

THE EFFECTS OF NARRATIVE EXEMPLARS AND FEAR APPEALS
ON PROMOTING PREVENTIVE SKIN CANCER BEHAVIORS

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ABSTRACT

This dissertation investigated the effects of narrative exemplars and fear appeals on individuals' health-risk perception toward skin cancer, attitude toward the preventive behavior, and coping responses, with need for cognition, self-efficacy and response efficacy as moderators. This dissertation employed a 2 (message type: narrative exemplar vs. base-rate information) \times 2 (threat: high vs. low) factorial between-subject design. A total of 251 college students participated in the experiment. A high-threat message describing the severe consequences of not protecting one's skin and the high susceptibility to skin cancer both directly and indirectly impacted individuals' perceptions of skin cancer risk and their intention to perform a coping response. Fear mediated the effects of threat information on individuals' health risk perception and intention for the coping responses. In addition, when they read a high-threat message, high efficacy individuals believed that the recommendation outlined in the messages produced the desired outcome and the threat could be averted, therefore, they were more likely to accept the recommended behavior in the messages than their lower counterparts. Moreover, need for cognition did not have an effect on the reported transportation when processing narrative exemplars, although participants who read the narrative exemplars reported higher transportation than those who read the base-rate information messages. Theoretical and practical implications were discussed.

DEDICATION

This dissertation is dedicated to those individuals who have supported and helped me in everything I do: Baoli Zhang, Lidi Zhao, C.W. Meadows, Melanie Meadows, and Charles Meadows III.

LIST OF ABBREVIATIONS AND SYMBOLS

a	Cronbach's index of internal consistency
β	Beta coefficients or standardized coefficients: the estimates resulting from an analysis performed on variables that have been standardized so that they have variances of 1
df	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
η^2	Eta squared: the ratio of variance explained in the dependent variable by a predictor while controlling for other predictors
F	Fisher's F ratio: A ration of two variances
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
N	Size of overall data set
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
SD	Standard deviation: a measure of dispersion in a sample or population
t	Computed value of t test
$<$	Less than
$=$	Equal to

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CHAPTER 1

INTRODUCTION

The Need for Effective Messages to Prevent Skin Cancer

Health campaign practitioners and researchers are well aware of the importance of effective health messages designed to promote attitude and behavioral change among the general population (Brinol & Petty, 2006). Understanding how characteristics of health messages affect individuals' health decision-making and behavior is crucial for developing appropriate real-world applications (McQueen, Kreuter, Kalesan, & Alcaraz, 2011). Policy makers and health organizations strive to develop effective health campaigns to promote healthy lifestyles, raise awareness of health risks, and encourage the public to perform self-examinations. Therefore, designing effective messages to increase public awareness of health issues and threats is both critical and urgent to ensuring a healthy society.

Skin cancer is the most common form of cancer in the United States (Centers for Disease Control and Prevention, 2011), and affects both females and males almost equally. Data from a 2007 report indicated that among the 58,094 people who were diagnosed with skin cancer, 33,041 were males and 25,053 were females. Moreover, more males (5,506) died from skin cancer than females (2,955) in 2007. The diagnosed incident cases and mortality rates of skin cancer have increased dramatically over the past decades (Lemal & Bulck, 2010). In 2008, the incidence of skin cancer was 62,480 in the United States, with mortality at 8,420 (Riet, Ruiter, Werrij, & De Vries, H., 2010).

College students are a vulnerable population often engaging in unhealthy lifestyles as well as risky behaviors, and a large portion are facing a variety of physical and mental health threats (American College Health Association, 2011). These health concerns may influence college students' academic performance and future quality of life. Among them, skin cancer deserves attention from both health practitioners and researchers. In spite of its severity, college students are still not paying enough attention to the consequences of skin cancer. A vast majority is maintaining favorable attitudes toward tanning and tanned appearances, and expresses little concern about developing skin cancer (McMath & Prentice-Dunn, 2005; Prentice-Dunn, Mcmath, & Cramer, 2009). Besides, many college students are not aware of the fact that a tanned appearance does not indicate good health (National Cancer Institute, 2011), and as such do not take precautions to protect their skin against the sun (Lemal & Bulck, 2010). A recent study among college students found that only 30% of students had performed a skin-examination (Prentice-Dunn et al., 2009). Thus, skin cancer as a health threat is not only a prominent health hazard, but also relevant to college students.

The reported statistics and college students' lack of awareness of the threat of skin cancer demonstrate the inadequacy of skin cancer prevention efforts. As a result, more effective messages and adequate development of interventions aimed at highlighting the risks associated with skin cancer and promoting preventive behaviors among college students are essential.

Theoretical Significance

Individuals tend to form beliefs and make decisions based on exemplars (representations of similar occurrences of the entity, events, or issues). This phenomenon is

explained and predicted by Exemplification theory, which argues that primary characteristics of an exemplar represent a group of similar events (Zillmann, 2002; 2006). Although a large body of research has empirically examined exemplification effects of news on viewers' issue perception and judgment (Aust & Zillmann, 1996; Gibson & Zillmann, 1994; Zillmann, Gibson, Sundar, & Perkins, 1996), exemplification theory seems to be underutilized in the health communication field. In addition, most research examining exemplification effects has simply focused on the influence of the presence (versus absence) of exemplars, generally suggesting that exemplars are more effective in changing people's perception than base-rate information (Aust & Zillmann, 1996; Baesler & Burgoon, 1994). This line of research appears to only scratch the surface of the theory because the characteristics of the exemplars are neglected. Thus, further refinement of this theory is necessary, specifically in researching the persuasive effectiveness of health messages.

To address these concerns, this dissertation seeks to further improve the exemplification theory by investigating exemplars' characteristics. In particular, this dissertation investigates one of the most prominent forms of exemplars, narrative exemplars, and their interaction with fear appeals in a health communication context. Two key components in the theory, emotional appeal and cognitive involvement associated with narratives and fear appeals will be articulated. A careful scrutinizing of the theory and the literature indicates that three factors, focusing on message characteristics and individual characteristics respectively, seem to be able to contribute to the theoretical development of exemplification theory. These three factors are: message type, levels of fear appeals, and the need for cognition. The theoretical justification of each factor is addressed below.

To begin with, exemplification theory suggests that concrete and vivid exemplars are superior in attracting attention and influencing an individual's perception compared to abstract accounts of the issue (base-rate information). However, a review of the literature indicated that the concept of exemplars has been interchangeably used with other concepts such as narratives, cases, and stories (Brosius, 1999; Zillmann, 2002). Exemplars and narratives are different concepts due to different characteristics. Exemplars could be conveyed via a variety of forms (narratives and non-narratives). To address this concern, this study reviews both bodies of literature related to exemplification and narratives, in the hope to make a distinction between the two concepts. However, among the many forms of exemplars, narratives are the focus of this study, and this dissertation uses the concept of narrative exemplars.

Green (2006) suggests that narratives are a powerful source of exemplars due to their vividness and concreteness. Narratives are considered to be able to transport and absorb individuals into a story, thus fostering attitude and behavior change (Green & Brock, 2000). Along this line, it seems reasonable to expect that issue perception and attitude is more likely to be influenced by narrative exemplars than other forms (e.g., base-rate information, arguments, and facts). Thus the first goal of this dissertation is to investigate the effects of narrative exemplars on health risk perception, attitudes, and behavioral intent.

Furthermore, exemplification theory (Zillmann, 2002; 2006; Zillmann & Brosius, 2000) argues that, compared with pallid information, emotion-arousing exemplars tend to foster superior accessibility, and are more effective in changing people's perception and attitude than pallid information. In the context of health communication, one of the most frequently

employed emotions is fear (Dillard & Nabi, 2006). Fear is more likely to be evoked from the perception of danger and threats (Jones & Owen, 2006), and it may result in health attitude and behavior change (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996; Green & Witte, 2006). Therefore, the second goal of this dissertation is to explore the effects of varying levels of threat on perceived risk and behavioral intent.

Prior empirical examination of exemplification theory has more or less ignored the moderating influence of an individual's cognitive characteristics. In order to understand the individual factors that may influence exemplification effect, we should first turn to the underlying mechanism of the exemplification phenomenon. In essence, heuristics constitute the underlying cognitive mechanism of exemplification (Zillmann, 2002; 2006; Zillmann & Brosius, 2000). Based on the principles of information processing theories (Shiffrin & Schneider, 1977; Winfrey & Goldfried, 1986), exemplification theory suggests that if exemplars are present, an individual is likely to evaluate an issue without much elaboration (Zillmann, 2002; 2006; Zillmann & Brosius, 2000). In other words, when exposed to exemplars rather than base-rate information, an individual may not conduct elaborative assessments of the issue (Zillmann, 2002; 2006; Zillmann & Brosius, 2000). This seems to indicate that an individual's need for cognition is a critical moderator in the exemplification effect. As a key factor in the Elaboration Likelihood Model (ELM), NFC is conceptualized as an individual's "tendency to engage in and enjoy thinking" (Cacioppo & Petty, 1982, p. 119). Individuals with low NFC are typically less likely to process information actively and tend to process information through a peripheral route than those high in NFC. As a result, narrative exemplars may have different effects on individuals with low NFC and high NFC. Thus, this

study investigates the conditions (high NFC vs. low NFC) under which narrative exemplars will have the strongest effect. Therefore, the third goal of this dissertation is to investigate the moderating effects of this individual factor, NFC on individuals' health decision making.

Narrative exemplars have been found to have superior effects than base-rate information on issue perception in news processing due to their engaging characteristics (Aust & Zillmann, 1996; Baesler & Burgoon, 1994; Zillmann, 1999; Zillmann, Gibson, Sundar, and Perkins Jr., 1996). As empirical investigation of exemplification theory is still insufficient in telling us the interaction effects of exemplars' characteristics on attitude change and behavioral intent in the health communication context, the proposed theoretical links outlined above attempts to foster our knowledge of the exemplification effect and its interaction with threat information in the message by examining and understanding the key components in the theory.

CHAPTER 2

LITERATURE REVIEW

Exemplification Theory

Exemplification theory was initially proposed by Zillmann and Brosius (2000), in which exemplars were the key units. An exemplar was a representation of similar occurrences of the entity, events, or issues (Aust & Zillmann, 1996; Gibson & Zillmann, 1994; Zillmann, 1999). Exemplars were descriptions of an issue from an individual's perspective, and function as case illustrations of the issue (Brosius & Bathelt, 1994). For example, an eyewitness' account of a car accident in a news report was an exemplar. An exemplar was conceptualized as the "primary characteristic that allows its grouping with others of its kind" (Zillmann, 2006, p. s222). In other words, exemplars must be the events that share features with other members in the population exemplified (Brosius, 1999). Journalists commonly employed exemplars to illustrate the current state of a particular social issue; health practitioners frequently used exemplars to demonstrate the severity of the health problem or the urgency of preventive behaviors. For example, in communicating the benefits of quitting smoking, health promoters could tell a story of a specific person whose life was saved by quitting smoking.

Exemplars were conceptualized as the opposite for the concept base-rate information, quantitative expressions about the distribution of incidents (Zillmann, 1999). Base-rate information referred to general statements, polls, or statistical data in relation to the

population of similar issues (Brosius & Bathelt, 1994). Scholars also suggested that base-rate information was an account of an issue from society's perspective whereas exemplars were accounts from an individual's perspective (Brosius, 1999; Brosius & Bathelt, 1994; Zillmann, 2002).

Although exemplars and base-rate information might describe the same issue with the same content, they differed in message characteristics such as vividness and validity. Thus, they might have different persuasive power and would result in different persuasive outcomes (Brosius, 1999). Compared to exemplars, base-rate information usually contained a larger number of cases and originated from authoritative and reliable resources. Therefore, base-rate information was considered more representative, more systematic, more objective, and more reliable (Brosius, 1999; Zillmann, 2002). Exemplars, on the other hand, demonstrated an issue via individual cases. As a result, an exemplar was considered qualitative and distorted (Zillmann, 1999). Specifically, not all the exemplars could represent the population from which they were extracted because the selection of exemplars depended on the subjective judgment of journalists and editors (Gibson & Zillmann, 1994; Zillmann, 2002). Although exemplars and the exemplified did share some features, examples could only represent a portion or an aspect of features of the exemplified entity (Brosius & Bathelt, 1994; Zillmann, 1999). Thus an exemplar could be typical, or distorted from the exemplified entities.

The empirical investigation of exemplification theory began in the news studies, with most research conducted in the 1990s focusing on the adequateness of the exemplified issue (Zillmann, 1999). Critics have accused that arbitrarily selected exemplars might mislead the perception of news audiences. However, this phenomenon was not uncommon in news

selection. Sometimes news agencies and journalists tended to select the most sensational and shocking aspect of an issue in order to maintain the “entertainment value of reports” (Zillmann, 2002, pp. 21). Individuals’ perception of issues and phenomenon could be affected by exemplars from media, especially with the ones that were not immediately experienced. Therefore uncharacteristic exemplars were inappropriate as they might mislead recipients (Brosius, 1999; Zillmann, 1999).

Although the representation of exemplars was not always accurate, the perceived qualitative exemplars appeared to be more powerful and persistent in issue perception and persuasion than base-rate information due to their greater vividness (Aust & Zillmann, 1996; Brosius, 1999; Limon & Kazoleas, 2004). This hypothesis has been supported by findings from social psychology and communications (Aust & Zillmann, 1996; Gibson & Zillmann, 1994; Zillmann et al., 1996). For example, in an experiment, Zillmann and colleagues (1996) provided base-rate information and exemplars in news reports to participants and tested their perception on the issue of farmers’ plight. The findings revealed that exemplars exerted a stronger influence on issue perception than base-rate information, and this influence was persistent and stable over time. Aust and Zillmann (1996) also found that exemplars, especially emotional ones, fostered the perceived severity of an issue. In addition, emotional exemplars led to greater distress reactions than base-rate information (Aust & Zillmann, 1996). Similar studies have generally reported that although base-rate information was perceived as more reliable than exemplars, their influence was negligible. This review raised the question as to why exemplars were superior to base-rate information. Thus, the following paragraphs will examine the underlying mechanisms of exemplification phenomenon.

Exemplification theory was based on several propositions (Zillmann, 1999; 2002). First of all, concrete events (exemplars) were more likely to be comprehended, stored, and retrieved than abstract ones (base-rate information), because concrete events demanded less cognitive resources than abstract events (Brosius & Bathelt, 1994). Second, attention, storage, and retrieval were superior for emotionally consequential events than emotionally inconsequential events. Emotionally arousing events had adaptive value in evolution as they served as preparation for future coping styles. The presentation of individual cases was more likely to contain the emotional features. Thus, exemplars were superior to base-rate information in terms of attention, information storage, and retrieval. These two key elements also laid a foundation for the investigation of the two independent variables in this study: narrative exemplar and fear appeals.

Individuals experienced events through a selective retention of information. Although no two events were exactly identical, individuals tended to categorize events with the same features into one group (Ashcraft, 2006). Thus, similar events sharing essential features were aggregated into limited numbers of cases. In addition, these cases were stored in memory ready for future use when similar cases were encountered. Therefore, the limited number of incidences served as a basis of a larger future population of homogeneous cases (Zillmann, 2002).

Heuristic processing constituted the underlying mechanism of exemplification (Zillmann, 2006). In particular, two cognitive mechanisms— the availability heuristic and the representativeness heuristic— were used to explain the effects of exemplification.

Availability heuristic referred to the accessibility of relative concepts and judgments stored in

memories. Representativeness heuristic referred to a comparison of the judged individual case and the “sampling of related ones, and transference of the traits from the larger stored sample to the individual case” (Zillmann, 1999, p. 70). The availability and the representativeness heuristic was important to understand the cognitive foundation of exemplification. They would help us explain why vivid narrative exemplars were more influential than general base-rate information. Therefore, the following section provides a detailed description of these mechanisms.

The Mechanisms: Representativeness and Availability Heuristic

Information processing theories held the notion that cognition consisted of a variety of processing elements (Shiffrin & Schneider, 1977; Winfrey & Goldfried, 1986; Zillmann & Brosius, 2000). Working memory was allocated to process the information. Some of the information might be stored in long-term memory. When recall was needed, the prior stored information would be located and retrieved. A central point of the information processing paradigm was that human beings’ cognitive resources were limited (Grabe, Zhou, Lang, & Bolls, 2000; Lang, 2000; Lang, 2006; Lang, Potter, & Bolls, 2009; Zillmann & Brosius, 2000). This limited resource hypothesis provided critical cognitive principles for explaining exemplification phenomenon (Shiffrin & Schneider, 1977). Given that humans’ cognitive resources were limited, an exemplar might activate the mechanisms that could simplify information processing. In particular, heuristics, which might simplify information intake and processing, were discussed as a central mechanism for exemplification phenomenon.

As a crucial concept in humans’ information processing, heuristics referred to the informal path of reasoning and problem solving (Ashcraft, 2006). Heuristics were used as an

efficient thought process as human beings tended to process information without elaboration (Slater & Rouner, 2002; Zillmann & Brosius, 2000). However, this “convenient” heuristic processing came at a cost. A deliberate elaboration might be missed, and it was difficult to obtain a comprehensive assessment of information (Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984). Zillmann and Brosius (2000) argued that this was especially prominent in mass communication. For example, as reporters and editors often preselected exemplars in news, audiences might not conduct deliberate assessment and evaluation.

Specifically, exemplification theory relied on the representativeness heuristic and availability heuristic as cognitive mechanisms, which were two most heavily researched heuristics (Kahneman & Tversky, 1973). According to Ashcraft (2006), Representativeness heuristic referred to “a judgment rule in which an estimate of the probability or likelihood of an event is determined by one of two features, how similar the event is to the population of event is came from” (pp. 488). In other words, the perception about an issue or event was based on the degree to which it resembled the population of the exemplar groupings (Zillmann, 2002). For example, when exposed to an exemplar, an individual would match the exemplar’s attributes with the attributes of a group of objects stored in long-term memory (Zillmann & Brosius, 2000). This process might facilitate the information processing if a large number of similar events were stored in memory. It was necessary to note that the generalization of sample events to the population was independent of the sample size. In other words, people tended to make judgments according to the attributes of a specific case rather than the statistical information. In this sense, information was being processed in a simplified fashion and is based on prototype.

The other critical heuristic, availability, indicated that the perception of event population was influenced by the availability of the exemplars at the time that judgments occurred. In other words, the ease with which exemplars were retrieved from memory greatly influenced the judgment of event population (Ashcraft, 2006). This retrieval could be unconscious and spontaneous (Weiten, 2004). For example, when individuals were asked questions such as “what proportion of all females have breast cancer” or “how much safer are you wearing your seatbelt,” they tended to perform the estimation of the issue’s risk by retrieving examples of the events from memory (i.e., what they heard from others or what they saw on the media). Since few individuals were concerned with remembering this type of information, the information that was repeated more frequently and recently encountered would be more easily to be retrieved (Tversky & Kahneman, 1973), and individuals would form their perception or make judgments according to the more easily retrieved ones. Thus, two sub-factors, recency and frequency were able to affect exemplar accessibility.

Recency and frequency were two perceptual qualities of exemplars. As noted previously, the likelihood of accessibility of exemplars tended to increase with the recency and frequency of their retrieval (Baddeley, 1990; Zillmann, 2006). Recently activated exemplars were more influential than earlier activated ones. Likewise, frequently activated exemplars exerted greater influence on the perception of issues than less frequent ones. As a result, information with distinctive characteristics was easier to be remembered and could exert greater influence on issue judgment. In this case, exemplars were perceived more vivid than base-rate information; therefore, exemplars would be retrieved faster than base-rate information.

To sum up, the mechanisms of exemplification, representativeness and availability heuristic reviewed above provided a cognitive foundation for understanding the effects of exemplars versus base-rate information. Because humans' judgment was based on what could be retrieved easily, any factor that leads to better memory could influence individuals' issue judgment (Ashcraft, 2006). For example, based on the principle of availability heuristic, it was proposed that exemplars were more influential in issue perception and decision making than statistic information, because exemplars were more easily to be retained and retrieved (Gray, 2009; Zillmann & Brosius, 2000). Thus, humans were likely to form their judgments based on exemplars. In addition, case information was more vivid than statistics summaries (Zillmann & Brosius, 2000). In explicating exemplification theory, Zillmann (2002) predicted that although quantitative information was more reliable than exemplars, exemplars of concrete situations or events were superior to abstract and quantitative information. This prediction was consistent with the representativeness and availability heuristics. In particular, as retention of concrete events are stored for longer than abstract information, the former would be easier to be retrieved from long term memory thus exerting a stronger influence on issue perception than the later one (Zillmann, 2002). Therefore, exemplars were more persuasive than base-rate information.

Although extensive research has reported the superior effect of exemplars compared to base-rate information, one of the theoretical issues that needed to be addressed in the current study is the vagueness of the concept of exemplars. The existence of different operationalization of exemplars made it difficult to compare across studies.

Exemplification and Narratives

Prior studies testing the effect of exemplification failed to provide a satisfactory operational definition for the concept exemplar (e.g., Allen & Preiss, 1997; Yu, Ahern, Connolly-Ahern, & Shen, 2010). Instead, they have interchangeably used exemplars and narratives or stories. For example, to compare the persuasiveness of narrative and statistical evidence, Allen and Preiss (1997) defined narrative evidence as “the use of case stories or examples to indicate that the conclusion offered by the communicator is true” (p. 125). In this study, “narratives” and “exemplars” were interchangeably used to compare with statistical evidence. In other words, examples and narratives were categorized in the “non-quantitative claims” category. Similarly, Yu and colleagues’ (2010) study operationalized an exemplar as “an individual’s story” (p. 695), a story from an individual’s perspective.

In prior studies, “story” was the most common operational definition for exemplars (Yu et al., 2010). However, according to Zillmann (2002), an exemplar in essence was a *model* or *example* that represents the whole phenomena or issue. For example, a man who smokes was an exemplar of all smokers; and a woman who was diagnosed with breast cancer was an exemplar of all breast cancer patients. In this case, the presentation of exemplars in a message “allows a person to group himself or herself with others of his kind” (Yu et al., 2010, p. 694). An exemplar was a representation of a larger population which share the same feature, and it could be presented in the form of a story, but a story is not the only form. For example, in a video PSA in order to inform people how severe the consequence of smoking was, a paragraph could be written as follows:

Every time Niki smoked a cigarette, a large portion of bad fat is being slowly squeezed out of a small part of the ascending aorta, the main artery of the heart.

Heavy Smoking makes the artery walls very sticky and this collects dangerous fatty deposits. A chest x-ray of her lungs placed on the view box showed two small black masses on the right lung...

It should be noted that this case is a representation of people who smoke regularly, but it is not describing a story. An exemplar was conceptualized as the “primary characteristics that allow its grouping with others of its kind” (Zillmann, 2006, p. s222).

An exemplar functioned as case illustrations of the issue (Aust & Zillmann, 1996).

Brosius and Bathelt (1994) suggested that exemplars were descriptions of an issue from an individual’s perspective. Since the key component of an exemplar was “descriptions of cases from an individual’s perspective”, an exemplar should contain the following features: (1) non-statistical, (2) the presence of a character, (3) concrete, and (4) vivid (Allen & Preiss, 1997; Yu et al., 2010).

On the other hand, the essence of narratives was storytelling (Green & Brock, 2000). Richardson (2000) defined narrative as “a representation of a causally related series of events” (p. 170). A more detailed conceptualization of narratives was provided by Branigan (1992): “some person, object, or situation undergoes a particular type of change and this change is measured by a sequence of attributions which apply to the thing at different times” (pp. 4). These conceptualizations identified the key components of narratives found in the literature. As Altman (2008) put it, “narrative is not just a set of materials but is a quite specific method of organizing those materials” (pp. 6). This definition was in accord with the standard of early European novel writing as well. Narratives should “connect their parts through clearly motivated causes” (Altman, 2008, pp. 4), and any seemed unrelated information should be excluded. In a recent review by Kreuter, Green, Cappella, Slater, Wise, Storey, et al. (2007), narrative was defined as “a representation of connected events and characters that has an

identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed” (p. 222). Although from different perspectives and disciplines, these definitions of narrative all demonstrated several key properties of narratives: coherency, chronology, causal, minimal, and transitional (Altman, 2008; Richardson, 2000). These key components were also the traditional European standard of narrative composition.

Green (2006) suggested that narratives were vivid and concrete, thus constituting a powerful source of exemplars. Green (2008) also provided a similar conceptualization of narratives: narratives were stories consisting of a sequence of related events that have a beginning, middle, and end. These aspects were also elements that make narratives different from other three types of rhetorical modes (argumentation, description, and exposition).

According to the literature reviewed above, it seemed that (1) events, (2) characters, and (3) the correlation that connected the events were the key features that constituted a narrative, and the combination of these elements turned out concrete and vivid. These features met all the criteria of an exemplar discussed above (non-statistical, presence of characters, concrete, and vivid). Therefore, stories were the most common form of exemplars in the literature. In addition, narratives also function through their engaging and involving characteristics. However, it should be noted that events in a narrative exemplar should have a causal relationship. In other words, there should be key connections that moved the story along.

Although narrative message format has long been the focus of persuasion research, and researchers have tried to manipulate narrative content in the empirical studies (e.g., Allen & Preiss, 1997; Gardner, 2010), an operational definition of narrative was still absent in the literature. Many researchers agreed that narratives were often presented in the form of stories

(Chang, 2008; Gardner, 2010). However, the guidelines for constructing a story as stimuli were still vague. Some researchers simply employed stories told by characters as narrative manipulation, and conducted manipulation checks to test the successfulness of narrative messages. For example, in Gardner's (2010) study, the researcher relied on a pilot study to check the manipulation of narrative verses non-narrative content by asking participants questions such as "to what extent do you think this message is a narrative?" (Gardner, 2010, p. 87). However, O'Keefe (2003) suggested that when the content attribute variable (e.g., narrative vs. non-narrative) was being manipulated, a manipulation check was unnecessary, neither was it accurate, because the message attributes were independent from individuals' perception or evaluation (O'Keefe, 2003). Since the vague description and guidance of the manipulation of narrative exemplars in prior studies shed little light on the current design, this dissertation attempts to address this concern by providing an approach for narratives exemplars manipulation.

The structuralist theory (Chatman, 1978) suggested that narratives typically assumed causality that moved the stories along and connected a sequence of logical events occurred (Elliott, 2005). In particular, the structuralist theory suggested that a narrative should include two parts: the story (what) and the discourse part (how) (Louchart & Aylett, 2004). The story could be further divided into an event part and an existent part. Two sub-concepts of events, kernels (cardinal) and satellites (catalysis) functioned together to make a story.

Kernels were defined as "the branching points which force a movement into one of two (or more) possible paths" (Chatman, 1978, pp. 53). A kernel was a turning point in a narrative that was crucial for the story development, and it could lead the story to a different direction.

Therefore, a kernel was a “critical juncture” of a narrative (Porter, Larson, Harthcock, & Nellis, 2002). For example, in the following sentences “My father noticed that the mole on my neck seemed bigger and darker than he had recalled. He suggested I get it checked out by a dermatologist”, the father’s detection of the mole’s change could be viewed as a cause the following action (suggestion). In particular, if the father had not noticed the mole had changed, he might have not offered the suggestion. Therefore, “My father noticed that ... ” was a kernel in the narrative because it had the potential to lead the story to another path (e.g., “I” did not get the mole checked). On the contrary, a satellite was not vital in changing the basic storyline of a narrative (Porter et al., 2002), and it generally appeared between two kernels (Louchart & Aylett, 2004).

Therefore, a kernel seemed to be a critical structure in narratives: it moved a story along in a linear direction. The existence of kernels allowed us to construct a story with a logic sequence of events. A narrative exemplar should feature a particular story. In contrast, fact-based information such as argument, authoritative sources, and statistics constituted the base-rate information message condition.

To sum up, as individual cases, exemplars could be conveyed via a variety of forms, and narratives are one of the most frequently used forms due to their engaging characteristics. Narratives shared the most common characteristics with exemplars. Narratives were a vivid form and could activate the previously mentioned mechanisms. In this dissertation, the author focuses on narrative exemplars exclusively. As a result, the conceptualization of narratives, the reason why narratives could be retained more easily, and their effects on issue judgment and behavioral change are discussed in the following section.

The Effects of Narratives in Persuasion

The word “narrative” derived from the Latin word *narrare*, which meant to recount. From Aristotle to the present, the importance of narrative has long been recognized (Altman, 2008). Narration, along with argumentation, description, and exposition, was one of the four rhetorical modes. Literary theories held the notion that a narrative was a story or a component of a story. Therefore the key element in a narrative was storytelling (Herman, Jahn, & Ryan, 2005). In persuasion studies, narratives have often been employed to produce superior persuasive effects.

Narratives were one of the message features that might influence individuals’ responses to the message. The effects of narratives with a persuasive intent have received increasingly attention in persuasion research (Gardner, 2010), and have been investigated in many studies on a variety of dependent variables (message values, cognitive processing, attitude, and behavioral intention). Narratives have been used as sources of health message to influence people’s health perception, attitude, and behavioral intent (Green, 2006; McQueen et al., 2011). Story telling techniques have been widely used by health communication practitioners to promote cancer screening (Slater, 2002), diabetes testing (Gardner, 2010), HIV/AIDS prevention and numerous other health issues.

Narratives have been considered an effective tool for health message design, and stories told by individuals were frequently used in health prevention practices. Narrative effects have been tested in various mediated message contexts, including novels (Green & Brock, 2000), advertising (Chang, 2008; Chang, 2009; Escalas, 2004; Polyorat, Alden, & Kim, 2007; Zheng, 2010), and health interventions (McQueen et al., 2011; Gardner, 2010), whereas, there was a

discrepancy in the literature regarding the effectiveness of narrative persuasion. Researchers arguing about the effectiveness of narratives as opposed to statistical evidences have reached different conclusions. Some studies have found that narratives were more superior to statistical information (Chang, 2008; Chang, 2009; Gray, 2009; Lemal & Bulck, 2010; McQueen et al., 2011), while others have found statistical evidence was more persuasive (Allen & Preiss, 1997; Kopfman, Smith, Yun, & Hodges, 1998). For example, using a meta-analysis, Allen and Preiss (1997) concluded that statistical messages were more effective than narrative messages. In their meta-analysis, Allen and Preiss (1997) operationalized narrative as examples or case stories, and statistical evidences as the ones that use numbers. They argued that statistical evidence had more perceived objectivity as compared to narratives. However, the problem was “examples” and “narratives” were interchangeably used in their study.

Kopfman, Smith, Yun, and Hodges (1998) investigated cognitive and affective reactions to statistical and narrative messages respectively. They found that statistical messages were more effective in terms of cognitive reactions (e.g., thoughts and message ratings), whereas narratives were more influential for affective reactions (e.g., emotions and anxiety).

Morman (2000) noted that narrative and statistical evidences had equal effects in promoting favorable attitudes and motivating intentions concerning the testicular self-exams. Investigating college women’s tanning behavior, Greene and Brinn (2003) found the narratives and statistical evidence had different effect on various outcome variables. For example, although both narratives and statistical messages were effective in reducing

intention to tan, the narrative message was perceived as more real, whereas statistical message was perceived as more valuable.

Other scholars suggested that narratives, as a form of storytelling, were more powerful than non-narratives in persuasive messages. For example, Feeley, Marshall, and Reinhart (2006) found that participants who were exposed to the narrative message evaluated the tested issue (i.e., organ donation) more positively than those who were exposed to the fact-based message. Surprisingly, narrative messages were also rated as more credible than fact-based messages. Gray (2009) argued that narratives were more persuasive than abstract presentations in health education and clinical practice as it demonstrated patients' experiences through their stories. These vivid examples of health practices and illness experiences were able to foster retention and reflection (Gray, 2009). Chang's (2009) research findings demonstrated that narrative advertising information could generate more favorable cognitive responses and positive feelings than statistical information.

Indeed, the studies that claimed non-narrative evidences have superior effectiveness than narratives failed to consider the underline mechanism of narratives. The power of narratives lied in the fact that narratives were capable of mentally engaging and absorbing individuals (Green, 2006). When individuals were psychologically transported into the narrative world, they were more likely to show attitude and behavior change (Appel & Richter, 2007). Therefore, transportation was one of the key factors that influence the effectiveness of narratives.

Narratives persuasion via transportation. The cognitive bases for narratives have been explicated by many scholars (Green & Brock, 2000; Nell, 1988; Slater & Rouner, 2002).

Generally, narrative effect was mediated by several interchangeably used concepts: engagement (Busselle & Bilandzic, 2009), absorption (Nell, 1988; Slater & Rouner, 2002), involvement (Polyorat et al., 2007), and transportation into the story (Chang, 2009; Gardner, 2010; Green & Brock, 2000). The important mediators have been well explicated in the Transportation-Imagery Model (Green & Brock, 2000; 2002).

The concept of transportation was proposed as a mental mechanism whereby narratives can affect beliefs (Green & Brock, 2000). Through four experiments, Green and Brock's (2000) study found that the extent to which the readers were transported determined readers' change of beliefs and favorable evaluations of the characters. In addition, the extent to which they were transported influenced readers' recall.

Transportation was a mental process in which individuals were absorbed into a narrative. It was a "distinct mental process, which may mediate the impact of narratives on beliefs" (Gerrig, 1993, pp. 324). Imagery, affect, and attentional focus were three main dimensions in the concept of transportation. Transportation might occur either on a physical level, ignoring the surrounding physical environment, or psychological level, a mental distancing from real-world facts (Green & Brock, 2000). The components of transportation, as argued by Green and Brock (2000), include emotional reactions, mental imagery, and a loss of access to real-world information.

Green and Brock's (2000) study was not the first to investigate the effect of narrative and immersion to narrative on attitude and belief change, but the study was the first to operationalize transportation and provided a testable theory using a transportation scale. The conceptualization of transportation was based on Gerrig's (1993) description of the

experience of traveling. In his work, Gerrig (1993) used an analogy of physical traveling to describe the process that occurs when one was immersed in a narrative world. Three components exerted great influence on the later Green and Brock's (2000; 2002) transportation theory: (1) the reader lost the access to the world of origin; (2) the reader had to perform some action in order to be transported, which was noted as "some means of transportation" in Gerrig's (1993) statement. In other words, mental effort was required in order to be transported. As Green and Brock (2002) noted, the reader must at least pay attention to the narrative; (3) there were some consequences of transportation such as attitude and belief change.

One of the consequences of transportation that has been studied most was attitude and belief change as a result of being transported. Green (2004) argued that the belief change produced by transportation into narrative world might have several mechanisms: reducing critical thinking, creating identification with characters, and increasing the realism of the narrative events.

The discussion of transportation provided the current study with cognitive bases in terms of how narrative exemplars persuade. Transportation along with other concepts: engagement, immersion, involvement, and absorption, shared similar psychological features (Green, 2004; Slater & Rouner, 2002). They all depicted the "degree to which a message recipient is cognitively and affectively invested in a narrative" (Slater & Rouner, 2002, p. 179), and they constituted the underlining mechanism of narrative effects. Human beings tended to use narratives as a basic mode for communication and acquiring knowledge (Hinyard & Kreuter, 2007). Narratives have been the quintessential tool of human knowledge

(Richardson, 2000). Generally, narratives were considered more easily processed because people tended to build mental representations while thinking, and the inherent property of narratives did the same (Gardner, 2010), in which way narratives were capable of overcoming resistance and facilitating information processing (Kreuter et al., 2007).

As noted previously, narratives were powerful sources of exemplars (Green, 2006). Exemplars could be conveyed via various forms, and narrative was one of the most crucial due to its vividness and engaging characteristic. Thus, when exemplars were conveyed in the form of narratives, the persuasive effect will be significant. This dissertation attempts to investigate the effects of narrative exemplars on health risk perception, attitude toward the preventive behavior, and intention of performing the preventive behavior.

Dunlop, Wakefield, and Kashima (2008) suggested that risk perceptions needed to be understood in order to change an individual's health behavior. According to the review of the body of research of exemplification and narratives, individuals who read a narrative exemplar message were likely to believe the statement in the message: in the context of the present study, the high severity of the health risk. Therefore, information of how threatening and severe the health risk was conveyed by narrative exemplars will be more likely to make individuals perceive the risk as severe. This assertion has received some empirical support as well. For example, McQueen and colleagues (2011) found that a narrative video of breast cancer could increase perceived risk toward its negative effect. Accordingly, it is reasonable to deduce that individuals who are exposed to narrative exemplars will perceive the health risk more severe than those who are exposed to base-rate information. Therefore, the following hypothesis is proposed:

H₁: Participants who are exposed to the narrative exemplars will have higher health risk perception toward skin cancer than the ones who are exposed to the base-rate information.

Despite various concepts and labels of the mediating state (i.e., engagement, transportation, involvement and more), one of the effects of narratives was certain, that is attitudes could be changed after exposing to narratives. Narratives could change attitudes via a number of mechanisms: reducing critical thinking (Green, 2004; Slater & Rouner, 2002), increasing the realism of the narrative events (Green, 2004), engaging individuals into the context (Chang, 2008; Gardner, 2010; McQueen et al, 2011; Slater & Rouner, 2002), identifying with the characters (McQueen et al, 2011), and overcoming resistance (Kreuter et al., 2007; McQueen, 2011). Green and Brock (2000) suggested that narratives might lead to adoption of story-consistent attitudes. Along this line of research, studies have linked exposure to narratives of cancer to positive attitudes toward protective health behaviors (Morman, 2010; Valente, Murphy, Huang, Gusek, Greene, Beck, 2007). Taken together, this study argues that narrative exemplars have superior effectiveness in terms of motivating and promoting healthy attitude compared to base-rate information. Thus, the following hypothesis is proposed:

H₂: Participants who are exposed to the narrative exemplars will have more favorable attitudes toward the preventive behavior advocated by the message than the ones who are exposed to the base-rate information messages.

Humans are “biased” when processing a narrative because it was a format that was relatively easy to process and understand (Gardner, 2010; Kreuter et al., 2007). The use of narrative message in public health interventions has been shown to lead to health behavior

change. For example, in a study that investigated the effectiveness of narratives and argument information in enhancing mental illness literacy, Chang (2008) found narrative messages had superior effects in terms of increasing intention to seek professional help, and increasing efficacy to identify friends or family who suffered from mental illness. Narrative was a message form that was considered more vivid than argument form (Chang, 2008). It is the mediating state that gives narratives the persuasive power in changing individuals' behavioral intention and behaviors. Slater and Rouner (2002) argued that the mechanisms (e.g., transportation) were crucial to understand how narratives affect behavior change. The behavioral effects have been supported in a variety of health issues such as cancer screening (McQueen et al, 2011) and diabetes testing (Gardner, 2010). Therefore, the following hypothesis is proposed:

H₃: Participants who are exposed to the narrative exemplars will show stronger behavioral intent to perform the suggested action in the message than the ones who are exposed to the base-rate information.

This study focuses on two factors: narrative exemplars and emotional reaction elicited by the narrative exemplar. Zillmann (2006) argued that it was the information that the exemplar conveyed as well as the emotional reactivity the information elicits that could enhance accessibility of exemplars and influence judgment. Therefore, we are in a position to explicate the connection between information that the narrative exemplar conveyed and emotional reactivity.

The Role of Emotional Reactivity in Health Message

Researchers have long realized that emotional reactivity had strong influence in

information storage, retrieval, and accessibility (Dillard & Nabi, 2006; Peters, Lipkus, & Diefenbach, 2006; Zillmann & Brosius, 2000). Messages that evoked emotions were more attention grabbing, more involving, and better recalled than those that did not because the emotional stimuli automatically increased the resources allocated to encoding and storing the message (Lang & Yegiyan, 2008; Zillmann & Brosius, 2000). Emotion-evoking information was more easily accessed from long-term memory. The procedures of the encoding of emotional exemplars, as Zillmann & Brosius (2000) put it, is described as follows:

Amygdaloid monitoring prompts the discernment of exemplar salience that manifests itself, in part, in the activation of central norepinephrine receptors, and the enhanced sensitivity of these receptors creates the conditions for superior coding of emotional exemplars into indelible memory (pp. 49).

Many theoretical models have addressed the role of emotion on persuasion (see a review by Dillard & Nabi, 2006). These models generally attempted to make linkages between emotions and information processing, attitude, and behavior change. Generally, two models in the literature guided emotional research: dimensional and discrete (Nabi & Wirth, 2008). Those who advocated for a dimensional perspective argued that emotion was conceived of two dimensions, valence and arousal (Lang & Yegiyan, 2008; Russell, 1980). On the other hand, discrete views considered concrete “emotional states delineated by the cognitive appraisals, or thought patterns, underlying them” (Nabi & Wirth, 2008, p. 2). There were a set of basic emotions, including surprise, fear, anger, sadness, guilt, happiness, and contentment. The discrete emotions had different underlying foundations and led to different behavioral consequences (Dunlop et al., 2008). Emotion was a complex concept that could be analyzed along various dimensions (Dillard & Peck, 2000). This study argued from a discrete perspective and focused on one of the critical discrete emotions: fear.

Fear was a particular emotion that was often associated with threat and danger in health practice (Dillard, 2000). Therefore, in researching message effects associated with threats, fear as a discrete emotion was frequently used, and was often accompanied by strongly defensive behaviors to avoid the harmful situation (de Hoog, Stroebe, & de Wit, 2005; Leshner, Vultee, Bolls, & Moore, 2010; Morman, 2000; Roskos-Ewoldsen, Yu, & Rhodes, 2004). Fear was a negatively-valenced emotion that was generally elicited by threats that were perceived severe and personally relevant (Murray-Johnson & Witte, 2003). Witte (1992) conceptualized fear appeal as the message describing the terrible consequences of not performing the recommended action in the message. The goal of fear appeal was to “scare” people (Dillard & Nabi, 2006). In health messages, fear appeal has been used when the message producer intended to inform the public about the severe consequences that unhealthy behavior or a disease may induce, thus expressing a causal relationship of fear and its consequences (Zillmann, 2006). In general, fear could evoke motivation (Murray-Johnson & Witte, 2003), attitude change (Dillard & Nabi, 2006), behavioral change (de Hoog, Stroebe, & de Wit, 2005), perceived susceptibility and severity (Murray-Johnson & Witte, 2003).

Fear appeal has long been employed in health messages for promoting adaptive behavioral intentions (Roskos-Ewoldsen et al., 2004; Witte & Allen, 2000). For example, a message discussing the threats of binge-drinking to health might prompt individuals to decrease alcohol consumption. A message stressing the threats of HIV/AIDS might persuade people to change their risky sexual behavior (Green & Witte, 2006). Since fear as a discrete emotion was important in the literature of health intervention, the following section will discuss several fear appeal theories in persuasion.

Theoretical Approaches to Fear Appeals

To date, several meta-analyses have examined the effects of fear appeals in persuasion (Boster & Mongeau, 1984; de Hoog et al., 2007; Mongeau, 1998; Sutton, 1982; Witte & Allen, 2000). These meta-analyses, although using different statistical approaches, reached the same conclusion that greater fear appeals led to stronger attitude, intention, and behavioral change (Green & Witte, 2006). For example, Boster and Mongeau's (1984) meta-analysis focused on the effects of different levels of fear arousal on perceived fear, attitudes, and behavior, and reported that different levels of fear manipulation have a medium strong effect on perceived fear, and a small effect on attitudes and behavior.

The meta-analysis performed by Sutton (1982) demonstrated that high fear arousal resulted in higher levels of behavioral intentions than low fear arousal. Witte and Allen (2000) integrated the variables in previous meta-analysis and extended them by examining the effects of perceived severity, perceived susceptibility, perceived response efficacy, and perceived self-efficacy on attitudes, intentions, and behaviors. Sharing similar findings with previous meta-analysis, this study also found that perceived fear, perceived severity, perceived susceptibility, perceived response efficacy, and perceived self-efficacy had significant results on attitudes, intentions, and behaviors.

More recently, de Hoog and colleagues' (2007) meta-analysis examined the effects of vulnerability and severity presented via both vivid images and written information on attitudes, intention, and behavior. Their findings revealed that both vulnerability and severity had positive effects on intentions and behavior, but the effects on attention were not significant.

It should be noted that fear was an effect-based variation rather than an intrinsic message variable (O’Keefe, 2003). A high fear appeal message is defined as the one that elicited stronger fear responses than did a low fear appeal message. However, several researchers have expressed the concern that a message with the intention to induce fear might have the possibility to arouse more than one emotion (Dillard & Nabi, 2006; Leshner et al., 2010). A message designed to induce fear might elicit other negative emotions such as disgust, shame, and guilt (Dillard & Nabi, 2006). Dillard and colleagues (1996) reported that 1/3 of the PSAs intended to arouse fear failed. Dillard and Nabi (2006) also addressed the difficulty of designing a message that evokes fear only. For example, in their study, participants were exposed to an anti-smoking PSA that addressed the dangers of smoking. After the message presentation, participants reported greater amounts of sadness, followed by anger, and fear. Therefore, emphasizing the danger of a health hazard might not just arouse fear, which might make the designing of fear appeal messages a challenging task. Researchers and health communication practitioners who were attempting to create high fear appeal messages should make the fear appeal salient to viewers.

Research on fear appeals in persuasion started in the 1950s. Throughout the six decades of fear appeal research, several theoretical approaches have been developed, they were: Fear-as-acquired-drive Model (Hovland, Janis, & Kelley, 1953), Parallel Process Model (Leventhal, 1970), Protection Motivation Theory (Rogers, 1983), and the Extended Parallel Process Model (EPPM, Witte, 1992). These fear appeal theories could be classified into three general groups: drive theories (Fear-as-acquired-drive Model), parallel response models (EPPM), and subjective expected utility models (Protection Motivation Theory).

In the early years of fear appeal research, studies were guided by the drive model (Hovland et al., 1953), the main assumption of which was that fear drove the need for action. The theoretical proposition of the drive model was that exposing to fear motivated the action for reducing a threat (de Hoog et al., 2005). The main difference of the early drive model and subsequent models was the earlier one believed fear was a primary causing factor of action whereas the later ones regard fear as a secondary cause of the perception of the threat (Dillard & Anderson, 2004). Following the cognitive paradigm shift in psychology, the parallel response model (Leventhal, 1970) emerged in the 1970s. This model suggested that two processes were involved in fear appears: a danger control response and a fear control response. Although it appeared as though this model was a cognitive model of fear appeals, it could not “predict which process will be engaged, for whom, and under what circumstances” (Nabi, Roskos-Ewoldsen, & Carpentier, 2008, p. 192).

To address the concern above, the Protection Motivation Theory proposed by Rogers (1983) hoped to predict message acceptance through the combination of four critical components: severity, susceptibility, self-efficacy, and response efficacy. However, fear only played a trivial role, and cognitive factors were overemphasized in affecting message acceptance in this model (Nabi et al., 2008). In the 1990s, the extended parallel process model (Witte, 1992) was introduced, which integrated the main contributions of the drive model (e.g., Hovland et al., 1953), protection motivation theory (Rogers, 1983), and the parallel response model (Leventhal, 1970). Table 1 summarizes each fear appeal theory’s main propositions.

Table 2.1

Fear Appeal Models and Their Main Propositions

Fear appeal models	Author(s)	Main propositions	Typology
Fear-as-acquired-drive model	Hovland, Janis, & Kelley, 1953	This model suggests that fear appeal acts as a drive to motivate actions. Generally, it specifies an inverted U-shaped relationship of fear and attitude change. Specifically, a moderate amount of fear has the strongest effect on attitude change. Fear not only has facilitated but also interfere effects.	Drive Theories
Parallel process model	Leventhal, 1970	This model suggests that there are two processes involved in fear appeals: a danger control response and a fear control response. The former one is from a cognitive perspective and later one is from a emotional perspective. This model argues that protective behavior is from intentions to control cognitions (the threat), but not from intentions to control emotions (fear).	Parallel Response Models
Protection motivation theory (PMT)	Rogers, 1983	This theory specifies four components of fear appeal: severity, susceptibility, self-efficacy, and response efficacy. Fear plays a trivial role in affecting message acceptance.	SEU Models
Extended parallel process model (EPPM)	Witte, 1992	This model is based on the prior parallel process model. It argues that both message characteristics (severity and susceptibility) and individual responses (self-efficacy and response efficacy) have an interactive effect of threat and efficacy. This model specifies the direct role of fear appeals in behavioral control.	EPPM

Among the fear appeal theories, Witte's (1992) Extended Parallel Process Model (EPPM) was used as theoretical guidance for the examination of fear exemplars of this dissertation. The researcher considers the EPPM sufficient to guide the creation of messages that can evoke fear due to several reasons.

First, in some fear appeal studies, fear was manipulated only by the level of severity of the health problem, without considering other important components such as susceptibility (e.g., Leshner et al., 2010), whereas, as it is mentioned previously, fear appeals should be conceptualized from at least two distinct perspectives: message content and audience reactions (Witte, 1992; Dillard & Anderson, 2004). Therefore, fear should not be the sole variable in fear appeal manipulations, by contrast, threat and perceived efficacy should also be considered as key variables in fear appeals research (Witte & Allen, 2000). EPPM contained both threat variables and variables that were expected to elicit audience responses. Secondly, the cognitive component, that is “how situations relevant to emotions were perceived and evaluated” (Nabi & Wirth, 2008, p. 2) was neglected in prior fear appeal research. EPPM specified not only the emotional component (fear control responses) but also the cognitive component of fear appeals (danger control responses). In addition, the role of fear as a mediator was highlighted in the process of accepting the recommended behavior in the message.

Fear appeal messages typically contained a threat and a response to avert the threat (Kotowski, Smith, Johnstone, & Pritt, 2011). Proposed based on the previous fear appeal models, EPPM suggested that when reading a fear-arousing message, people engaged in two appraisal processes: perceived threat and perceived efficacy. Perceived threat was composed of two aspects: perceived severity of the threat and perceived susceptibility to the threat. Perceived efficacy involved response efficacy and self-efficacy. It should be noted that efficacy was an effect-based variable rather than an intrinsic message variable (O’Keefe, 2003). Efficacy included the feasible steps to minimize the threat (self-efficacy) and the

effectiveness of the recommended response in minimizing the threat (response efficacy) (McKay, Berkowitz, Blumberg, & Goldberg, 2004). Therefore, EPPM incorporated these four variables: perceived severity, perceived susceptibility, response efficacy, and self-efficacy.

Specifically, perceived severity referred to the dangers or consequences of the threat; perceived susceptibility referred to the likelihood that the threat was going to occur; response efficacy referred to the effectiveness of the recommended behavior; and self-efficacy involved the capability and resources that the individual had to engage in the recommended behavior. EPPM predicted an interaction between threat and efficacy with fear control. Generally, individuals responded to a fear appeal message in one of the three ways. First, when the perceived threat was low, individuals would ignore the message and no further action would be taken (McKay et al., 2004). Second, when the perceived threat was high, individuals would engage in two mental processes: danger control and fear control. Particularly, when both the perceived threat and efficacy were high, individuals were more likely to activate the danger control process, which led them to adaptive responses (accept the recommended response). In this process, individuals were motivated to control the danger because they were motivated to take protection behaviors, and their attitudes and behavioral intentions changed in accordance with the message recommendations in order to prevent the negative outcomes induced by the threat (Kotowski et al., 2011; McKay et al., 2004). On the other hand, when the perceived threat was high and the perceived efficacy is low, individuals were more likely to activate the fear control process by engaging in maladaptive responses (message rejection). In this process, individuals were motivated to control their fear elicited

by the health threat, and they would deny the recommendations (McKay et al., 2004; Witte, 1992)

Therefore, EPPM included both message components and cognitive processes, and it was proposed based upon the perspective that fear control was more cognitive than emotional (de Hoog et al., 2005; Witte, 1992). EPPM has been used to investigate in a variety of health topics including cardiovascular disease prevention (McKay et al., 2004), reducing noise-induced hearing loss (Kotowski et al., 2011), colonoscopy screening promotion (Pengchit, Walters, Simmons, Kohlmann, Burt, Schwartz, & Kinney, 2011), skin cancer prevention (Cho & Salmon, 2006), general TV health news processing (Hong, 2011), and promoting breast cancer screening (Jones & Owen, 2006). In summary, a causal relationship has been established between a psychological state (i.e., fear) and the persuasive outcomes (attitude and behavior change) in fear appeal studies (O’Keffe, 2003). The assessment of risks, action readiness, and behavioral intention might be strongly influenced by fear elicited by the exemplars.

A positive relationship between threat and fear has been established in prior empirical research (Witte, 1992). This study uses efficacy as an individual factor without manipulating it in the message design, therefore, a positive causal relationship is proposed:

H₄: Participants who are exposed to the high threat messages will have more reported fear than the ones who are exposed to the low threat messages.

Previous models attempted to make a causal relationship of threat information in the message and individuals’ perception of an issue (smoking, text driving), whereas the role of fear was ignored. The assessment of the risk was associated with the fear elicited by the

messages. This prediction had been supported by prior fear appeal studies (Witte & Allen, 2000). High fear appeal messages evoked higher risk perception than low fear appeal messages. Thus, this study proposes a positive causal relationship between threat and health risk perception, with fear as a potential mediator.

H₅: Fear will mediate the effect of threat on health risk perception, with high fear eliciting high degrees of health risk perception.

Witte (1992; 1994) developed the model with the attempt to incorporate threat and efficacy information in one message, and to predict how people accepted the recommended behavior as an effect of the two variables. Base on the EPPM literature, when a high threat of the health hazard was presented, individuals' high capability and the recommended response's adequateness to protect them against the negative outcome would lead to the acceptance of the copying responses (Kotowski et al., 2011).

Meta-analysis of research using EPPM as theoretical guidance, however, showed an alternative picture (Witte & Allen, 2000). The results indicated that threat and efficacy did not interact but instead both positively influenced danger control responses. In the subsequent empirical tests of EPPM, there were also failures of showing the interaction between threat and efficacy. In other words, threat and efficacy did not always interactively induce fear. Goei, Boyson, Lyon-Callo, Schott, Wasilevich, and Cannarile (2010) found no interaction effects of threat and efficacy on behavioral intention to engage in adaptive asthma responses recommended in the message, instead, they found main effects of both threat and efficacy on behavioral intent.

To address this discrepancy in the model, the present study attempted to investigate the

mediating role of fear as an effect of threat information. Because of the discrepancies and contradictory results in terms of whether threat and efficacy interactively induce fear, this study first investigated the mediating role of fear without controlling for efficacy in the messages. Therefore, one of the main goals of this study is to investigate the role of fear in the decision of the coping responses.

This test provided a meaningful modification of EPPM because when efficacy worked as an individual factor instead of being present in the message, the mediating role of fear was unknown. It's useful to bring together the fear appeal research with the research on emotions (Dillard, 1994). Prior research provided a simple positive relationship among threat information, fear, and its persuasiveness. Therefore, the following relationship is proposed:

H₆: Fear will mediate the effect of threat level on behavioral intention, with high fear eliciting high degrees of intention to perform the recommended behavior.

Fear appeal messages following the principles of EPPM typically contained two components: the perceived threat and the perceived efficacy in the message. The perceived threat was indicated by emphasizing the severity of the threat and the likelihood that the threat would occur. Generally, two outcomes might emerge from the usage of fear appeals in a message: message acceptance or rejection. When the perceived threat was low, no further processing of the fear message would occur because the motivation was low. Whereas, when the perceived threat was high, two conditions would occur according to level of efficacy expressed in the message: high threat and high efficacy messages were likely to lead to danger control actions and message acceptance (adaptive responses); and high threat with low efficacy would cause fear control actions and message rejection (maladaptive responses).

Specifically, when the perceived efficacy was high, individuals would believe that they were able to avert the threat by performing the preventive behavior recommended in the message. By contrast, when the threat is high and perceived efficacy is low, individuals will be less likely to think they could avert the negative consequence of a health hazard (Cho & Salmon, 2006). This experiment modified the EPPM model: instead of attempting to manipulate the efficacy in the message, the present study used efficacy as an individual factor, and investigate the following interaction effect predicted in EPPM:

H₇: When exposed to high threat messages, high efficacy individuals will report more intention to conduct preventive behavior than their low efficacy counterparts.

Cappella (2006) called for more research to examine the effects of factor interactions within the same message. This dissertation was devoted to examining message interaction effects situated in two variables: message format and fear appeal within the context of skin cancer prevention. One of the key predictions of exemplification theory was that exemplars with emotional-arousing evidence exerted a stronger influence on issue perception than events that are emotionally inconsequential (Zillmann, 2002). Emotional reactivity to the exemplars was a key factor in exemplification theory as it enhanced depth of information processing (Zillmann, 2006). Exemplars that could engage the recipients' emotions have a superior ability to attract people's attention than pallidly presented information (Zillmann, 1999). In addition, the emotionality included in the exemplars appeared as a key factor in lasting memory (Dunlop et al., 2008). Therefore, one of the main goals of this study was to test the interaction effect of the narrative exemplars and fear appeals.

Narrative exemplars were proposed to be a particularly effective means of evoking fear

appeal responses in health practice, because the emotional components in narrative exemplars were frequently found in fear appeal messages. As argued by Dunlop and colleagues (2008), “narratives have the power to touch our emotions” (p. 60). Specifically, the current study focused on fear appeals and their interaction with narrative exemplars. Emotionally evocative narratives had particular effectiveness (Dunlop et al., 2008). Therefore the author proposed that narrative exemplars had more potential to elicit fear appeal emotional responses that could affect health risk perception than base-rate information.

This prediction was consistent with the underlying mechanism, availability heuristic in exemplification theory, such that vivid and emotion-inducing exemplars might foster superior accessibility as opposed to pallid and non-salient information (Gibson & Zillmann, 1994; Zillmann & Brosius, 2000). Empirical research has shown support for this hypothesis. For example, in Gibson and Zillmann’s (1994) study, participants were presented four levels (minimally, mildly, substantially, and extremely) emotional-evoking exemplars and were asked about their perception of a car-jacking issue. Their finding revealed that individuals who were exposed to exemplars with high emotional-evoking capacities rated the car-jacking issue as more upsetting and a more serious national problem than viewers who were presented the less emotional-evoking exemplars. McQueen and colleagues (2011) have investigated the effects of narratives that evoke emotions. They found that narrative videos about breast cancer indirectly increased fear perception about the health risk. This dissertation also investigated the interaction of narratives exemplification and fear and attempted to answer whether narrative exemplars work better when the messages evoke fear. Therefore, the following research question is asked:

RQ₁: Is there an interaction effect between narrative exemplars and threat on individuals' risk perception toward skin cancer?

RQ₂: Is there an interaction effect between narrative exemplars and threat on individuals' behavioral intent?

The Need for Cognition as a Potential Moderator in Exemplification

Health decision-making depends upon individual differences. The same health message might elicit different responses in different people according to each one's cognitive and affective characteristics (Witte, 1992). Therefore, in designing a health message, we must have intimate knowledge of the target audience in terms of how they process a message. After taking this possibility into consideration, individual characters were considered as crucial moderators in the experimental design of this study. The varying amount of processing that an individual assigned to a health message has been a key personal factor in analyzing the effectiveness of health messages (Xu, 2008). Among the many moderators, need for cognition (NFC) is the one deemed to be the most relevant to narrative exemplification effects.

The moderating role of NFC has been discussed in several persuasion models such as Elaboration Likelihood Model (ELM) and Transportation Imagery Model (TIM). Initially proposed by Cacioppo and Petty (1982), NFC was tested as a moderator of ELM. This individual factor referred to the tendency of which an individual engaged in effortful cognitive processing. In general, two routes distinguished the information processing, central route and peripheral route. Individuals who chose the central route to process the information were typically motivated to process the information, whereas, a peripheral route would be

chosen if individuals were not motivated to process the message or the message was irrelevant to them. In explaining ELM, Cacioppo and Petty (1982) explicated that individuals with high NFC were more likely to process the information elaborately via the central route, whereas individuals with low NFC were less likely to process the information elaborately.

Although NFC has been investigated extensively in ELM, and the relationship between this variable and an individual's cognitive processing mode seems to be clear, less is known in terms of the moderate role of NFC in exemplification effects. Therefore, another goal of this study is to investigate the moderating effect of NFC in exemplification. The cognitive link between NFC and exemplification is explained below.

As noted above, narrative exemplars allowed individuals to judge issues based on heuristics (Zillmann, 2000). The underlying mechanism of exemplification theory indicated that exemplars were more persuasive than base-rate information when an individual was likely to evaluate the issue without elaboration (Zillmann & Brosius, 2000). The ease with which narrative exemplars were retrieved from memory made the judgment of the issue easier and faster. Therefore, for individuals with low need for cognition, no further elaboration was needed to process the exemplar. In other words, the central mechanism of exemplification, heuristics, can simplify information intake and processing of narrative exemplars. Individuals who took the peripheral route tended to processing information without elaboration, and heuristics were used as an efficient thought process (Zillmann & Brosius, 2000). Therefore, in processing of narrative exemplars, a deliberate elaboration tended to be missed. In other words, when narrative exemplars were available, individuals tend to conduct heuristic processing instead of deliberate assessments of an issue.

This central mechanism in exemplification was consistent with Cacioppo and Petty's (1982) statement of NFC in ELM. For individuals with low NFC, they rely more on narrative exemplars, because generally narrative exemplars required less cognitive resources to process. When NFC was low, narrative exemplars served as a heuristic and negatively influence message processing, whereas when narrative exemplars were absent, message processing scores would be higher. Consequently, reduced information processing derived from narrative exemplars will be greater for individuals with low NFC than for high-NFC individuals.

However, narrative exemplars might not be effective for high-NFC individuals because individuals with high NFC generally enjoyed elaborative processing. Hence, information processing by high-NFC individuals will not be strongly affected by narrative exemplars. Therefore, significant interactions involving narrative exemplars and NFC would provide evidence for the hypothesized moderating function of NFC. NFC constitutes an important individual difference variable that potentially influences an individuals' motivation to process persuasive health messages. Thus, an individual's NFC moderates the effect of narrative exemplar on message processing. According to the characteristics of low-NFC individuals, they tend to use more heuristic processing (Sicilia, Ruiz, & Munuera, 2005), and narrative exemplars do provided heuristics as cues for decision-making. By contrast, high-NFC individuals were more likely to engage in effortful thinking and elaboration for decision-making. For this reason, narrative exemplars might be superior in persuading individuals with low NFC to accept the recommended action in the message than high-NFC individuals. Therefore, it could be said that the intention for message acceptance for the

narrative exemplars will be greater for low-NFC individuals than for high-NFC individuals:

H₈: Low-NFC individuals will report less transportation to a message with narrative exemplars than their high-NFC counterparts.

The Role of Prior Sun Behavior and History

Extensive research has shown that prior behavior and history was a key factor that is relevant to health perception and emotional responses (Dillard & Nabi, 2006). Dillard and Nabi (2006) explicated the important role of this individual difference in cancer detection after reviewing related messages. They found that instead of enhancing emotional arousal, prior knowledge functioned as resistance to affection arousal (Dillard & Nabi, 2006).

Specifically, novel information were more successful to evoke emotion than familiar ones.

The resistance, thus may decrease the perceived threat and severity (Dillard & Nabi, 2006).

Morman (2000) also argued that prior history or behavior was a critical component for an

individual's ability to conduct the recommended behavior. The steps that were recommended

in the message worked better with individuals who were already familiar with the health

problem. Therefore, this dissertation asks the following question concerning the role of prior

skin cancer susceptibility in intentions to perform the action recommended in the message:

H₉: Participants who are more susceptible to skin cancer would have higher intention to protect their skin than the ones who are less susceptible to skin cancer.

CHAPTER 3

METHODOLOGY

This dissertation employed a 2 (message type: narrative exemplar vs. base-rate information) \times 2 (threat: high vs. low) factorial between-subject design.

Participants

A total of 251 participants from the College of Communication and Information Sciences at a large southeastern U.S. university were recruited to participate in the experiment. Their age ranged from 19 to 26 ($M = 19.74$, $SD = 1.27$, $Mdn = 19$). Males consisted 33.9% of the sample, and females consisted 66.1%. The majority of participants were Caucasian/White ($n = 203$, 80.9%), followed by African American ($n = 40$, 15.9%), Latino/Hispanic ($n = 2$, .80%), Native American/Pacific Islander ($n = 5$, 2.0%), and Asian/Asian-American ($n = 5$, 2.0%).

Independent Variables

Message format. Two types of message formats: narrative exemplars and base-rate information, were manipulated. As reviewed in the literature, kernels and satellites functioned together to make a story. Kernels were defined as “the branching points which force a movement into one of two (or more) possible paths” (Chatman, 1978, pp. 53). Therefore, a kernel was a turning point in a narrative that was crucial for the story development. In other

words, the existence of kernels allowed us to construct a story with a logic sequence of events. On the contrary, a satellite generally appeared between two kernels, and it was not vital in changing the basic storyline of a narrative (Porter et al., 2002).

Thus, message format (MF) was operationalized as the ratio of kernels (Kn) to satellites (St), $[MF = Kn \div St]$. The value of MF in a message with narrative exemplars should be higher than the one with base-rate information because the number of kernels should be higher in narrative exemplars than those in the base-rate information messages. The following examples were useful to illustrate this measurement.

Example 1: A paragraph in the message with a narrative exemplar.

In the summer before starting graduate school at UA [St¹], I drove home to spend some time with my family [Kn¹]. My father noticed that the mole on my neck seemed bigger, darker and a different shape than he had recalled [Kn²]. He suggested I get it checked out by a dermatologist as soon as possible [Kn³].

Example 2: A paragraph in the message with base-rate information.

Skin cancers usually form on the head, face, neck, hands and arms. Many doctors suggest that people should look at their own skin every month. A friend or family member can also help examine one's skin. If their moles grow bigger, darker and a different shape, they should get themselves checked out by a dermatologist as soon as possible.

The paragraph in the first example had a high MF rating of 3 ($3 \div 1 = 3$). In contrast, the paragraph in the second example had a low MF rating of 0 ($0 \div 0 = 0$). The MF rating can range from zero to infinity. As a result, in the narrative format condition of this study, the MF was 2.8 ($14 \div 5 = 2.8$), while the MF value in the base-rate information condition was 0 ($0 \div 0 = 0$).

Fear appeal intensity. Fear appeal message design followed Witte's (1992)

suggestions for developing fear appeal manipulations in EPPM, which suggested that two components should be included in the threat information: perceived severity and perceived susceptibility. In designing messages for this study, the researcher varied the level of severity and susceptibility in the message. Thus, there were two levels of threat (high vs. low).

In compliance with EPPM, a strong fear appeal condition consisted of high threat, whereas a low fear appeal condition included low threat information. Thus, two types of messages were developed, one promoting high threat and the second promoting low threat. The messages intended to make the health risk susceptibility and severity salient to the participants. High fear appeal skin cancer messages following the guidelines included the following variables: (1) high severity of the skin cancer; (2) college students' high susceptibility to skin cancer at some points of their lives. For example, a high perceived severity message included the following statement: "Skin cancer is a severe disease". High susceptibility was indicated by the statement such as "you are susceptible to skin cancer if you don't apply protection under the sun". Overall, each message contained information about the general risk factors for the health problem and the recommended steps individuals can take to protect themselves against skin cancer.

Stimulus Materials

The two independent variables were the threat (high vs. low) and message type (narrative exemplar vs. base-rate information). Government documents and health associations' materials were used to guarantee the accuracy of the messages. In both narrative exemplar and base-rate information message types, threat information was embedded within the text. The four versions of messages appeared similar in length and formality.

Dependent Measures

Health risk perception. Health risk perception was a commonly examined dependent variable in health communication and had been considered a reliable predictor of pro-health behavior (Janssen, van Osch, de Vries, & Lechner, 2011; Rimal & Adkins, 2003). In different models, perceived risk has been examined under different concepts. For example, in the Health Belief Model (Rosenstock, 1974), it was conceptualized as perceived susceptibility; in the EPPM (Witte, 1992), it was examined as perceived threat. Although across studies and theoretical perspectives perceived risk has been entitled different names, it is commonly measured based on two components: perceived likelihood and perceived severity of the health risk (Janssen et al., 2011). Therefore, following the questionnaire used by Apanovitch, McCarthy, and Salovey (2003), Hull (2010), Janssen et al., 2011, and Robinson (2005), health risk perception was measured using four 7-point scales (1 = strongly disagree, 7 = strongly agree). The items were “If I got skin cancer, it would have little effect on my life”; “If I got skin cancer, I would be afraid of dying of it”; “If I got skin cancer, I would worry about my future”; and “If I got skin cancer, I would find it very stressful.” Cronbach’s α for this scale was .82.

Attitude toward the preventive behavior. Overall attitude toward the preventive behavior was measured using four Likert scales (1 = not at all, 7 = very much). The attitude scale was adapted from previous studies, including Nan (2009) and Morman (2000). The items were “How do you like the recommended behavior in the message”; “After reading the message, do you have positive attitudes towards the recommended behavior”; “After reading the message, do you have favorable attitudes towards the recommended behavior”; and

“After reading the message, do you think the recommended behavior is good.” Cronbach’s α for this scale was .92.

Behavioral intent. Six 7-point scales ranging from 1 (extremely unlikely) to 7 (highly likely) were used to measure participants’ likelihood to accept the suggested behavior. The items were “In the future, how likely is it that you will wear sunscreen while you are in the sun”; “How likely is it that you will go to clinic to check your skin”; “How likely is it that you will seek more information on skin cancer”; “How likely is it that you will use sunscreen consistently when exposed to the sun”; “How likely is it that you will tell your friends to protect their skin”; and “In the future, how likely is it that you will wear protective clothing when exposed to the sun.” Cronbach’s α for this scale was .86.

Perceived efficacy. The perceived efficacy was assessed using eight, 7-point scales (1 = strongly disagree to 7 = strongly agree). The items used to measure perceived self-efficacy were “Preventing skin cancer is easy to do”; “My health depends on how well I take care of myself”; “My health is within my control”; and “I am able to do something to prevent skin cancer.” Cronbach’s α for this scale was .88.

The perceived response efficacy was assessed via four 7-point scales (1 = strongly disagree to 7 = strongly agree). The items were “Regular self-examination of skin cancer is the most effective method of detecting it early”; “Avoiding tanning beds is a good way to protect my skin”; “Using sunscreen will prevent my skin from being damaged”; and “By detecting skin problem myself I will greatly improve my chances of survival.” Cronbach’s α for this scale was .83.

Fear perception. Five 7-point (1 = strongly disagree to 7 = strongly agree) Likert scale

questions were asked to assess the overall fear appeal, including “This message makes me feel frightened, tense, anxious, uncomfortable, and nervous.” Cronbach’s α for this scale was .93.

Transportation. Participants were asked to complete six 7-point scales (1 = not at all like me, 7 = very much like me) indicating the extent to which they were actively engaged with message content (Green & Brock, 2000). The items were “While I was reading the message, I could easily picture the events in it taking place”; “I could picture myself in the scene of the events described in the message”; “I was mentally involved in the message while reading it”; “I wanted to learn how the message ended”; “I found myself thinking of ways the message could have turned out differently” and “While reading the message, I had a vivid image of the student.” Cronbach’s α for this scale was .84.

Procedures

Pilot study. A pilot test was conducted among 73 college students to check if the manipulations of severity and susceptibility were successful. Participants were recruited from undergraduate classes at a large southeastern university. The participants in the pilot study were a different population from those who participated in the main experiment. Participants’ age ranged from 19 to 24 ($M = 20.49$, $SD = 1.27$, $Mdn = 20$). Males consisted 34.2% of the sample, and females consisted 65.8%. The majority of participants were Caucasian/White ($n = 62$), followed by African American ($n = 9$), Latino/Hispanic ($n = 1$), and Asian/Asian-American ($n = 1$).

Two groups were randomly assigned to either high threat (high severity and high susceptibility) or low threat (low severity and low susceptibility) message conditions. In each

message condition, threat information included two components: severity and susceptibility information. High threat consisted of high severity and high susceptibility information, whereas low threat consisted of low severity and low susceptibility information. Participants were asked to read the assigned messages and then complete a questionnaire that aimed at checking the manipulation of threat information (i.e., severity and susceptibility). The measures for the pilot test were adapted from a number of prior studies (Morman, 2000; Witte, 1994).

The perceived severity was measured using five items on a 7-point scale (1 = strongly disagree, 7 = strongly agree). The items were: “This message leads me to think skin cancer is a very serious health problem”; “This message leads me to think skin cancer is very painful”; “This message leads me to think many people die of skin cancer”; “This message leads me to think skin cancer is almost always curable”; and “This message leads me to think skin cancer is very severe.” Cronbach’s α for this scale was .82.

The perceived susceptibility was assessed with the following three questions (1 = extremely impossible, 7 = highly possible): “After reading the message, how possible do you think is it for you to get skin cancer”; “After reading the message, how possible do you think skin cancer will affect your academic performance”; and “After reading the message, how possible do you think skin cancer will affect your personal life.” Cronbach’s α was .54, which was somewhat low. To address this issue, the messages were therefore revised and a different set of questionnaire was used to test the manipulation of susceptibility in the manipulation check procedure.

The pilot study data were then submitted to a two-way analysis of variance (ANOVA), with the continuous reported severity and susceptibility score as the dependent variables. The severity information was successfully manipulated, $F(1, 72) = 11.44, p = .001, \eta_p^2 = .14$. Specifically, participants who read the high severity messages reported higher perceived severity of skin cancer ($M = 5.45, SD = .18$) than participants who read the low severity message ($M = 4.54, SD = .20$). However, the manipulation of susceptibility was problematic, $F(1, 72) = .18, p = .67, \eta_p^2 = .003, (M_{\text{high susceptibility}} = 5.37, SD = .19; M_{\text{low susceptibility}} = 4.92, SD = .21)$.

To improve the manipulation of susceptibility, the researcher further revised the messages so as to make susceptibility more salient in high and low susceptibility conditions. In addition, given the low reliability of the prior scale for testing susceptibility, the researcher chose to use a different set of measures to check the manipulation of susceptibility after the main experiment. Upon completing the experiment, participants were asked to rate their perceptions of threat and susceptibility again. The procedures are described in detail in the manipulation check section, and the results of the manipulation check are discussed in the results section.

Manipulation checks. To ensure the revised messages could effectively manipulate threat and susceptibility, the researcher performed a manipulation check at the end of the main experiment. A new set of measures was used to check the manipulation of susceptibility in the manipulation check. They were “This message leads me to think my chance of getting skin cancer can be very high”; “This message makes me worried about developing skin cancer because of too much sun exposure”; “This message leads me to think the chance for

college students getting skin cancer is very high”; “This message leads me to think I am susceptible to skin cancer”; “This message leads me to think that compared with other college students, I have a high chance of developing skin cancer”; “This message leads me to think I am very vulnerable to skin cancer.” Cronbach’s α for this scale was .90.

Experimental procedures. The data were collected via computer in a survey lab equipped with 14 computers. Participants were asked to complete a form of consent. After consent was given, they were randomly assigned to one of the computers in the lab, and were instructed to complete the demographic, NFC and prior behavior questionnaires. Participants were then instructed that they would view one health message. After viewing the message, participants completed the dependent measures, including the fear appeal scale, the health risk perception scale, the attitude scale, the behavioral intention scale, the self-efficacy scale, the response efficacy scale, the message processing scale, and the manipulation check questionnaire. After completing the experimental procedure, participants were thanked and debriefed. The entire study lasted approximately 30 to 40 minutes.

CHAPTER 4

RESULTS

Manipulation Checks

The data were submitted to two-way ANOVAs. The manipulation check results re-confirmed the successfulness of the manipulation of severity, $F(1, 250) = 32.32, p < .001, \eta_p^2 = .12$. Specifically, participants who read the high severity messages reported greater sense of severity ($M = 5.42, SD = .09$) than participants who read the low severity message ($M = 4.70, SD = .09$).

The revised manipulation of susceptibility was also successful, $F(1, 250) = 7.89, p < .05, \eta_p^2 = .03$. Specifically, participants who read the messages with high susceptibility information reported they were more vulnerable to skin cancer ($M = 5.10, SD = .12$), as compared to those who read the messages with low susceptibility information ($M = 4.64, SD = .12$). Therefore, the manipulation of susceptibility was successful. Because the manipulation of both severity and susceptibility were successful, and severity and susceptibility were two components of threat, the manipulation of threat information was therefore considered successful in this experiment.

Hypotheses Testing

To test $H_1, H_2, H_3,$ and H_4 , the data were submitted to a 2 (format: narrative vs. non-narrative) \times 2 (threat: high vs. low) two-way analysis of variance (ANOVA), with the

format (narrative vs. non-narrative) and threat (high vs. low) as two categorical independent variables, and continuous risk perception score, attitude score, behavioral intention score, and fear as dependent variables.

H₁ predicted that participants who were exposed to the narrative exemplars would have higher health risk perception toward skin cancer than the ones who were exposed to the base-rate information messages. There was no significant main effect of message format on health risk perception, $F(1, 250) = .99, p = .32, \eta_p^2 = .004$.

H₂ predicted that participants who were exposed to the narrative exemplars would have more favorable attitude towards the preventive behavior advocated by the message than the ones who were exposed to the base-rate information messages. The main effect of message format on attitude was not significant, $F(1, 250) = .13, p = .72, \eta_p^2 = .001$.

H₃ predicted that participants who read the narrative exemplar messages would have stronger intention to perform the suggested preventive behavior than the ones who read the base-rate information messages. The main effect of message format on behavioral intention was not significant, $F(1, 250) = .56, p = .46, \eta_p^2 = .002$ (See Table 2).

Table 4.1

Means and Standard Deviation of Risk Perception, Attitude, and Behavioral Intention

Conditions	Dependent variables		
	Risk perception (S. E)	Attitude (S. E.)	Intention (S. E.)
Narrative exemplar	5.51 (.12)	4.65 (.12)	3.96 (.13)
Base-rate information	5.34 (.12)	4.60 (.12)	3.83 (.13)

H₄ predicted that participants who read the high threat messages would have more reported fear than the ones who read the low threat messages. There was a significant main effect of threat level on reported fear, $F(1, 250) = 13.15, p < .001, \eta_p^2 = .05$. Specifically, participants who read the high threat messages reported higher degree of fear ($M = 3.98, SD = .13$) than participants who read the low threat messages ($M = 3.32, SD = .13$). Therefore, H₄ was supported.

H₅ and H₆ predicted that fear mediated the effect of threat level on health risk perception and behavioral intention, with higher fear eliciting higher degrees of health risk perception and behavioral intention. To test the two hypotheses, a series of tests for mediation effects were performed.

First of all, to check for the existence of partial or full mediating effect of fear, the researcher followed Baron and Kenny's (1986) three-step model for mediation. Baron and Kenny (1986) suggested that the following conditions must be met in order to establish mediation effect: (1) the independent variable (i.e., threat) should hold a significant impact on the mediating variable (i.e., fear); (2) the independent variable should have a significant effect on the dependent variables (i.e., risk perception and behavioral intention); (3) the mediating variable fear should significantly influence the dependent variables. Perfect mediation held if the independent variable had no effect on the dependent variables when the mediator was controlled. If the independent variable had smaller effect on the dependent variable when the mediator was controlled, then there was a partial mediation effect.

H₅ predicted that for both narrative and non-narrative messages, fear would mediate the effects of threat level on health risk perception toward skin cancer, with individuals who

reported more fear showing higher risk perception than their low fear counterparts. To test this hypothesis, the researcher first performed the first step following Baron and Kenny's (1986) suggestion. To test the effect of the variations of threat level on fear, the researcher performed the same procedure as she did in testing H₄. The main effect of threat level was significant, $F(1, 250) = 13.15, p < .001, \eta_p^2 = .05$.

In the second step, the data were submitted to a 2 (format: narrative vs. non-narrative) × 2 (threat: high vs. low) two-way ANOVA, with the continuous risk perception score as the dependent variable, format (narrative vs. non-narrative) and threat (high vs. low) as two categorical independent variables. There was a significant main effect of threat level on the degree of health risk perception, $F(1, 250) = 6.09, p < .05, \eta_p^2 = .02$, with participants who read the high threat message showing higher risk perception than those who read the low threat messages ($M_{high\ threat} = 5.63, SD_{high\ threat} = .12; M_{low\ threat} = 5.21, SD_{low\ threat} = .12$). Therefore, the results confirmed the significant main effect of threat level on health risk perception.

In the third step, the researcher regressed the score of health risk perception on fear, with the continuous fear score as the independent variable, and the continuous health risk perception score as the dependent variable, and found significant result for this effect, $t = 4.09, \beta = .23, p < .001$.

Because the results from the previous three steps were all significant, the researcher proceeded to test potential mediating effects of fear. Before submitting the data to the final step test, the researcher excluded the possibility of fear working as a moderator. This procedure was completed by submitting the data to a two-way ANOVA, with the continuous

risk perception score as the dependent variable, the threat level the independent variable, and the continuous fear score as a covariate. The researcher then used the “Custom” command in SPSS to build a custom interaction model of threat level and fear. The interaction was not significant, $F(1, 250) = .90, p = .34, \eta_p^2 = 0$. Therefore, the possibility of fear as a moderator was excluded.

Therefore, the candidacy of fear as a mediator has been met. In the last step, the data were submitted to a 2 (format: narrative vs. non-narrative) \times 2 (threat: high vs. low) two-way ANOVA, with the continuous risk perception score as the dependent variable, format (narrative vs. non-narrative) and threat (high vs. low) as two categorical independent variables, and the continuous fear score as a covariate. When the mediating variable (fear) was controlled, the effect of threat on health risk perception was not significant any more, $F(1, 250) = 2.81, p = .10, \eta_p^2 = .01$, indicating there was a full mediation effect of fear. Therefore, H_5 was supported, meaning that fear mediated the effect of threat level on health risk perception.

Similarly, H_6 predicted that fear mediated the effect of threat level on behavioral intention. The researcher performed the same procedures as she did in testing H_5 to examine the mediating role of fear on behavioral intention. In the first step, the results from testing H_4 confirmed the significant effect of threat level on fear perception. In the second step, results from a two-way ANOVA test showed that there was a significant main effect of threat level on behavioral intention, $F(1, 250) = 4.32, p < .05, \eta_p^2 = .02$, with participants who read the high threat message showing higher intention to protect their skin than those who read the low threat messages, ($M_{high\ threat} = 4.08, SD_{high\ threat} = .13; M_{low\ threat} = 3.71, SD_{low\ threat} =$

.13). In the third step, the researcher performed a regression analysis, with the continuous fear score as the independent variable, and the continuous behavioral intention score as the dependent variable. The result was significant for this effect, $t = 7.19, \beta = .40, p < .001$.

After the initial three steps, the researcher proceeded to test whether fear worked as a potential moderator. A custom model of ANOVA showed the interaction between threat level and fear was not significant, $F(1, 250) = .04, p = .84, \eta_p^2 = 0$. Therefore, fear was not a moderator in the effect of threat level on behavioral intention.

In the final step, the data were submitted to a 2 (format: narrative vs. non-narrative) \times 2 (threat: high vs. low) two-way ANOVA, with the continuous behavioral intention score as the dependent variable, format (narrative vs. non-narrative) and threat (high vs. low) as two categorical independent variables, and the continuous fear score as a covariate. In this step when fear was controlled, the effect of threat on behavioral intention was not significant any more, $F(1, 250) = .45, p = .50, \eta_p^2 = .002$. Therefore, H_6 was also supported, indicating that fear mediated the effect of threat level on behavioral intention.

RQ₁ and RQ₂ asked whether there was an interaction effect of message format and threat level on health risk perception and behavioral intention. The interaction effect of threat level and message format on health risk perception was not significant, $F(1, 250) = .31, p = .58, \eta_p^2 = .001$. In addition, the interaction effect of threat level and message format on behavioral intention was not significant, $F(1, 250) = .28, p = .60, \eta_p^2 = .001$.

Table 4.2

Means of Health Risk Perception and Behavioral Intention as Influenced by Format and Threat

Format	Threat Level	Health Risk Perception		Behavioral Intention		N
		Mean	S.E.	Mean	S.E.	
Narrative Exemplar	High	5.67	.17	4.20	.18	62
	Low	5.34	.17	3.73	.18	61
Base-rate Information	High	5.59	.17	3.97	.18	63
	Low	5.09	.17	3.69	.18	65

H₇ predicted that when exposed to high threat messages, high efficacy individuals would show more intention to conduct preventive behavior than their low efficacy counterparts. To test this hypothesis, the researcher first used the “Compute Variables” command in SPSS to create a new variable “efficacy”, which was the mean of the sum of the self-efficacy and response efficacy scores. Then the researcher used median split approach to divide participants into high and low efficacy individuals. The descriptive statistics showed that the efficacy score was normally distributed, with 5.625 as the median. Therefore, those who scored lower than 5.625 were coded as low efficacy individuals, and those who scored higher than or equal to 5.625 were coded as high efficacy ones. The data were submitted to a two-way ANOVA, with the continuous behavioral intention score as the dependent variable, threat and the new efficacy score as two categorical independent variables. The interaction of threat level and efficacy was significant, $F(1, 250) = 4.28, p < .05, \eta_p^2 = .02$. Specifically, high efficacy individuals were more likely to perform preventive behavior ($M = 4.71, SD =$

1.37) than low efficacy individuals ($M = 3.30$, $SD = 1.20$) when they were exposed to high threat messages.

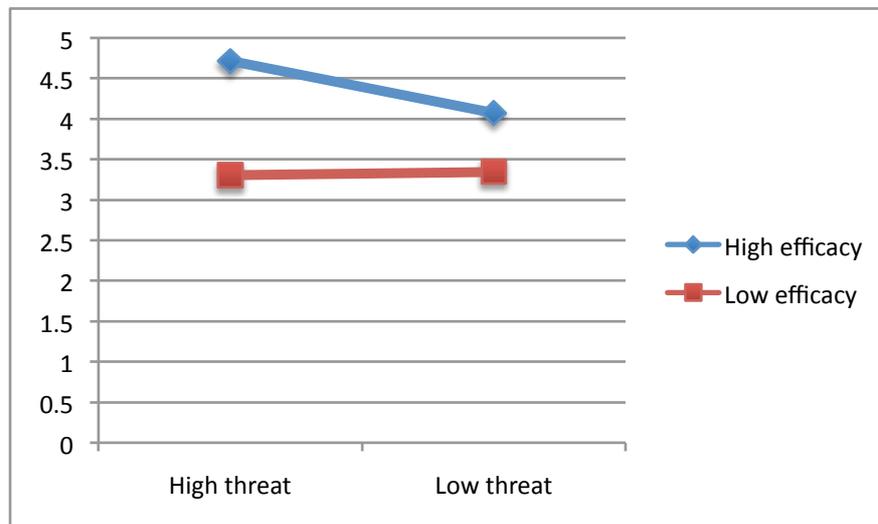


Figure 4.1. Interaction of Threat Level and Efficacy.

H_8 predicted that low-NFC individuals would report less transportation to a message with narrative exemplars than their high-NFC counterparts. The researcher used median split approach to divide participants into high- and low- NFC individuals. The descriptive statistics showed that the NFC score was normally distributed, with 4.22 as the median. Therefore, those who scored lower than 4.22 were coded as low-NFC individuals, and those who scored higher than or equal to 4.22 were coded as high-NFC ones. The data were then submitted to a two-way ANOVA, with the continuous transportation score as the dependent variable, format and the new NFC score as two categorical independent variables. The interaction of NFC and message format was not significant, $F(1, 250) = .86$, $p = .35$, $\eta_p^2 = .003$. However, the main effect of message format on transportation was significant, $F(1, 250) = 13.89$, $p < .001$, $\eta_p^2 = .05$. Specifically, participants were more engaged in the message with narrative exemplars ($M = 4.81$, $SD = .11$) than the one with base-rate information ($M = 4.23$, $SD = .11$).

Table 4.3

Means of Transportation

NFC	Format	Mean	S.E.	N
Low	Narrative Exemplar	4.77	.17	54
	Base-rate Information	4.05	.15	67
High	Narrative Exemplar	4.85	.15	69
	Base-rate Information	4.41	.16	61

H₉ predicted that participants who were more susceptible to skin cancer would have higher intention to protect their skin than the ones who were less susceptible to skin cancer. The researcher first used median split approach to divide participants into high and low susceptible individuals. Then a T-Test was performed, with the new categorical susceptible level as the factor, and the behavioral intention as the outcome variable. The result was significant, $t = -3.77, p < .001$, with individuals who were more susceptible to skin cancer ($M = 4.22, SD = 1.26$) showing more intention to protect their skin than their low susceptible counterparts ($M = 3.56, SD = 1.51$).

CHAPTER 5

CONCLUSIONS AND DISCUSSION

This dissertation investigated the effects of narrative exemplars and fear appeals on individuals' health-risk perception, attitude toward the preventive behavior, and coping responses in the context of promoting preventive skin cancer behaviors among college students. A high-threat message describing the severe consequences of not protecting one's skin and the high susceptibility to skin cancer both directly and indirectly impacted individuals' perception of skin cancer risk and their intention to perform the coping responses. In addition, fear played an important role in the messages describing the severity and susceptibility of skin cancer. Specifically, fear mediated the effect of threat on one's risk perception and intention for the coping responses. Moreover, when reading a high-threat message, participants with high efficacy believed that the recommendation outlined in the messages produced the desired outcome and the threat could be averted. Need for cognition did not affect the processing of narrative exemplars, although participants who read the narrative exemplars reported higher transportation than those who read the base-rate information messages.

The first set of hypotheses investigated the main effects of narrative exemplars on individuals' health risk perception, attitude, and intention to perform the recommended behavior. Narrative exemplars were not effective on the dependent variables, whereas, when the participants were asked to what extent they were engaged in the messages, those who read

the narrative exemplars reported higher levels of transportation than those who read the messages with base-rate information. This finding was in line with the notion that narratives were generally more enjoyable (Slater, 2002), more vivid (Green, 2006), and easier to process (Brosius & Bathelt, 1994). However, the finding might suggest that although a message with a narrative exemplar was able to engage participants, it was not powerful enough to motivate attitude and behavioral change.

To further examine whether transportation played a role in the effect of narrative exemplars on health risk perception, health attitude, and behavioral intent, the researcher used the median split approach to divide participants into high- and low-transportation individuals. The purpose of this procedure was to understand the potential effect of transportation on participants' risk perception, attitude, and behavioral intent. The descriptive statistics showed that the transportation score was normally distributed, with 4.50 as the median. Thus, those who scored lower than 4.50 were coded as low-transportation individuals, and those who scored higher than or equal to 4.50 were coded as high-transportation ones. The data were then submitted to an independent T-test, with the continuous risk perception, attitude, and behavioral intent score as the dependent variables, the new transportation score as the categorical independent variable. The results were significant for transportation. Specifically, there was a significant effect for transportation on health risk perception, $t(249) = -4.50, p < .001$, with high-transportation individuals reporting higher risk perception ($M = 5.76, SD = 1.29$) than low-transportation individuals ($M = 5.03, SD = 1.29$); there was a significant effect for transportation on health attitude, $t(249) = -4.28, p < .001, M_{high-transportation} = 4.94, SD_{high-transportation} = 1.33; M_{low-transportation} = 4.26, SD_{low-transportation} = 1.18$; in addition, there was a

significant effect for transportation on behavioral intent, $t(249) = -7.30, p < .001$, with high-transportation individuals reporting higher behavioral intentions ($M = 4.45, SD = 1.37$) than low-transportation individuals ($M = 3.26, SD = 1.21$).

These findings implied that although message format (narrative exemplars) failed to show significant effect on the dependent variables, individuals' degree of transportation could be an important factor in the process of changing people's health risk perception, attitude, and behavioral intention. The more an individual was transported in the narrative exemplar, the more likely he or she would report higher risk perception toward the issue of skin cancer, show more favorable attitude toward the recommended behavior, and report stronger intention to avert the negative consequences. As the relationship of transportation and the dependent variables was supported in the current analysis, future studies should explore the mediating role of transportation in promoting pro-health attitude and behavior.

It should be noted that one of the most significant contributions of this study was that it empirically identified the role of transportation in the effects of narrative exemplars on health attitude and behavioral change. Although the narrative exemplar hypotheses were not statistically supported, the influence of the degree of transportation on health risk perception, health attitude, and behavioral intent was confirmed, implying that narrative exemplars could be a useful form to use in health persuasion because of their engaging characteristics. This finding was consistent with those studies conducted by Green and colleagues regarding the Transportation-Imagery Model (Green & Brock, 2000; 2002). Transportation was a distinct mental process, which might mediate the impact of narratives on beliefs (Gerrig, 1993). The discussion of degree to which a reader was cognitively and affectively engaged in a narrative

helped us understand how narrative exemplars persuade. One of the consequences of transportation was attitude and belief change as a result of being transported.

The Transportation-Imagery Model argued that narratives had a superior effect than non-narrative formats because of their ability to engage people. In other words, the extent to which the readers were transported determined readers' change of beliefs and favorable evaluations of the story. The current study showed a pattern in which the degree of transportation and individuals' health risk perception, attitude, and behavioral intent was positively correlated. This analysis provided future study attempting to investigate the effects of narrative exemplars with a valuable cognitive basis. In addition, future studies may use the degree of transportation as a measure for the successfulness of the narrative manipulation.

It should be noted that one of the contributions of the EPPM was that the model made a distinction between fear, a negatively valenced emotion, and threat, a stimulus variable. Prior fear appeal models such as PMT failed to test the mediating role of fear. For example, PMT proposed that behavioral intention was an interacting effect of threat and efficacy. In responding to high threat messages, high efficacy individuals would show intentions toward the adaptive behavior, while low efficacy individuals would show intentions toward the maladaptive behavior. However fear, as a negative emotion was absent from this model. Even in several prior studies employing EPPM as a theoretical framework, the mediating role of fear was ignored (i.e., Allahverdipour, MacIntyre, Hidarnia, Shafii, Kzamnegan, Ghaleiha, & Emami, 2007). The EPPM was the first of its kind to incorporate severity, susceptibility, self-efficacy, response efficacy, and include fear as a mediating variable, arguing that threat and fear were two different concepts.

This study modified the EPPM and tested the direct and indirect effects of threat, as well as the mediating role of fear on individuals' risk perception and behavioral intention in a skin cancer prevention context. Self-efficacy and response efficacy were incorporated in the model as individual factors rather than stimulus ones. Regarding risk perception, this study found that for both narrative and non-narrative messages, fear mediated the effects of threat level on health risk perception toward skin cancer, with individuals who reported more fear showing higher risk perception than their low fear counterparts.

The results indicated that compared with their low counterparts, individuals who were more "scared" by the threatening messages perceive higher risk of developing skin cancer than their low counterparts. This finding enriched our understanding of the mechanism of fear appeals whereby fear influenced threatening information in a health communication context. Specifically, when the severity and the susceptibility were high, regardless of the degrees of efficacy, the fear perception was likely to be elicited. This finding confirmed the positive relationship between threat and fear in a health message. Fear, as a negative emotion, played a mediating role in fear appeal messages intended to persuade people to adopt adaptive behavior. Such relationship had been consistently validated by a series of studies.

Moreover, regardless of efficacy, fear also worked as a mediator between threat and behavioral intention. In the EPPM, Witte (1992) argued that in response to high threat messages, high efficacy would elicit less fear, thus leading to adaptive behavior (accept the behavioral recommendation in the messages), whereas low efficacy would produce more fear, so that individuals would show intention for the maladaptive behavior (reject the

recommendation in the messages). The EPPM distinguished danger-control and fear-control process: the danger-control process typically motivated one to employ adaptive behaviors, which prevented the negative consequences associated with health hazard; in the fear-control process, one typically engaged in maladaptive behaviors, and ultimately rejected the message in order to control his/her fear. However, the fear control process occurred when the threat far outweighed the perceived efficacy. The findings of this study showed that regardless of efficacy, high fear lead to adaptive intention and low fear lead to maladaptive intention, which implied that in response to the fear appeal resulted by the high threat information, one would trigger protective motivation.

However, the role of fear needed to be re-accessed. High fear lead to adaptive behavioral intentions, which was contradictory with the initial prediction in EPPM, deserved alternative explanations. The results from this study suggested a positive causal relationship between fear and behavioral intention. That was, individuals who had higher fear about the skin cancer perceived the risk of getting skin cancer was being high, and they were more motivated to prevent the health risk. On the contrary, individuals who had less fear about the health problem would be less motivated to prevent the health risk. In fact, when examining the effect without efficacy information in the message, high fear played an important role in accepting the recommendation in the message. It was possible that when including efficacy in the mediation analysis, a different picture would emerge.

EPPM suggested that not only threat information but also self-efficacy and response efficacy played an important role in the development of protective behavior. According to

this proposition of EPPM, the threat and perceived efficacy together determined whether an individual responded with an adaptive or a maladaptive coping response. In the present context, adaptive coping responses were reflected by showing the intention to perform activities to protect one's skin, while maladaptive behavior was the contrary.

The results from this study were consistent with prior findings and the prediction of EPPM. An interaction effect occurred between the two types of appraisals: when the threat was high, high efficacy lead to adaptive coping responses (intention to protect one's skin), while low efficacy lead to maladaptive coping responses (showing no intention to protect one's skin). The finding of this study supported the first relationship, that was, when both the threat and efficacy were high, individuals were more likely to show intention for adaptive behaviors, while high threat and low efficacy, increased the likelihood of maladaptive behaviors.

The result might imply that when individuals recognized the threat of skin cancer, those with low efficacy would be less likely to show intentions toward the adaptive behavior than their high efficacy counterparts because they felt unable to properly protect themselves from the threat. On the contrary, although they were threatened by a health risk, individuals who felt powerful to properly protect themselves from the health threat might form strong intention toward the adaptive behavior. If individuals were not threatened by the health risk, they would not demonstrate strong intention to perform the prevented behavior, and the difference between high- and low-efficacy individuals was not significant.

The effects of high-threat/high-efficacy condition, as argued by Witte (1992), indicated a danger control processes, suggesting that the high efficacy individuals would perform the

preventive behavior in a self-protective manner and comply with the recommendation outlined in the messages. The implication of this finding was that emphasizing the threat of a health risk in a message might not affect the individuals with low efficacy. For such individuals, exaggerating the severe consequence of a health risk might lead to fear control process thus avoiding the adaptive behavior recommended in the message. To achieve the effectiveness of a threatening message to low efficacy individuals, the message should include high self- and response efficacy statements. These recommendations can be considered in future fear appeal health messages designs.

The next hypothesis attempted to understand how narrative exemplars persuaded with respect to individuals' cognitive differences. NFC did not influence individuals' transportation in the processing of narrative exemplars. The absence of the interaction effects between NFC and message format indicated that readers' transportation to the messages with narrative exemplars was independent from their degrees of NFC. This finding appeared to be contradictory with the premise of the exemplification theory. The theory suggested that the effect of exemplars was mainly based on the reliance on cognitive shortcuts, that was availability and representativeness heuristics (Zillmann & Brosius, 2000), and the effect would be amplified when heuristic processing dominated (Lee & Jang, 2010). Those who were likely to engage in effortful reasoning would be less likely to be affected by exemplars, as compared to their low information consumption counterparts. In addition, base-rate information was considered as a stronger form of evidence than exemplars, and high NFC individuals were more susceptible by the influence of argument quality than their low information consumption counterparts (Cacioppo, Petty, Kao, & Rodriguez, 1986). Prior

studies showed that NFC played as an important moderator in the narrative advertising processing. High and low NFC individuals demonstrated various levels of ad attitude and brand attitude (Brennan & Bahn, 2006). Braverman (2008) found that exemplars exerted greater influence in terms of persuasiveness than informational ones, especially among those who prefer less elaborate cognitive processing. Taken together the results of Braverman (2008) and the results of the current study might imply the complex role of need for cognition in narrative processing in different contexts (e.g., advertising vs. health communication). Narrative exemplars seemed to influence persuasive outcome through a variety of mechanisms related to the level of vividness, argument quality of the message, and engagement of the recipients.

This study was among the first of its kind examining the moderating role of NFC in narrative exemplars processing in a health communication context. An exemplar was a less cognitively demanding format, which provided the message processors with cognitive shortcut, whereas the effect of narrative exemplars did not vary whether or not the individuals are highly motivated message processors. Future studies are encouraged to explore possible cognitive moderators such as individuals' cognitive capacity in exemplification effect. In addition, the characteristics of narratives, such as enjoyment, engagement, and vividness, "might serve as heuristic cues and increase persuasiveness when the message is peripherally processed" (Braverman, 2008, p. 34). Future research should be conducted to directly address the relationship of need for cognition and persuasiveness of narrative exemplars to see the role of transportation when the message is processed peripherally.

It should be noted that regardless of NFC differences, participants reading a message with a narrative exemplar experienced greater transportation compared to those reading an article without a narrative exemplar. Messages with concrete and vivid characters and stories produced greater transportation than pallid fact-based information. This finding was consistent with previous research. Prior studies suggested there was an association between individuals' transportation and behavioral intention (Kim, Bigman, Leader, Lerman, & Cappella, 2010). Green and Brock (2000) suggested that behavioral intention change might occur when readers were engaged by the exemplars and narrative content. Specifically, exemplification lead to greater transportation, and higher transportation in turn elicited greater intention to perform the recommended behavior. For example, Kim and colleagues (2010) found that when smokers were more engaged with the narrative message, they showed more intentions to quit, compared with those who experienced less transportation. This finding along with the one from the present study shed some light on the practical significance of health message design. As health communication practitioners consider ways to design effective message to prevent risky behaviors, the use of narrative exemplars in health messages is encouraged to increase transportation, and potentially increase intention for adaptive behavior. Although the NFC failed to demonstrate effect on transportation in messages with narrative exemplars, the main effect of narrative exemplars on engagement processing indicated one way to enhance readers' involvement through the use of narrative exemplars.

A variety of individual factors could influence whether a health message is persuasive. The sample is a mixed population of different ethnicities, genders, and sun bathing histories.

It is necessary to investigate whether the same message has different effect on different individuals. In this study specifically, skin cancer susceptibility was associated with race and skin color. This study found that participants who were more susceptible to skin cancer had higher intention to protect their skin than the ones who were less susceptible to skin cancer. The results implied that if individuals already felt their skin was at risk, the effect of the message was stronger. Therefore tailoring the message considering the characteristics of the recipients' and matching the content with the group is encouraged.

Limitations and Directions for Future Research

The relevancy of skin cancer to the examined the population, who were college students, was one of the major limitations of this study. In general, although skin cancer was the most common cancer in the United States, not many young people believed the issue was severe and relevant to them. It was possible that the relevancy and recency heuristic effect might be diminished if the story was not relevant to a participant's life. Therefore, this factor might influence the effectiveness of the narrative exemplars because of the underestimation of the risk of skin cancer and the lack of relevancy to college students.

In addition, narrative exemplars failed to influence individuals' risk perception, attitude, and behavioral intent. There were several possible explanations as to why the narrative exemplars were not effective in changing peoples' risk perception, attitude, and behavioral intention. Brosius and Bathelt (1994) suggested that the variation of the "number and quality of exemplars and their consistency with the base-rate information" (p. 74) could influence the effectiveness of exemplars. In the present study, the information presented in the exemplars and the fact-based messages was consistent. It was possible that a single exemplar in one

message was not powerful enough for the retrieval of similar events in one's memory. In addition, an exemplar's attribute such as vividness was correlated with the ease of retrieval of the exemplars (Busselle & Shrum, 2003), and exemplars could vary in their degree of vividness (Brosius & Bathelt, 1994). For example, live interview exemplars might have greater power than reporter accounts exemplars; exemplars presented in video and audio format were regarded as more vivid than exemplars in print. As text-based messages were used in the present study, the narrative exemplars in the present study might not be vivid enough to obtain persuasive power because print media might not be ideal channels for narrative exemplars to persuade.

It should be noted that both the exemplification and narrative theories were in their early stages in the theory development. Specifically, both theories needed to develop operational definitions to maintain consistency when replicating prior research. For example, there were no guidelines in terms of how to create exemplar sequences. Also, the base-rate information could be presented in a variety of forms, including statistical statements, figures, and tables. The presentation could be general descriptions or in relative terms. Different presentations might influence the persuasive effectiveness of base-rate information. In addition, there was not a consistent theoretical definition of narratives. For example, narrative communication could be defined broadly as “a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed” (Kreuter et al., 2007, p. 222). The guideline of constructing a narrative message was vague. The present study only provided one way to operationally define the concepts, whereas it should be noted that both

concepts needed better explications and operational definitions in the future.

In the present study, the narrative exemplar might be limited because it was developed solely based on one college student's story. Further evaluation would be needed if multiple exemplars were used in one message. Care should be used to assure that the narrative exemplar messages are engaging and represent the target audiences. From a practical perspective, since the findings of this study suggested no significant differences in terms of persuasiveness were revealed between narrative exemplars and base-rate information, a combination of general statements with vivid individual exemplars is recommended as a means to convey both abstract and specific information to general audience in skin cancer prevention.

From a theoretical perspective, this study made a contribution in terms of empirically reexamining the EPPM and modifying the model by examining threat and efficacy factors separately. The findings from this study confirmed most of the propositions of the EPPM in the context of skin cancer prevention. Perceived efficacy determined whether individuals accepted or rejected the messages when the threat in the message was high, whereas there was no significant difference in their responses to the message depending on efficacy when threat is low. Threat information both directly and indirectly affected message acceptance, which supported the propositions in the EPPM. Fear mediated the influence of threat information on message acceptance. Such an indirect and direct effect of threat was partially consistent with previous research. The findings might imply that fear appeals were effective for designing skin cancer prevention messages and predicting skin-related preventive behaviors.

From a practical perspective, health communication practitioners are advised to create health messages emphasizing the severity and the susceptibility of a health threat when attempt to promote pro-health behaviors. The results from this study suggested that it is crucial to consider strategies to maximize the effectiveness of health message when constructing health materials within the context of disease prevention. Individual differences such as self-efficacy that may alter the perception and effectiveness of threat information must be taken into account when designing health materials. In addition, based on the impact of narrative exemplars on how peoples process health information, health message designs aimed at improving one's transportation would be effective in promoting pro-health behaviors.

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APPENDIX

Stimulus Materials

1. Base-rate low threat condition

Do you understand skin cancer?

Skin cancer is a low-risk disease where malignant cancer cells are to be found in the outer layer of a person's skin. It is a common form of cancer in the United States. The term "skin cancer" refers to three different conditions. They are: basal cell carcinoma, squamous cell carcinoma, and melanoma. Melanoma is more dangerous than the other two types but less common.

Most melanomas are caused by exposure to ultraviolet (UV) light. Too much exposure to UV rays can change skin texture, cause the skin to age prematurely, and may lead to skin cancer. The sun's UV rays can damage unprotected skin in a short time.

Doctors suggest that if one likes the feeling of sunshine, enjoys getting a tan, often lounges at the pool, and doesn't use sunscreen, he/she may develop symptoms of skin cancer.

Skin cancers usually form on the head, face, neck, hands and arms. Many doctors suggest that people should look at their own skin every month. A friend or family member can also help examine one's skin. If the moles grow bigger, darker and a different shape, they should get themselves checked out by a dermatologist ASAP.

Skin cancer can't be diagnosed merely by looking at it. If a mole or pigmented area of the skin changes or looks abnormal, the doctor may choose to biopsy the mark, taking a tissue sample for a pathologist to examine.

A biopsy should be performed first to determine if the area is malignant. Typically in a shave biopsy, the doctor simply shaves off a small piece of the growth so it could be biopsied. If the tissue is malignant, further excision will be necessary.

The sample of skin is sent to a pathologist, who looks at the tissue under a microscope to check for cancer cells. The tissue may be judged normal or abnormal. This procedure may take a few days. So if one wants to know if the tissue sample is abnormal, he or she has to wait for a week or so to get the results.

If the patient has malignant melanoma diagnosed, which is a form of skin cancer, it can spread to other parts of the body. A patient needs to wait seven to ten days to know if the cancer has spread. If the cancer has spread, a patient has to get several moles removed every year and has to visit the doctor every several months.

How about tanning? Indoor tanning and tanning outside are not that safe. Tanned skin is damaged skin. Any change in the color of your skin after time outside—whether sunburn or suntan—indicates damage from UV rays. Using a tanning bed causes damage to your skin, just like the sun.

Since the majority of sun exposure occurs during adulthood, the chance that people develop skin cancer is increasing. A new study has revealed a rise in melanoma among people aged 24 to 29: over the past 40 years, rates of the skin cancer have increased among both males and females. However, college students can stay away from skin cancer if they engage in preventive behavior.

How to Protect Yourself

- Seek shade, especially during midday hours.
- Wear clothing to protect exposed skin.
- Wear a hat with a wide brim to shade the face, head, ears, and neck.
- Wear sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.
- Use sunscreen with sun protective factor (SPF) 15 or higher, and both UVA and UVB protection.
- Avoid indoor tanning.

2. Base-rate high threat condition

Do you really understand skin cancer?

Skin cancer is a VERY SEVERE disease where malignant cancer cells are to be found in the outer layer of a person's skin! It is the MOST COMMON of all cancers in the United States. The term "skin cancer" refers to three different conditions. They are: basal cell carcinoma, squamous cell carcinoma, and melanoma. Melanomas are the most dangerous and DEADLIEST type of skin cancer. It is dangerous and is NOT curable.

About 90% of melanomas are caused by exposure to ultraviolet (UV) light. Exposure to UV rays can cause the skin to age prematurely, and will lead to skin cancer. The sun's UV rays can damage skin in AS LITTLE AS 15 minutes!

Doctors suggest that if one likes the feeling of sunshine, enjoys getting a tan, often lounges at the pool, and doesn't use sunscreen, he/she may develop symptoms of skin cancer.

Skin cancers usually form on the head, face, neck, hands and arms. Many doctors suggest that people should look at their own skin every month. A friend or family member can also help examine one's skin. If their moles grow bigger, darker and a different shape, they should get themselves checked out by a dermatologist ASAP.

Skin cancer can't be diagnosed merely by looking at it. If a mole or pigmented area of the skin changes or looks abnormal, the doctor may choose to biopsy the mark, taking a tissue sample for a pathologist to examine.

A biopsy should be performed first to determine if the area is malignant. Typically in a shave biopsy, the doctor simply shaves off a small piece of the growth so it could be biopsied. If the tissue is malignant, further excision will be necessary.

The sample of skin is sent to a pathologist, who looks at the tissue under a microscope to check for cancer cells. The tissue may be judged normal or abnormal. This procedure may take a few days. So if one wants to know if the tissue sample is abnormal, he or she has to wait for a week or so to get the results.

If a patient has malignant melanoma, the DEADLIEST skin cancer, that will be the worst possible outcome. Because it is cancer; it is fast; it is uncontrollable and deadly! A patient has to wait seven to ten days to know if the cancer has spread. If the cancer has spread, a patient has to get several moles removed every year and has to visit the doctor every month to get their skin checked.

How about tanning? Indoor tanning and tanning outside are BOTH DANGEROUS! There's no other way to say it—tanned skin is damaged skin. Any change in the color of your skin after time outside—whether sunburn or suntan—indicates damage from UV rays. Using a tanning bed can lead to skin cancers, just like the sun.

Since the majority of sun exposure occurs during childhood and early adulthood, the chance that young people develop skin cancer is extremely high. A new study has revealed an alarming rise in melanoma among people aged 18 to 29: over the past 40 years, rates of this potentially deadly skin cancer grew by 800 percent among young women and 400 percent among young men. College students, especially, are VULNERABLE to skin cancer unless they engage in preventive behavior.

How to Protect Yourself

- Seek shade, especially during midday hours.
- Wear clothing to protect exposed skin.
- Wear a hat with a wide brim to shade the face, head, ears, and neck.
- Wear sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.

- Use sunscreen with sun protective factor (SPF) 15 or higher, and both UVA and UVB protection.
- Avoid indoor tanning.

3. Narrative exemplar low threat condition

Do you really understand skin cancer? Just ask this survivor; her story will inspire you to safeguard your skin.

Growing up in North Alabama, I loved the feeling of sunshine on my skin. After high school, I headed to the University of Alabama, where I lounged with friends at the campus pool in between studying to get straight “A”s. I had heard that skin cancer is a low-risk disease where malignant cancer cells are to be found in the outer layer of a person's skin, and I knew it was a common form of cancer in the United States. But I was never tanned enough, so I always skipped SPF.

In the summer before starting graduate school at UA, I drove home to spend some time with my family. My father noticed that the mole on my neck seemed bigger, darker and a different shape than he had recalled; he suggested I get it checked out by a dermatologist—ASAP.

I scheduled an appointment with one of the dermatologists at Viva Skin and Laser Center in Huntsville. My doctor told me that most melanomas were caused by exposure to ultraviolet (UV) light. Too much exposure to UV rays can change skin texture, cause the skin to age prematurely, and may lead to skin problems. The sun’s UV rays can damage unprotected skin in a short time. He elected to shave off a small piece of the growth so it could be biopsied.

A few days later, I got a phone call from my doctor: The small tissue sample had come back from the lab as abnormal. Within hours of hanging up, I went back to the dermatologist’s office and learned that the growth was malignant. The doctor told me I had malignant melanoma, a type of skin cancer. How could I have skin cancer?

I didn't hear anything else. I knew that this might not be a good outcome. If it was cancer, it could become uncontrollable. I had got it! I would have to wait ten days to know if the cancer had spread.

I went home and looked online for more information. Here’s what I learned: The term "skin cancer" refers to three different conditions. They are: basal cell carcinoma, squamous cell carcinoma, and melanoma. Melanoma is more dangerous than the other two types but less common.

How about tanning? Indoor tanning and tanning outside are not that safe. Tanned skin is damaged skin. Any change in the color of your skin after time outside—whether sunburn or suntan—indicates damage from UV rays. Using a tanning bed causes damage to your skin,

just like the sun.

I returned to the dermatologist's office the following morning. I asked my doctor why I am vulnerable to skin cancer. My doctor told me that since the majority of sun exposure occurs during adulthood, the chance that people develop skin cancer is increasing. He said a new study has revealed a rise in melanoma among people aged 24 to 29: over the past 40 years, rates of the skin cancer have increased among both males and females. But he said college students can stay away from skin cancer if they engage in preventive behavior.

A few days later, the doctor told me the melanoma was in situ, on the surface, and hadn't spread. I was incredibly lucky! I had been saved!

HOW TO PROTECT YOURSELF

- Seek shade, especially during midday hours.
- Wear clothing to protect exposed skin.
- Wear a hat with a wide brim to shade the face, head, ears, and neck.
- Wear sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.
- Use sunscreen with sun protective factor (SPF) 15 or higher, and both UVA and UVB protection.
- Avoid indoor tanning.

4. Narrative exemplar high threat condition.

Do you really understand skin cancer? Just ask this survivor; her story will inspire you to safeguard your skin.

Growing up in North Alabama, I loved the feeling of sunshine on my skin. After high school, I headed to the University of Alabama, where I lounged with friends at the campus pool in between studying to get straight "A"s. Although I had heard that skin cancer was a VERY SEVERE disease where malignant cancer cells are to be found in the outer layer of a person's skin, and I knew it was the MOST COMMON of all cancers in the United States, I was never tanned enough, so I always skipped SPF.

In the summer before starting graduate school at UA, I drove home to spend some time with my family. My father noticed that the mole on my neck seemed bigger, darker and a different shape than he had recalled; he suggested I get it checked out by a dermatologist—ASAP.

I scheduled an appointment with one of the dermatologists at Viva Skin and Laser Center in Huntsville. My doctor told me that about 90% of melanomas are caused by exposure to ultraviolet (UV) light. Exposure to UV rays can cause the skin to age prematurely, and will lead to skin cancer. The sun's UV rays can damage skin in AS LITTLE AS 15 minutes! He elected to shave off a small piece of the growth so it could be biopsied.

A few days later, I got a phone call from my doctor: The small tissue sample had come back from the lab as abnormal. Within hours of hanging up, I went back to the dermatologist's office and learned that the growth was malignant. The doctor told me I had malignant melanoma, the DEADLIEST skin cancer. I was in complete shock! How could I have skin cancer???

I didn't hear anything else. I knew that this was the worst possible outcome. It was cancer; it was fast; it was uncontrollable and deadly. I had got it! Would I die? I would have to wait ten days to know if the cancer had spread.

I went home and looked online for more information. Here's what I learned: The term "skin cancer" refers to three different conditions. They are: basal cell carcinoma, squamous cell carcinoma, and melanoma. Melanomas are the most dangerous and DEADLIEST type of skin cancer. It is dangerous and is NOT curable.

I can't believe it! I didn't know indoor tanning and tanning outside were BOTH DANGEROUS! There's no other way to say it—tanned skin is damaged skin. Any change in the color of your skin after time outside—whether sunburn or suntan—indicates damage from UV rays. Using a tanning bed can lead to skin cancers, just like the sun.

I returned to the dermatologist's office the following morning. I asked my doctor why I am so young and still so vulnerable to skin cancer. My doctor told me that since the majority of sun exposure occurs during childhood and early adulthood, the chance that YOUNG PEOPLE like me develop skin cancer is dramatically increasing. He said a new study has revealed an alarming rise in melanoma among people aged 18 to 29: over the past 40 years, rates of this potentially deadly skin cancer grew by 800 percent among young women and 400 percent among young men. He said college students, especially, are VULNERABLE to skin cancer unless they engage in preventive behavior.

I had been unlucky. I was getting about three moles removed every year. Now I have to visit the doctor every six months.

HOW TO PROTECT YOURSELF

- Seek shade, especially during midday hours.
- Wear clothing to protect exposed skin.
- Wear a hat with a wide brim to shade the face, head, ears, and neck.
- Wear sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.
- Use sunscreen with sun protective factor (SPF) 15 or higher, and both UVA and UVB protection.
- Avoid indoor tanning.

Note: The materials were downloaded and modified from online sources including http://www.cdc.gov/cancer/skin/basic_info/prevention.htm
<http://www.dmpholmeslaw.com/appiesboard/viewtopic.php?f=2&t=132&start=75>
<http://www.cdc.gov/features/skincancer/>

Measures

Manipulation Checks

1. Severity

	Strongly disagree						Strongly agree
This message leads me to think skin cancer is a very serious health problem.	1	2	3	4	5	6	7
This message leads me to think skin cancer is very painful.	1	2	3	4	5	6	7
This message leads me to think many people die of skin cancer.	1	2	3	4	5	6	7
This message leads me to think skin cancer is almost ALWAYS curable.	1	2	3	4	5	6	7
This message leads me to think skin cancer is very severe.	1	2	3	4	5	6	7

2. Susceptibility

	Strongly disagree						Strongly agree
This message leads me to think my chance of getting skin cancer can be very high.	1	2	3	4	5	6	7
This message makes me worried about developing skin cancer because of too much sun exposure.	1	2	3	4	5	6	7
This message leads me to think the chance for college students getting skin cancer is very high.	1	2	3	4	5	6	7
This message leads me to think I am susceptible to skin cancer.	1	2	3	4	5	6	7
This message leads me to think that compared with other college students, I have a high chance of developing skin cancer.	1	2	3	4	5	6	7
This message leads me to think I am very vulnerable to skin cancer.	1	2	3	4	5	6	7

Measures

Need for Cognition (Cacioppo, Petty, & Kao, 1984)

Please indicate whether or not the statement is characteristic of you or of what you think.

	Extremely unlike me				Extremely like me
1. I would prefer complex to simple problems.	1	2	3	4	5
2. I like to have the responsibility of handling a situation that requires a lot of thinking.	1	2	3	4	5
3. Thinking is not my idea of fun. *	1	2	3	4	5
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities. *	1	2	3	4	5
5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something. *	1	2	3	4	5
6. I find satisfaction in deliberating hard and for long hours.	1	2	3	4	5
7. I only think as hard as I have to. *	1	2	3	4	5
8. I prefer to think about small, daily projects to long-term ones. *	1	2	3	4	5
9. I like tasks that require little thought once I've learned them. *	1	2	3	4	5
10. The idea of relying on thought to make my way to the top appeals to me.	1	2	3	4	5
11. I really enjoy a task that involves coming up with new solutions to problems.	1	2	3	4	5
12. Learning new ways to think doesn't excite me very much. *	1	2	3	4	5
13. I prefer my life to be filled with puzzles that I must solve.	1	2	3	4	5
14. The notion of thinking abstractly is appealing to me.	1	2	3	4	5
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	1	2	3	4	5
16. I feel relief rather than satisfaction after completing a task that required a lot of mental work.*	1	2	3	4	5
17. It's enough for me that something gets the job done; I don't care how or why it works. *	1	2	3	4	5
18. I usually end up deliberating about issues even when they do not affect me personally.	1	2	3	4	5

*items were reverse coded.

Please indicate whether or not the statement is characteristic of you or of what you believe.

	Extremely unlike me							Extremely like me							
1. I have used a tanning bed, booth, or sunlamp to get a tan.	1	2	3	4	5	6	7								
2. I have spent time outside strictly for the purpose of getting a tan.	1	2	3	4	5	6	7								
3. I have a lighter natural skin color.	1	2	3	4	5	6	7								
4. One or more of my family members have (had) skin cancer.	1	2	3	4	5	6	7								
5. I have a history of sunburns early in my life.	1	2	3	4	5	6	7								
6. My skin burns easily.	1	2	3	4	5	6	7								
7. My skin freckles easily.	1	2	3	4	5	6	7								
8. My skin reddens easily.	1	2	3	4	5	6	7								
9. I have a large number of moles.	1	2	3	4	5	6	7								

Self-efficacy

	Strongly disagree							Strongly agree							
This message leads me to believe that preventing skin cancer is easy to perform.	1	2	3	4	5	6	7								
This message leads me to believe that my health depends on how well I take care of myself.	1	2	3	4	5	6	7								
This message leads me to believe that the main thing that affects my health is what I do.	1	2	3	4	5	6	7								
This message leads me to believe that I am able to do something to prevent skin cancer.	1	2	3	4	5	6	7								
This message leads me to believe that my health is within my control.	1	2	3	4	5	6	7								

Response Efficacy

	Strongly disagree							Strongly agree							
This message leads me to believe if I examine myself regularly, my chances of detecting skin problems are extremely high.	1	2	3	4	5	6	7								
This message leads me to believe that regular self-examination of skin cancer is the most effective method of detecting it early.	1	2	3	4	5	6	7								

This message leads me to believe that avoiding tanning beds is a good way to protect my skin.	1	2	3	4	5	6	7
This message leads me to believe that using sunscreen will prevent my skin from being damaged.	1	2	3	4	5	6	7
This message leads me to believe that by detecting skin problem myself I will greatly improve my chances of survival.	1	2	3	4	5	6	7

Risk Perception

	Strongly disagree			Strongly agree			
If I got skin cancer, it would have little effect on my life.	1	2	3	4	5	6	7
If I got skin cancer, I would be afraid of dying of it.	1	2	3	4	5	6	7
If I got skin cancer, I would worry about my future.	1	2	3	4	5	6	7
If I got skin cancer, I would find it very stressful.	1	2	3	4	5	6	7

Attitude

After reading the message, what is your attitude toward the RECOMENED BEHAVIOR?

	Not at all			Very much			
How do you like the recommended behavior?	1	2	3	4	5	6	7
After reading the message, do you have positive attitudes towards the recommended behavior?	1	2	3	4	5	6	7
After reading the message, do you have favorable attitudes towards the recommended behavior?	1	2	3	4	5	6	7
After reading the message, do you think the recommended behavior is good?	1	2	3	4	5	6	7

Behavioral Intention

	Extremely unlikely							Extremely likely
How likely is it that you will seek more information on skin cancer?	1	2	3	4	5	6	7	
How likely is it that you will adopt monthly checking as a habit?	1	2	3	4	5	6	7	
How likely is it that you will go to clinic to check your skin?	1	2	3	4	5	6	7	
In the future, do you intend to stop spending time outside strictly for the purpose of getting a tan?	1	2	3	4	5	6	7	

Fear Perception

This message made me feel

	Strongly disagree							Strongly agree
Frightened	1	2	3	4	5	6	7	
Tense	1	2	3	4	5	6	7	
Anxious	1	2	3	4	5	6	7	
Uncomfortable	1	2	3	4	5	6	7	
Nervous	1	2	3	4	5	6	7	

Transportation (Green & Brock, 2000)

	Not at all like me							Very much like me
While I was reading the message, I could easily picture the events in it taking place.	1	2	3	4	5	6	7	
I could picture myself in the scene of the events described in the message.	1	2	3	4	5	6	7	
I was mentally involved in the message while reading it.	1	2	3	4	5	6	7	
I wanted to learn how the message ended.	1	2	3	4	5	6	7	
I found myself thinking of ways the message could have turned out differently.	1	2	3	4	5	6	7	
While reading the message, I had a vivid image of the student.	1	2	3	4	5	6	7	

Office for Research
Institutional Review Board for the
Protection of Human Subjects

THE UNIVERSITY OF
ALABAMA
R E S E A R C H

June 11, 2012

Cui Zhang
College of Communication & Information Sciences
The University of Alabama
Box 870152

Re: IRB # 12-OR-216, "The effects of narrative exemplars and fear appeals on promoting preventive skin cancer behaviors among college students"

Dear Ms. Zhang:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on June 10, 2013. If the study continues beyond that date, you must complete the IRB Renewal Application. If you modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB application number.

Good luck with your research.

Sincerely,



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