EFFECTS OF NARRATIVES IN HEALTH COMMUNICATION:
DOES TYPICALITY MATTER?

A Dissertation in
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by

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ABSTRACT

Over the years, scholars have conducted a significant amount of research to explore the conditions under which exposure to narrative messages affects individuals’ attitudes and behaviors. The typicality of a story, in particular, has been shown to influence perceived realism of the messages. However, researchers have not examined the extent to which character typicality and cued typicality might affect individuals’ responses to narrative messages in health communication. It is well known in psychology and communications that the typicality of individuals depicted in media messages could effect message interpretations and attitudes. However, whether narratives’ persuasive impact will change depending on the character typicality—or lack thereof—remains to be explored. The effects of typicality cues in narrative messages, which deliver information about the typicality or representativeness of the narrative, have not been empirically examined either. The purpose of this dissertation is therefore three-fold. First, it examines whether the typicality of character in a narrative will affect individuals’ responses. Second, it explores whether contextually-embedded typicality cues and character typicality cues will be similarly effective. Third, this study investigates the underlying mechanisms mediating the impact of narratives with character or cued typicality, which have not been fully investigated previously.

To accomplish those goals, a 2 (character typicality: typical vs. nontypical character) x 3 (typicality cues: typical cues vs. nontypical cues vs. no cues) between-subjects experiment was conducted, focusing on the risks of sun exposure without using sunscreen. Character typicality is the degree to which attributes of a character in a narrative are perceived to be present in the portrayal’s real-world counterparts. Character
typicality was manipulated according to the pretest procedures developed by Graesser (1981). Following the pretests, the typical and nontypical attributes were used to construct different characters in a narrative. Cued typicality was manipulated by the explicit statements within the narrative that described the character and the story as being typical or not. The study also had a condition without any cues. The findings showed that a narrative with a typical character led to higher perceived realism, more positive attitude toward sunscreen use, and less message novelty than a narrative with a nontypical character. Narrative messages with no cues resulted in more positive message attitude than narratives with nontypical cues. Typical cues had more positive impact on issue attitude than nontypical cues. As for the interaction effects, the results showed that when the message had a typical character, narrative messages with no cues led to more transportation, higher identification, and more positive message evaluation than narrative messages with typical or nontypical cues.

The findings also suggested that perceived realism mediated the effects of character typicality on message attitude, issue attitude, and behavioral intention to use sunscreen. The analysis showed that message novelty was a significant mediator of the effects of character typicality on message attitude. There was a conditional indirect effect of character typicality on issue attitude through transportation when the message had no cues. The study has theoretical implications for narrative literature, providing evidence for typical narrative effectiveness. The results can help health communication practitioners improve narrative interventions and refine message designs.
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INTRODUCTION

Scholars have long recognized the influence of narratives in strategic communication (Kreuter, et al., 2007). Through different forms of communication, like entertainment education, storytelling, journalistic reporting, personal cases, and testimonials, narratives serve as important tools in various interventions to communicate health information and increase health literacy (e.g. Feimuth & Quinn, 2004; McQueen, Kreuter, Kalesan., & Alcaraz, 2011; Petraglia, 2007; Wise, Han, Shaw, McTavish, & Gustafson, 2008). The growing interest in narratives has led to a comprehensive understanding of its effectiveness as well as the psychological mechanisms by which narrative affects individuals’ knowledge, attitudes, beliefs, and behaviors.

Different health interventions have examined narrative effectiveness for various issues. Research shows that narrative health messages are more likely to elicit readers’ engagement and interests than informational messages (Hopfer, 2012; Hopfer & Clippard, 2011). Through transportation, identification, and affect involvement, narratives’ impact on attitude and behavior can be more enduring and resistant to counter-arguments than statistical information or rhetorical arguments (Green, 2006; Slater & Rounter, 2002). In risk communication, researchers and public health professionals have used narratives to inform people about health-risk behaviors (e.g. Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013), increase accuracy in risk judgment (e.g. Graesser, Olde, & Klettke, 2002), and promote risk reduction behaviors (e.g. Golding, Krinsky, & Plough, 1992).
Scholars conclude that narrative and statistical evidence differ in “the number of individual cases on which a given piece of evidence is based” (Baesler & Burgoon, 1994, p. 584). A story often represents a single individual’s experience or opinion, while statistics are based on many cases or the opinions of many people. Messages that are based on a single report may not be perceived to be as believable as messages that provide evidences based on aggregated cases. The difference in sample size explains why some research findings favor statistical evidence over narratives. If narratives can help audiences overcome the limitation of the “single case” perception, it may be more effective in generating positive issue and message attitudes. In communicating complex health topics, the typicality of the challenges to health that people face greatly affects the public concern for the significance of the issues (Lundell, Niederdeppe, & Clarke, 2013). If a narrative conveys a sense of high typicality, which means that the story delivers the representation of a general principle in the population instead of through single person’s experience, the narrative may be more believable and persuasive than a nontypical narrative message.

Typicality has not been clearly conceptualized independently from similar concepts, such as representativeness (Hamill, Wilson, & Nisbett, 1980). Ensari and Miller (2002) defined typicality as whether a person’s look and behavior is in accordance with the perceiver’s assumptions of characteristics of the group she or he belongs to. Cho, Shen, and Wilson (2013) conceptualized typicality as the “estimation of the degree to which a narrative represents a commonly occurring event in the real world” (p. 322). According to Cho, et al.’s definition (2013), typicality can influence individuals’
judgment of the perceived realism of the character and the event portrayed in the narrative. As one of the primary characteristics of narratives, perceived realism is defined as “the judgment about the degree to which narratives reflect the real world” (Cho & Friley, 2015, p. 187). Perceived realism has been shown to elicit higher identification (Cho et al., 2013; Larkey & Hecht, 2010; Livingstone, 1990; Potter, 1988; Zillmann, 1980), emotional involvement (Busselle & Bilandzic, 2008; Green, 2004; Larkey & Hecht, 2010), and more positive message evaluation (Cho & Boster, 2008).

Prior research examined the relationship between typicality of the event in a story and perceived reality of the narrative (Shapiro & Chock, 2003, 2004). Shapiro and Chock concluded that the typicality of a specific situation had a strong effect on perceptions of the reality of the situation (2003). They found that typical stories led to more realistic perceptions of the character’s behaviors and events that occurred in those stories. Extensive studies showed that typical events in media narratives led to better recall (Shapiro & Fox, 2002), less message minimization (Cho, Shen, & Wilson, 2014), and higher risk assessment (Cho, et al., 2013). Within narratives, the typicality judgment can be affected by the portrayal of a character in a specific situation (Shapiro & Fox, 2002) as well as cues embedded in the message (Roest & Rindfleisch, 2010). However, it is not known if typical narratives can lead to more positive health intervention outcomes than nontypical narratives can. It is also unclear that if typicality makes any difference in message effectiveness through realism, transportation, identification, and emotional involvement.
The purpose of the current study is to explore whether narrative character
typicality and cued typicality will have differential effects on individuals’ processing of
narratives. In messages that communicate health risks, if the character in a narrative is
depicted as highly typical, he or she can be perceived as more realistic and more likely to
be observed in the real world. Nontypical characters, on the other hand, may also affect
message evaluation and issue attitude because of novelty effects (Lundman, 2003).
Typicality perception can also be derived from representativeness heuristics, which refers
to individuals’ intention to evaluate the probability of an uncertain category member
depending on the similarity between properties of the member to the essential features of
the category (Kahneman & Tversky, 1973). Similar to explicitly stated base rate
information, the typicality of a narrative can be inferred by the explicit statements
describing the character and story as being typical or not. This cued typicality may have a
different impact than character typicality. It is thus necessary to test the interaction effects
of the character typicality and the cued typicality.

To explore the research questions discussed above, the current study focuses on
sunscreen use and skin cancer risks associated with purposive avoidance or negligence of
using sunscreens. Despite increasing media coverage and health campaigns concerning
the health risks of exposure to ultraviolet (UV) radiation, a great number of Americans
continue to engage in various activities that can remarkably increase their risk for skin
cancer (Beasley & Kittel, 1997). Many people get tanned through extended unprotected
sun exposure when participating recreational activities such as swimming and surfing.
The risk of developing skin cancer increases with either purposive avoidance or
negligence of using sunscreens.

Research showed that exposure to the sun’s ultraviolet rays is accountable for more than 90% of all skin cancers (Koh, Geller, Miller, Grossbart, & Lew, 1996). Many recommended behaviors can significantly reduce individuals’ risks of getting skin cancer, such as wearing sunscreen with a sun protection factor (SPF) of 15 or higher and reapplying the sunscreen every 2 hours (Hughes, Williams, Baker, & Green, 2013). Despite the effectiveness of sun-protective behaviors, such as sunscreen use, many do not have the awareness to engage in such behaviors (Wichstrom, 1994). A previous study suggested that portrayals of individuals who neglected to use sunscreen led to stigmatized impressions that the target is vain and highly concerned with physical appearance even without the intentionality factor (Miller, Ashton, McHoskey, & Gimbel, 1990). Since statistics indicating that the incidence of skin cancer continues to increase in the United States, it is critical to raise the public awareness of sun protection. Stigmatized impressions associated with skin cancer are likely to elicit optimistic bias, where people perceive a health-threatening event is more likely to occur to others than to themselves (Weinstein, 1980). As a result, while typical narratives may lead to higher perceived risk assessment of others, nontypical narratives can have a greater impact on perception of personal risk (Weinstein, 1983, 1984).

In sum, the current dissertation examines the influence of health narrative typicality, manipulated by character and cued typicality, on sun-protection perceptions and behaviors. It first explores whether a narrative that features a typical character is perceived as more realistic and thus leads to more favorable issue attitude and higher
perceived societal risk than a narrative with a nontypical character. Furthermore, the study tests whether typicality cued in the narrative contributes to perceived realism and perceived personal and societal risks. Findings of the study will extend research of narrative effects and shed light on the importance of better utilizing narrative messages to communicate health information. By differentiating social risk and personal risk, the study contributes to a more comprehensive understanding of typicality effects and mechanisms.
Chapter 1

LITERATURE REVIEW

Prior studies showed that compared to statistical information, narrative communication is more effective in increasing people’s risk perception (Craciun, Schüz, Lippke, & Schwarzer, 2010; Greene & Brinn, 2003), intentions to avoid unprotected sun exposure (Hillhouse, Turrisi, Stapleton, & Robinson, 2008; White, Hyde, O’Connor, Naumann, & Hawkes, 2010), and other preventive behaviors related to skin cancer (Dillard & Hisler, 2014; Greene, Campo, & Banerjee, 2010; Lemal, van den Bulck, & Jensen, 2011). Although a number of studies have identified the positive influences of the use of narratives on persuasive outcomes, research examining the impact of specific features in narratives has been rare. The present study intends to contribute to the existing literature of narrative persuasion by proposing and testing the effects of character typicality and cued typicality on people’s perceived realism of the message, transportation, identification, and emotional evolvement, which affect health beliefs and behavior intentions in the context of exposure to health messages that promote sunscreen use.

Although narratives were shown to elicit more affective responses (Cohen, 2001; Oatley, 1999), identification (Lee, Hecht, Miller-Day, & Elek, 2011), and transportation (Green & Brock, 2000, 2002), some scholars suggest that if narrative is perceived as a single person’s experience, as opposed to a representation of a general principle in the population, it might have weaker influences on people’s health-related perceptions (Baesler & Burgoon, 1994). At the same time, nontypical people or events can also be
perceived as persuasive because they are entertaining and novel (Zillmann, Gibson, Sundar, & Perkins, 1996). The present study revolves around two general research questions. First of all, do character typicality and cued typicality influence typicality judgment of the narrative? Secondly, is typical narrative more effective than a nontypical one when communicating risks associated with intentional or inadvertent sunscreen avoidance?

In order to understand the people and events portrayed in narratives, audiences have to make various judgments as events unfold and people interact. The mental processing of stories that a person is engaged in can influence the outcomes of his or her judgment of the event, people, and setting portrayed in the narratives (Shapiro & Chock, 2004). With an understanding of how narrative elements influence audiences’ mental processes, researchers can improve health message designs. As an essential element of narratives, protagonists or characters have strong impact on audiences’ emotions and comprehensions and thus strongly affect narrative engagement and outcomes (Dunlop, Wakefield, & Kashima, 2008; Moyer-Gusé, Chung, & Jain, 2011). Prior studies mainly focus on how identification with a character can enable audience members to imagine him or herself to be the character. During this activity (identification and imagination), the audience is more likely to experience empathy and adopt the character’s goals or viewpoints (Murphy, et al., 2013; Tal-Or & Cohen, 2010). However, beyond perceptions of similarity (Dillard & Main, 2013; Hoffner & Buchanan, 2005), likability (Basil, 1996; Liebes & Katz, 1990; Murphy, Frank, Moran, & Patnoe-Woodley, 2001), and credibility (Hinyard & Kreuter, 2007; Simons, Berkowitz, & Moyer, 1970; Wilson & Sherrell, 1993),
few studies have examined the ways typical individuals in certain situations contribute to
cognitions, attitudes, and behavior outcomes of narrative health interventions.

Based on prior conceptualizations of narrative typicality, character typicality can
be defined as the degree to which the traits and behaviors of a character in a given setting
is consistent with a viewer’s relevant schemas or preexisting perceptions (Shapiro &
Chock, 2003, Bradley & Shapiro, 2005; Shapiro & Fox, 2002). Some of these schemas
are associated with people’s categorical knowledge (Ensari & Miller, 2002). According
to research in social cognition, membership in social categories is one of the prototypes
or schemas people often use to make typicality judgments of others (Rips, 1975; Rosch,
1978). Typicality judgment may affect viewers’ perceptions of group or individual
susceptibility and social norms, which in turn can affect their message-related attitudes
and behaviors.

In addition, verbal cues or labels can influence the perceived similarity of
category members and the strength of categorization effects (Foroni & Rothbart, 2011).
Narrative can be considered a hybrid form that contains both exemplar evidence and
statistical or factual information (Kim, Bigman, Leader, Lerman, & Cappella, 2012). In
addition to the character, information about the population relevant to the story can also
affect viewers’ typicality judgment. In the present study, typicality cues refer to
statements that suggest the character and his or her story are typical or not. Cued
typicality effects are examined from the perspective of representativeness heuristics
based on the exemplification theory (Zillmann, 1999). Kahneman and Tversky (1973)
concluded that people associate the representativeness of an outcome to its likelihood. If
the message contains information that can prime people on the high typicality of a particular event, audiences are more likely to perceive such event as probable.

One thing to be noted is that although narrative and exemplars share similarities, such as containing personal testimony (Zillmann & Brosius, 2000), embodied characters (Cohen, 2001), and vivid languages (Brosius & Bathelt, 1994), an exemplar is different from a narrative in that an exemplar does not need to have plots and establish causal relationships. Exemplars can simply be case descriptions or specifications of single incidents in a social phenomenon (Zillman, et al., 1996). Therefore, narrative messages may elicit more transportation and engagement than exemplars.

People’s perceptions about new information can stem from both semantic and episodic knowledge (Macrae, Bodenhausen, Schloerscheidt, & Milne, 1999). On one hand, typicality judgment can be derived from people’s categorical thinking that reflects the implementation of beliefs, expectancies, and norms acquired through their slow-learning system (Macrae & Bodenhausen, 2000). On the other hand, temporary presentations can also be encoded and thereby play a role in changing issue-related attitudes and behavior (Macrae & Bodenhausen, 2000). Character typicality is based on individuals’ existing beliefs and expectations of the character. Verbal typicality cues indicate typicality of the character and the story through contextual information. If people’s judgment of the narrative message can derive from both semantic and episodic knowledge, character typicality and cues will each affect typicality evaluation. To better understand the role of typicality judgment, either activated through character portrayals or cues, and their contributions to narrative effectiveness, the literature review (a)
provides theoretical explanations for narrative effectiveness and identifies mediators, including identification, transportation, emotional involvement, and perceived realism; (b) conceptualizes character typicality based on social categorization research; (c) examines cueing effect based on exemplification theory; and (d) explores the interaction effects between character typicality and cued typicality.

**Processes in Narrative Persuasion**

Narrative effectiveness has been examined empirically for a variety of health issues, including cancer prevention and screening (Kreuter et al., 2007; McQueen, et al., 2011; Wise, et al., 2008), organ donation (Kopfman, Smith, Ah Yun, & Hodges, 1998), anticoagulant medication (Mazor, Baril, Dugan, Spencer, Burgwinkle, & Gurwitz, 2007), HIV-prevention interventions (Berkley-Patton, Goggin, Liston, Bradley-Ewing, & Neville, 2009), and school-based drug interventions (Hecht, Graham, & Elek, 2006; Miller-Day & Hecht, 2013). Based on the results from previous research, using narratives results in positive outcomes, including attitude or behavior changes, or both (Shen & Han, 2014).

Many scholars used the terms “narrative” and “story” interchangeably (Lundell, et al., 2013). McLaughlin (1984) wrote of narrative that “narrative, or story, can be defined as an internally coherent discourse unit whose elements and their sequencing evidence canonical form” (p. 185). Hinyard and Kreuter (2007) referred to a narrative as “any cohesive and coherent story with an identifiable beginning, middle, and end that provides information about scene, characters, and conflict; raises unanswered questions or unresolved conflict; and provides resolution” (p. 778). Some scholars emphasized the
purposes of narrative construction and defined it as “a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit and explicit messages about the topic being addressed” (Kreuter et al., 2007, p. 222). Moen (2008) focused on the relationship built between narrator(s) and audience through storytelling, suggesting that narrative should comprise of “a sequence of events that is significant for the narrator and her or his audience” (p.60). Although no single, universally accepted definition of narratives has been developed, existing conceptualizations identified some fundamental components of the narrative, including character(s), sequence, plots, being bound in space and time, and messages (Bruner, 1991; Shaw, Hawkins, McTavish, Pingree, & Gustafson, 2006). Particularly, messages delivered through narratives, either implicitly or explicitly, are not presented as a series of arguments about how and why to achieve or avoid the resolutions in the story. Compared to argument-based messages, narrative persuasion is subtle (Dal Cin, Zanna, & Fong, 2004).

What makes narrative messages influential in affecting people’s attitudes, knowledge, beliefs, and behaviors? Several theoretical models have been proposed to explain how and why narratives contribute to desirable outcomes in health interventions. First of all, Social Cognitive Theory, which focuses on the relationship between observation of others’ behaviors and the observer’s own self-efficacy and intention to adopt new behaviors (Bandura, 1986), has been studied extensively in Entertainment-Education (EE) literature. The Extended-Elaboration Likelihood Model of Persuasion (E-ELM, Slater & Rouner, 2002) has been tested in various studies comparing the effects of
information in narrative format and in statistical format. Finally, *Transportation-Imagery Model* (Green & Block, 2000, 2002) emphasizes the role of transportation in processing narrative messages.

Scholars concluded that characters in narratives can be perceived as role models for target audiences, and thus narrative messages demonstrating new behaviors can influence one’s actual behaviors, through behavioral modeling and observational learning, cognitive readiness and normative beliefs (Bandura, 1977; Hinyard & Kreuter, 2007; Perrier & Ginis, 2015). *Social Cognitive Theory* (SCT) (Bandura, 1986, 1989) proposed that observation allows one to develop a strong sense of self-efficacy, which is “a belief in one’s capabilities to organize and execute the course of action required to produce given attainments” (Bandura, 1997, p. 3). The theory emphasizes one’s own sense of agency in regulating behaviors. In addition, when examining the effects of self-efficacy on modeling behaviors, Bandura (1989) found that individuals who identified with other individuals or fictional characters were more likely to adopt the modeled behaviors.

Slater and Rounte (2002) further explored the concept of identification and conceptualized it as a combination of perceived similarity to and approval of the story characters. Through identification, audiences are able to simulate or imagine the events that occur in the stories. The emotions experienced by the character can also resonate with audiences’ emotion states (Cohen, 2001; Dunlop, et al., 2008; Lee, et al., 2011; Oatley, 1999). Empirical studies showed that higher identification with characters could significantly impact audiences’ attention, recall, and modeling behaviors (Erwin, Spatz,
The E-ELM examines the influences of a person’s information processing goals and the level of involvement in processing style (Slater, 2002a). Narrative messages, as compared to statistical information, are more interesting and engrossing. Narrative interest and involvement strongly affect an individual’s information processing mode (Slater, 2002a). When reading narratives, people may have higher involvement than when reading statistical information (Slater, 2002b). The difference between the conventional ELM framework and E-ELM is that ELM proposed that issue-relevant variables, such as involvement, could influence people’s information processing mode, while E-ELM suggested that absorption in the narrative as well as identification with characters had an impact on narrative effectiveness (Slater & Rouner, 2002). Absorption is “vicariously experiencing the characters’ emotions and personality” (Slater & Rouner, 2002, p. 178). Identification can also occur if the audience perceives the character as someone with whom they might have a social relationship (Slater & Rouner, 2002). Studies showed that when people were engaged in a narrative and identify with the character, their ability to counter-argue was inhibited (Green & Brock, 2000; Green, Garst, & Brock, 2004). Therefore, engagement and identification are significant mediators of narrative effects.

The third theoretical model that has been established to explain narrative effects is *Transportation-Imagery Model* (Green & Brock, 2000, 2002), which maintains that narratives evoke images, in which “readers’ (viewers) beliefs are implicated” (Green & Brock, 2002, p. 320). According to the model, narrative persuasion occurs when message recipients experience psychological transportation. Gerrig (1993) described the state
when someone is being transported as the individual “go[ing] some distance from his or her world or origin, which makes some aspects of the world of origin inaccessible” (p.10). Green (2004) defined transportation as “an integrative melding of attention, imagery, and feelings, focused on story events” (p. 247).

Transportation serves as a mechanism of narrative effects. Once individuals become deeply absorbed in the story, perceive it as realistic, and develop a strong emotional connection with the character, they are less likely to counter-argue with the narrative messages (Green & Brock, 2000). Green (2006) found that individuals who experienced a higher level of transportation when reading a narrative were more likely to exhibit story-consistent attitudinal and behavioral changes. Moreover, the study suggested that transportation led to attitude change through connections with characters, reduced counter-arguments, and increased perceived realism.

The mechanisms of narrative effectiveness have been studied extensively. Narratives influence people’s health beliefs, attitudes, and behaviors through transportation (Green & Brock, 2000, 2002), identification (Slater & Rounter, 2002), and emotional involvement (Kreuter, et al., 2007). However, few studies have focused on the effects and mechanisms of different narrative features in predicting health risk perceptions, skin cancer in particular. The present study conceptualizes character typicality and cued typicality in health messages that promote sunscreen use, and examines their effects on attitudes and behavioral intentions toward sunscreen use. In addition, a number of studies showed that typicality of news or entertainment content influenced individuals’ judgment of perceived realism (Hall, Anten, & Cakim, 1999;
Research on persuasion and media effects suggests that perceived realism influences identification (Cho et al., 2013; Larkey & Hecht, 2010; Livingstone, 1990; Potter, 1988; Zillmann, 1980), emotional involvement (Busselle & Bilandzic, 2008; Green, 2004), risk assessment (Cho et al., 2013), and message attitude (Cho & Boster, 2008). Relatively little research has looked at the mediating role of perceived realism in narrative effectiveness and its relationship to other mediators, such transportation, identification, emotional involvement, and cognitive responses. Previous findings suggest that perceived realism is associated with identification (Larkey & Hecht, 2010), emotional involvement (Busselle & Bilandzic, 2008), cognitive responses (Austin, Pinkleton, & Fujioka, 2000), risk assessment (Cho et al., 2014; Cho et al., 2013), and message effectiveness (Cho & Boster, 2008). Therefore, I hypothesize that regardless of the character and cued typicality, perceived realism of the narrative message will lead to more transportation, identification, cognitive response, emotional response, and perceived risk.

As a psychological reaction to media narrative, judgment of realism has been studied to understand the effectiveness of narrative messages (Andsager, Austin, & Pinkleton, 2001; Bahk, 2001; Guttman, Gesser-Edelsburg, & Israelashvili, 2008; Peter & Valkenburg, 2006, 2010). Perceived realism is viewers’ implicit evaluation of how people, settings, and occurrences depicted in the media resemble their real-world counterparts or how likely the events and individuals in the story are to be seen in the real world (Busselle & Bilandzic, 2008). Bahk described perceived realism as the degree to which a dramatized presentation reflects the real world authenticity (2001). Potter (1988)
defined perceived reality as the perceived similarity between the mediated characters and situations and characters and situations in reality.

The impact of the perceived realism of news or perceived reality of TV content on attitudes and beliefs about, and enjoyment of, that media has been examined extensively in previous research (e.g. Dorr, 1983; Dorr, Kovaric, & Doubleday, 1990). Perceived realism has a strong impact on audiences’ perceptions of the people and events portrayed (Potter, 1988; Bilanzic & Busselle, 2011; Hall & Bracken, 2011; Peter & Valkenburg, 2010; Pouliot & Cowen, 2007). A more recent study on the effects of reality TV shows suggested that perceived realism of the show “The Biggest Loser” was positively associated with internal weight locus of control, which predicted audiences’ intention to exercise (Yoo & Tian, 2014).

In health communications, research indicates that audiences rely on perceived realism and perceived similarity of media portrayals to make judgments of identification (Austin, Pinkleton, & Fujioka, 1999). According to the Message Interpretation Process model (MIP), perceived realism of the media content plays an important role in children’s decision-making process (Austin & Johnson, 1997; Austin & Knaus, 2000; Austin, Roberts, & Nass, 1990). As the MIP explains, individuals’ initial logical and emotional responses to a media message are influenced by the degree to which the message is realistic or desirable, or both. When the message is high in perceived realism or desirability (or both), it is more likely to be internalized and contribute to judgment of identification and similarity. In this case, although realism may not produce behavioral outcomes directly, it is associated with identification and similarity, which do have a

Based on the above review, the current study hypothesizes that character typicality will have indirect effects on narrative engagement, including transportation, identification, and emotional involvement, through perception of realism. In addition, consistent with prior research that proposes that perceived realism could affect cognition (Austin, et al., 2000) and risk assessment (Cho, et al., 2014; Cho, et al., 2013), the current study hypothesizes that perceived realism will be positively associated with cognitive responses and risk perceptions. The first two hypotheses are proposed:

**H1**: Perceived realism will be positively related to (a) transportation, (b) identification, (c) cognitive responses, (d) emotional involvement, (e) personal-level perceived risk, and (f) societal-level perceived risk.

**H2**: Perceived realism will mediate the effects of character typicality on (a) transportation, (b) identification, and (c) emotional involvement.

In addition, perceived realism could contribute to identification, emotional involvement, and message evaluation, which in turn affect issue attitudes (Cho et al., 2014). Larkey & Hacht (2010) proposed the theoretical model where realistic character and story could lead to more transportation and identification, which in turn can influence message attitudes and issue attitudes. When people perceive the story and character to be realistic, they are more likely to develop individual-level and group-level identifications and transport themselves into the story. As a result, they are more likely to change
attitudes, intentions, and actions, such as establishing perceptions that are consistent with
the behaviors modeled by the messages. Based on these rationales, the current study
proposes the following hypothesis:

\[ H3: \] Transportation, identification, and emotional involvement will mediate the
effects of perceived realism on (a) message attitude, (b) issue attitude, and (c)
behavioral intention.

**Conceptualization of Character Typicality**

Typicality has not been clearly conceptualized independently from similar
concepts, such as representativeness. It is easier to assess typicality than to characterize it
(Hamill et al., 1980; Kahneman & Tversky, 1972), but I will attempt to do so here.
Protagonists or characters are an essential component of narratives (Kreuter et al., 2007).
Typicality of the character should affect perceived typicality of the narrative. Narrative
typicality has been defined as the degree to which the story represents real world events.
According to Cho et al. (2013), typicality is the “estimation of the degree to which a
narrative represents a commonly occurring event in the real world” (p. 322). Hall (2003)
defined typicality as “the extent that the respondents saw their own experience as
relatively unremarkable...as the representation of events or characteristics that are
common among a particular population” (p. 632). The definitions can apply to both the
situation and the people involved (Lundell et al., 2013). According to Shapiro and Chock,
atypical items are “are plausible but are not a necessary or a usual part of the story”
(2003, p.168). Drawn from conceptualizations of narrative typicality, character typicality
can be defined as the degree to which characteristics or attributes of a narrative character
are perceived to be present among the portrayal’s real-world counterparts.

Readers or viewers evaluate the demographics, personality, or fortune of the characters in the narrative when making typicality judgment (Hall, 2003). Based on the schema pointer plus tag (SP+T) model of memory (Graesser, 1981), unexpected and atypical information are likely to be remembered initially. However, in the process during which people reconstruct their memory of events, fewer atypical items in the story are included whereas typical information that might not be explicitly presented in the story read is more likely to be incorporated over time (Graesser, 1981). Typicality of the information, either stated or inferred, is assessed on the basis of the schema that stems from the individual’s memory trace or representation (Graesser, 1981). If the traits of a character portrayed in the narrative are considered typical, based on individual’s schema, they will be incorporated into the existing representation of the character as a set of schema-consistent traits. The traits that deviate from the schema will be marked as atypical information of the character and are less likely to be retrieved with longer retention intervals (Shapiro & Fox, 2002).

Individuals’ schemas can also influence the ways new information is perceived, based on its typicality. Typical and nontypical targets are processed using schema-assimilation or schema-contrast processing strategies, respectively, triggered by different prototypes (Forgas, 1992, 1995—some scholars, including Forgas refer to schema as “prototype”). Membership to certain social categories is one of the prototypes or schemas people often use to make typicality judgments of others (Rosch, 1978). Previous study suggested that social categorization and prototypical views could affect people’s
typicality evaluations (Lord, Lepper, & Mackie, 1984). Ensari and Miller (2002) defined typicality as whether a person’s look or behavior is in accordance with the perceiver’s assumptions of the characteristics of the group to which he or she belongs. In social psychology, typicality has been treated as a synonym of representativeness (Rein, Goldwater, & Markman, 2010). Both constructs can be evaluated by a goodness-of-example rating (Rosch & Mervis, 1975; Rosch, Simpson, & Miller, 1976). In other words, a typical person is perceived as the best example of her or his social category.

Literature in cognitive neurosciences suggests that people have two kinds of complementary cognitive skills. One is the stable internal presentation of people and situations that help individuals know what to expect based on this knowledge, and guide them to behave in a purposive manner (Johnson & Hawley, 1994; McConnell, Sherman, & Hamilton, 1997). This ability is attained through the neocortical, or slow-learning system (Macrae & Bodenhausen, 2000). People’s beliefs, expectancies, and norms (i.e. semantic knowledge) are developed by repeated exposure to certain events and stimuli. The other cognitive skill is the ability to respond to novel and unexpected stimuli (McClelland, McNaughton, & O'Reilly, 1995; Metcalfe, 1993). The fast-learning system, referred to as the hippocampal system, enables people to make sense of surprising events. Based on these new events, temporary presentations are formed and encoded into the episodic memory (Macrae & Bodenhausen, 2000). Scholars suggested that these episodic traces had little effect on modifying or updating people’s semantic knowledge, unless the novel stimuli are presented to the perceivers repeatedly (McClelland, et al., 1995).

Both semantic and episodic knowledge can inform people’s perceptions about
others (Macrae, et al., 1999). Categorical thinking reflects the implementation of semantic knowledge and the neocortical system (Macrae & Bodenhausen, 2000). According to the Social Categorization Theory, people define themselves and others according to their memberships to various social categories (Rips, 1975; Turner, 1982; Turner, Wetherell, & Hogg, 1989). A number of studies have shown that categorical thinking can guide the encoding of information and influence the representations of messages in memory (e.g., Brewer, 1988; Fiske & Neuberg, 1990; Macrae & Bodenhausen, 2000, Locke, Macraem & Eaton, 2005).

Categorization is “the process of understanding what something is by knowing what other things it is equivalent to, and what other things it is different from” (McGarty, 1999, p. 1). A social category is “two or more individuals who share a common social identification of themselves or, which is nearly the same thing, perceive themselves to be members of the same social category” (Turner, 1982, p.15). Any particular social category that people use to judge the memberships of themselves and others can be considered as a representation, which includes a pointer to the schema. Based on this schema, people can differentiate a character typical of the social category she or he represents from those who are nontypical (Rosch & Mervis, 1975).

Social categories “provide meaning, establishing norms, and simplifying and affording coherence to our social worlds” (Crisp & Hewston, 2007, p. 170). Wittenbrink, Hilton, and Gist (1998) proposed that social categorical knowledge consists of assumptions about “how group attributes are related to one another; and the grouping of the social environment” (p. 31). They also stated that the underlying principle of social
categorization is similarity. In other words, the categories that people use to make judgment about others and themselves reflect existing similar clusters in the world around them (Wittenbrink, et al., 1998). However, the categories may not be truthful representations of the reality (Hoffman & Hurst, 1990). In some cases, perceived membership of an individual to a certain group is exclusively based on perceivers’ conceptual knowledge about the similarity relations in a given social environment, instead of the similarity relations that are based on “an a priori structure of attribute covariation” (Wittenbrink, et al., 1998, p. 31). Stereotypes, as a type of categorical knowledge, should be considered as an alternative to a categorization model that is solely based on similarity (Wittenbrink, Bernadette, & Judd, 1998). According to this rationale, typicality judgment does not necessarily equal stereotypical views. It is possible that the social categorization is a result of both objective features that are commonly observed among a group of people or type of events and subjective construal of shared attributes of people or events.

Social categorical knowledge is gained through exposure to category-relevant information on a regular basis (Tajfel, Billig, Bundy, & Flament, 1971). Such information can be obtained through first-hand experiences. Our direct experiences accumulated over time can contribute considerably to what we believe. Second-hand information, such as media messages, also influences the construction of knowledge. For instance, media portrayals of suntanned body were shown to be associated with images of attractive, healthy, and popular individuals (Broadstock, Borland, & Gason, 1992; Keesling & Friedman, 1987). Despite the fact that abundant studies examined the effects
of media representations of tanning on people’s risk perceptions associated with sun exposures and sunscreen avoidance, little effort has been made to explore the role of health messages in shaping the public’s perceptions. Health practitioners are warned that campaigns and messages aiming to promote health can inadvertently stigmatized certain group of people involved (Puhl, Peterson, & Luedicke, 2013). Exposure to messages portraying certain individuals as more vulnerable than others can contribute to viewers’ schema or stereotypes related to the health issue. These messages reinforce rather than change existing beliefs and attitudes because they are consistent with audiences’ cognitions (Klapper, 1960).

Narrative typicality has been studied as a dimension of perceived realism, and was shown to influence narrative engagement and message effectiveness, including message attitudes, issue attitudes, and behavioral intentions (Cho, et al., 2013; Busselle & Bilandzic, 2008; Lundell et al., 2013). As one important component of narrative, character can affect people’s perceptions of the message and issue discussed. Therefore, character typicality may lead to similar effects as narrative typicality on message effectiveness. Few studies have manipulated character typicality and tested its effects on narrative processing and outcomes. The present study proposes that a typical character in narrative messages can lead to more positive persuasive outcomes, including knowledge, message attitude, issue attitude, and behavioral intention, than inclusion of a nontypical character.
**H4:** A narrative with a typical character will lead to (a) more knowledge, (b) more favorable message attitude, (c) more positive issue attitude, and (d) higher behavioral intention to use sunscreen than that with a nontypical character.

*Character typicality and risk perception*

Some scholars proposed that people’s comparative risk judgments are often optimistically biased (Duck & Mullin, 1995; Perloff, 1983; Perloff & Fetzer, 1986; Weinstein, 1980, 1982), which means that people have the tendency to underestimate their own health risks relative to other people’s risks. Particularly, if a stereotype existed in people’s minds of the type of person to whom a health-threatening event was likely to occur, people tend to believe that their own risks are much lower than the stereotypic victim, especially when the event was judged as controllable (Weinstein, 1980). As a result, people are unrealistically optimistic about their chances of being affected by negative events and risky behaviors. In addition, they falsely believe that compared with other groups of people, their own personal attributes or their present actions exempt them from the risks. Therefore, they are less likely to take precautions (Dillard, Midboe, & Klein, 2009).

Studies examining the mechanisms responsible for increased optimism often asked participants to compare their health and safety risks with the risks of the “average” or “typical” person (Weinstein, 1982, 1983, 1984). Since the “average” person may be an ambiguous target, people are likely to construe the risk-relevant characteristics of the average person based on stereotypes or prototypes (Perloff & Fetzer, 1986). Scholars concluded that such inappropriate social comparison would lead to perceptions of unique
invulnerability (Perloff, 1983; Weinstein, 1980). Nonvictims tend to have an illusion of unique invulnerability when they see themselves as unlikely to fall victim to negative events. Unique invulnerability can have maladaptive consequences. For instance, Perloff (1983) found that such perception might prevent nonvictims from engaging in self-protective behaviors. Additionally, people who felt they were least vulnerable to a particular health risk would have the most difficulty adjusting to victimization. A successful intervention should help nonvictims broaden the range of individuals to whom they can make comparisons beyond only high-risk individuals.

In social-psychological models of health behavior, beliefs about personal level and societal level risk are cognitively distinct (Morton & Duck, 2001; Sherman, Nelson, & Steele, 2000; Tyler & Cook, 1984). Personal level risk perception refers to when an individual perceives the risk as severe to herself or himself. Societal level risk perception is when an individual perceives something as a risk to other people or to the broader community but not to themselves (Snyder & Rouse, 1995; Tyler & Cook, 1984). In a narrative that communicates health risks, typical character inclusion, by eliciting more “optimistic bias,” can lead to underestimation of an individual’s own susceptibility to risks and overestimation that of others (Han, Zhang, Chu, & Shen, 2015; Klein & Helweg-Larsen, 2002). However, on the other hand, a series of studies conducted by Cho et al. (2013, 2014) suggested that typicality was strongly associated with personal probability estimation. Researchers concluded that for risk assessment, typicality “primed perceived personal relatedness with the character and situation in the narrative” (Cho & Friley, 2015, p. 188). At least one other study found that typicality was not associated
with societal-level risk perceptions (Strange & Leung, 1999). Strange and Leung (1999) suggested that plausibility of the narrative message about a school dropout, rather than the character’s typicality, had a greater impact on societal-level inference. The effects of typicality on societal-level risk perception have not been examined fully in health communications. Since previous studies have not reached an agreement on the relationship between narrative typicality and personal-level and societal-level risk assessments, the following research question asks if character typicality can influence people’s risk perceptions, at both personal and societal levels.

*RQ1:* What is the relationship between character typicality and personal-level and societal-level perceived risk?

Some scholars stated that high personal-level perceived risk could lead directly to preventive behaviors, though societal-level perceived risk might not have the same direct link to preventive health behaviors (Snyder & Rouse, 1995; Oh, Paek, & Hove, 2015). This may be because when individuals associate an issue with high personal-level perceived risk, they are more likely to pay attention to the information provided about the issue, and thus gain more knowledge from the message (Schwarz, 1998). They may also be more likely to develop message-consistent attitudes. Therefore, the next research question asks if character typicality influences persuasive outcomes through personal-level perceived risk.

*RQ2:* Will perceived personal-level risk mediate the effects of character typicality on knowledge, message attitude, issue attitude, and behavioral intention?
Character typicality and perceived realism

Within narrative messages, several potential factors can lead to perceived realism. One line of research investigating the relationship between characteristics of a story and perceived realism indicates that evaluations of most narrative realism stem from readers’ or viewers’ imaginations of what events and people would be like if they were to happen in reality (Shapiro, Barriga, & Beren, 2010; Shapiro & Chock, 2003, 2004; Shapiro & Kim, 2012). Studies showed that viewers’ experience and familiarity with both the content and its real-life referents could influence audiences’ perceptions of realism (Dorr, et al., 1990). However, people can still make realism judgments with little difficulty even if they have limited or no experience with the events or characters portrayed in the stories (Shapiro & Chock, 2003).

As discussed above, typicality of a narrative is associated with perceived realism of the message (Hall, 2003; Cho, et al., 2013; Cho, et al., 2014). As a multidimensional construct, the realism of narratives includes the dimensions of typicality, plausibility, factuality, narrative consistency, and perceptual quality (Hall, 2003; Cho et al., 2013). According to Hall (2003), typicality is the degree to which narrative presentations are common among a particular group of people. Hall, et al. (1999) studied audiences’ media interpretations and defined typicality as “the frequency with which the characteristics of a media portrayal are believed to be present among the portrayal’s real-world counterparts (p. 440). Prior studies suggested that typical narrative elements are more likely to be rated high in realism while atypical elements are perceived as less realistic (Shapiro & Chock, 2003, 2004). Lundell et al. (2013) studied interpretations of typicality in narratives and
statistical images. They found that participants often perceived typical interventions as realistic and credible. Further, when specific aspects of the character or intervention were perceived as atypical, participants believed that the success of the intervention could not be replicable. Shapiro and Chock (2003, 2004) conducted a series of experiments examining the effects of typicality on people’s perceptions of the realism of media stories. Their major findings were that typicality of a news story or entertainment story influenced individuals’ judgment about perceived realism. In addition, judgment of typicality was not influenced by familiarity of the news events. Shapiro and Chock (2003) concluded that typicality had more to do with people’s expectations about what was typical in a particular situation if it were to occur in reality. Based on the extensive studies conducted by Shapiro and Chock (2003, 2004), which suggested that typicality influenced perceived reality, it is possible that character typicality can influence perceived realism of the story such that typical characters will be perceived as more realistic than nontypical characters.

Previous experimental research used stories that varied in the number of typical and nontypical items they contained as a manipulation of realism (Shapiro & Kim, 2012). Narrative realism is positively associated with narrative comprehension and engagement (Busselle & Bilandzic, 2008; Bilanzic & Busselle, 2011; Hall & Bracken, 2011). Few studies have empirically tested the unique contribution of typicality to perceived realism as well as attitudinal and behavioral outcomes in health communications. In addition, the effects of situation typicality portrayed in the media content were studied extensively (Shapiro & Chock, 2003, 2004; Shapiro & Odom, 2004, Shapiro, Peña-Herborn, &
Hancock, 2006). In narrative messages, character personality and behaviors have shown to affect message effectiveness through audience identification (Moyer-Gusé & Nabi, 2010) and emotional involvement (Andringa, 1996). Characteristics of the protagonist and his or her behaviors may also influence perceivers’ typicality evaluations of the narrative. However, the link between character typicality and perceived realism has not been empirically examined. I expect that character typicality will affect overall narrative typicality judgment, which has been shown to be associated with perceived realism (Cho, et al., 2013, 2014). Furthermore, previous studies suggested a positive relationship between perceived realism and message outcomes, such as knowledge attainment and issue attitudes (Austin, et al., 2000; Green, 2004). Therefore, the present study proposes that typical characters will be perceived as more real than nontypical characters. In addition, it hypothesizes that perceived realism could mediate the effects of character typicality on message attitude, issue attitude, and behavioral intention.

**H5:** A narrative with a typical character will lead to higher perceived realism than a narrative with a nontypical character.

**H6:** Perceived realism will mediate the effects of character typicality on (a) message attitude, (b) issue attitude, and (c) behavioral intention.

*Character typicality and transportation*

Perceived realism of the story is positively correlated with transportation, which has a significant impact on story-related beliefs (Green, 2004; Wilson & Busselle, 2004). Green (2004) proposed that transportation could lead to reduced capacity and motivation to look for story inconsistencies, thus increasing retrospective evaluations of narrative
realism (Green, 2004). In addition, Green and Brock (2000) found that individuals who exhibited high transportation in response to the message were less likely to detect the “false note” in a narrative than less-transported individuals. Hall and Bracken (2011) also found that perceived realism was associated with transportation and film enjoyment. Therefore, typicality, by inducing higher perceived realism, may lead to more transportation and more favorable persuasive outcomes.

\( H_7 \): A narrative with a typical character will lead to higher transportation than a narrative with a nontypical character.

\( H_8 \): Transportation will mediate the effects of character typicality on (a) message attitude, (b) issue attitude, and (c) behavioral intention.

Character typicality and identification and emotional involvement

Previous research examined the effects of typicality as a dimension of perceived realism on message minimization and personal probability estimation (Cho, et al., 2013). Researchers defined typicality as the degree to which “the people and their situations and behaviors depicted in the media resemble those of the rest of the population” (p. 324). Identification is the degree to which audiences connects the character’s behaviors in particular personal and social situations to their own behaviors in similar circumstance (Larkey & Hecht, 2010; Slater & Rouner, 2002). Since typical media messages and characters should represent the common experiences of most members in the society, message recipients are likely to develop a connection with the character. Therefore, Cho et al. (2013) proposed that typical media messages could facilitate identification, which,
in turn, predicted probability estimation. Their study showed that the effects of typicality on probability judgment were mediated by both identification and message minimization. Through identification, audiences are able to simulate or imagine the events that occur in the stories. The emotions experienced by the character can also resonate with audiences’ emotional states (Cohen, 2001; Oatley, 1999). Empirical studies showed that higher identification could increase audiences’ attention, recall, and modeling behavior (Erwin, et al., 1996; Singhal & Rogers, 1999; Sood, 2002). In the present study, although the narrative with a typical character may not reflect the audience’s personal experience, it is easier for them to imagine the events occurred in the story. As a result, they may have higher identification and more emotional involvement than those who read a narrative with a nontypical character. These are the bases for the following hypotheses.

**H9:** A narrative with a typical character will lead to higher identification than a narrative with a nontypical character.

**H10:** Identification will mediate the effects of character typicality on (a) message attitude, (b) issue attitude, and (c) behavioral intention.

**H11:** A narrative with a typical character will lead to higher emotional involvement than a narrative with a nontypical character.

**H12:** Emotional involvement will mediate the effects of character typicality on (a) message attitude, (b) issue attitude, and (c) behavioral intention.
Character typicality and message novelty

Novelty can be defined as the “unexpectedness derived from a comparison with viewers’ experience” (Zhang, Chen, Chock, Wang, Ni, & Schweisberger, 2015, p. 2). According to this definition, nontypical characters can be perceived as novel. In news reporting, nontypical narratives and characters are often selected by journalists because they are entertaining and surprising (Zillmann, et al., 1996). Scholars found that typifications (which reflect an existing social structure, commonsense knowledge, and existing stereotypes) are often used to isolate newsworthy events. Such typifications in selecting stories are often referred to as “obvious templates” (Oliver & Meyers, 1999, p. 46) and “narrative scripts” (Gilliam & Iyengar, 2000, p. 561). For example, a number of studies found that news reports about crimes and victims often followed a set of criteria to determine the newsworthiness of a story (Chermak, 1995; Lundman, Douglass, & Hanson, 2004; Meyers, 1996; Shah & Thornton, 1994). Although nontypical characters and stories may be perceived to be unrealistic, they can be effective in eliciting positive message evaluations precisely because they are different from audiences’ expectations. In health messages, if the information represents an unexpected occurrence, it may draw people’s automatic attention.

In social psychology, it was proposed that when selecting information to be encoded into the working memory, individuals are more likely to select information that is novel or unexpected (Lang, 2000). These novelty appeals were positively associated with attention and arousal (Zhang, et al., 2015). In advertising research, the effects of message and execution of ads have been studied extensively (e.g. Cox & Locander, 1987;
Lehnert, Till, & Carlson, 2013; Sheinin, Varki, & Ashley, 2011). That research shows that novelty in advertisements leads to positive ad attitudes and higher purchase intentions (Shirkhodaee & Rezaee, 2014; Tellis, 1997). In health communications, the role of message novelty has not been examined exhaustively. Slater, Karan, Rouner, Murphy, and Beauvais (1998) concluded when alcohol warnings provide novel information, they might help form new beliefs among consumers. However, their conclusion has not been tested empirically. Morely and Walker (1987) demonstrated that novel information was shown to facilitate persuasion. Therefore, the present study hypothesizes that novelty could have positive effects on message evaluation and persuasive outcomes.

**H13**: A narrative with a nontypical character will lead to higher perceived message novelty than a narrative with a typical character.

**H14**: Perceive message novelty will mediate the effects of nontypical character on (a) message attitude, (b) issue attitude, and (c) behavioral intention.

*Character typicality and cognitive responses*

A number of factors can determine whether a category is activated, such as chronic accessibility (Fiske & Neuberg, 1990). Typical targets were shown to be more likely to cue social category and elicit higher prevalent judgment of the distribution of the characteristics (Locke, Macrae, & Eaton, 2005; Lord, Desforges, Fein, Pugh, & Lepper, 1994). Lord, Lepper, and Mackie (1984) proposed that an individual’s attitude toward a specific member of a social group could be predicted based on a “cognitive prototype.” According to Lord et al. (1984), a prototype is “an exemplar or standard that incorporates
the essential and most characteristic features of a class or group” (p. 1256). As discussed earlier, a person’s perceived prototype or attributes of a certain social category can be inaccurate. Therefore, the typical exemplar is not always representative of the most prominent characteristics of a class or group (e.g., Cantor, Mischel, & Schwartz, 1982; Mendoza-Denton, Park, & O’Connor, 2008; Shoda, Mischel, & Wright, 1993).

The process of matching category and individual members in making typicality judgments is complex. Attributes and characteristics of a certain social category are often derived from integration of many individual episodes in the memory of the perceivers (Rothbart & John, 1985). An episode is considered to be “any specific event that has left a trace in memory; there could be many episodes for a given person, and many individuals could be included in a single episode” (Rothbart & John, 1985, p. 88). Based on either the number of shared features or the centrality of the shared features, individuals evaluate the fit between the category and the episode in order to make judgment about whether an episode is associated with a particular social category (Rothbart & John, 1985). When a typical exemplar is presented, individuals use “prototype-assimilation” strategy (Cantor & Mischel, 1979), and information about the exemplar is easily encoded and processed. Since typical exemplars are easier to retrieve from the memory, people are more likely to involve in a less effortful processing than people who are presented with nontypical exemplars. On the other hand, nontypical or atypical exemplars, acting as “unexpected or incongruent with reference to a person’s general impression” (Hastie & Kumar, 1979, p. 31), could lead to a more elaborated processing. When unusual and nontypical exemplars are provided, individuals are
engaged in “prototype-contrast” processing, and pay attention to the inconsistent details. Therefore, nontypical or atypical exemplars are perceived as more informative and more memorable (Hastie & Kumar, 1979). Since both may be effective, the next question to explore is under what circumstances typical and nontypical exemplars should be employed.

A number of studies suggested that typical targets or members could lead to more heuristic processing than nontypical targets in messages (e.g. Blessum, Lord, & Sia, 1998; Forgas, 1992). Blessum, et al. (1998) explored the effects of category-based impressions on typicality in attitude-behavior consistency. They found that cognitive load and positive moods were likely to induce heuristic processing and thus the typicality effects would occur. Therefore, when the issue is complex and people do not have adequate knowledge to make accurate judgment of the risks and benefits, typical character may be more influential and people are more likely to process the narrative heuristically. On the other hand, nontypical character may be processed more systematically, since it is attention-grabbing and intriguing. The following hypothesis is proposed.

H15: A narrative with a typical character will elicit fewer cognitive responses than a narrative with a nontypical character.

Conceptualization of Cued Typicality

Message evidence can be presented in various ways, including being incorporated into narrative or presented as statistical information or facts. Previous studies mainly focused on the comparative effects of narratives or anecdotal evidences (exemplars) and
statistical or factual information (Das, Kerkhof, & Kuiper, 2008; Kopfman, et al., 1998; Maheswaran & Meyers-Levy, 1990; Pechmann & Esteban, 1994). Some scholars suggested that exemplars are conceptually similar to narratives (Kim, et al., 2012; Nan, Dahlstrom, Richards, & Rangarajan, 2015). However, unlike exemplar, narrative is a hybrid of forms that allows both exemplar evidence and statistical or factual information within a single message (Nan, et al., 2015). In health messages, it is common to present both narratives and statistics so that the content will influence both affective and cognitive responses (Zebregs, van den Putte, Neijens, & de Graaf, 2015, Zillmann, 2002).

Typicality cues are the statements about a population that indicate whether the character or the narrative is typical or not. Conceptually, typicality cues are similar to base rate information that is low in precision, and can thus be considered to be low-precision base rate information. According to Zillmann, Perkins, & Sundar (1992), base rate information can vary in precision. Base rate information that is lacking precision or accuracy is often based on impressions or guesses. Zillmann, et al. (1992) stated that a vague “statement about a population, such as that something would be characteristic or atypical, that it happens more often than not, or that it is bound to increase, illustrate low and wanting precision” (p. 169). Since studies about the effects of typicality cues are scarce, research on exemplification theory, which examines the effects and mechanisms of exemplar and base rate, can provide the theoretical framework for the understanding of cued typicality effects.

Exemplification theory distinguished two types of information: base rate information indicating “the number or proportion of people or things involved in a given
social phenomenon” (Gibson & Zillmann, 1994, p. 603), and exemplars, which are personal experiences illustrating the social phenomenon under consideration. A news article might start with a general description of a typical case with information about the population the case represents, and further exemplifying information of the case (Zillmann, et al., 1992). While base rate information can influence people’s typicality judgment, studies suggested that statistical evidence is often perceived to be more representative, presenting typical information on an issue, and therefore is persuasive (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Hoeken & Hustinx, 2009; Feeley, Marshall, & Reinhart, 2006). If statistical evidence is perceived as typical, can statements identifying the story as typical in the narrative influence audiences’ perceptions in a similar fashion?

According to the exemplification theory, base rate information varies in precision (Gilbson & Zillmann, 1994; Zillmann, et al., 1992). It ranges from statements that contain specific percentages, quantities, and probabilities with high precision (Meyer, 1991) to “languages indicating more relative quantification, such as a few, more and more, or a majority” (Gilbson & Zillmann, 1994, p. 604). Information processing studies have shown that people find it difficult to comprehend quantities, percentages, and probabilities (Gibson & Zillmann, 1994; Kahneman & Tversky, 1972; Tversky & Kahneman, 1973). By using a different approach, through descriptions of personal circumstances and individualized cases, exemplars were found to be more persuasive through vividness or emotional appeal (Bar-Hillel & Fischhoff, 1981; Zillmann & Brosius, 2000). Exemplar varies in the degree to which it exemplifies characteristics of the
population or the issue discussed in the message (Zillmann et al., 1992; Zillmann, et al., 1996). Therefore, an exemplar is often judged by typicality or representativeness rather than precision or validity.

Both precision of the base rate and distribution of the exemplar influence the accuracy in perceptions and judgments (Brosuis & Bathelt, 1994; Zillmann et al., 1992; Zillman, et al., 1996). Brosuis and Bathelt (1994) conducted a series of experiments that manipulated the precision of the base rate information, the number and the distribution of exemplars presenting the majority and minority opinions, the vividness of the exemplar, and the medium of presentation. They found that individuals who read a news report with an exemplar of a personal experience expand the exemplar information into generalized knowledge by either perceiving the exemplar as a typical case or overestimating the probability and importance of the issue (Brosuis & Bathelt, 1994). Exemplars provide ready-made short cuts for viewers to use in making judgments (Bargh, 1996; Kahneman, 2003). In order to explain such effects, social cognition research proposed three different heuristics that people use when making intuitive judgment and prediction (Kahneman & Tversky, 1972; Tversky & Kahneman, 1974). These three heuristics, quantification heuristic (Zillmann, 2006), representativeness heuristic (Kahneman & Tversky, 1972), and availability heuristic (Tversky & Kahneman, 1973) have been proposed to explain the effectiveness of exemplars. Quantification heuristic refers to the situation wherein the perceived likelihood of an event is influenced by the prevalence of exemplars and their relative distributions (Zillmann, 2002). Quantification heuristic is complemented by representativeness heuristic (Zillmann, 2006).
Representativeness heuristic was defined as making “judgments about event populations are extrapolations based on the scrutiny of exemplar groupings and that in this extrapolation the provision of abstract quantitative information about exemplar distributions is secondary, if not immaterial” (Zillmann, 2006, p. S223). Kahneman and Tversky (1973) concluded that people depend on the degree of representativeness of an outcome to make judgment about its likelihood. Such intuitive predictions are not affected by prior probabilities of the outcomes and reliability of the evidence.

Availability heuristic (Tversky & Kahneman, 1973) depends on the ease of retrieval of certain exemplars from the recipient’s memory (Zillmann, et al., 1992). Some instances and associations are more accessible than others, and ease of accessibility can have strong influences on people’s judgment. Tversky and Kahneman (1973) proposed that the plausibility of an event, or the difficulty of producing it, could guide judgment of the likelihood of the event. If no scenario is available in the memory, the event will be perceived as unlikely to happen. If many scenarios easily come to mind, or a particular scenario is influential, the event will be evaluated as more probable and more prevalent than it may truly be. The ease of retrieval of specific scenarios can be increased by frequent and recent activation of related constructs (Bargh, 1996; Kahneman, Slovic, & Tversky, 1982).

Social psychologists also studied the role of the representativeness of a sample as an aide in making inferences of the population from which the sample was drawn (Hamill, et al., 1980). Hamill et al. (1980) assigned participants into the typical sample or the atypical sample condition. In Hamill et al.’s study, representativeness and typicality
were used interchangeably. Participants in the typical condition read statistics about welfare and were informed that the woman in the presented message was typical of the welfare recipients with respect to the length of her stay on welfare. Participants in the atypical condition read statistics showing that the character in the message was on welfare longer than was common. The results showed that people would generalize from an atypical sample, which suggested that sample typicality might not affect people’s generalization from a sample to the population. Especially when information about the sample was vivid, people were more likely to make generalizations from atypical samples.

To further explore the representativeness heuristics, in their experiment in 1973, Kahneman and Tversky assigned participants into three different groups: base rate, similarity, and prediction groups. Participants in the base rate group were asked the following the question: “Consider all first-year graduate students in the U.S. today. Please write down your best guesses about the percentage of these students who are now enrolled in each of the following nine fields of specification” (p. 238). The similarity group of participants were presented with a personality sketch, in which the person was described as high intelligence, self-centered, with a need for order and clarity, and having a deep moral sense. The participants were asked to rank similarity between the person in the sketch and the typical graduate student in each of the nine areas. In the prediction group, the same personality sketch was given to the participants with the additional statement that the personality sketch was provided by a psychologist during the person’s senior year in high school. Participants were then asked to rank the likelihood that the
person in the personality sketch was now a graduate student in each of the nine areas. The results showed that people’s likelihood judgments of a person’s occupation were positively correlated with the degree to which the person is representative of the stereotype or prototype of that occupation, but were not related to base rates.

Additional experimental studies showed that representativeness influenced people’s likelihood judgments even when prior probabilities were provided (Kahneman & Tversky, 1973). Later, Tversky and Kahneman (1982) proposed that people often use representativeness to judge probabilities. Especially when an event is high in uncertainty, the subjective probability of the event is positively correlated with the representativeness of the event. For instance, an event A is judged as more probable than an event B, if A is perceived as more representative than B. In other words, people tend to make inferences of the likelihood of an event based on the representativeness judgment of such event.

Therefore, it is worthwhile to investigate whether typicality cues can affect people’s probability judgments. Prior studies have used probability estimations as indicators of perceived risks in various health contexts (Aiken, Fenaughty, West, Johnson, Lukett, 1994; Daly, Lerman, Ross, Schwartz, Sands, & Masny, 1996; Dolan, Lee, McDermott, 1997; Lipkus, Kuchibhatla, McBride, Bosworth, Pollak, Siegler, & Rimer, 2000). Perceived risk is often defined as people’s estimation of the probability or likelihood of harm (Ajzen, 1985; Katapodi, Lee, Facione, & Dodd, 2004). It is possible that cued typicality will have a similar impact on probability estimation and perceived risk, for both perceived societal and personal risks. In several studies, however, personal-level risk perception was shown to be more often associated with preventative behaviors
than societal-level risk perception (Sjöberg, 2003; Sjöberg, Holm, Ullén, & Brandberg, 2004). Although typical cues may lead to higher perceived personal and social risk, and more message-consistent attitude, only personal-level perceived risk can lead to higher behavioral intention to take protective action. Based on these rationales, I propose the following hypotheses:

**H16a:** A narrative with typical cues will lead to higher perceived personal and societal risks than a narrative with nontypical cues and a narrative with no cue.

**H16b:** Personal-level perceived risk will mediate the effects of cued typicality on attitude toward sunscreen use.

Researchers have investigated the impact that frames and verbal (text) cues in news coverage of different issues can have on viewer’s opinions (Dragojlovic, 2013; Mondak, 1993; Pan & Kosicki, 1997). Shah, Watts, Domke, and Fan (2002) examined news stories during the 1984, 1988, 1992, and 1996 presidential elections. They found that coverage of economic health provided cues to the readers and influenced citizens’ presidential preferences. Watts, Domke, Shah, and Fan (1999) explored the relationship between elite cues and media bias during the 1988, 1992, and 1996 presidential elections. Elite claims provided cues to citizens and were shown to lead to perceived pervasiveness of news bias. Many studies looked into the impacts of party labels as heuristics in various communication domains. It was discovered that party labels were effective cues in predicting candidates’ preferences during presidential elections (Huckfeldt, Levine, Morgan, & Sprague, 1999; Lavine & Gschwend, 2007). Based on this line of research, it can be inferred that in narratives, certain attributes of characters can be cued by
descriptions, and thus attract more readers’ attention and deliberation. Although abundant studies have examined the effects of verbal cues, few studies focused on typicality cueing effects. In addition, cueing effects have not been investigated in health and risk communications. It is possible that typicality cues in a health message can lead to a similar impact as the character typicality. Since the effects of typicality cues have not been tested empirically, the following research is proposed:

**RQ3**: Does cued typicality have any effect on perceived realism, identification, transportation, emotional involvement, cognitive responses, knowledge, message attitude, issue attitude, and behavioral intention?

**Character Typicality and Cued Typicality Interaction Effects**

A number of studies on the exemplification theory examined the interactive effect of the base rate information and the exemplar. Generally speaking, both precision of the base rate and distribution of the exemplar influence the accuracy of people’s perceptions and judgments (Brosuis & Bathelt, 1994; Zillmann et al., 1992; Zillman, et al., 1996). Brosuis and Bathelt (1994) conducted a series of experiments that manipulated the precision of the base rate information, the number and the distribution of exemplars, the vividness of the exemplar, and the medium of presentation. All together, these experiments suggested that the distribution of exemplars had powerful and far-reaching effects on people’s perceptions of social problems. It can be concluded that people often rely more on exemplification than formal quantifications to make prevalent judgments.

Several studies examined effects of representativeness heuristics on people’s perceptions (e.g. Gilbson & Zillmann, 1994; Brosius & Bathelt, 1994; Zillmann, et al.,
In narrative research, few studies have examined the mechanisms and effects of typical characters and typical cues. Scholars suggested that atypical or nontypical exemplars are often chosen by journalists because of they are entertaining and sometimes shocking to audiences or readers (Zillmann, et al., 1992). In health messages, the standard of choosing exemplars and narratives can be different. Nontypical narrative, though surprising and novel, can be perceived as unreal and not trustworthy (Cho, et al., 2013). If a message has verbal cues, which can be base rate information that suggests the typicality of the person or event in a given social phenomenon, it may have a weaker impact on people’s judgment than exemplars. As shown previously, narrative tends to have a greater impact on people’s risk assessment than statistical information, likely because of its representativeness (Betsch, Haase, Renkewitz, & Schmid, 2015; Betsch, Ulshöfer, Renkewitz, & Betsch, 2011). Ubel, Jepson, and Baron (2001) examined the effects of statistical and narrative information on risk assessments. They found that narratives had greater impacts on people’s risk assessments when the ratio of narratives indicating success vs. failure of a treatment was incongruent with the statistical evidence. Ubel, et al., (2001) suggested that even if a narrative was perceived as a single unit of information, it could be effective in expressing the relative frequency of events. In the current study design, it is particularly important to observe the outcomes of the inconsistent conditions, where the story is typical (or nontypical) and the cue is nontypical (or typical). It is possible that, according to the exemplification theory, typicality effects of the character can override typicality effects of the cues in predicting persuasive outcomes. However, this possibility has not been examined by empirical
studies. Therefore, the final research question investigates the interaction of character typicality and cued typicality on narrative engagement and message outcomes.

**RQ4:** Will character typicality and cued typicality interact in affecting perceived realism, identification, transportation, emotional involvement, personal-level or societal-level perceived risk, cognitive responses, knowledge, message attitude, issue attitude, and behavioral intention?

**Summary**

Events and people depicted in narratives vary in typicality. For instance, according to a study conducted by YouGov UK in 2015, typical young smokers are individualist, alternative, and more likely to be slightly late than their non-smoking peers (Dahlgreen, 2015). The self-reported positive personality traits of regular smokers include wacky, original, performer, independent, farsighted, geeky, funny, thinker, and sweet. Negative traits of regular smokers are big-headed, careless, insecure, nervous, stubborn, moody, reckless, quite, pushover, and accident-prone. Although generalization from the study statistics is far from accurate, it is common to see characters whose behaviors illustrate some of these personality traits in health messages. Typical events and characters are often perceived as highly probable (Shapiro & Fox, 2002). The relationship between perceived typicality and realism has been established (e.g. Busselle & Bilandzic, 2009; Cho et al., 2013, 2014). However, the majority of previous research examined the effects of typicality as a *dimension* of perceived realism. Few studies have conceptualized and manipulated narrative typicality in order to understand its unique
contributions to realism, transportation, identification, emotional involvement, and message effectiveness in health communications.

The current study focuses on the issue of unprotected sun exposure and its associated risks. College students are particularly prone to unprotected sun exposure, which places them at high risk of developing skin cancer in the future (Lovejoy, Riffe, & Lovejoy, 2015). According to the Centers for Disease Control and Prevention (2012), among women who are 18-29 years old, the most commonly practiced sun protective behaviors are sunscreen use and sun avoidance. However, only 37% of this cohort reported wearing sunscreen. Among men ages 18-29 years old, only 16% wore sunscreen. Despite the fact that reducing all types of unprotected sun exposure can effectively one’s risk of developing skin cancer (Noar, 2006), skin cancer prevention messages often emphasize the negative consequences of sun tanning specifically (Cho, Hall, Kosmoski, Fox, & Mastin, 2010). Such messages were shown to elicit negative sun protection attitudes and less perceived control over sun exposure among college (Lovejoy, et al., 2015). Researchers found that media content, magazine articles in particular, contributed to the preference for tanned skin among study participants (Cafri, Thompson, & Jacobsen, 2006; Mahler, Beckerley, & Vogel, 2010). In addition, males are often not targeted in health interventions promoting sunscreen use and sun-protective behaviors (Lazovich, Choi, Rolnick, Jackson, Forster, & Southwell, 2013). Common outdoor sun protective behaviors and indoor tanning behaviors are detrimental to one’s skin and health. However, typical health narratives only aim to reduce individuals’
intention to engage in indoor tanning bed use, which can be perceived to be relevant to females who are concerned about their appearances (Miller, et al., 1990).

My dissertation intends to explore the effects of character typicality and cued typicality in narrative messages on message effectiveness when communicating the risks of sunscreen avoidance and unprotected sun exposure. Typical narrative is associated with high perceived realism, which has been theorized to influence transportation, identification, and emotional involvement (Larkey & Hacht, 2010). There are plausible events, which are not typical, can also occur. However, it may not be perceived as probable and realistic. Presenting a nontypical character can also be effective because it is novel and unexpected. Figures 1 illustrates the conceptual models of the effects of character typicality on attitudes and behavioral intentions, and the mediating effects of realism, transportation, identification, and emotional involvement. These results will help scholars and health communication practitioners understand the mechanisms as well as outcomes of narrative typicality in order to refine tailored health interventions.
Figure 1. Conceptual model of character typicality effects on attitudes and behavioral intention through realism, transportation, identification, and emotional involvement.
Chapter 2

METHOD

Overview

A 2 (character typicality: typical character vs. nontypical character) x 3 (cued typicality: typical cues vs. nontypical cues vs. no cues) between-subjects experiment was conducted. Six versions of a health narrative that promotes sunscreen use were created as the experimental stimuli. Each of the messages provided information about the risk of sun exposure and sunscreen avoidance. Such information was consistent among the six conditions. The story was about a character named Jordan Kohl, who was diagnosed of melanoma at the age of 22. In order to control for gender effects on issue perceptions, the gender of the character was designed to match each participant’s gender. Therefore, a total number of 12 narratives were created. In one set of the six stories, Jordan was a female; in other six stories, Jordan was a male. Participants were asked to indicate their gender first, and then they were randomly assigned to read one of the six stories in which the gender of the character matched theirs.

Participants

A total of 501 participants were recruited from undergraduate classes at a major U.S. public university for the experimental study. There was no criteria for exclusion of participants as long as they were university-enrolled students and 18-years-old or older. Participants were informed in advance that their participation was voluntary and confidential. Participants received a small amount of course credit for their participations. An alternative assignment was provided to participants who did not wish to participate in
the main study. Participants ranged in age from 18 to 29 ($M = 20$, $SD = 1.28$). The majority of the participants were females, accounting for 77.4% of the total population. In terms of racial identity, 76.2% of the participants self-reported as Caucasian, followed by Asian/Pacific Islander (10.2%), African American Black (5.8%), Hispanic/Latino (5.6%), Other (2%), and 0.2% as Native American.

**Procedure**

Recruitment emails were sent to course instructors with instructions for students to participate in the study and a link to the online experiment. Participants were given four days to take part in the study. They could click on the link or copy and paste the link provided in the recruitment emails to their Internet browsers in order to participate in the study through Qualtrics. They were first presented with the consent form, which explained the study purpose, benefits, risks, and procedure. Students were told that they were about to participate in a study examining the effects of media and the purpose of the research would be fully disclosed at the end of study. After they gave their consent to proceed, participants were asked to indicate whether they were at least 18-years-old. They were then asked about their gender. In all conditions, participants were asked to read an online health message that randomly varied in character typicality (typical vs, nontypical) and cues (typical cues vs. nontypical cues vs. no cues). Female participants were assigned to read the messages in which the character, Jordan, was a female. Male participants were assigned to read the messages with a male character. All participants were told that they would be given at least two minutes to carefully read the article that was selected from a list of issues. They should read the article carefully at their normal
speed. After 1 minute, the “proceed” button would appear on the page, and they could click on it to move on to the next page. After they finished reading the articles, participants were asked to fill out a questionnaire assessing outcome variables, including cognitive responses, perceived realism, transportation, identification, emotional involvement, personal-level perceived risk, societal-level perceived risk, issue attitude, message attitude, behavioral intention, message novelty, and knowledge. Perceived likability of the character and issue involvement were measured as control variables in the study. They were also asked to fill out demographic questions about themselves, such as age, household income, and race.

**Stimuli**

Six versions of health messages were created for a 2 x 3 between-subjects experimental study with variations of character typicality and cued typicality. The six articles were similar in length. In each message, information about the risk of exposure to UV radiation and the benefit of using sunscreen was presented first (Appendix A). The article then continued with a story of a 22-year-old skin cancer patient named Jordan. The story varied in character and cued typicality. First of all, to manipulate character typicality, it is important to construct the narrative that audiences can perceive the character and his or her behaviors as varying in typicality. Prior studies used a multistep procedure to generate typical and nontypical elements in order to create a story (Graesser, 1981; Shapiro & Fox, 2002). The present study used two pretests adopted from Graesser (1981) to generate typical and nontypical characters in the narratives.
Pretest 1

The purpose of the first pretest is to generate a list of characteristics that are perceived as typical and nontypical of people who do no use sunscreen. In the first pre-test, 39 participants enrolled in media classes at a major U.S. public university were recruited. Once students agreed to participate in the study, they received a link to the Qualtrics questionnaire. Participants were asked to list all the typical characteristics and then all the nontypical characteristics of a person who does not use sunscreen. They were told that they should provide their responses freely and there was no correct answer expected. All typical and nontypical characteristics listed by more than one participant in the free generation condition were used to develop the messages. Characteristics that were related to a person’s physical appearances, such as the skin descriptors “burnt,” “tan,” and “freckles,” and race were excluded in the message development, since the study focused on the typicality effects of characteristics and behaviors. The preliminary results from the first pre-test using 39 participants are attached (Appendix B). Typical characteristics/attributes of a person who do not use sunscreen included: “oblivious,” “careless,” “risk taker,” “not health conscious,” “vain,” “uninformed of sunray dangers,” “confident,” “absent minded,” and “those who believe nothing bad would happen to them.” Nontypical characteristics/attributes of a person who goes tanning often included: “healthy,” “careful,” “conscious,” “responsible,” “educated,” “stay inside often,” and “health conscious.”
Pretest 2

In order to test the typicality of the characteristics generated in the first pretest, a second pretest was conducted. In the second pretest, two stories with a typical and a nontypical character respectively, were randomly assigned to a group of 26 participants. The sex of the character in the message again matched the participant’s sex. The majority of the participants were female, accounting for 64% of the total population, and 36% of the participants were male. The average age of the participants was 21. The largest portion of the participant population was Caucasian (66.7%), followed by Asian/Pacific Islander (23.8%) and Hispanic/Latino (9.5%). Participants were asked to evaluate the typicality of the character in the story that they were assigned to read. The character was rated on two seven-point Likert-type scales (1 = strongly disagree to 7 = strongly agree) adopted from Hampton and Gardiner (1983). The items were as follows: “Jordan is typical of people who do not use sunscreen,” and “Jordan is representative of people who do not use sunscreen.”

The second pretest also asked participants to write down characteristics of people who do not use sunscreen when spending time outdoors. The two-tailed $t$-test results showed that the character in the typical message condition ($M = 5.13$) was perceived as more typical than the character in the nontypical condition ($M = 2.92$), $t (19) = 3.11, p = .01$. The qualitative data showed similar results as the first pretest. Again, the typical person who does not use sunscreen was described as “unaware,” “uneducated,” and “invincible.” The typical and nontypical characters generated and tested from these two pretests were used in the health narratives as stimuli.
In the typical condition, Jordan is concerned with his/her physical appearance. He/she likes taking risks, enjoys outdoor activities, and is not aware of the seriousness of skin cancer or the consequences of not applying sunscreen. Here is an example of the descriptions of Jordan in the typical story for female participants:

Jordan has always been concerned with her physical appearance. To maintain a good physique, she does hiking, running, and rowing regularly. Jordan is a carefree person. Her friends say she is not afraid of taking risks, so she likes to try extreme sports whenever she can. Her friends, who are also risk-takers, join her when she goes surfing and snowboarding.

In the nontypical condition, Jordan likes indoor activities. He/she is health-conscious, responsible, and careful. He/she does not like using sunscreen and is too lazy to reapply. Here is an example of the descriptions of Jordan in the nontypical story for female participants.

Jordan has always been health-conscious. Although she prefers indoor activities, she makes sure to go running to stay in shape. Her friends say she is an intelligent and down-to-earth person. She always does well in school, and she likes getting together with her friends and talking about politics and books. She is also interested in nutrition and health. She enjoys having friends over and making healthy meals for them.

Secondly, after character typicality manipulation, previous study suggested that cues within news coverage could attract peoples’ attention on some subset of messages content (Shah, et al., 2002). In this study, cues were manipulated as descriptions of the character’s typicality. In the typical cues condition, the health message included sentences indicating that the protagonist and his/her story is typical of people who get skin cancer. The nontypical cues condition presented the participants with a similar health message but with verbal (text) cues indicating that the character and the story is
not typical. In the condition where no cues were issued, the typicality of the character and story was not indicated. For instance, in the typical story, sentences such as “Jordan Kohl is a typical skin cancer patient,” “Jordan is the common type of person who would get skin cancer,” and “Jordan’s story exemplifies the experiences of most skin cancer patients” were provided in the message. In the nontypical story, cues as follows: “Jordan Kohl is not a typical skin cancer patient;” “Jordan is not the common type of person who would get skin cancer;” and “Jordan’s story does not exemplify the experiences of most skin cancer patients.”

Measures

A post-test questionnaire was administered after participants finished reading the article and measured cognitive responses, perceived realism, transportation, identification, emotional involvement, personal-level perceived risk, societal-level perceived risk, issue attitude, message attitude, behavioral intention, message novelty, schema strength, and knowledge (Appendix C). Table 1 reports the descriptive statistics of the key variables in the study.

Mediating variables

Perceived realism, transportation, identification, emotional involvement, personal-level perceived risk, societal-level perceived risk, and message novelty were hypothesized as the mediating variables in this study.

(a) Perceived realism. Participants’ perceived realism of the narrative (Cronbach’s α = .91) was measured using items adopted from Cho et al. (2013). Participants were asked to rate their agreement with 16 statements ranging from 1,
labeled strongly disagree, to 7, labeled strongly agree. Examples of these statements include the following: “The message showed something that could possibly happen in real life” and “The event in the message portrayed possible real-life situations.”

(b) Transportation. A 6-item scale adopted from Appel, Gnambs, Richter, and Green (2015) measured participants’ transportation. Participants were asked to indicate their degree of agreement with items such as “I could picture myself in the scene of the events described in the narrative” and “I was mentally involved in the narrative while reading it” (Cronbach’s $\alpha = .86$).

(c) Identification. Ten items (including: “I could relate to the character portrayed in the article” and “I could relate to the event described in the message”) measured the participants’ identification to the message character by adopting Busselle and Bilandzic (2009) (Cronbach’s $\alpha = .87$).

(d) Emotional involvement. Five items from previous studies (Hall, 2003; Morgan, Movius, & Cody, 2009) were used to assess emotional involvement. The items were: “The message had an effect on my emotions;” “The message made me emotional;” “While reading the article, when Jordan succeeded, I felt happy, and when Jordan suffered in some way, I felt sad;” “I was emotional while reading the message;” and “I felt sorry for what happened to Jordan” (Cronbach’s $\alpha = .90$).

(e) Personal-level and societal-level perceived risks. Participants’ personal-level (Cronbach’s $\alpha = .80$) and societal-level risk perceptions (Cronbach’s $\alpha = .78$) were assessed with five items on 7-point Likert scales with 1= not at all and 7 = very much. These were items such as “How important is skin cancer to you/students of your sex and
age?” and “How worried are you/students your of your sex and age about getting skin cancer sometime in the future?” (Miller, et al., 1990; Mortan & Duck, 2001; Tyler & Cook, 1984).

(f) **Message novelty.** Novelty was assessed using five items adopted from previous research by Sheinin et al. (2011). All items were measured using 7-point Likert scales anchored by *strongly disagree* and *strongly agree* (Cronbach’s $\alpha = .88$). Example items included: “The message was original;” “The message was different from my expectations of other messages that promote sunscreen use;” “The message was memorable.”

**Outcome variables**

Six variables, including cognitive responses, issue attitude, message attitude, behavioral intention toward the issue, and knowledge were measured as the outcome variables in this study.

(a) **Cognitive responses.** To measure cognitive responses, the researcher asked participants to list up to six thoughts. Following Mazzocco, Green, Sasota, and Jones (2010), the researcher computed a cognitive response index by calculating the total number of thoughts. This resulted in a cognitive response index that ranges from 0 to 6.

(b) **Issue attitude.** Attitude toward sunscreen use was assessed using 7-point semantic differential scales (Hillhouse, Adler, Drinnon, & Turrisi, 1997; Myers & Horswill, 2006). Participants were asked for their evaluations of the issue using eight pairs of descriptors. The final issue attitude index was based on three items that assessed the health aspects of the attitude. The pairs of descriptors used to form such index
includes: “bad – good,” “unhealthy – healthy,” and “harmful – beneficial.” The three-item scale yielded a Cronbach’s $\alpha = .83$.

(c) **Message attitude.** Based on the guidance of prior research (Shen, Ahern, & Baker, 2014), attitude toward the message was measured by asking participants to evaluate the message on 7-point semantic differential scales. The nine pairs of descriptors included “not credible – very credible,” “not believable – very believable,” “not clear – very clear,” “not truthful – very truthful,” and others. The nine-item scale yielded a Cronbach’s $\alpha = .93$.

(d) **Behavioral intention.** Participants were asked to indicate their degree of agreement with the following four statements from Myers and Horswill (2006) that were used to assess their intention to follow the recommended behaviors: “I intend to use sunscreen with an SPF 15+ when I am in the sun;” “I plan to use sunscreen with an SPF 15+ when I go outside;” “I will apply sunscreen 30 minutes before I go outside;” “I intend to reapply sunscreen lotion when out in the sun all day,” with a Cronbach’s $\alpha = .82$.

(e) **Knowledge.** Knowledge measurement consisted of five multiple choice questions regarding the source of UV radiation, the recommended amount of sunscreen an adult should use, and the frequency to reapply sunscreen, etc. Answers to these questions were provided in each of the six narrative messages. The number of correct answers was formed as an indicator of participants’ knowledge about sunscreen use. The questions were adopted from prior studies on skin cancer risks and preventions (Miller, et al., 1990; Spradlin, Bass, Hyman, & Keathley, 2010).
Individual-difference variables

At the end of the study, participants were asked to answer questions that would measure perceived similarity to the message character, how much they liked the character, schema strength, issue involvement, and their demographic information (i.e. age, gender, ethnicity, and household income).

(a) Perceived likability of the character. Four items assessed how much participants liked the character in the narrative (Moyer-Gusé, Jain, & Chung, 2012). The items were: “Jordan made me feel comfortable, as if we were friends;” “I think Jordan could be a friend of mine;” “Jordan seems like the kind of person I would enjoy being around;” and “Jordan would fit in well with me and my friends” (1 = strongly disagree, 7 = strongly agree; Cronbach’s α = .92).

(b) Issue involvement. Three questions assessed participants’ involvement with the issue of skin cancer and risks associate with sun exposure (Cronbach’s α = .81). The questions were: “Before today’s study, how much attention have you paid to information about skin cancer?” “Before today’s study, how often have you read about risks associated with sun exposure?” and “Before today’s study, how knowledgeable are you about the risks associated with sun exposure?”
Table 1. Descriptive statistics of key variables \( (N = 501) \)

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<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Reliability index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive responses</td>
<td>4.58</td>
<td>1.32</td>
<td>N/A</td>
</tr>
<tr>
<td>Perceived realism</td>
<td>5.40</td>
<td>.81</td>
<td>.91</td>
</tr>
<tr>
<td>Transportation</td>
<td>4.81</td>
<td>1.12</td>
<td>.86</td>
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<tr>
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CHAPTER 3

RESULTS

Manipulation check

Perceived typicality of the narrative was measured using two sets of questions. First, two items adopted from Hampton and Gardiner (1983) were used to assess people’s perception of the typicality of the narrative. Participants were asked to rate their agreement with the following items: “Jordan is typical of people who do not use sunscreen” and “Jordan is representative of people who do not use sunscreen.” The two items are highly correlated, $r (499) = .62, p < .001$. An index-labeled, perceived-character typicality was created and used for the analysis ($M = 4.53, SD = 1.44$). The analysis showed that there was a significant main effect between character typicality and perceived character typicality, $F (1, 495) = 80.11, p = .000, \eta^2_p = .14$. The typical character ($M = 5.04, SD = 1.24$) was perceived as more typical than the nontypical character ($M = 3.97, SD = 1.45$). The analysis also showed a significant main effect of cued typicality on perceived character typicality, $F (2, 495) = 11.00, p = .000, \eta^2_p = .04$. Typical cues ($M = 4.71, SD = 1.31$) led to significantly more perceived typicality than nontypical cues condition ($M = 4.12, SD = 1.45$). However, the difference between typical cues and no cues conditions ($M = 4.69, SD = 1.50$) was not significant ($p = .79$). Overall, the manipulation of character typicality was effective. As for cued typicality, the data suggested that typical cues led to more typical perception than nontypical cues, which means the manipulation was successful.

The data were analyzed using SPSS Statistics 23.0. First, the data was screened
for the normality of distribution and missing values. A total of 501 cases were used for the analysis. Based on the shape of the histogram and Shapiro-Wilk W test, the indexes of the 12 dependent variables followed a normal distribution. Less than 5% of the data was missing (0%–2.5%), therefore, there were no serious problems caused by missing values (Tabachnick & Fidell, 2007). Secondly, to test H1, correlations of dependent variables were examined to test the interrelationships. MANOVA was used to examine the overall model with 12 dependent variables by character typicality (typical and nonatypical) and cued typicality (typical cues, nontypical cues, and no cues). Thirdly, a series of two-way ANCOVAs were conducted. The analyses examined the main effects and interaction effects of the two independent variables (character typicality and cued typicality) on cognitive response, perceived realism, transportation, identification, emotional involvement, personal-level perceived risk, societal-level perceived risk, issue attitude, message attitude, and behavioral intention. Likability of the character and issue involvement were associated with most of the outcome variables, and they were treated as covariates in the final data analyses. Fourthly, the section will present the results of moderated mediation and indirect effects, examining the effects of character typicality moderated by cued typicality on issue attitude through transportation and identification. Finally, the results from mediation analyses were presented, testing the character typicality effects on message attitude, issue message, and behavioral intention, mediated by perceived realism, transportation, identification, and emotional involvement.
Part I: Correlations and MANOVA Results

H1 proposes that perceived realism will be positively related to (a) transportation, (b) identification, (c) cognitive responses, (d) emotional involvement, (e) personal-level perceived risk, and (f) societal-level perceived risk. As hypothesized, perceived realism was significantly correlated with (a) transportation, $r(499) = .45, p < .01$; (b) identification, $r(499) = .48, p < .01$; (d) emotional involvement, $r(499) = .32, p < .01$; (e) personal-level perceived risk, $r(499) = .28, p < .01$; and (f) societal-level perceived risk, $r(499) = .14, p < .01$. However, perceived realism was not significantly associated with (c) cognitive responses, $r(499) = .06, p = .22$. H1 (a), (b), (d), (e), and (f) were supported. The correlations between mediating variables and outcome variables are presented in Table 2.
Table 2. Correlations between measured variables

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Note: *p < 0.05, **p < 0.01.

Based on the Mahalanobis distance, eight outliers were excluded from the MANOVA test. Means and standard deviations of the dependent variables across the experimental conditions are presented in Table 3. The MANOVA results showed a significant effect for character typicality, Wilks’ Λ = .93, F (11, 477) = 3.32, p < .001, ηp² = .07, and cued typicality, Wilks’ Λ = .92, F (22, 954) = 1.84, p < .05, ηp² = .04. The interaction was significant, Wilks’ Λ = .92, F (22, 954) = 1.97, p < .01, ηp² = .04.
Table 3. Means and standard deviations of dependent variables by conditions

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<td>Issue attitude</td>
<td>6.65 (.62)</td>
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<tr>
<td>Behavioral intention</td>
<td>4.92 (1.35)</td>
<td>4.72 (1.18)</td>
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Part II: Main and Interaction Effects

The analyses employed two-way ANCOVAs with two between-subjects independent variables: character typicality (typical and nontypical) and cued typicality (typical cues, nontypical cues, and no cues). The final analyses used the following
covariates: perceived likability of the character and issue involvement. The main effects and interaction effects of the independent variables are reported below.

**Perceived realism.** H2 and H3 will be examined in the next section when testing the mediation effects of character typicality. For perceived realism, H5 proposes that a narrative with a typical character will lead to higher perceived realism than a narrative with a nontypical character. In addition, RQ3 asks if cued typicality will have a similar effect on all mediating and dependent variables. The results showed a significant relationship between character typicality and perceived realism, $F(1, 492) = 13.87, p < .001, \eta_p^2 = .03$. Messages with the typical character ($M = 5.52$) were perceived as more real than messages with the nontypical character ($M = 5.27$). There was also a significant relationship between cued typicality and perceived realism, $F(2, 492) = 3.29, p < .05, \eta_p^2 = .01$. Post-hoc analyses of estimated marginal means using the Sidak correction showed typical cues ($M = 5.45$) led to marginally significant higher perceived realism ratings than nontypical cues ($M = 5.27, p = .06$). There was no significant difference between typical cues and no cues conditions ($M = 5.46, p = 1.0$) or between nontypical cues and no cues conditions ($p = .09$). The results showed no significant interaction, $F(2, 492) = 1.65, p = .19, \eta_p^2 = .01$. These results supported hypothesis H5, in turn supporting previous findings that typicality was associated with perceived realism (Cho et al., 2014).

**Transportation.** H7 proposed that a narrative with a typical character would lead to higher transportation than a narrative with a nontypical character. Analysis showed no significant main effect of either character typicality, $F(1, 492) = .26, p = .61$, or cued typicality, $F(2, 492) = 1.16, p = .32$, on transportation. However, a significant two-way
interaction was found (Figure 2), $F(2, 492) = 9.70, p < .001, \eta^2_p = .04$. Post-hoc
comparisons based on estimated marginal means with the Sidak correction showed that
when the narrative character was typical, no cues condition ($M = 5.16$) led to significantly
higher transportation typical cues ($M = 4.73, p < .01$) and nontypical cues ($M = 4.58, p <
.001$). Such effects were not observed when the narrative character was nontypical.

![Figure 2. Interaction effects of character and cued typicality on transportation.](image)

**Identification.** The result showed no significant main effect of neither character
typicality, $F(1, 492) = .12, p = .73$, nor cued typicality, $F(2, 492) = 1.86, p = .16$, on
identification. H8 was not supported. However, a significant two-way interaction was
found, $F(2, 492) = 11.96, p < .001, \eta^2_p = .05$ (Figure 3). Post-hoc comparisons based on
estimated marginal means with the Sidak correction showed that when the narrative
class was typical, no cues condition ($M = 4.97$) led to significantly higher
identification than typical cues ($M = 4.59, p < .01$) and nontypical cues ($M = 4.36, p < .001$). Such effects were not observed when the narrative character was nontypical.

![Identification Graph](image)

Figure 3. Interaction effects of character and cued typicality on identification.

**Emotional involvement.** H11 proposed that a narrative with a typical character would lead to higher emotional involvement than a narrative with a nontypical character. The result showed no significant main effect of either character typicality, $F(1, 492) = .47, p = .50$, or cued typicality, $F(2, 492) = 1.82, p = .16$, on emotional involvement. H11 was not supported. The interaction effect was not significant, $F(2, 492) = 2.58, p = .08$.

**Message novelty.** The analysis showed a significant main effect of character typicality on message novelty, $F(1, 492) = 8.30, p < .01, \eta^2_p = .02$, such that nontypical character ($M = 4.46$) was perceived to be more novel than typical character ($M = 4.18$). The main effect of cued typicality on message novelty approached significant, with nontypical cues ($M = 4.43$) being perceived as more novel than typical cues ($M = 4.25$).
and no cues \((M = 4.29), F (2, 492) = 3.03, p = .05, \eta^2_p = .02. \) Therefore, H13 was partially supported. The interaction effect was not found, \(F (2, 492) = 1.56, p = .21.\)

**Knowledge, message attitude, issue attitude, and behavioral intention.** H4, which is that narrative with a typical character will lead to (a) more knowledge, (b) more favorable message attitude, (c) more positive attitude toward sunscreen use, and (d) higher behavioral intention to use sunscreen, intended to examine the effect of independent variables on knowledge, message attitude, issue attitude, and behavioral intention to use sunscreen.

There were no significant main effect of character typicality on knowledge, \(F (1, 492) = 1.36, p = .25\), message attitude, \(F (1, 492) = .21, p = .65\), and behavioral intention to use sunscreen, \(F (1, 492) = 2.20, p = .14.\) Character typicality had a significant impact on issue attitude, \(F (1, 492) = 10.83, p < .01.\) Participants who read the story with a typical character \((M = 6.63)\) perceived using sunscreen as more beneficial and healthy than participants who read the narrative with a nontypical character \((M = 6.39).\) Thus, hypotheses H4a, H4b, H4d were not supported. H4c was supported.

Cued typicality had no significant impact on knowledge, \(F (2, 492) = 1.10, p = .34.\) As for attitude toward sunscreen use, typical cues \((M = 6.63)\) yielded more positive attitude toward sunscreen use among participants than nontypical cues \((M = 6.35), F (2, 492) = 4.95, p < .01.\) The interaction effects between character typicality and cued typicality on issue attitude was not significant, \(F (2, 492) = 2.65, p = .07.\) Cued typicality also did not have a significant impact on intention to use sunscreen, \(F (2, 492) = .88, p = .42.\) There was no interaction effect, either, \(F (2, 492) = .29, p = .75.\)
As for message attitude, there was a significant relationship between cued typicality and message evaluations, $F(2, 492) = 3.44, p < .05, \eta_p^2 = .02$. Post-hoc analyses of estimated marginal means using the Sidak correction showed that when the narrative contained nontypical cues ($M = 5.06$), it was perceived as less favorable than the narrative without cues ($M = 5.35, p < .05$). There was no significant difference between the typical cues condition ($M = 5.20$) and nontypical cues condition ($M = 5.06, p = .42$), or between the typical cues condition and no cues condition ($p = .45$). The interaction effect was significant, $F(2, 492) = 4.18, p < .05, \eta_p^2 = .02$ (Figure 4). Post-hoc comparisons based on estimated marginal means with the Sidak correction showed that when the narrative contained a typical character, the no cues condition ($M = 5.55$) led to more positive message evaluations than both typical cues ($M = 5.16, p < .05$) and nontypical cues conditions ($M = 4.95, p < .05$). When the narrative contained a nontypical character, this difference among cued typicality conditions was not observed.

![Figure 4. Interaction effects of character and cued typicality on message attitude.](image)
**Cognitive responses.** The analysis indicated no significant main effect of character typicality, $F(1, 492) = .50, p = .48$, or cued typicality on cognitive responses, $F(2, 492) = .52, p = .59$. There was no interaction effect between character and cued typicality on cognitive response, either, $F(2, 492) = .36, p = .70$. Therefore, H15 was not supported.

**Personal-level and societal-level perceived risk.** RQ 1 asks about the relationship between character typicality and personal-level and societal-level perceived risk. H16a proposes that typical cues will lead to higher perceived personal and societal risk than a narrative with nontypical cues and a narrative with no cues. However, the study found that there was no significant main effect of character typicality on either personal-level ($F(1, 492) = .55, p = .46$) or societal-level perceived risks ($F(1, 495) = .23, p = .63$). Cued typicality was associated with neither personal-level ($F(2, 492) = .46, p = .63$) nor societal-level perceived risks ($F(2, 492) = .29, p = .75$). The interaction effects of character typicality and cued typicality were also not significant for personal-level perceived risk ($F(2, 492) = .59, p = .55$) or societal-level perceived risks, $F(2, 492) = .41, p = .66$.

**Part III: Moderated Mediation and Indirect Effects**

Based on the ANCOVAs results, the study showed interaction effects of character typicality and cued typicality on transportation and identification. To better understand the effectiveness of character typicality and cued typicality, the study proposed a mediated moderation effect such that cued typicality would moderate the effects of character typicality on outcome variables through transportation and identification. The
theoretical moderated mediation model is statistically equivalent to a fourth-stage moderated mediation model (Hayes, 2013). Figure 5 presents the conceptual model that was proposed for this study. In order to examine the moderated mediation effects, PROCESS Model 8 (Hayes, 2013) was executed. The three-level independent variable, cued typicality, was dummy-coded into two dichotomous variables labeled Cues (0 = No cues, 1 = Nontypical and Typical cues) and Typicality_cues (0 = No cues and nontypical cues, 1 = Typical cues).

Figure 5. Conceptual model of the fourth-stage mediation model.

Table 4.1 and 4.2 show that character typicality had a significant effect on identification. The result indicated a significant, positive, conditional direct effect of character typicality on issue attitude when the messages had cues. There was a conditional indirect effect of character typicality on issue attitude through transportation when the message had no cues. The conditional indirect effect of character typicality on issue attitude at values of
cues through identification was not statistically significant. The moderated mediation effect via transportation was statistically significant.
Table 4.1: Moderated mediation on issue attitude (Cues)

**Transportation:** \( R^2 = .04, F (3, 497) = 6.46^{***}, p < .001 \)

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**Identification:** \( R^2 = .04, F (3, 497) = 7.75^{***}, p < .001 \)

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**Issue attitude:** \( R^2 = .04, F (5, 495) = 4.57^{***}, p < .001 \)

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### Conditional direct effect of Character typicality on Issue attitude at values of Cues:

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### Conditional indirect effects of Character typicality on Issue attitude at values of Cues:

**Mediator**

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### Moderated Mediation

**Mediator**

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<td>.05</td>
<td>-.13</td>
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Table 4.2: Moderated mediation on issue attitude (Typicality_cues)

Transportation: $R^2 = .01, F (3, 497) = 3.55, \ p = .33$

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<td>.09</td>
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<td>Typicality_cues</td>
<td>.33</td>
<td>1.57</td>
<td>.12</td>
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</table>

Identification: $R^2 = .07, F (3, 497) = 5.18, \ p = .48$

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<td>1.38</td>
<td>.17</td>
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</table>

Issue attitude: $R^2 = .06, F (5, 495) = 6.57^{***}, \ p < .001$

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<td>Typicality_cues</td>
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<td>&lt; .05</td>
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<td>Transportation</td>
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<td>1.90</td>
<td>.06</td>
</tr>
<tr>
<td>Identification</td>
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Conditional direct effect of Character typicality on Issue attitude at values of Typicality_cues:

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<th>$p$</th>
<th>LLCI</th>
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Conditional indirect effects of Character typicality on Issue attitude at values of Typicality_cues:

Mediator

<table>
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<th>Boot SE</th>
<th>BootLLCI</th>
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Mediator

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<td>-.05</td>
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Moderated Mediation

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<th>SE</th>
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<th>ULCI</th>
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<tbody>
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<td>.03</td>
<td>-.12</td>
</tr>
<tr>
<td>Identification</td>
<td>-.01</td>
<td>.02</td>
<td>-.07</td>
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The analyses suggested that when the narratives had no cues or had nontypical cues, character typicality had a direct effect on attitude toward sunscreen use. However,
neither transportation nor identification mediated the effects of character typicality at values of cued typicality. The mediated moderation did not examine the mediating effects of realism. As discussed in the literature review, realism was theorized to have a direct impact on transportation, identification, and emotional involvement. Moreover, perceived realism could have an indirect influence on message effectiveness through narrative engagement, including transportation, identification, and emotional involvement. Therefore, further analyses were conducted to examine the indirect effects of character typicality on transportation, identification, and emotional involvement through perceived realism.

Part IV: Mediation Analyses

The mediations of the character typicality effects on transportation, identification, and emotional involvement were first tested using PROCESS Model 4 (Hayes, 2013). The analyses showed significant indirect effects of character typicality on transportation (β = .17, SE = .05, 95% CI: .081-.275), identification (β = .16, SE = .05, 95% CI: .081-.255), and emotional involvement (β = .14, SE = .04, 95% CI: .066-.242) through perceived realism. H2, which proposes that perceived realism mediates the effects of character typicality on (a) transportation, (b) identification, and (c) emotional involvement, was supported.

The analyses tested the mediating roles of transportation, identification, and emotional involvement on the relationship between perceived realism and message effectiveness, including message attitude (H3a), issue attitude (H3b), and behavioral intention (H3c). As for message attitude, the analysis revealed significant indirect effects
for transportation ($\beta = .13, SE = .04, 95\% CI: .061–.213$) and emotional involvement ($\beta = .13, SE = .03, 95\% CI: .077–.195$), but not identification. H3a was supported for transportation and emotional involvement. Transportation, identification, and emotional involvement were not significant mediators for the effects of perceived realism on issue attitude, leaving H3b unsupported. As for intention to use sunscreen, analysis showed a significant indirect effect for emotional involvement: $\beta = .15, SE = .04, 95\% CI: .076–.228$. Transportation and identification were not significant mediators of the effects of perceived realism on behavioral intention. H3c was supported for emotional involvement.

To examine hypotheses H6, H8, H10, and H12, the mediations of the typicality effects on message effectiveness through perceived realism, transportation, identification, and emotional involvement, respectively, were tested using PROCESS Model 4 (Hayes, 2014). Perceived realism is a significant mediator of character typicality effects on message attitude (H6a): $\beta = .24, SE = .07, 95\% CI: .110–.375$; issue attitude (H6b): $\beta = .10, SE = .03, 95\% CI: .052–.164$; and behavioral intention (H6c): $\beta = .09, SE = .03, 95\% CI: .036–.164$. Transportation is not a significant mediator of character typicality effects on message attitude (H8a), issue attitude (H8b), or behavioral intention (H8c). Identification is not a significant mediator of character typicality effects on message attitude (H10a), issue attitude (H10b), or behavioral intention (H10c). Emotional involvement is not a significant mediator of character typicality effects on message attitude (H12a), issue attitude (H12b), or behavioral intention (H12c).

The analysis showed that message novelty is a significant mediator of the effects of character typicality on message attitude (H14a): $\beta = -.12, SE = .06, 95\% CI: -.226$ to -.226.
.004; and intention to use sunscreen (H14c): \( \beta = -0.06, SE = 0.03, 95\% CI: -0.120 \) to \(-0.008\).

The indirect effect of character typicality on issue attitude (H14b) through novelty was not significant, \( \beta = -0.01, SE = 0.01, 95\% CI: -0.031 \) to \(-0.001\). H14b was rejected.

The analyses revealed that neither personal-level nor societal-level perceived risk is a significant mediator of cued typicality effects on issue attitude. H16b was rejected. In order to answer RQ2, the mediation effects of character typicality on knowledge, attitude toward the message, attitude toward sunscreen use, and behavioral intention to use sunscreen through personal-level perceived risk were also analyzed. The results showed that personal-level perceived risk did not mediate the effects of character typicality on message effectiveness.

In addition, although transportation, identification, and emotional involvement did not mediate the effects of character typicality on message attitude, the analyses suggested a significant proportion of the effect of character typicality on attitude toward the message was formed indirectly through perceived realism, transportation, identification, and emotional involvement. The total indirect effect of character typicality on message attitude through perceived realism and transportation was significant (Figure 6.1), \( \beta = 0.21, SE = 0.08, 95\% CI: 0.062 \) to \(0.351\). Two pathways were statistically significant: character typicality \( \rightarrow \) perceived realism \( \rightarrow \) message attitude (\( \beta = 0.17, 95\% CI: 0.080 \) to \(0.272\)) and character typicality \( \rightarrow \) perceived realism \( \rightarrow \) transportation \( \rightarrow \) message attitude (\( \beta = 0.07, 95\% CI: 0.034 \) to \(0.117\)). The total indirect effect of character typicality on message attitude through perceived realism and identification was significant (Figure 6.2), \( \beta = 0.21, SE = 0.07, 95\% CI: 0.072 \) to \(0.357\). Two pathways were statistically significant: character typicality
→ perceived realism → message attitude (β = .19, 95% CI: .090–.299) and character typicality → perceived realism → identification → message attitude (β = .06, 95% CI: .026–.097). The total indirect effect of character typicality on message attitude through perceived realism and emotional involvement was also significant (Figure 6.3), β = .19, SE = .08, 95% CI: .046–.345. Two pathways were statistically significant: character typicality → perceived realism → message attitude (β = .19, 95% CI: .093–.299) and character typicality → perceived realism → emotional involvement → message attitude (β = .05, 95% CI: .025–.092). However, such effects were not found for issue attitude.

![Figure 6.1 Mediation model of character typicality effects on message attitude through perceived realism and transportation.](image1)

![Figure 6.2 Mediation model of character typicality effects on message attitude through perceived realism and identification.](image2)
Figure 6.3 Mediation model of character typicality effects on message attitude through perceived realism and emotional involvement.

For intention to use sunscreen, the total indirect effect of character typicality through perceived realism and transportation was significant (Figure 7.1 & 7.2), $\beta = .08$, $SE = .04$, 95% CI: .008–.157. Two pathways were statistically significant: character typicality $\rightarrow$ perceived realism $\rightarrow$ behavioral intention ($\beta = .06$, 95% CI: .016–.132) and character typicality $\rightarrow$ perceived realism $\rightarrow$ transportation $\rightarrow$ behavioral intention ($\beta = .03$, 95% CI: .012–.065). The total indirect effect of character typicality on intention to use sunscreen through perceived realism and identification was significant, $\beta = .08$, $SE = .04$, 95% CI: .016–.162. One pathway was statistically significant: character typicality $\rightarrow$ perceived realism $\rightarrow$ behavioral intention ($\beta = .07$, 95% CI: .021–.152). The total indirect effect of character typicality on behavioral intention through perceived realism and emotional involvement was not significant.
Supplemental analyses

To better understand how covariates, likability of the character and issue involvement, may influence the outcome variables, additional analyses were conducted.

Likability of the character

A two-way ANOVA test was conducted to examine the relationship between character and cued typicality and perceptions of character likability. The analysis showed no significant main effect of character typicality, $F (1, 495) = 1.04, p = .31, \eta_p^2 = .00$. No significant main effect of cued typicality was found, $F (2, 495) = 1.89, p = .151, \eta_p^2 = .01$. The interaction effect was also not significant, $F (2, 495) = .19, p = .83, \eta_p^2 = .00$. 

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* $p < .05$, ** $p < .01$, *** $p < .001$
The results showed that neither character typicality nor cued typicality affected likability of the character.

Likability of the character is positively associated with message attitude, \( r (499) = .47, p < .001 \), attitude toward sunscreen use, \( r (499) = .16, p < .001 \), and behavioral intention to use sunscreen, \( r (499) = .23, p < .001 \).

**Issue involvement**

Issue involvement was recoded as a dichotomized variable with two values: low involvement vs. high involvement. A series of independent t-tests were conducted. The analyses showed that issue involvement had a significant impact on transportation (\( t(498) = -2.91, p < .01 \)), identification (\( t(498) = -3.14, p < .01 \)), and emotional involvement (\( t(474) = -3.12, p < .01 \)). Individuals with high issue involvement had more transportation (\( M = 4.96 \) vs. \( 4.67 \)), identification (\( M = 4.76 \) vs. \( 4.51 \)), and emotional involvement (\( M = 4.61 \) vs. \( 4.26 \)) than individuals with low issue involvement.

Two three-way ANOVAs were conducted with character typicality, cued typicality, and issue involvement as independent variables, and message effectiveness as the dependent variables. The analysis showed the main effects of character typicality, \( F (1, 488) = 10.26, p < .01, \eta^2_p = .02 \); cued typicality, \( F (2, 488) = 4.73, p < .01, \eta^2_p = .02 \); and issue involvement, \( F (1, 488) = 14.00, p < .001, \eta^2_p = .03 \). Typical character (\( M = 6.62 \)) led to more positive issue attitude than nontypical character (\( M = 6.38 \)). Post-hoc comparisons based on estimated marginal means with the Sidak correction showed that nontypical cues (\( M = 6.34 \)) led to less positive issue attitude than typical cues (\( M = 6.63, p < .01 \)) and no cues (\( M = 6.57, p < .05 \)). High involvement (\( M = 4.40 \)) resulted in more
positive issue attitude among individuals than those who experienced low involvement ($M = 4.11$). A significant three-way interaction was found: $F (2, 488) = 4.16, p < .05, \eta^2_p = .02$ (Figure 8 & Figure 9). When the character is not typical, for highly involved individuals, narratives with nontypical cues led to less positive issue attitude than the narrative with typical cues ($M = 6.18$ vs. $6.73, p < .01$) and no cues ($M = 6.18$ vs. $6.81, p < .01$).

![Figure 8](image)

Figure 8. For low involvement individuals, the effects of character and cued typicality on issue attitude.
Figure 9. For high involvement individuals, the effects of character and cued typicality on issue attitude.

As for behavioral intention toward sunscreen use, the analysis showed the main effects of issue involvement, \( F(1, 488) = 64.67, p < .001, \eta_p^2 = .12 \). High involvement (\( M = 5.13 \)) resulted in higher behavioral intention to use sunscreen than low involvement (\( M = 4.26 \)). The two-way interaction between cued typicality and issue involvement was significant \( F(2, 488) = 4.45, p < .05, \eta_p^2 = .02 \). Regardless of character typicality, when narratives contained typical cues, individuals with high issue involvement had higher behavioral intention toward sunscreen use than those with low issue involvement (\( M = 5.43 \) vs. 4.92, \( p < .01 \)). Similarly, when no typicality cues were provided, highly involved readers had higher behavioral intention than others (\( M = 5.67 \) vs. 5.15, \( p < .01 \)). These findings indicate that individuals with high issue involvement prefer typical cues or no cues more than individuals with low issue involvement do.

Further analyses were conducted to examine the relationship between perceived
typicality and message effectiveness. Regression analysis indicated that perceived
typicality was a significant positive predictor of attitude toward sunscreen use, $b = .11$, $t (499) = 2.39, p < .05$. Perceived typicality was a significant positive predictor of
behavioral intention toward sunscreen use, $b = .10$, $t (499) = 2.27, p < .05$. It can be
concluded that perceived typicality, , affects narrative outcomes more strongly than
likability of the character.

Lastly, to better understand how people perceive the skin cancer risks of different
demographic groups, the study further looked into the risk assessment of individuals in
15 different groups. Groups included people under 20 years old, people who are aged 21–
30, people who are aged 31 to 40, and people who are older than 40; Caucasian, African
American/Black, Asian/Pacific islander, Hispanic/Latino, Native American; male,
female’ people who do not use sunscreen, people who wear long sleeves but no
sunscreen, people who are health-conscious, and people who are concerned about their
appearances. Based on the Mahalanobis distance, 19 outliers were excluded from the
MANOVA test. The MANOVA results showed a significant effect for character
typicality, Wilks’ $\Lambda = 2.81, F (15, 461) = 2.81, p < .001, \eta^2_p = .08$. Character typicality
had a main effect on risk assessments of people who were health conscious. Narrative
with a typical character ($M = 3.47$) led to lower risk assessment of health-conscious
individuals than a nontypical character ($M = 3.99, p < .001$).

Cues affected people’s risk perceptions of others as well. For people who are 31
to 40 years old, nontypical cues ($M = 4.44$) led to less risk assessment than messages with
no cues ($M = 4.81, p < .01$). For those who are older than 40, nontypical ($M = 5.01$) had
less risk assessment than no cues ($M = 5.38, p < .05$). Messages with nontypical cues ($M = 4.61$) resulted in lower risk assessment of Native Americans than messages with no cues ($M = 4.75, p < .05$). Asians/Pacific Islanders were perceived as having higher risk of getting skin cancer in the next five years when people read the messages with typical cues ($M = 4.06$) than nontypical cues ($M = 3.67, p < .05$). Messages with no cues ($M = 4.21$) also led to higher risk assessment than messages with nontypical cues ($p < .01$).

**Summary of results**

The results showed that perceived realism was positively related to transportation, identification, emotional involvement, and personal-level and societal-level perceived risk, but realism was not associated with a cognitive response. H1 was partially supported. Perceived realism mediated the effects of character typicality on transportation, identification, and emotional involvement: H2 was supported. Transportation and identification mediated the effects of perceived realism on message attitude and intention to seek for information. H3a and H3d were partially supported. Transportation, identification, and emotional involvement did not mediate the effects of perceived realism on attitude toward sunscreen use, rejecting H3b. Emotional involvement mediated the effects of perceived realism on intention to use sunscreen. H3c was partially supported.

A narrative with a typical character led to more positive attitude toward sunscreen use than a narrative with a nontypical character. H4c was thus supported. However, character typicality did not have a significant impact on knowledge, message attitude, or intention to sue sunscreen. Therefore, H4a, H4b, and H4d were not supported. The
portrayal of a typical character led to higher perceived realism than a nontypical character. H5 was supported. Perceived realism was a significant mediator of the effects of character typicality on message attitude, attitude toward sunscreen use, and intention to use sunscreen. H6a, H6b, and H6c were supported.

A narrative with a typical character did not lead to more transportation, identification, or emotional involvement than a narrative with a nontypical character. H7, H9, and H11 were thus rejected. In addition, transportation, identification, and emotional involvement did not mediate the effects of character typicality on message effectiveness, leaving H8, H10, and H12 rejected. The study found that a typical character in the narrative message led to less message novelty assessment than a nontypical character, and message novelty mediated the effects of character typicality on message attitude. H14a was supported, and H14b, H14c, and H14d were rejected. Character typicality was not found to have a significant impact on cognitive responses. H15 was rejected. Character typicality did not significantly influence personal-level and societal-level perceived risks either.

Cued typicality did not significantly affect perceived realism. Typical cues led to marginally significant higher perceived realism ratings than nontypical cues. Cued typicality did not significantly affect personal-level or societal-level perceived risks. H16a and H16b were rejected. When controlled for character likability and issue involvement, cued typicality did not significantly influence identification or emotional involvement. However, cued typicality had a significant impact on issue attitude. Specifically, typical cues led to more positive attitude toward sunscreen use than
nontypical cues. As for message attitude, narratives with no cues led to more positive message evaluation than narratives with nontypical cues. Cued typicality did not have a significant impact on transportation, cognitive responses, knowledge, or behavioral intention.

There were significant interaction effects between character typicality and cued typicality on transportation, identification, and message evaluation. Particularly, when the narrative contains a typical character, the narrative with no cues resulted in the highest level of transportation, followed by typical cues and nontypical cues conditions. A similar pattern occurred for identification. When the message character is typical, no cues messages elicited more identification than those with either typical cues or nontypical cues. Lastly, when the character is typical, no cues messages were evaluated as much more positive than narratives with typical cues and nontypical cues. When the character is not typical, messages with no cues and messages with typical or nontypical cues did lead to significantly different message attitudes.

Additional analyses showed that perceived typicality of the character had impacts on issue attitude and behavioral intention. The manipulations of character and cued typicality did affect people’s perceptions of the likability of the character. In addition, issue involvement was positively associated with narrative engagement, including transportation, identification, and emotional involvement. There was an interaction effects between character typicality, cued typicality and issue involvement. When the character is not typical, for highly involved individuals, narratives with nontypical cues led to less positive issue attitude than the narrative with typical cues. In addition, when
narratives contained typical cues, regardless of character typicality, individuals with high issue involvement had higher behavioral intention toward sunscreen use than those with low issue involvement. Also, when no typicality cues were provided, highly involved readers had higher behavioral intention than others.

The next chapter will provide interpretations of these results, the theoretical models tested, and their practical implications.
CHAPTER 4

DISCUSSION

The purpose of this study was to conceptualize narrative typicality and empirically test its effects and mechanisms. The majority of narrative research examining the role of narrative typicality in health interventions has focused on the relative persuasive impacts of the two evidence types—narratives and informational or statistical messages (e.g. Kim & Nan, 2016; Nan, et al., 2015; Shen, Sheer, & Li, 2015; Winterbottom, Bekker, Conner, & Mooney, 2008). Prior research suggests that narrative communications are intrinsically effective. Narratives can generate greater acceptance to the message viewpoints because they can reduce individuals’ ability to counterargue (Dal Cin, et al., 2004), facilitate information processing, knowledge acquisition, and content recall (Greene, Strange, & Brock, 2003), encourage social connections and healthcare participations (Kreuter, et al., 2007), and effectively shape messages to resonate with particular audiences (Freimuth & Quinn, 2004; Hopfer & Clippard, 2011). Several theoretical models have been proposed to explain the mechanisms of narrative effectiveness, including the Social Cognitive Theory (Bandura, 1986), the Extended Elaboration Likelihood Model (Slater & Rouner, 2002), and the Transportation Imagery Model (Green & Brock, 2000). Despite the accumulated knowledge about the contrast between narratives and statistics, the relative effects of different types of narrative remain underexplored.

Not all narratives are equal. Narratives vary in their capability to elicit narrative engagement based on their characteristics. The purpose of this study is to understand how
narratives regarding a particular health behavior shared by the target audiences may benefit health narrative messages so that they are more representative and meaningful. Typicality, as a narrative characteristic, is defined as the “estimation of the degree to which a narrative represents a commonly occurring event in the real world” (Cho et al., 2013, p. 322). If message receivers perceive people and events in the narrative as accurate representations of their real-world counterparts, the narrative should be considered as high in typicality. According to its conceptualization, narrative typicality can be manipulated in two ways. First of all, as a critical component to the narrative message, character can influence typicality judgment of the overall narrative. Individuals’ semantic knowledge, such as schema, can influence how a character is perceived and understood, thus influencing the perception of the narrative message. Character typicality is the degree to which the character’s personalities and behaviors are consistent with the readers (viewers’) assumptions (Ensari & Miller, 2002). Typicality judgment is not equated to stereotypical views. People’s knowledge about the characteristics associated with a particular health behavior can derive from both objective features that are commonly observed among members of a particular group and subjective construal of attributes of certain individuals. Secondly, narrative typicality was manipulated as contextual cues. Message recipients’ typicality perception and its outcomes can also be influenced by their episodic memory. If the narrative contains information that can prime viewers or readers to think about the typicality of the character and his or her story, their temporarily stimulated typicality perception can also influence the persuasiveness of narrative messages.
In health communication, the ability to improve the persuasiveness of narrative messages could make a real difference in the health of our nation. The health issue chosen here is skin cancer. Despite the serious threat to public health, skin cancer is a preventable disease, and when diagnosed early some cases are treatable. Melanoma, the most commonly diagnosed cancers among adolescents and young adult, is the deadliest form of skin cancer (Bleyer, Viny, & Barr, 2006). A great number of studies examined factors that influence individuals’ knowledge, attitudes, and behaviors in relation to tanning and skin protection (Cafri, Thompson, Jacobsen, & Hillhouse, 2009; Hillhouse, et al., 1997; Hillhouse, Stair, & Adler, 1996; Hillhouse & Turrisi, 2002; Jackson & Aiken, 2006; Wichstrøm, 1994). Research indicates that individual factors such as gender, age, preference for tanned skin, and participation in other risky or appearance-focused behaviors can impact tanning attitude and behavior among adolescents (Holman & Watson, 2013).

Among various social factors that have been identified by previous studies, the belief that a tan increases physical attractiveness is the one of the strongest predictors of UV exposure behaviors (Broadstock, et al., 1992; Cody & Lee, 1990). Although recent skin cancer prevention interventions that focus on changing the social norm for the value of a tanned appearance have produced positive outcomes (Cafri, Thompson, Roehrig, van den Berg, Jacobsen, & Stark, 2006), some studies suggested that overemphasizing the vanity motivation of sunscreen avoidance could have undesirable effects on individuals’ risk perceptions (Miller et al., 1990). A national survey showed that factors related to relaxation dependency could also motivate people to expose themselves to enough UV
radiation to cause sun damage (Buller, et al., 2011). Pagoto, McChargue, Schneider, and Cook (2004) found that for people who have high burn potential but do not value the appearance of a tan, messages that address the vanity motivation of tanning were counterproductive, since these individuals infer that only individuals who are concerned with their appearance are at risk for skin cancer. To decrease high-risk sun exposure and encourage sun protection behaviors, health messages should not focus on individuals’ desire to improve their physical appearance, exclusively. The present study also tested whether nontypical narratives could be more effective due to their novelty and the surprise factor.

**Narrative typicality and perceived realism**

To explore the effects of narrative typicality, the current study manipulated both character typicality and cued typicality. Perceptions of the character can greatly influence narrative effectiveness (Basil, 1996; Cohen, 2001; Dillard & Martin, 2013). If the protagonist is perceived as typical, his or her story may be considered high in typicality as well. In addition, when the narrative contains statements indicating the character and the story is typical, the typicality judgment of the entire narrative can be affected. The findings are in line with previous studies examining the relationship between perceived typicality and perceived realism (Cho et al., 2012, 2013). The present study showed that inclusion of a typical character in a narrative led to higher realism judgment of the narrative than a nontypical character. In addition, typical cues in the message elicited marginally significant higher perceived realism ratings than nontypical cues. There was no significant difference between typical cues and no cues conditions. Consistent with
previous studies (Cho et al., 2012, 2013), the current study suggests that typical character and typical cues are perceived as higher in perceived realism than nontypical character and nontypical cues.

In addition, character typicality had an indirect effect on message attitude and attitude toward sunscreen use through perceived realism. A nontypical character leads to greater realism perceptions, which in turn, can have stronger influence on message evaluations than a nontypical character. The finding extends existing literature on the effects of realism. As an engaging element of characters and stories, realism has been theorized to affect attitudes, beliefs, and behaviors through other mediators, such as transportation, identification, and social proliferation (e.g. Larkey & Hacht, 2010). The results suggest an indirect effect of character typicality on narrative outcomes, including message attitude, issue attitude, and behavioral intention through perceived realism. However, character typicality did not have a direct impact on behavioral intention to use sunscreen. It is possible that typicality as a characteristic of narratives can activate multilevel processes and effects. According to Cho and Friley (2015), for narratives that communicate risk information, typicality judgment is strongly associated with personal probability estimation. Although narratives that are perceived as high in typicality have an increase in message acceptance, researchers concluded that risk communication engages multiple additional goals, such as promoting risk reduction behavior and increasing accuracy in risk judgment (Cho & Friley, 2015).

Prior studies showed that as a complex issue, sunscreen use is influenced by various personal and societal factors. Hillhouse, et al., (1996) reported that the primary
reason for failure to use sunscreen is that individuals simply forget about it. Other barriers to sunscreen use include inconsistent use and incorrect use (Hillhouse, et al., 1997). Commitment to sunscreen requires the completion of a series of behaviors: “purchasing sunscreen, remembering to bring the sunscreen, remembering to apply the sunscreen, and applying the sunscreen correctly” (Hillhouse, et al., 1997, p. 374). When asked about their reflections of the messages that they have just read, a great number of participants consistently (as in this study) mentioned that using sunscreen is troublesome. Some of them also noted a concern that chemicals in sunscreen might be bad for their health. For instance, participants wrote that, “It’s a hassle to put on and I hate the feeling;” “Sunscreen is annoying to use, but important to use;” “Sunscreen makes my face breakout;” “Sunscreen is greasy;” “It is easy to forget to apply sunscreen everyday;” and “A lot of people don’t like to use sunscreen because of the chemicals’ effect after using it.” Therefore, although typical narratives can elicit positive attitude toward sunscreen use through realism, changing people’s behaviors calls for more comprehensive understanding of the potential barriers to sunscreen use. For instance, researchers suggested that perceived behavioral control could influence people’s intentions to engage in high-risk UV radiation behaviors (Hillhouse, et al., 1997; Hillhouse, Turrisi, & Kastner, 2000). In order to increase people’s intention to use sunscreen, narrative messages should use typical characters who can demonstrate the ease of using sunscreen and alternatives to protect oneself from UV radiations.

Narrative typicality and narrative engagement

The results showed that perceived realism was positively related to narrative
engagement, including transportation, identification, and emotional involvement. In addition, perceived realism mediated the effects of character typicality on these modes of engagement (transportation, identification, and emotional involvement). The findings suggest that typical characters tend to be perceived as realistic. In this case, audiences are more likely to be transported to the story, identify with the character, and emotionally invest in the message. Emotional involvement mediates the perceived realism effects on intention to use sunscreen. However, perceived realism does not influence attitude toward sunscreen use through transportation, identification, or emotional involvement.

The moderated mediation analyses show that when the narratives do not have typicality cues, character typicality has an indirect effect on attitude toward sunscreen use through transportation. When the narrative has no indication of the typicality of the story or the character, the results suggest that a typical character leads to more positive issue attitude through transportation than a nontypical character. In other words, character typicality effects are observed when typicality cues are not provided. When cues are present, participants disregard other typicality traits of the character. It is possible that when the message has a typical character and no cues, audiences will perceive the story as more natural, and are more likely to transport into the environment depicted in the story. These findings suggest that narratives may work more effectively when information about typicality of the character and story is not provided explicitly. The present study did not find that character typicality and cued typicality had an impact on attitude toward sunscreen use through identification. This suggests that even if the narrative is typical, it does not necessarily lead to more positive attitude toward the
promoted message through increased identification with the character. Identification may be more closely related to similarity and likability of the character in narrative messages than typicality (Cohen, 2001).

The study found interaction effects of character typicality and cued typicality on transportation and identification. When the message has a typical character, a narrative with no typicality cues stimulated higher transportation than a narrative with typical or nontypical cues. Similarly, when the narrative character is typical, participants in the no cues condition exhibited the highest level of identification compared with those in the typical cues and nontypical cues conditions. The findings suggest that narrative with typical character and no indication of the story or character typicality is more effective in generating transportation and identification. It is possible that when the character is consistent with audiences’ expectations, they are likely to engage with the storylines, and have a better understanding of the character.

Inclusion of a typical character increases message recipients’ transportation into the narrative. As shown previously, character typicality has an impact on intention to use sunscreen through perceived realism and transportation. Green (2004) proposed that perceived realism is an outcome of transportation, and the present study suggests that when the narratives are perceived as realistic, audiences are more likely to be transported into the stories. In other words, this study also proposes that transportation can be an outcome of perceived realism.

The study shows that identification and emotional involvement are not directly influenced by character typicality or cued typicality. Identification and emotional
involvement thus do not mediate the effects of character typicality on behavioral intention. As mediators of the effects of perceived realism on message effectiveness, transportation and emotional involvement mediate the effects of perceived realism on message attitude. Emotional involvement mediates the effects of perceived realism on behavioral intention. The findings of this study are not consistent with the MIP, which proposes that for children, identification is greatly influenced by the degree to which the message is perceived as realistic and/or desirable (Austin & Johnson, 1997; Austin & Knaus, 2000; Austin, et al., 1990). However, the processes of narrative consumption among children and adults are different. For adults, it is possible that identification is affected by other factors besides realism. For instance, Janz, Zimmerman, Wren, Israel, Freudenberg, and Carter (1996) found that similarity of the storytellers could influence the effectiveness of HIV-prevention programs. Approval of the character can also affect identification to and emotional involvement with the narratives (Slater & Rouner, 2002; Slater, Rouner, & Long, 2006). Therefore, in addition to character typicality, which can increase perceived realism of the story, narratives aiming to increase identification and emotional involvement should also consider other characteristics of the protagonist and the story.

**Narrative typicality and message novelty**

Typical narratives are beneficial because they elicit more perceived realism and transportation. Nontypical messages are can also be effective, since they result in increased perceived message novelty. The study found that the nontypical message was perceived as more novel than the typical message. In addition, message novelty was
found to be a significant mediator of the effects of character typicality on message attitude and intention to use sunscreen. As hypothesized, surprising messages can be rated positively. Although nontypical character did not lead to more positive attitude toward sunscreen use, it was shown to increase audiences’ intention to use sunscreen through novelty. People may perceive the risk of skin damage due to sunscreen avoidance more prevalent than they thought when they are exposed to messages with a nontypical character, which propels them to reflect on their own sunscreen use behaviors. Both realism and message novelty are significant mediators of character typicality effects on message attitude and behavioral intention. Such findings provide an explanation for why the main effects of character typicality on message attitude and behavioral intention were not observed. While typical character increased perceived realism, it might also be perceived as cliché and dull, and thus ineffective as a motivator. Nontypical character, on the other hand, can be perceived as unrealistic, yet effective because audiences might think that the narrative with a nontypical character is interesting and unanticipated. Both kinds of narratives are effective through different mechanisms.

**Narrative typicality and message effectiveness**

Neither character typicality nor cued typicality had significant impacts on knowledge or behavioral intention to use sunscreen. Character typicality had a significant impact on issue attitude. Participants who read the story with a typical character perceived using sunscreen as more beneficial and healthy than participants who read the narrative with a nontypical character. Typical cues yielded more positive attitude toward sunscreen use among participants than nontypical cues.
As for message attitude, narratives with nontypical cues were rated more negatively than narratives with no cues. The interaction effect was also found to be significant. When the narrative has a typical character, participants in the no cues condition rated the message more positively than those in the typical cues condition and nontypical cues condition. It can be inferred that for narrative messages, indicating the typicality of the story and character can be counterproductive. Cues may trigger people’s thoughts about the persuasive intent of the health messages, and thus result in negative evaluations of the messages.

The result did not show significant main effects of character typicality and cued typicality on cognitive responses. The study hypothesized that since typical narratives are in accordance with people’s schemas, they are more likely to be processed heuristically. Compared with nontypical narratives, typical character and cues should lead to more cognitive responses. However, the hypothesis was not supported. It is possible that since typical character generated more transportation and emotional involvement, participants invest much effort in processing the message. Therefore, both typical and nontypical narratives were processed systematically. It is also possible that although the nontypical narratives were perceived as unusual, they failed to attract audiences’ attention to scrutinize the quality of the arguments because the stories are interesting and novel. In this case, both kinds of narratives were processed heuristically.

Character and cued typicality did not affect personal-level and societal-level perceived risk either. Risk perceptions also did not mediate the effects of character or cued typicality on knowledge, issue attitude, or behavioral intention. Prior study
suggested that perceived social distance to an at-risk character could influence people’s own risk perception (So & Shen, 2015). Particularly, So and Shen (2015) found that perceived social distance between oneself and the at-risk character is influenced by the gap between perceived self- and character-risk. They conclude that in order to increase the convergence of risk of perceived self-and character-risk, narrative messages should aim to reduce the social distance through increased perceived self-risk, instead of through decreased perceived character-risk. Because of “optimistic bias,” the social distance between the audiences and the typical character can be large. Nontypical character may not be viewed as socially close to the audiences either, because they are perceived as altogether unrealistic. According to this rationale, both typical and nontypical characters are low in risk personalization. Although characters in the messages may be perceived as high in character-risk, such perception may not have strong impact on viewers’ own perceived risks. As for the perceived societal risk, some studies showed that self-efficacy, people’s perceived capability to enact or control the outcome of an event (Coleman, 1993), negatively affected by perceived societal-level risk (Coleman, 1993; Han, et al., 2014). In the present study, although both typical and nontypical narratives communicated the risk of sunscreen avoidance, they also emphasized the effectiveness of sunscreen in preventing skin cancer. In other words, if people perceive that the chances of having skin cancer can be significantly reduced by using sunscreen, they may not rate the risks of skin cancer as high as other uncontrollable diseases. Therefore, the role of efficacy in forming risk perception should be further examined.

Supplemental analyses showed that perceived typicality was associated with issue
attitude and behavioral intention, which provides stronger support for the argument that it was typicality, not other characteristics of the character, that affected narrative outcomes in this study. In addition, people who read the story with a typical character did not perceive the character as more likable than those who read the story with a nontypical character. This indicates that although a nontypical character may be perceived as unrealistic, audiences’ do not necessarily dislike the nontypical protagonist.

Issue involvement as an individual factor plays an important role in influencing people’s engagement in the narrative. Highly involved individuals exhibited more transportation, identification, and emotional involvement when reading the narrative messages. Highly involved audiences tended to have more positive attitude when the narratives have typical cues or no cues than nontypical cues when the character is not typical. Furthermore, highly involved audiences showed higher behavioral intention when narratives contained typical cues or no cues than audiences with low issue involvement. It is possible that both typical and nontypical characters’ stories are perceived as probable and real by highly involved audiences, since they have more exposure and high familiarity to the issue. Therefore, cues may amplify their perceptions. In this case, narratives containing typical cues or no cues can result in more positive persuasive outcomes than those containing nontypical cues. The effects of issue familiarity and relevance on message processing can be further explored in future research.

**Limitations**

This study intends to provide empirical support for the effectiveness and
mechanisms of typical narratives. Besides message effectiveness as discussed above, message authors should also measure stereotypical perceptions before and after the message presentation. Since the typical character is based on viewers’ schema, associated with their existing perceptions and knowledge about sunscreen use, stereotypes that we possess regarding the personality traits of groups of people (smokers, people with suntans, etc.) can be reinforced unintentionally. With this in mind, nontypical narratives, though perhaps not beneficial in terms of message effectiveness, can challenge and alter biased perceptions related to particular health behaviors. Further analyses should be conducted to understand the relationship between nontypical narratives and changes in stereotypical perceptions toward the character.

Secondly, the operationalization of narrative typicality in this study is limited. The present study manipulated narrative through character and contextual cues. Other narrative elements, such as plot, sequence, time and space, cultural references, should be examined to fully comprehend the effects of narrative typicality and its mechanisms. In addition, some scholars suggested that images and statistical graphs and figures vary in degrees of typicality (Lundell, et al., 2013). Typicality effects of narrative and statistical information should be examined to maximize message persuasiveness.

Lastly, the health intervention promoting sunscreen use was very brief, consisting of only a few paragraphs. Scholars suggested that these episodic traces had little effect on modifying people’s semantic knowledge, unless the novel stimuli are presented to the perceivers repeatedly (McClelland, et al., 1995). Therefore, if narratives with nontypical characters and cues are presented to audiences repeatedly, they may have greater impacts
on issue perceptions. Longitudinal studies should be conducted to understand the effects of nontypical or atypical narratives. In addition, many of today’s stories are often presented using visual images, especially for online or social media messages. As the use of visual images in storytelling can enhance the typicality effect, future study should examine the role of visual stimuli in the relationship between narrative typicality and narrative engagement as well message effectiveness.

Theoretical implications

The present study contributes to narrative persuasion literature. It suggests that typical character in a narrative leads to more perceived realism, more transportation, and more favorable issue attitude. With these findings, the present research extends the existing research by reporting on the nuances of narrative impact. Instead of comparing the effectiveness of narrative with statistical messages, the study identifies features that make certain narratives more persuasive than others. The study conceptualized and operationalized narrative typicality. It shows that character typicality affects attitude toward sunscreen use through perceived realism. Message novelty also mediates the effects of nontypical character on message attitude, but not issue attitude. In addition, the study suggests that when narrative messages do not have typicality cues, transportation mediates character typicality effects on issue attitude. Especially when the character is typical, people who read narratives with no cues are more likely to be transported into the story, identify with the character, and develop a positive evaluation of the message. Furthermore, the findings show the relationship between perceived realism and other well-established mediators of narrative effectiveness, including transportation,
identification, and emotional involvement. Specifically, this study reveals a number of theoretical implications, as I will discuss in the following paragraph.

First of all, perceived realism is the mechanism of how typical narrative influences attitude toward sunscreen use. Most prior studies on the role of narrative typicality have not empirically manipulated typicality and examined its contribution to message effectiveness. In addition, although the importance of perceived realism of television content and movies has been recognized (e.g. Bilanzic & Busselle, 2011; Hall & Bracken, 2011; Pouliot & Cowen, 2007), the effects of perceived realism of health messages on attitudes, beliefs, and behavioral intentions have not been fully explored. The present study suggests that perceived realism mediates character typicality effect on transportation, identification, and emotional involvement. It also shows a link between character typicality, perceived realism, transportation, and intention to use sunscreen. For health interventions, typical narratives are effective in large part because they are high in perceived realism. The relationship between perceived realism and other mediating variables, such as self-efficacy and perceived social distance to the narrative character, in different health promotion models should be further studied. In addition, besides typicality, other narrative qualities can influence realism judgment, which in turn, affects message outcomes. For instance, Hall (2003) proposes that as a multidimensional construct, perceived realism includes dimensions such as plausibility, typicality, factuality, narrative consistency, and perceptual quality. Future research should examine the unique contribution of each dimension to perceived realism judgment in order to have a better understanding of the relationship between narrative features and message
effectiveness.

Secondly, when the narrative had no cues, there was a positive conditional, indirect effect of character typicality on issue attitude through transportation. The relationship between narrative typicality and transportation is quite interesting. Narrative typicality can be achieved through implicit elements (character) and explicit content (cues). However, typical cues in narrative messages are not as effectiveness as typical characters in generating positive outcomes. When the narrative does not have any typicality cues, it is more likely to lead to positive message evaluations. These messages with a typical character can also generate more transportation, identification, and message attitude than messages with typicality cues. Character typicality has positive effects on persuasive outcomes when cues are absent. When typicality cues are provided, people tend to disregard the typicality traits of the character, which has a negative impact on issue attitude. The results suggest that narratives with typicality cues can be counterproductive, especially when the character is typical. Such contextual cues may interfere with audiences’ narrative engagement and thus negatively impact message effectiveness. It is possible that audiences do not perceive typicality cues in the messages as heuristic cues. Instead, typicality cues tend to trigger audiences’ disengagement with the story and character.

The findings have implications on non-narrative message effectiveness as well. According to the Expectancy Violation Theory (EVT) (Burgoon, 1991; Burgoon & Jones, 1976; Burgoon & Hale, 1988), expectancy comprises “cognitive, affective, and conative components and include judgments of what behaviors are possible, feasible,
appropriate, and typical for a particular setting, purpose, and set of participants” (Siegal, & Burgoon, 2002, p. 169). According to Burgoon and Hale (1988), when violation of expectation occurs, people would experience increased arousal. Positive violation can lead to shift in attitudes, while negative violation can result in lack of movement. Based on their perception of the normative statistic, individuals either underestimate or overestimate the prevalence of certain norms or behaviors (Campo, Cameron, Brossard, & Frazer, 2004). In Campo et al.’s (2004) study, they assessed the violation in the percentage of students that participants thought that binge drinking is not cool. They propose that when the provided statistics indicate that more people than expected believed binge drinking is not cool, positive violation occurs. As a result, message receivers can be expected to change their attitudes and behaviors in accordance with the message. When the statistics in a message state that fewer people than expected thought binge drinking is not cool, negative violation occurs. Therefore, people may exhibit no change, or a change in attitudes and behaviors that are inconsistent with the message.

The EVT has not been examined in the narrative context. However, according to previous research findings, health messages that are novel and incongruent with people’s expectations could elicit an orienting response. An orienting response would attract people’s attention to process the message and result in increased message effectiveness (Siegal & Burgoon, 2002). In this case, a message that triggers positive violations is more effective than a typical and expected message. The present study suggests that when people’s presumptions are violated, the narratives are perceived as novel. Novelty also affects message attitude and behavioral intention. The finding is consistent with EVT,
and it indicates the value of novel health messages. It is possible that when statistical messages violate audiences’ expectations positively, they may exhibit attitudinal or behavioral changes. Other social, environmental, and psychological factors that influence people’s expectations of a particular health behavior should be examined to better comprehend the effects of nontypical narratives.

**Practical implications**

The findings have important practical implications for narrative interventions. Narratives have been shown to be effective in various public health interventions. In narrative interventions, typicality of the message is effective in influencing people’s perceptions of the quality of the message and the severity of the issue discussed. It is worth noting that the more effective way for narrative typicality to work is through character typicality. For health practitioners intending to communicate a particular health or risk issue, understanding the existing knowledge and perceptions of the target audiences is critical in developing successful health narratives. For instance, Larkey and Hecht (2010) proposed a Model of Culture-Centric Narratives, which suggests that health promotion interventions designed for audiences from distinctive cultural backgrounds should incorporate cultural values through culturally adapted narratives. Culturally grounded narratives, which contain familiar characters, cultural events, and culturally resonant language, would be considered typical among members of that particular cultural group. Therefore, culture-centric narratives could have positive influences within the relevant community on attitude and belief through transportation and identification. Operationalization of narrative typicality can be diverse.
The study also suggests that people with high issue involvement are more likely to be influenced by cued typicality than character typicality. Regardless of character typicality, when narratives contained typical cues or no cues, individuals with high issue involvement had higher behavioral intention toward sunscreen use than those with low issue involvement. It is possible that individuals who are highly involved in the issue perceive both typical and nontypical characters as probable and real, since the audience may have more knowledge and exposure to discussions about sunscreen use. Highly involved audiences are more likely to be engaged in the narrative messages than audiences with low issue involvement, thus message with typical cues or no cues can amplify message effectiveness. It would be useful for health practitioners to keep in mind that contextual information may be more influential when communicating issues to individuals who are highly involved in the topic. Future research can test whether audiences with high issue involvement are more likely to be affected by statistical or contextual information than character features.

The current study also shed light on the mechanisms and effects of character and cued typicality. It indicates that having a typical character in the narrative is more likely to compel audiences to transport into the story and identify with the character, especially when the narrative does not have typicality cues. Providing cues may distract audiences from observing traits of the character, and therefore leads to less desirable outcomes. The study also shows the mediating role of perceived realism in the relationship between character typicality and attitude toward sunscreen use. If the health messages are perceived to be high in realism, they are more likely to generate positive issue attitude.
Typical narratives have limitations as well as benefits. The study did not measure stereotypical views toward the character among the participants. In some cases, although typical character can lead to more positive issue attitude, it may also lead to unwanted consequences such as negative associations with the individuals portrayed. Therefore, typical narrative may be better used to communicate unfamiliar health and risk issues among target audiences to amplify message effectiveness. Nontypical narratives, by violating people’s assumptions and expectations rather than reinforcing stereotypes, can be more effective in delivering issues that are well-known by the audiences to raise their awareness. People may perceive that the risk of sunscreen avoidance is more prevalent than they thought when exposed to messages with a nontypical character, which may propel them to reflect on their own sunscreen use behaviors. Because of their novelty, nontypical narratives have positive impacts on message attitude. However, favorable message evaluation does not necessarily directly link to positive issue attitude. Since novelty mediates the effects of nontypical narrative on behavioral intention to use sunscreen, narratives that intend to increase people’s awareness should consider using nontypical narratives. With repeated exposure, when there are not consistent and strong existing schema and perceptions associated with the health issue, nontypical narratives may be more powerful than typical narratives.

In conclusion, for health professionals, typical narratives can be effectiveness in generating higher behavioral intention toward the promoted issue through perceived realism. Nontypical narratives are beneficial to raise people awareness of the health issue because they contain novel arguments and cases. Future studies can further explore
various operationalization of narrative typicality, and compare the effectiveness of typical and nontypical narrative messages.
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APPENDIX A: STIMULI (FEMALE)

Typical character and typical cues

**Saving your skin with sunscreen: A common case**

More than one million people are diagnosed with skin cancer each year in the U.S. The most common form of skin cancer is basal cell carcinoma. Exposure to UV radiation is one of the leading causes of skin cancer. The main source of UV radiation is sunlight. When used as recommended, sunscreen has been shown to reduce the risk for all types of skin cancer and prevent or delay signs of aging.

Jordan Kohl is a typical skin cancer patient. She was diagnosed with the most lethal form of skin cancer, melanoma, at the age of 22.

Jordan has always been concerned with her physical appearance. To maintain a good physique, she does hiking, running, and rowing regularly. Jordan is a carefree person. Her friends say she is not afraid of taking risks, so she likes to try extreme sports whenever she can. Her friends, who are also risk-takers, join her when she goes surfing and snowboarding.

Jordan is the common type of person who would get skin cancer. Jordan spent a lot of time in the sun, applying sunscreen with a low sun protection factor (SPF) or not applying any sunscreen at all. While working as a lifeguard, she exposed her skin to the sun's rays for 40 hours each week, protected only by sunscreen with an SPF of 4 because she wanted to get a good tan. She also did not reapply sunscreen as recommended. She wanted to look tanned and healthy. But she was unaware of the negative effects of not applying a high SPF sunscreen. Though she knew that excessive UV exposure was bad for her health, she thought only older people could get skin cancer. She was confident that nothing bad would happen to her, because she was young and didn’t think she needed to worry about her health.

Jordan’s story exemplifies the experiences of most skin cancer patients. Early in 2015, Jordan found a strange mole on her arm, but she didn’t worry about it. When her mom noticed the mole, she asked Jordan to get it checked, but Jordan told her mom that it was just a freckle. She didn’t seem to understand or take it seriously. She thought this kind of mole appears all the time, and nothing ever happened.

It was not surprising when Jordan was taken to a dermatologist by her mom after Christmas and got her diagnosis: The mole was melanoma.

Jordan felt invincible: she was young and fit. Her everyday behavior makes her a typical victim of melanoma.

The conversation with her dermatologist was life altering. Jordan realized that her mortality was thrown in her face, and it was scary.

“I was flooded with panic, fear, and anxiety all at once. My world completely stopped,” she recalled. Her dermatologist explained she needed a swift and aggressive surgery, but if that went well she would require no other treatments. The surgery was very painful. About a week after the surgery Jordan got the news that all the tissue removed came back clear of melanoma. She instantly broke down and cried tears of relief. However, the cancer could still come back, a fear that haunts her every day.
Sun exposure sans sunscreen is a big risk factor for skin cancer. Simple measures can be effective to minimize the risk for skin cancer. First, avoid overexposure to UV rays from both natural and artificial sources. Second, use a broad-spectrum sunscreen with an SPF of 15 or greater to protect uncovered skin 15-30 minutes before going outdoors. The proper amount of sunscreen to fully cover a human body needs to fill the palm of one hand. You should also reapply every two hours.
Typical character and nontypical cues

Saving your skin with sunscreen: An uncommon case

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Jordan Kohl is not a typical skin cancer patient. She was diagnosed with the most lethal form of skin cancer, melanoma, at the age of 22.

Jordan has always been concerned with her physical appearance. To maintain a good physique, she does hiking, running, and rowing regularly. Jordan is a carefree person. Her friends say she is not afraid of taking risks, so she likes to try extreme sports whenever she can. Her friends, who are also risk-takers, join her when she goes surfing and snowboarding.

Jordan is not the common type of person who would get skin cancer. Jordan spent a lot of time in the sun, applying sunscreen with a low sun protection factor (SPF) or not applying any sunscreen at all. While working as a lifeguard, she exposed her skin to the sun's rays for 40 hours each week, protected only by sunscreen with a SPF of 4 because she wanted to get a good tan. She also did not reapply sunscreen as recommended. She wanted to look tanned and healthy. But she was unaware of the negative effects of not applying a high SPF sunscreen. Though she knew that excessive UV exposure was bad for her health, she thought only older people could get skin cancer. She was confident that nothing bad would happen to her, because she was young and didn’t think she needed to worry about her health.

Jordan’s story does not exemplify the experiences of most skin cancer patients. Early in 2015, Jordan found a strange mole on her arm, but she didn’t worry about it. When her mom noticed the mole, she asked Jordan to get it checked, but Jordan told her mom that it was just a freckle. She didn’t seem to understand or take it seriously. She thought this kind of mole appears all the time, and nothing ever happened.

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The conversation with her dermatologist was life altering. Jordan realized that her mortality was thrown in her face, and it was scary.

“I was flooded with panic, fear, and anxiety all at once. My world completely stopped,” she recalled. Her dermatologist explained she needed a swift and aggressive surgery, but if that went well she would require no other treatments. The surgery was very painful. About a week after the surgery Jordan got the news that all the tissue removed came back clear of melanoma. She instantly broke down and cried tears of relief. However, the cancer could still come back, a fear that haunts her every day.

Sun exposure sans sunscreen is a big risk factor for skin cancer. Simple measures can be effective to minimize the risk for skin cancer. First, avoid overexposure to UV rays from both natural and artificial sources. Second, use a broad-spectrum sunscreen with an SPF of 15 or greater to protect uncovered skin 15-30 minutes before going...
outdoors. The proper amount of sunscreen to fully cover a human body needs to fill the palm of one hand. You should also reapply every two hours.
Nontypical character and nontypical cues

Saving your skin with sunscreen: An uncommon case

More than one million people are diagnosed with skin cancer each year in the U.S. The most common form of skin cancer is basal cell carcinoma. Exposure to UV radiation is one of the leading causes of skin cancer. The main source of UV radiation is sunlight. When used as recommended, sunscreen has been shown to reduce the risk for all types of skin cancer and prevent or delay signs of aging.

Jordan Kohl is not a typical skin cancer patient. She was diagnosed with the most lethal form of skin cancer, melanoma, at the age of 22.

Jordan has always been health-conscious. Although she prefers indoor activities, she makes sure to go running to stay in shape. Her friends say she is an intelligent and down-to-earth person. She always does well in school, and she likes getting together with her friends and talking about politics and books. She is also interested in nutrition and health. She enjoys having friends over and making healthy meals for them.

Jordan is not the common type of person who would get skin cancer. Jordan wears long sleeves outside instead of using sunscreen or sometimes applies sunscreen only once and does not reapply because she doesn’t like putting chemicals on her body. She said she thought she wouldn’t need to apply sunscreen since she didn’t get burned easily. What she hadn’t realized, though, was that her habit of reading books in the sunroom put her at risk. She didn’t do it every day — perhaps for just two hours, three times a week. She enjoyed the warm sunshine on her skin and it soothed her mind. As health-conscious as Jordan was, it was hard to connect her habit with skin cancer.

Jordan’s story does not exemplify the experiences of most skin cancer patients. Jordan often monitors her health, and checks for moles at least twice a week — more than doctors recommend. Early in 2015, Jordan found a strange mole on her arm. She was scared that the mole was cancerous, so she took pictures of the mole regularly, and compared how much it grew. When she noticed that the mole got bigger and darker, she asked her mom to check it for her.

It was surprising when Jordan was taken to a dermatologist by her mom after Christmas and got her diagnosis: The mole was melanoma.

Jordan had felt invincible: she was careful and cautious. Her everyday behavior makes her an atypical victim of melanoma.

The conversation with her dermatologist was life altering. Jordan realized that her mortality was thrown in her face, and it was scary.

“I was flooded with panic, fear, and anxiety all at once. My world completely stopped,” she recalled. Her dermatologist explained she needed a swift and aggressive surgery, but if that went well she would require no other treatments. The surgery was very painful. About a week after the surgery Jordan got the news that all the tissue removed came back clear of melanoma. She instantly broke down and cried tears of relief. However, the cancer could still come back, a fear that haunts her every day.

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Nontypical character and typical cues

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Jordan has always been health-conscious. Although she prefers indoor activities, she makes sure to go running to stay in shape. Her friends say she is an intelligent and down-to-earth person. She always does well in school, and she likes getting together with her friends and talking about politics and books. She is also interested in nutrition and health. She enjoys having friends over and making healthy meals for them.

Jordan is the common type of person who would get skin cancer. Jordan wears long sleeves outside instead of using sunscreen or sometimes applies sunscreen only once and does not reapply because she doesn’t like putting chemicals on her body. She said she thought she wouldn’t need to apply sunscreen since she didn’t get burned easily. What she hadn’t realized, though, was that her habit of reading books in the sunroom put her at risk. She didn’t do it every day — perhaps for just two hours, three times a week. She enjoyed the warm sunshine on her skin and it soothed her mind. As health-conscious as Jordan was, it was hard to connect her habit with skin cancer.

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“I was flooded with panic, fear, and anxiety all at once. My world completely stopped,” she recalled. Her dermatologist explained she needed a swift and aggressive surgery, but if that went well she would require no other treatments. The surgery was very painful. About a week after the surgery Jordan got the news that all the tissue removed came back clear of melanoma. She instantly broke down and cried tears of relief. However, the cancer could still come back, a fear that haunts her every day.

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Nontypical character and no cues

Saving your skin with sunscreen

More than one million people are diagnosed with skin cancer each year in the U.S. The most common form of skin cancer is basal cell carcinoma. Exposure to UV radiation is one of the leading causes of skin cancer. The main source of UV radiation is sunlight. When used as recommended, sunscreen has been shown to reduce the risk for all types of skin cancer and prevent or delay signs of aging.

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outdoors. The proper amount of sunscreen to fully cover a human body needs to fill the palm of one hand. You should also reapply every two hours.
## APPENDIX B: CHARACTERISTICS OF TYPICAL AND NONTYPICAL CHARACTERS GENERATED IN PRETEST 1

<table>
<thead>
<tr>
<th>Typical characteristics</th>
<th>Number of mentions</th>
<th>nontypical characteristics</th>
<th>Number of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stupid/ignorant/oblivious</td>
<td>11</td>
<td>Healthy</td>
<td>4</td>
</tr>
<tr>
<td>Careless</td>
<td>10</td>
<td>Careful</td>
<td>4</td>
</tr>
<tr>
<td>Reckless</td>
<td>6</td>
<td>Conscious</td>
<td>3</td>
</tr>
<tr>
<td>Not healthy conscious</td>
<td>4</td>
<td>Responsible</td>
<td>2</td>
</tr>
<tr>
<td>Vein/superficial/look-orientated</td>
<td>4</td>
<td>Paranoid</td>
<td>2</td>
</tr>
<tr>
<td>Uninformed of sunray dangers</td>
<td>3</td>
<td>Educated/smart</td>
<td>2</td>
</tr>
<tr>
<td>Confident/Self-involved</td>
<td>2</td>
<td>Stay inside often</td>
<td>2</td>
</tr>
<tr>
<td>Absent minded/unaware</td>
<td>2</td>
<td>Protected</td>
<td>2</td>
</tr>
<tr>
<td>Those who believe nothing bad would happen to them</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX C: MEASURES

Please lists all thoughts and feelings you have when you think about the issue of sunscreen use and/or skin cancer. In the lines provided below, please write down the first thought/idea that comes to your mind in the first box, the second thought/idea in the second, etc. Please state your thoughts and ideas as concisely as possible—a phrase is sufficient. Ignore spelling, grammar, and punctuation. There are no right or wrong answers. You will have about 2 minutes to write up to 6 thoughts.

List your thoughts below, and indicate if each of your thought is negative or positive to the issue.

Indicate below if your thought is positive, negative or neutral to sunscreen use and/or skin cancer.

1st thought:  

2nd thought:  

3rd thought:  

4th thought:  

Please assess the person and events portrayed in the message you have read on the following scales.

1. The message showed something that could possibly happen in real life.
Please read the following statements and indicate how much you agree or disagree with each statement.

1. I could picture myself in the scene of the events described in the message.
   Not at all 1 2 3 4 5 6 7 Very much
2. I was mentally involved in the narrative while reading it.
   Not at all  1  2  3  4  5  6  7  Very much

3. I wanted to learn how the narrative ended.
   Not at all  1  2  3  4  5  6  7  Very much

4. The narrative affected me emotionally.
   Not at all  1  2  3  4  5  6  7  Very much

5. While reading the narrative I had a vivid image of Jordan.
   Not at all  1  2  3  4  5  6  7  Very much

6. While reading the narrative I had a vivid image of the story setting.
   Not at all  1  2  3  4  5  6  7  Very much

**Please read the following statements and indicate how much you agree or disagree with each statement.**

While reading the message about sunscreen use:
1. I could relate to Jordan in the message.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

2. I could relate to the event described in the message.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

3. While reading the message, I felt I could really get inside Jordan’s head.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

4. At key moments in the message, I felt I knew exactly what Jordan was going through.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

5. I was able to understand the events in the message in a way similar to the way Jordan understood them.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

6. I understood the reasons of Jordan’s actions.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

7. While reading the message, I could feel the emotions of Jordan.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

8. My understanding of Jordan is unclear.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

9. It was difficult to understand Jordan’s behaviors in the events portrayed.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

10. I could easily imagine myself in Jordan's situation.
    Strongly disagree  1  2  3  4  5  6  7  Strongly agree

**Please read the following statements and indicate how much you agree or disagree with each statement.**
1. The message had an effect on my emotions.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. The message made me emotional.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. While reading the article, when Jordan succeeded, I felt happy, and when Jordan suffered in some way, I felt sad
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. I was emotional while reading the message.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. I felt sorry for what happened to Jordan
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please read the following statements and indicate how much you agree or disagree with each statement.

1. How important is skin cancer to you? (1 = not at all important, 7 = very important)
   Not at all important 1 2 3 4 5 6 7 Very important

2. How worried you are about getting skin cancer sometime in the future? (1 = not at all worried, 7 = very worried).
   Not at all worried 1 2 3 4 5 6 7 Very worried

3. How likely it is that you personally would get skin cancer sometime in the future? (1 = very unlikely, 7 = very likely).
   Very unlikely 1 2 3 4 5 6 7 Very likely

4. How much risk do you personally feel from skin cancer? (1 = none at all, 7 = a great deal).
   None at all 1 2 3 4 5 6 7 A great deal

Please read the following statements and indicate how much you agree or disagree with each statement.

1. How important skin cancer is to students of your sex and age? (1 = not at all important, 7 = very important)
   Not at all important 1 2 3 4 5 6 7 Very important

2. How worried students of your sex and age are about getting skin cancer sometime in the future? (1 = not at all worried, 7 = very worried)
   Not at all worried 1 2 3 4 5 6 7 Very worried

3. How likely is it that students of your sex and age would get skin cancer sometime in
the future? (1 = very unlikely, 7 = very likely)

Very unlikely 1 2 3 4 5 6 7  Very likely

4. How much do students of your sex and age think skin cancer is risky? (1 = none at all, 7 = a great deal)

None at all 1 2 3 4 5 6 7  A great deal

Please assess the issue discussed in the message have read on the following scales.
Using sunscreen protection is:

bad 1 2 3 4 5 6 7 good
unhealthy 1 2 3 4 5 6 7 healthy
harmful 1 2 3 4 5 6 7 beneficial

Please assess the article you have read on the following scales.
The article you have just read is:

not credible 1 2 3 4 5 6 7 very credible
not believable 1 2 3 4 5 6 7 very believable
not clear 1 2 3 4 5 6 7 very clear
not truthful 1 2 3 4 5 6 7 very truthful
not convincing 1 2 3 4 5 6 7 very convincing
not compelling 1 2 3 4 5 6 7 very compelling
not informative 1 2 3 4 5 6 7 very informative
difficult to understand 1 2 3 4 5 6 7 easy to understand
not interesting 1 2 3 4 5 6 7 very interesting

Please indicate your opinions for the following statements.

1. I intend to use high factor protection sun-screen when I am in the sun for a long time.
   definitely do not 1 2 3 4 5 6 7  definitely do

2. I plan to use high factor protection sun-screen when I go outside.
   definitely do not 1 2 3 4 5 6 7  definitely do

3. I will apply sunscreen 30 min before I go outside.
   definitely do not 1 2 3 4 5 6 7  definitely do

4. I intend to reapply sunscreen lotion when out in the sun all day.
   definitely do not 1 2 3 4 5 6 7  definitely do
Please read the following statements and indicate how much you agree or disagree with each statement.

1. This message is original.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. This message is different from my expectations of sun-protection messages.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. This message is memorable.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. This message is interesting.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. This message is different.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Now, we want to get your opinions on skin cancer based on your general knowledge.

Please indicate how likely are people in these groups to be diagnosed with skin cancer in the next 5 years (1 - not likely at all, 7 extremely likely)

People under 20
People who are 21-30
People who are 31-40
People who are above 40
Caucasian
African Americans/Black
Asians/Pacific Islander
Hispanic/Latino
Native American
Male
Female
People who do not use sunscreen
People who wear long sleeves but not sunscreen
People who are health-conscious

1. The main source of UV radiation is? (Sunlight) (tanning bed, cellphone, X-ray)
2. What is the recommended amount of time that individuals should apply sunscreen before going outdoors? (15-30 minutes) (1-4 minutes, 5-8 minutes, 9-13 minutes)
3. How often should individuals reapply sunscreen? (Every 2 hours) (Every 10 hours, Every 5 hours, twice a day)
4. Skin cancer is essentially a problem of older people (No) (True or false)
5. The proper amount of sunscreen to fully cover a human body would be equivalent to?
(The amount needed to fill the palm of one hand)
(The amount needed to fill the palm of two hands, 2 ounces, 0.5 ounces)

Finally, here are some background questions.

1. What is your age? __________ (← write here)

2. Please circle your gender.
   1. Male  2. Female

3. What is your class standing?
   Freshman  Sophomore  Junior  Senior  Graduate Student

4. How much attention have you paid to news on risks of tanning?
No attention at all  1  2  3  4  5  6  7  A lot of attention

5. How often have you read news about risks of tanning?
Never  Rarely  Sometimes  Often  Always

6. How often have you watched news about risks of tanning?
Never  Rarely  Sometimes  Often  Always

7. Please indicate which of the following category best describes your family’s household income before taxes:
   Less than $20,001 $30,001 $45,001 $60,001 $80,001 more than
   $20,000 $30,000 $45,000 $60,000 $80,000 $100,000 $100,000

8. What racial or ethnic group best describes you?
   Asian  Black  White  Hispanic or Latino  Native American  Others

9. Are you an international student?
   No  Yes
Curriculum Vitae

Jiangxue (Ashley) Han

Address: P.O. Box 2023, Boone, NC 28607
Email: juh256@psu.edu

Education

Ph.D. in Mass Communications, Penn State University, 2016
M.S. in Journalism, Ohio University
B.A. in Journalism & Communication and Philosophy, Renmin University of China

Professional Experience

2012 – 2013
Research Lab Coordinator, The Media Effects Research Lab, Penn State University

2009 – 2011
Research Lab Coordinator, ViDS Effects Lab, Ohio University

Sample Journal Articles

Shen, F., & Han, J. (2015). Doing news framing analysis II (Book chapter). In P. D’Angelo (Eds.), News narrative and framing (under review).

Sample Referred Conference Papers & Presentations

Li, Ruobing & Han, J. (2016). Improving the effectiveness of prosocial messages: The impact of narrative on intention to donate to Syrian refugee. Paper accepted by 66th annual meeting of the International Communication Association, Fukuoka, Japan.

Classes Taught

Independently taught the following classes
Spring 2016 COMM 428D: Research & Analytics (Online)
Fall 2015 COMM 410: International Mass Communications (Online)
Spring/Fall 2014
/Fall 2013 COMM 304: Mass Communication Research

Awards & Funding

2016 Graduate Travel Grant, University Office of Global Programs, Penn State University

2009 – 2011 Graham Fellowship, Penn State University