrates that temporal-focused positive emotions impact consumers risk perception and compliance with

health-care warning messages. Both the first and second study demonstrate that the future-oriented emotion of hope has a higher impact on compliance with health-care warning messages compared to the past-oriented emotion of pride. Risk perception mediates this effect. Study 3 demonstrated that affective temporal focus has the opposite effect on risk perception compared to no-affective related temporal focus. The results show initial evidence that warning messages advertising the positive benefits of health-care increases risk perception and compliance for those in the affective state of pride, whereas the message framing the possible losses and negative outcomes seem to be more effective for those in the future-oriented emotional state of hope.

This research contributes to the literature on temporal construal level and its impact on risk-taking behavior. Past research has shown that the future, compared to past or present temporal focus shows higher risk-taking behavior (e.g. Sagristano, Trope & Liberman, 2002; Lerner et al., 2015). This study moves a step further by showing that positive affective temporal focus, measured as hope and pride incidental states, influences an individual's risk perception in the opposite direction. If consumers experience the emotional reactions of temporal focus, such as being hopeful to achieve future outcomes or proud of what has been attained, risk perception is higher for the future compared to past temporal focus.

As a consequence, this study also contributes to the literature of positive emotions and cognitive appraisals associated with the specific affective reaction. When the temporal focus is associated with emotions, people experience the affective reactions of these emotions, which impacts perceptions about possible consequences, such as those in preventive domains. There is substantial research on the impact of negative emotions on warning messages (e.g. Menon, Raghubir, & Agrawal, 2006) and risk-taking behavior (e.g. Lerner & Keltner, 2001; Kouchaki, Oveis, & Gino, 2014; Ferrer et al., 2016), but there is scant research about the influence of positive emotions on this domain of behavior (see Agrawal, Menon & Aaker, 2007 for an exception). Therefore, we contribute by demonstrating further evidence about how incidental positive emotions may influence compliance with health-care warning messages, bringing different positive emotions and different cognitive appraisal dimensions to this relationship.

Regarding societal issues that emerge from risk-taking behavior in the health-care domain, this research addresses important managerial contributions for public policy actions. It is established that risk-taking decisions are impacted by emotions and also by temporal focus perspective (Kouchaki, Oveis, & Gino, 2014; Lerner et al., 2015). However, the findings of this research suggest that managers should consider emotion valence and temporal focus of these emotions to promote compliance with health-care warning messages. For instance, individuals focused in the future may be more cooperative and less risk-taking when there is hope associated with this temporal focus. However, the risk-taking associated with the emotional state of pride may be reduced when the warning message is gain-framed.

Also, warning messages are more often associated with negative emotions because these emotions are frequently experienced as a consequence of risky behavior, but in most of the circumstances of risky consumption, consumers are in a positive affective state. For instance, campaigns for wearing sunscreen are often advertised during the summer, warning messages about STDs prevention are more often communicated during the Carnival in Brazil. These are moments where consumers are in a positive emotional state.

It is noteworthy that the goals of health-related communication are often to make people more informed and to get people to change their behavior. Therefore, getting people to be more aware of risk behaviors is an important persuasion strategy to impact people before the possible time to act at risk. As a concrete example of this strategy, sequential outdoors could be used, on the road, during the summer season, to reach the public that is going to the beach. An outdoor with a skin cancer prevention ad could be exposed right after an outdoor in

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which the emotion of hope is highlighted, such as remembering that the beginning of the year is the best time to renew hopes and set new goals to be achieved. Another moment that the audience is in a positive emotional state is during the trip to their destination of travel to enjoy the party of Carnival in Brazil, for example. Sponsored articles could be used in the onboard magazines with the Carnival theme on the cover. The sponsored articles could be strategically created to prime the emotion of hope, whereas the STDs prevention ad is presented alongside.

Limitations and Future Research

One potential limitation is that hope and pride are not only temporal-oriented emotions but are characterized by other appraisals such as certainty, control, responsibility and goal related. It is unknown whether the effect of the emotional state on risk perception and compliance was caused only by temporal appraisal or by the association with other appraisals. Furthermore, another a potential limitation of this research is that the emotional state is not directly associated with the warning message. For instance, guilt and shame are frequently evoked in antidrinking messages (Agrawal & Duhachek, 2010). Since it is more difficult to predict incidental emotional states, our results are limited to situations where consumers are in the emotional-temporal focus orientation of hope or pride, and/or to a specific strategy that prime these emotions as an antecedent to the warning information.

As a follow-up to our study, future research could compare the incidental effect of future-oriented positive and negative emotions in different contexts of prevention domain. For example, a life insurance ad is a target to an audience that is not necessarily in a positive mood state. In this case, the incidental negative emotions may be more effective in getting the audience to perceive greater risk in the warning message since the chance of aversion and/or reactance is lower. Additionally, it would be interesting to investigate our findings with a natural target group that is confronted with real risky situations, and also in other domains beyond those of health-care warning messages, such as financial investments.

REFERENCES

Agrawal, N., & Duhachek, A. (2010). Emotional compatibility and the effectiveness of antidrinking messages: A defensive processing perspective on shame and guilt. *Journal of Marketing Research*, *47*(2), 263-273.

Agrawal, N., Menon, G., & Aaker, J. L. (2007). Getting emotional about health. *Journal of Marketing Research*, *44*(1), 100-113.

Bearden, W. O., Money, R. B., & Nevins, J. L. (2006). A measure of long-term orientation: Development and validation. *Journal of the Academy of Marketing Science*, *34*(3), 456-467.

Chandran, S., & Menon, G. (2004). When a day means more than a year: Effects of temporal framing on judgments of health risk. *Journal of Consumer Research*, *31*(2), 375-389.

Cho, H., & Sands, L. (2011). Gain-and loss-frame sun safety messages and psychological reactance of adolescents. *Communication Research Reports*, *28*(4), 308-317.

Ferrer, R. A., Maclay, A., Litvak, P. M., & Lerner, J. S. (2016). Revisiting the Effects of Anger on Risk-Taking: Empirical and Meta-Analytic Evidence for Differences Between Males and Females. *Journal of Behavioral Decision Making*, *30*(2), 516-526.

Governo do Brasil. Ministério da Saúde. Departamento de Vigilância, Prevenção e Controle das IST, do HIV/Aids e das Hepatites Virais. Disponível em <http://www.aids.gov.br/pt-br/pub/2017/boletim-epidemiologico-hivaids-2017> Acesso em 14/08/2018.

Hayes, Andrew F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. New York, NY: The Guilford Press. *Journal of Educational Measurement*, *51*(3), 335-337.

Kouchaki, M., Oveis, C., & Gino, F. (2014). Guilt enhances the sense of control and drives risky judgments. *Journal of experimental psychology: general*, *143*(6), 2103.

Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American psychologist*, *46*(8), 819.

Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of personality and social psychology*, *81*(1), 146.

Lerner, E., Streicher, B., Sachs, R., Raue, M., & Frey, D. (2015). The effect of construal level on risk-taking. *European Journal of Social Psychology*, *45*(1), 99-109.

Liberman, N., Trope, Y., & Wakslak, C. (2007). Construal level theory and consumer behavior. *Journal of Consumer Psychology*, *17*(2), 113-117.

Mantovani, D., Andrade, E. B., & Prado, P. H. M. (2018). The impact of goal (non) attainment on consumer preference through changes in regulatory focus. *European Journal of Marketing*, *52*(3/4), 637-655.

Menon, G., Raghubir, P., & Agrawal, N. (2006). Health risk perceptions and consumer psychology. *Available at SSRN 945673*.

Reich, B. J., Beck, J. T., & Price, J. (2018). Food as ideology: Measurement and Validation of Locavorism. *Journal of Consumer Research*, *45*(4), 849-868.

Sagristano, M. D., Trope, Y., & Liberman, N. (2002). Time-dependent gambling: Odds now, money later. *Journal of Experimental Psychology: General*, *131*(3), 364.

Simons, J., Vansteenkiste, M., Lens, W., & Lacante, M. (2004). Placing motivation and future time perspective theory in a temporal perspective. *Educational psychology review*, *16*(2), 121-139.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... & Harney, P. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal of personality and social psychology*, *60*(4), 570.

So, J., Achar, C., Han, D., Agrawal, N., Duhachek, A., & Maheswaran, D. (2015). The psychology of appraisal: Specific emotions and decision-making. *Journal of Consumer Psychology*, *25*(3), 359-371.

Tong, E. M. (2015). Differentiation of 13 positive emotions by appraisals. *Cognition and Emotion*, *29*(3), 484-503.

Tracy, J. L., & Robins, R. W. (2004). "Putting the Self into Self-Conscious Emotions: A Theoretical Model". *Psychological Inquiry*, *15*(2), 103-125.

Winterich, K. P., & Haws, K. L. (2011). Helpful hopefulness: The effect of future positive emotions on consumption. *Journal of Consumer Research*, *38*(3), 505-524.