No Pain No Gain: the Use of Negative Cues As Indicators of Health Benefits

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We explore consumers’ beliefs about the relationship between risks and benefits associated with medicines. Specifically, we focus on consumers’ reliance on the detriments of medications, including the likelihood and severity of side effects, when judging their potential benefits, such as their effectiveness. Based on equity theory, we propose that consumers believe that desirable health gains can often only be obtained through undesirable pains (i.e., no pain, no gain). We find support for our “no pain, no gain” lay theory of efficacy inferences based on a medication’s detriments in a series of studies with different types of detrimental product information.

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**SESSION OVERVIEW**

The objective of this special session is to address an important problem in health care—how to encourage consumers to engage in health-protective behaviors, including risk-avoidance and health remedy consumption. Such research is part of a larger literature on how consumers respond to health communication messages and how to promote a healthy lifestyle. As such, audience interest at ACR should be high.

Each project offers a unique yet complementary perspective on these issues. Specifically:

1) “Health Communication Effectiveness: Using Underlying Processes…” investigates how health risk messages change consumers’ mental maps of diseases and, in turn, risk perceptions and behavioral intentions. The research uses a dual process model to understand consumer response to health communications.

2) “Harboring Hope and Accepting Anxiety…” investigates how health risk messages affect emotions and, in turn, health risk perceptions. The research focuses on the role of emotions in consumer response to health communications about disease and risk.

3) “No Pain No Gain…” investigates how health remedy messages affect consumer beliefs about the risks and benefits of medicines and, in turn, their perceived effectiveness. The research focuses on consumer lay theories about health remedies.

4) “…TCM versus WM in China” investigates consumer perceptions and preference for Traditional Chinese versus Western health remedies in China. The research focuses on consumer lay theories about these health remedies in Chinese culture.

Together, these projects examine consumer response to two kinds of health marketing: health risk messages and health remedy messages. In large part, prior research in health communications has focused on the former and taken a traditionally cognitive approach to examining message effectiveness (cognitive responses, attitude change, etc.). The present research attempts to go further in developing an understanding of the cognitive schema that underlie health attitudes and behaviors—specifically, consumers’ mental maps of diseases and consumers’ lay theories about health remedies. Moreover, the present research argues that consumer response in the health domain is not guided solely by cognitions but also by the interplay with emotions and must be understood in a culture-specific context. By bringing together research on both sides of the health communication coin—that is, risk and remedy messages—we hope to further our understanding of the myriad factors that influence health-protective behaviors. Our discussant (a recipient of NCI and MSI awards for research on health communications) has been chosen for her unique breadth and depth of experience in areas relevant to our research—and should help bring further insight to our understanding of how to improve consumer health and welfare.

**EXTENDED ABSTRACTS**

“Health Communication Effectiveness: Using Underlying Processes to Understand the Relationship between Health Risk Attitudes and Behavioral Intentions to Follow the Recommendations”

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Past health literature examining the effectiveness of health communication (e.g., Becker 1974; Kahn and Luce 2006; Rogers 1975, 1983) generally assumed that health-related messages initiate people’s assessments of risk and vulnerability and resulting coping strategies, which, in turn, influence intentions to follow message recommendations. Based on these models, consumers usually form risk perception attitudes and behavioral intentions to follow the recommendations in a deliberate way after assessing relevant factors in the communication. Furthermore, attitudes and intentions are generally assumed to be positively correlated. A recent meta-analysis by Keller and Lehmann (2006), however, suggests that the consistency between attitudes and intentions is not always true because some contextual factors (e.g., message framing) could affect attitudes and behavioral intentions in opposite ways. No systematic theories have been suggested to date to explain why changes in attitudes and behavioral intentions are positively correlated in some situations but negatively correlated in others. Understanding these questions has important implications for the effective design of health communication messages.

We propose that the relationship between attitudes and behavioral intentions depends on the functioning of underlying cognitive processes. First, we assume that previous findings showing a positive correlation between changes in attitudes and intentions as a result of health communication messages occurs because both are formed through a relatively deliberate process which imitates System 2 cognitive functioning that is controlled, effortful, and involves forming underlying conceptual representations of the task at hand (Kahneman and Frederick 2002; Stanovich and West 2002). On the other hand, we hypothesize that certain types of health communication messages can activate automatic attitudes by bypassing the elaborate System 2 reasoning and that these changes in automatic System 1 attitudes can thus be negatively correlated from changes in behavioral intentions that are still formed deliberately.

A 2 (information: vivid vs. non-vivid) x 2 (number of enumerated disease exemplars: high vs. low) experiment was designed to test our hypotheses. We propose that when a vivid personal story attracts people’s attention (McGill and Anand 1989), they will engage in relatively deliberate integrative processing of both the enumerated disease instances and the vivid information and use them to make the subsequent judgments (Burnstein and Schul 1983; Schul and Burnstein 1985). As a result, people in the high number condition will have higher deliberate attitudes of risk and correspondingly higher intentions to follow recommendations than people in the low number condition. However, when non-vivid information is provided and the enumerated disease instances
become the primary input for the subsequent judgments, automatic risk attitudes are activated and the high number condition will lead to the lower risk attitudes than the low number condition. In this case the high number of enumerated disease exemplars inhibits people’s recall of the remaining cases, and the perceived difficulty of recalling specific disease cases decreases people’s health risk perception (Alba and Chattopadhyay 1985; Raghubir and Menon 1998). This memory inhibition effect has been shown to be an automatic process that happens quickly, unintentionally, and effortlessly (Menon and Raghubir 2003). Since behavioral intentions are not influenced by information vividness (Keller and Lehmann 2006), they will still be formed deliberately and intentions will remain higher in the high versus low number condition. Thus the pattern of behavioral intention changes will diverge from the pattern of changes in the automatic attitudes. Experimental results confirm our hypotheses.

Using conceptual mapping technology (John et al. 2006; Lord 1994; Stuart 1985) we map the conceptual representations underlying deliberate health attitudes and behavioral intentions, and show that concept maps are more predictive of attitudes when they are formed through a deliberate process than when they are formed through an automatic process. We also identify conceptual associations that are important in influencing consumers’ behavioral intentions which can be used in the design of health communication messages.

References

“Hарboring Hope and Accepting Anxiety: The Role of Uncertain Emotions in Judgments of Health Risk”
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How much am I at risk of getting hepatitis C? Does this message that presents risk factors for hepatitis C convince me that I may be at risk? Do I need to get tested for it? Raising such questions and prodding people into action is the focus of much of the communication intended to promote safe, precautionary and preventative behaviors in the context of health. One of the unique aspects of such communication is its inherently threatening and aversive undercurrent. A growing stream of research on health seeks to understand the factors that affect how people process health risk messages and to answer the question: When, why and how are messages effective in convincing people of their vulnerability? In this paper, we focus on the dual roles of emotions in the context of health messages: (a) when they are evoked by a health message (i.e., emotions as consequences), and (b) when they are incidental to the health message and thus affect the processing of such messages (i.e., emotions as antecedents).

A significant stream of research has examined the effect of affective states on judgments and decision-making. One such stream examines the effects of valence on responses to stimuli. Another more recent research stream examines the role of specific emotions (e.g., anger, sadness, peacefulness) in processing information and forming judgments (Lerner and Keltner 2000), with a focus on the effects of different emotions that share the same valence but differ on other characteristics. For example, anxiety and sadness are both negative affective states, but anxiety is a highly uncertain state whereas sadness is associated with lower levels of uncertainty. In the current paper, we identify how two appraisal dimensions of emotions, valence and uncertainty, interact to determine the persuasiveness of health risk messages. We bring together the literature on valence as a source of goals and resources...
(Raghunathan and Trope 2002) and the literature on specific emotions to understand how emotions varying on valence and uncertainty interact. We report the results of three experiments in which we contrast the effects of health messages that convey more or less vulnerability to a disease.

In Experiment 1, we show that a message that communicates greater vulnerability leads to changes in uncertain emotions (e.g., hope and anxiety), but not certain emotions (e.g., happiness and sadness), regardless of valence. We also demonstrate that the effects of health messages that communicate different levels of vulnerability on risk perceptions are mediated through these observed changes in uncertain emotions. These results provide initial evidence that health messages influence risk perceptions through uncertain emotions, and form the basis for our theorizing in Experiments 2 and 3. In Experiment 2, we prime two negative emotions that activate a mood repair goal, and show more directly that the incidental or ambient experience of two different negative emotions varying on uncertainty affects processing of health information and perceptions of risk. When individuals experience negative uncertain emotions (e.g., sadness), they process the health message in more detail, presumably because such processing does not have deleterious effects on the specific certain emotion (as per the results of Experiment 1). But when people experience an uncertain emotion (e.g., anxiety), vulnerability has little effect—suggesting less message processing, presumably to protect against feelings of anxiety that would go against the emotion regulation goal of repair (Agrawal, Menon, and Aaker 2007; Zemack-Rugar, 2006). Therefore, people experiencing uncertain negative emotions are less likely to process a health message that communicates greater vulnerability. In Experiment 3, we prime positive emotions that induce people to be open to aversive information (Raghunathan and Trope 2002), and demonstrate that the message communicating greater vulnerability has more impact on risk perceptions than the one communicating lower vulnerability. Further, we demonstrate that this effect is larger when people experience uncertain positive emotions (e.g., hope) since they have a goal of uncertainty reduction and thus process the health messages to a greater extent compared to people experiencing certain positive emotions (e.g., happiness). Since processing the message increases the positive uncertain emotion being experienced (i.e., hope) as per Experiment 1, there is no incentive to resist such processing.

References

“No Pain No Gain: The Use of Negative Cues as Indicators of Health Benefits”
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Consumers often rely on internal or external cues, such as brand name, price, or presence of a warranty (Rao and Monroe 1989; Kirmani and Rao 2000) when inferring products’ overall quality or unknown attribute values. For example, consumers may infer that a higher-priced bike helmet provides better protection in case of an accident than a lower-priced one. Indeed, consumers’ intuitions or lay theories about the relationships among various elements of the marketing mix have been shown to affect inferences about missing product attributes, product choice, consumption enjoyment and actual product performance (e.g., Broniarczyk & Alba 1994, Chernev & Carpenter 2001, Raghunathan et al. 2006, Shiv et al. 2005). Extending this stream of literature, the present research examines consumers’ inferences about product effectiveness in the health domain. Surprisingly, the literature is silent about the factors that influence perceptions of medicinal efficacy. Specifically, we focus on consumers’ reliance on product detriments, such as the likelihood and severity of medicines’ side effects, when judging their benefits, such as their effectiveness. Based on equity theory (Berkowitz and Walster 1976; Walster, Walster and Berscheid 1978), we suggest that consumers who desire to gain the health benefits believe that they need to suffer through the associated pains to get better in the end (i.e., no pain, no gain), which in turn influences their inferences about the effectiveness of health products. Additionally, we investigate the moderating role of involvement in the relationship between health risk and health benefit perceptions.

In particular, Study 1 demonstrates a three-way interaction between involvement with a health issue (low/high), frequency of side effects (rare/common) and severity of side effects (mild/severe) on perceptions of product efficacy. Specifically, those who are highly involved with the health issue (e.g., those who suffer from allergies) infer higher product effectiveness when mild side effects of the allergy medication are common than when they are rare. This effect is reversed for those who are less involved (e.g., those who do not suffer from allergies); product efficacy is perceived to be higher when mild side effects are rare versus common. A different pattern emerges when side effects are reported to be severe. When the side effects are severe, product effectiveness is rated equally regardless of involvement or frequency. These results lend support to our theorizing that individuals feel like they need to “pay” either by suffering severe side effects regardless of its rate of recurrence, or mild but common side effects in order for the medication to work. Additionally, results of Study 1 reveal an interactive effect of frequency of side effects and involvement. Specifically, allergy sufferers have a more favorable attitude toward the medicine when the side effects are common compared to when the side effects are rare. However, there is no difference in attitude toward the product for low-involvement individuals. In sum, the results of Study 1 support our prediction that consumers hold an implicit “no pain, no gain” lay theory regarding medicine and efficacy. In Study 2, we investigate whether this effect replicates using bad taste as a negative cue that may signal product effectiveness. We predict that consumers infer higher product effectiveness from cough syrups with bad (vs. good) taste. Additionally, this study seeks to shed light on the underlying process of the effects we obtained. In particular, given that in a normative sense health risks pertaining to side effects should not influence perceptions of health benefits, we predict that the inference process...
consumers engage in is an unconscious one. To test this prediction, Study 2 also includes cognitive busy signal manipulations. We expect that consumers will still infer efficacy of the product based on its bad (vs. good) taste when consciously focused on a secondary task (i.e., when cognitively busy).

References


“Consumer Perceptions of Traditional Chinese versus Western Medicine in China”

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Traditional Chinese medicine (TCM) is an important form of health practice in China and other Asian countries. The world market for TCM is estimated at over $23 billion, with most of the growth coming from Europe and the USA. In China, TCM and Western medicine (WM) have coexisted for over 200 years, and both types of medicine are licensed and widely sold. The category is legally required to be marked on all drug labeling, and Chinese consumers are familiar with the categories when purchasing drugs for self-care. The question then arises: how do consumers perceive these drug categories, and what are the consequences for consumer behavior? Surprisingly, almost no research has examined this issue (but see Piron et al. 2000). The present research addresses this void.

Perceptions. We expect that consumer perceptions of WM and TCM will differ in several important ways. In TCM, medical success aims for an entire recovery and re-balance of the Yin and Yang (Science of Chinese Materia Medica 2003). In contrast, a focus on alleviating symptoms quickly seems more consistent with WM, which views diseases as cause-effect sequences (Compilation Committee 1998). Accordingly, we hypothesize that:

\[ \text{H1: TCM (vs. WM) is perceived to have (a) slower action and milder side effects and (b) greater focus on treating the underlying illness versus alleviating the symptoms.} \]

Preference. We expect that these perceptions will, in turn, affect product preference. We propose that consumers will prefer the medicine that is more consistent with their treatment time-frame and goals (either symptom alleviation or cure of the underlying illness). Thus,

\[ \text{H2: Consumers will prefer a) WM when the time-frame is relatively short and b) TCM when the goal is treatment of the underlying illness.} \]

The relationship between symptom and disease is, of course, an uncertain one. When uncertainty is low, consumers can easily identify a cause-effect relationship and may prefer WM for its precise remedy. In contrast, when uncertainty is high, the same symptom may arise from any number of causes, known or unknown. TCM’s philosophic-scientific-based approach tolerates more uncertainty and ambiguity (Ma 1994); thus,

\[ \text{H3: Ceteris paribus, consumers will prefer TCM (WM) when uncertainty about the cause of a symptom is high (low).} \]

We also investigate how causal uncertainty will interact with time-frame and treatment goals to affect preference. First, we hypothesize an interaction of uncertainty and time-frame such that consumers will prefer TCM over WM—except when the cause of the illness is certain and the time-frame for treatment is short (H3a). Second, we hypothesize an interaction of uncertainty and treatment goal such that consumers will prefer TCM over WM—except when the cause of the illness is certain and the treatment goal is to alleviate symptoms (H3b).

Healthy Lifestyle Consequences. We also expect that the consumption of TCM versus WM will have consequences for complementary health-protective behaviors that contribute to a healthy lifestyle. In TCM, re-balance in Yin and Yang requires both the assistance of herbal and other treatments and specific health-promoting habits. In contrast, WM has been shown to undermine intentions to engage in complementary health-protective behaviors (Bolton, Cohen, and Bloom 2006). Accordingly,

\[ \text{H4: TCM (vs. WM) will enhance intentions to engage in healthy lifestyle behaviors.} \]

Empirical Work: Studies 1A and 1B investigate qualitative and quantitative responses to TCM and WM for a variety of illnesses, providing a preliminary test of H1-H3. Study 2 provides further evidence for H3a with a specific symptom and drug treatments. (An additional study testing H3b is currently underway.) And finally, study 3 investigates the consequences of TCM versus WM on healthy lifestyle intentions, providing an empirical test of H4. (A follow-up study is also underway.) All studies thus far were conducted among Chinese consumers (undergraduate and graduate students at a university in Beijing). Findings of the four completed studies thus far support our hypotheses. To our knowledge, the present research is the first attempt to provide a conceptual framework to understand how Chinese consumers make health-care choices, specifically between TCM and WM. We argue for the interplay of three factors: treatment characteristics (e.g., consumer perceptions of TCM and WM remedies), symptom/illness charac-
teristics (e.g., consumer perceptions of causal uncertainty), and consumer and situational characteristics (e.g., treatment goals and time-frame). Such a framework is grounded in consumer perceptions of the decision space, thereby bringing to bear consumer lay theories and cultural knowledge that may guide health care choices (cf. Molden and Dweck 2006, Briley and Aaker 2006). Indeed, we suggest that examining consumer health care choices within such a framework represents a fruitful avenue for future research in China and elsewhere.

References


