THE ROLE OF MOTIVATION AFFECTING THE INFLUENCE OF
NARRATIVES AND EXEMPLIFICATION IN HEALTH MESSAGES

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ABSTRACT

Health messages are designed to get people’s attention and persuade them to adopt recommended health behaviors. In recent years, scholars have demonstrated that narratives and exemplars in health-promoting messages are more persuasive than factual information. However, additional research is needed in order to understand the effects and mechanisms underlying the persuasive impact of narratives and exemplars. The current study aims to compare the effects of narratives, exemplars, and factual information to understand their unique impact on persuasion. In addition, it will explore the moderating role of motivation. To do that, a 3 (narrative vs. exemplar vs. non-narrative information) × 2 (low motivation vs. high motivation) between-subjects experiment was conducted to test if motivation influenced the persuasive effects of these three types of health messages. The results showed that narratives generate significantly more perceived persuasiveness than exemplification. No significant difference was found in attitude or behavioral intention between narratives and exemplification. Mediation tests indicated that transportation mediated the effect of the message on persuasion. Although motivation did not influence the effect of the message, there was a significant motivation × gender interaction. Finally, the implications and limitations of the current study are discussed.
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INTRODUCTION

Health-promoting programs rely on the use of strategic messages to engage the public and gain compliance with health objectives (Hinyard & Kreuter, 2013). In previous health communication research, a large number of studies examined how and why different types of health messages persuaded message receivers to adopt advocated behaviors. In recent years, more and more scholars started paying attention to narratives, another form of persuasive messages. Narratives are the stories that people tell (Shen, Ahern, & Baker, 2013). Narratives are persuasive in communicating a variety of information because their intriguing plots and characters can touch people’s emotions and beliefs in a subtle yet powerful way (Dal Cin, Zanna, & Fong, 2004). Perhaps that is why narratives have already been frequently used in practice. The recent anti-smoking campaign by the CDC, for example, featured former smokers’ testimonials in a variety of media and platforms. By telling the smokers’ real-life stories, the messages’ creators hope to make the messages more vivid and easy to comprehend, and as a result, more likely to change people’s attitudes.

There is no doubt that narratives have garnered significant scholarly interest within the field of mass communication (McQueen & Kreuter, 2010). People can immerse themselves in a story by either identifying themselves with the protagonist in the story (Cohen, 2001), or by immersing themselves in the storyline (Green, Strange, & Brock, 2011). There is general agreement that narrative is a powerful tool that can persuade people and change their attitudes and even their behaviors.

Meanwhile, another line of research has examined the effects of exemplars in media messages. According to Zillmann, Gibson, Sundar, and Perkins (1996), an exemplar is a
representation of the core information in a message. Zillmann (2006) noted that exemplars in messages can also induce relatively strong feelings, such as empathy, and as a result can lead people to develop a more positive attitude toward the whole story in which they appear. Scholars found that health-related messages are also known for the frequent utilization of exemplars, because health advocates intend not just to give out information but also to impact the public’s behaviors in a more efficient way (Zillmann et al., 1996). In previous studies, scholars have found exemplars are especially effective because they can increase message vividness, facilitate character identification, and grab people’s attention. For example, Kim, Bigman, Leader, Lerman, and Cappella (2012) concluded that by adding vivid life to non-narrative information, exemplars can make information more realistic, interesting, and easier to comprehend. In addition, exemplars can elicit a greater emotional response, feelings of empathy, and liking of characters. Therefore, using an exemplar in addition to factual information will surely make such messages even more engaging, and thus more effective in persuading people.

As mentioned above, several studies have already provided ample evidence attesting to the connection between narrative engagement and persuasive outcomes (e.g., Dal Cin et al., 2004; Green & Brock, 2002; Mazzocco, Green, Sasota, & Jones, 2010; Slater & Rouner, 2002). It is generally agreed that the use of a plot and characters are central to narratives’ influence. According to Kreuter et al. (2010), narratives consist of three dimensions: plots, characters, and details. Among these elements, characters are often described in juxtaposition with storyline. Involvement with a character embraces various dimensions: character similarity, identification, and likability, just to name a few. Each dimension explains the unique features of exemplars and how the use of exemplars can have significant effects on persuasive outcomes. According to Slater and Rouner (2002), characters can be conceived as a fundamental message property in
narratives. And characters are particularly useful in facilitating people’s engagement in stories and changing their attitudes (Kim et al., 2012). Many scholars have also pointed out that plot is critical when it comes to persuasion effects. For instance, Hinyard and Kreuter (2007) reasoned that an exciting plot and a high-quality narrative could have a major impact on an individual’s engagement in a story. As a result, the readers/viewers will be more likely to generate a favorable attitude toward the message and be influenced by the message.

However, no previous research has compared the effects of character and plot in one study. Since narratives contain both plots and characters, and exemplification primarily relies on the use of characters or exemplars, comparing these two message types will allow us to see which message features are responsible for message effects. As such, the present study will examine their differences by contrasting narrative’s effects on messages using exemplars or non-narrative information. In doing so, this study will help us understand the extent to which plot or the use of characters is responsible for message effectiveness, and will also explore the psychological mechanisms underlying the processing of these different types of information.

Although storytelling has been consistently proved to have a profound impact on individuals’ opinions and attitudes, the boundaries of narrative effects have been under-explored in the research. Hinyard and Kreuter (2007) postulated that there are two ways of developing an understanding of the world. One is through logic and reasoning, while the other is through narratives. Neither way is necessarily more effective than the other. Instead of just comparing the effectiveness of the two methods in a given situation, it makes more sense to “consider for whom and under what circumstances each might be most effective and how and when they might be combined to achieve optimum effects” (p. 119). One such condition that is yet to be explored is the moderating role of motivation. Narratives engage individuals because they also reduce the
individuals’ motivation to counter-argue or carefully scrutinize messages. It is thus not known if the effects of narratives, exemplars, and non-narrative information will be different under conditions of high versus low motivation.

Traditional research examining the persuasive effects of messages has provided ample evidence that motivation can exert an important influence on the processing of new information (Petty & Cacioppo, 1986). Murphy, Holleran, Long, and Zeruth (2005) found that people with high levels of motivation are more likely to elaborate on messages and be engaged in more careful information processing. In these situations, motivation is a catalyst for persuasion. However, within the context of narratives, it is a different case. As Slater and Rouner (2002) indicated, narratives lead to transportation, which is cognitive and affective involvement in a story. When people are transported by a story, they will probably lose motivation to counter-argue the message contained in the story. This is because they do not treat the message as a threat to their free choice and they do not want to spare their cognitive capacity to counter-argue when they are fully immersed in the story. In this sense, it is reasonable to ask if narratives still have the same impacts on message recipients when motivation is manipulated. Therefore, the current study aims to examine how individuals’ motivation to process information moderates the effects of persuasive messages within the context of health communication. To be more specific, this study will manipulate people’s motivational levels when they are exposed to persuasive messages, and will investigate how motivational level affects the outcomes of persuasive messages.

To summarize, the main goal of this study is to examine how narratives, exemplification, and informational messages might affect persuasion as measured by changes in attitude and behavioral intention. In doing so, it will also explore the mediating mechanisms that account for
the messages’ persuasive impact. Moreover, the present study will contribute to the existing literature by examining the moderating role of motivation in affecting message processing. In the following sections, I will review the relevant literature that provides the theoretical foundation for the research questions and hypotheses. I will then discuss the current study’s research methods and present the results. Finally, limitations on the current study and future research will be discussed.
LITERATURE REVIEW

Narrative and Exemplification

Narratives are ubiquitous and we are influenced by stories that we hear consciously and unconsciously. A large body of research has already shown that narratives can induce strong emotions, impact people’s attitudes, and even influence behavior (see Dal Cin et al., 2004; Mazzocco et al., 2010). Thus, narratives are widely used in many areas to persuade people, such as advertising (Escalas & Stern, 2003), political campaigns (Elbaz-Luwisch, 1997), entertainment education (Moyer-Gusé, 2008), and health campaigns (Kreuter et al., 2010).

Scholars have defined narratives in different ways. Kreuter et al. (2010) defined narrative as a “representation” of certain information with three indispensable elements: 1) a sequence of some logically connected events, 2) a discernible character, and 3) an explicit or implicit message addressing the specific topic. Bruner and Austin (1986) suggested that narrative is related to “human or human-like intention and action and the vicissitudes and consequences that mark their course” (p. 13). Green and Brock (2000) referred to narrative as a story that brings up unsolved questions, conflicts, or crises, with characters in the story overcoming certain difficulties and the storyline explicitly encompassing an identifiable beginning, middle, and end. In addition, Green et al. (2011) highlighted the important role of suspense by saying that “suspense of some kind is the engine of narration.” (p. 16) In order to attract readers’ attention and absorb them, narratives consistently make readers wonder what will happen next. By synthesizing previous definitions, I conclude that narrative should consist of three parts: a character, a plot, and some detailed information that can trigger strong emotions and facilitate readers to comprehend the story and engage in the storyline.
Because of the unique features of narrative, narratives exert persuasive effects in a way different from traditional rhetorical information. First, according to Dal Cin et al. (2004), it is by overcoming resistance that narrative persuasion is especially effective in forming and changing people’s attitudes. The premise of the reactance theory (Brehm, 1966) is that human beings are born to act according to their free will. When people are told to do something, they probably will experience reactance due to the loss of behavioral possibilities. However, narratives can overcome such reactance by not explicitly expressing their intention to persuade (Dal Cin et al., 2004). In this sense, message recipients often do not treat these messages as a threat or limitation on their behavioral possibilities. Hence, narratives may not be vulnerable to selective exposure. More importantly, they may not trigger people’s logical consideration or even cause them to develop counter-arguing thoughts against persuasive messages.

Second, narratives can influence readers by putting them into a flow-like state wherein they are immersed, involved, and absorbed in the story; in other words, narratives can occupy all of an individual’s cognitive resources. Within this process, readers are transported away from the real physical world (Green & Brock, 2000). This psychological state is referred to as transportation. In order to understand and explore the process of narrative persuasion, a number of scholars rely on this concept of transportation. Gerrig (1993) suggested that when people enter a narrative world, all their mental systems and abilities are occupied by the characters and the storyline. In other words, they are “transported” on both a cognitive and an emotional level and they lose awareness of their surrounding environment. Gerrig posited that transportation is a convergent process that cannot be explained by traditional dual-process models, such as HSM and ELM.
Aside from transportation, there is another distinct aspect of narrative that has been repeatedly highlighted in the previous literature, which is involvement with characters. For instance, Kim et al. (2012) conceptualized narrative engagement as a complex, multi-dimensional construct that encompasses several psychological components embedded in a broad picture. Further, they posited that engagement with narratives entails two things: involvement with storylines and involvement with story characters. A similar assertion was also made by Moyer-Gusé in her 2008 paper using the context of entertainment education. She classified narrative engagement into two parts: the immersion of individuals within narrative content and the individuals’ loss of awareness of the actual world around them, and cognitive recognition and emotional bonding with characters, which is closely related to character identification.

The previous literature on narrative has also investigated the role of exemplification (Kim et al., 2012). In their study, Kim and his colleagues used an article named “From Smoking Boom, a Major Killer of Women,” which stated the statistics related to chronic obstructive pulmonary disease (C.O.P.D.), a lung disease that results from smoking. In addition, the article also described the personal story of Jean Rommes, a female smoker who suffered from C.O.P.D. Kim and his colleagues found that although the factual information contained in the article was sufficient to deliver knowledge to the audience, individuals showed greater narrative engagement when exposed to the message with an exemplar.

According to Zillmann et al. (1996), exemplars are judged by typicality instead of a quantified number. They defined an exemplar as a description of a specific case that incidentally happened within a certain social phenomenon, or an illustration that can represent and exhibit the essential properties of the topic that been addressed. The exemplar can be treated as a piece of evidence that facilitates the processing of informational messages. Thus far, scholars have
manipulated various components of narratives designed to persuade people, such as narrative qualities, the source of the story, and introductory descriptions. However, the extent to which exemplars can solely facilitate the process of transportation and impact attitudes has not been fully explored.

Kim et al. (2012) proposed two venues through which exemplars demonstrate their effectiveness. First, exemplars, along with their goals and experience, add life to tedious non-narrative information, thereby making information easier to comprehend and more interesting. Second, exemplars in health messages can draw more attention and elicit greater affective responses like feelings of empathy, thus increasing the level of engagement. Besides facilitating narrative engagement, exemplars alone can overcome resistance by increasing identification (Dal Cin et al., 2004). For instance, liking or identifying with a protagonist could limit an individual’s motivation and capacity to be critical toward a message; thus, the concept of engaging with a character is different from engaging with a story’s plot. Although these two concepts were often discussed together in previous research, they were rarely distinguished from each other. In order to fill the gap in the literature, the current study aims to compare these two essential aspects of narrative engagement. By doing so, we can gain a broader and clearer picture of which part of narrative is more important and how narrative works.

The previous literature suggested that identification with the character plays a vital part in influencing readers, and it has been consistently highlighted in the scholarship in the context of narratives. Additionally, plots with vivid details can also induce readers to enter the narrative world. Scholars have already studied the importance of both factors. For example, Slater and Rouner (2002) found that narratives rely on “identification with characters and engagement with the storyline to predict the effectiveness of the persuasive subtext” (p. 177). The quality of the
characters as well as that of narratives is considered to have a large influence on engagement in the narrative. However, studies comparing these two together are rare. Since narratives typically have both plots and characters, whereas exemplars contain characters, by comparing exemplars with narratives, the current study aims to answer the question of what specific feature of storytelling exerts more persuasion, character or plot.

**The Moderating Role of Motivation**

Motivation has been conceptualized in previous studies in diverse ways. Traditionally, research demonstrating persuasion theories suggested that people are often “accuracy motivated” (Todorov, Chaiken, & Henderson, 2002). This means that when people are processing messages, they want the message to be as accurate and informative as possible, so that they can make the right decision. However, Murphy et al. (2005) conceived of motivation as a construct consisting of three aspects: the need for cognition, topic interest, and topic interestingness. The study demonstrated that among these three motivational constructs, only the level of need for cognition influenced attitudes. Besides the aforementioned types of motivation, issue relevance and issue involvement were also deemed as people’s motivation to process persuasive messages (Kruglanski et al., 2006).

Motivation is deemed a critical factor that can influence methods of message processing (Petty & Cacioppo, 1986). In general, ELM posits that when message recipients have a low level of motivation or processing abilities, they are most likely to enter the peripheral route and process the message based on heuristic cues. However, when people are highly motivated and given enough resources to process the message, the possibility of engaging in central route processing is very high. In this mode, people tend to deliberately consider the quality of the
message and generate more thoughts (both positive and negative) regarding the message.

Todorov et al. (2002) discussed the role of motivation in the dual-process model. They posited that given enough time and ability, when a person’s “desired confidence” is higher than the person’s “actual confidence,” systematic processing will be elicited. They also noted that motivational factors such as personal relevance and accountability can generate more thoughts and put message recipients in the central route of processing by producing higher levels of an individual’s desired confidence to make judgments. Additionally, Maheswaran & Chaiken (1991) found that message elaboration could overcome or diminish the effect caused by heuristics when there is sufficient motivation. In their study, they motivated some of the participants to think more deeply when exposed to a description about a consumer product, and these participants ignored the consensus cue information and made their judgments relying completely on their cognitions with regard to the product’s attributes. Interestingly, in the article by O’Keefe (2002), he noted that the central and peripheral routes can lead to different persuasive outcomes. When compared to peripheral-route process, the central-route process can achieve more enduring persuasive effects. And the persuasive effects are more likely to resist future counter-persuasion and result in the alteration of subsequent behaviors. Previous research has provided ample evidence supporting the above statements. For instance, Murphy et al. (2005) conducted a study utilizing a social issue—legalizing doctor-assisted suicide for terminally ill patients—as context, while taking participants’ intrinsic motivation into account. They found that individuals’ needs for cognition, which is an important aspect of motivation, turns out to be a significant predictor of attitude change.

Several researchers have already explored the moderating role of motivation in the effects of persuasive messages. For example, Mackenzie & Spreng (1992) tested how motivation can
moderate message effect on brand attitudes and buying intentions. In their article, they suggested that although a number of studies lend support to the moderating effects of motivation, a careful examination of how motivation exerts influence is warranted. Their results indicated that motivation influenced the way people process the information and how it affected the determinants of attitude.

In the current study, we adopted Maheswaran and Sternthal (1990)’s definition of motivation because it is an effective way to control personal difference, thus giving us a more clear view of what role motivation plays in message processing. In their study, motivation was defined as the amount of attention turning toward or away from certain facts and arguments. We induced a low level of motivation by informing the participants that they were participating in a large-scale survey that was distributed nationwide and that a large number of universities and students were involved in the study. The participants were also told that the study was conducted without necessarily identifying their names, so their individual opinion would be used anonymously. On the other hand, they instructed their high-motivation counterparts by telling them they were selected and among a small group of people. They were also informed that their opinions were highly appreciated and may have an important impact on decision-makers, and they may even be contacted because of their opinions. The results of the study also revealed an interaction effect between the message’s quality and the level of motivation on people’s attitudinal changes.

Although the importance of motivation concerning persuasion has been demonstrated in the previous literature, it has not been studied in the context of narrative persuasion. Green and Brock (2000) and Slater and Rouner (2002) demonstrated that when people are absorbed into a narrative world on both an emotional and a cognitive level, their motivation and capacities
(cognitive resources) to generate counterarguments would be attenuated. And due to this lack of motivation to counter-argue against the message, the desire of being transported increases. In this situation, persuasion is most likely to take place. In other words, narratives are more subtle and less dogmatic than comparable rhetorical arguments; thereby, narratives cast little threat to message recipients. And because narratives are not usually treated as attempts to convince listeners, individuals are usually not motivated to think critically when exposed to persuasive messages. Accordingly, narratives should lower message recipients’ motivation to think carefully about the information they are processing. Does this imply that people with less motivation to elaborate will be more persuaded by narratives? Because narratives can reduce motivation level, does this mean that people who are highly motivated will not experience the persuasive effects of storytelling? To this researcher’s knowledge, questions like this have not been fully explored in communications research.

Based on the assumptions mentioned above, the present study tries to fill a gap in existing theories by examining the role of motivation in the context of narrative, and comparing its persuasive effects to those of non-narrative information. Although the concept has frequently been tested through the lens of ELM, I am interested in investigating its role within narrative scenarios.

Finally, according to previous studies, persuasion effects are represented by changes of attitude and behavioral intention. As such, the current study uses change of attitude and behavioral intention to indicate to which degree the participants are affected by a given message.

**Research Questions and Hypotheses**
Compared to non-narrative factual information, narrative is more persuasive because it can overcome resistance and counterarguments (Dal Cin et al., 2004; Green & Brock, 2002; Mazzocco et al., 2010; Slater & Rouner, 2002). Narrative works effectively by immersing people in its storyline and transporting them away from the physical world. The empirical evidence is quite robust. Scholars have demonstrated the effectiveness of narratives in health topics, advertising, political campaigns, and other areas. Since in previous studies, persuasion effect was typically measured by attitude change and behavioral intention (e.g., Green, 2006; Kreuter et al., 2010; Murphy et al., 2005), the current study uses message recipients’ attitudes and behavioral intentions to operationalize persuasion effects. Therefore, in the current study, I expect narratives will be more effective than non-narrative information in terms of changing individuals’ attitudes and behaviors. Formally stated:

H1a: Those who are exposed to narratives about the health issue will show a more positive attitude toward preventing and detecting the Hepatitis C virus than those who are exposed to control information.

H1b: Those who are exposed to narratives about the health issue will show a more positive behavioral intention toward preventing and detecting the Hepatitis C virus than those who are exposed to control information.

Studies have repeatedly demonstrated the influence of exemplars on intention to adopt healthy behavior, (e.g., Kim et al., 2012). Zillmann and Brosius (2000) suggested that there is no doubt that exemplars can exert certain effects on people’s perceptions about a message. As a piece of more vivid evidence, exemplars in health messages can aid in increasing narrative engagement, facilitating recipients’ involvement, and enhancing persuasive effect. In addition,
Zillmann (2000) demonstrated that messages containing exemplars will arouse greater attention. Additionally, identification with characters in the stories demands that readers forget about themselves and become a part of the story (Cohen, 2009). Accordingly, people will naturally build a connection with the character and thus be more easily convinced by the information delivered by the character. Based on the reasoning above, we conclude that messages containing an exemplar can enhance involvement with the character and lead people to form message-consistent beliefs and attitudes, and even alter their behaviors. This is the basis for the second hypothesis.

H2a: Those who are exposed to exemplars about the health issue will show a more positive attitude toward detecting and preventing the Hepatitis C virus than those who are exposed to control information.

H2b: Those who are exposed to exemplars about the health issue will show a more positive behavioral intention toward detecting and preventing the Hepatitis C virus than those exposed to control information.

Scholars in the past indicated that the psychological mechanisms underlying the effects of these two types of messages were different. For factual information, according to ELM (Petty & Cacioppo, 1986), elaboration is the mediator of the message effect on persuasion. However, as to narratives, it is through transportation that messages exert persuasive influence on their audience (Green & Brock, 2000). Based on previous research findings, this study concludes that narrative transportation will mediate the persuasion effect of narratives on people’s attitudes and behavioral intentions. Therefore:
H3a: Transportation will mediate the relationship between narratives and change in attitude toward detecting and preventing the Hepatitis C virus.

H3b: Transportation will mediate the relationship between narratives and change in behavioral intention toward detecting and preventing the Hepatitis C virus.

Furthermore, although studies that examine the persuasive power of narrative and exemplification, respectively, have been conducted a number of times in the past, previous communication research has not looked into the difference between narratives and exemplification. In order to answer the question of what role character plays in narratives, the current study tests the persuasion effects of narratives and exemplification by comparing them both to a control group (non-narrative information). Therefore, the main purpose of this study is to test whether using narratives can exert greater effects than using exemplars alone.

RQ1: Are narratives more persuasive than exemplars?

Last but not least, this study attempts to examine the moderating role of motivation. A great deal of research has revealed that motivation can moderate the impact of central and peripheral processing on attitude change and behavioral intention (e.g., Mackenzie & Spreng, 1992). Assumptions about the role of motivation are somewhat different when narratives are involved. Since narratives are designed to reduce people’s motivation to think about persuasive messages (Dal Cin et al., 2004), what will happen when high motivation is induced when individuals are exposed to narratives?

RQ2: Will motivation have an impact on the persuasion effects of narratives and control information?
METHOD

Overview

The study used a 3 (message type: control vs. exemplification vs. narratives) X 2 (motivation: high vs. low) between-subject experimental design. Participants were recruited via an e-mail request sent to an introductory-level course in College of Communications at the Pennsylvania State University. Participants were recruited voluntarily with extra credit as an incentive. The experiment was conducted online. Participants were presented with a link to a webpage containing the consent form and the stimulus message, as well as the post-test questionnaire.

Stimuli and Manipulations

In order to test the hypotheses and explore the research questions, I decided to focus on the issue of Hepatitis C for the following reasons. First, since participants are not likely familiar with the topic, they are not likely to have strong prior attitudes toward it. Second, participants are college students who are susceptible to the Hepatitis C virus. The stimulus article introduced some ways they can become infected by the virus: sharing razors, getting tattoos, and engaging in sexual behaviors. Students are likely to find this information relevant. The message variable consisted of three conditions: control information, exemplar, and narratives. The word count across the three conditions ranged from 317 to 339.

The current study adopted Baker and Shen’s (2011) manipulation of narrative condition. The story was written from a third-person perspective. It illustrated the main character, Jordan, and his story of getting Hepatitis C. In this condition, not only was the character mentioned, but there was also a detailed plot and a dramatic climax. By vividly introducing what Jordan
experienced, the material showed the readers that one can contract Hepatitis C by getting a tattoo, and they will face severe consequences if they are infected. The exemplar condition used basic information about Hepatitis C. In addition, it described Jordan’s personal experience very briefly. In this message, Jordan was referred to as “a 21-year-college student” and “one of the victims who got infected with the Hepatitis C virus.”

The control message also included basic information about Hepatitis C and a way to detect this disease early. The message used numbers and reasons to tell people that they are susceptible to the Hepatitis C virus. For example, the message states that “Hepatitis C is an infection caused by a virus that attacks the liver and leads to inflammation. Hepatitis C virus can be transmitted through any activities that allow infected blood to enter your body.” The message also provided the solution that should be taken in order to tackle such a problem.

In the current study, motivation is conceptualized and manipulated based on the study conducted by Maheswaran and Sternthal (1990). A low level of motivation was induced by informing the participants that they were participating in a large-scale survey that was distributed nationwide and that a large number of universities and students were involved in the study. The participants were also told that the study was conducted without necessarily identifying their names, so their individual opinions were going to be used anonymously. On the other hand, high motivation was induced by telling them they were selected and among a small group of people. They were also informed that their opinions were highly appreciated and may have an important impact on decision makers, and they might be asked to provide a short essay reflecting their thinking on the issue after the experiment.

Procedure
The study was conducted online. Students who were willing to participate in the study were given a link through email. After filling out the consent form, they were randomly assigned to one of the six conditions by the website. According to each condition, participants were exposed to instructions containing motivation manipulation and stimulus material. After reading the message associated with the condition about Hepatitis C, participants were asked to fill out a post-test questionnaire measuring dependent variables. Then all participants were thanked and debriefed.

**Participants**

A total of 253 students from three classes in the College of Communications at the Pennsylvania State University were recruited and took part in the between-subject experiment with six conditions. All of the participants received extra course credit for participating in the study. There were 154 females and 99 males, and gender was approximately balanced in each condition. Participants’ ages ranged from 18 to 25 ($M = 20.13$, $SD = 1.26$).

**Manipulation Check**

The manipulation check for message type is a 7-point semantic differential scale with two items. One asks if the message emphasizes facts/statistics or personal story, and the other asks if the message emphasizes research findings or personal experience (Cronbach’s $\alpha = .866$). The manipulation check for motivation utilized a 7-point semantic differential scale with three items (Cronbach’s $\alpha = .808$). Participants were asked to indicate on a scale ranging from very little to very much the degree to which they thought about, the time they used to think about, and the amount of attention they attached to the message (Shiv, Britton, & Payne, 2004).

**Dependent Variable Measurement**
Identification with character for the exemplification and narrative conditions was measured by asking participants to fill out a 5-item, 7-point Likert-scale ranging from “strongly disagree” to “strongly agree” (Cohen, 2001). The items were “While viewing the narrative, I could feel the emotions of Jordan,” “I was able to understand the event in the story in a manner similar to that in which Jordan understood it,” and so on (Cronbach’s α = .819).

Transportation was measured using the narrative transportation scale, which is an 8-item, 7-point scale ranging from 1, “strongly disagree,” to 7, “strongly agree” (Green & Brock, 2000). The scale contains three small sub-scales: the affective scale, such as “I was emotionally involved in the narrative,” the cognitive scale, such as “I was mentally involved in the message,” and the imagery scale, such as “I had a vivid mental image of the characters in the message” (Cronbach’s α = .671).

Attitude toward message was measured using a 7-point semantic differential scale with eight items. For example, the message is “Not at all/very persuasive” or “Not at all/very effective” (Cronbach’s α = .903).

Attitude toward the early detection of Hepatitis C was measured using a 7-point semantic differential scale with six items. The items included “Bad/Good,” “Harmful/Beneficial,” “Foolish/Wise,” and so on (Cronbach’s α = .959).

Behavior intention was measured by a 7-point, Likert-type scale ranging from 1, “strongly disagree,” to 7, “strongly agree.” There were three items, including “I intend to get more information about the Hepatitis C Virus,” “I will get a blood test to detect Hepatitis C if I am at risk,” and “I will tell people who I know about this information” (Cronbach’s α = .840).
In addition, participants’ demographic information, prior familiarity with the issue, and personal relevance of the issue were also measured as control variables. Specifically, personal relevance was measured with two items using a 7-point, Likert-type scale ranging from 1, “strongly disagree,” to 7, “strongly agree.” The items were “The reading material was personally relevant,” and “The events described in the message will have an impact on my life” (Cronbach’s \( \alpha = .756 \)). Prior familiarity with the issue was measured with two items. Participants were asked two yes-or-no questions, such as if “any of your friends or family members received a blood test to detect the Hepatitis C Virus” (Cronbach’s \( \alpha = .651 \)).
RESULTS

Manipulation Check

In order to check the effectiveness of my manipulation of message type, I examined whether participants perceived the message as a story or factual information in three conditions by conducting an ANOVA test. The results showed that the manipulation was successful, meaning there were significant difference between three conditions, $F(2, 250) = 78.724, p < .001, \eta_p^2 = 0.386$. Participants who were assigned to the narrative condition conceived the message more as a story ($M = 4.768, SD = 0.151$) than those who were assigned to the exemplar condition ($M = 3.887, SD = 0.147$). Similarly, participants who viewed the non-narrative message perceived the message as closer to scientific information ($M = 2.397, SD = 0.123$) than those who viewed the message with exemplars ($M = 3.887, SD = 0.147$) and narratives ($M = 4.768, SD = 0.151$).

A two-tailed t-test was conducted to compare the level of perceived motivation in order to determine whether the manipulation of motivation was effective. The results showed that there were significant differences between the low motivation condition and high motivation condition, $t(250) = -2.382, p = .018$. Therefore, the manipulation of motivation was also successful. The participants who were instructed to read the message with high motivation ($M = 4.23, SD = 1.14$) perceived that they put more time and effort into processing the information than those who were told to read the message with low motivation ($M = 3.86, SD = 1.32$).

Hypotheses test

H1a predicted that those who are exposed to narratives about the health issue would show a more positive attitude toward detecting and preventing the disease than those who are exposed to factual information. And H2a predicted that those who are exposed to exemplars about the
health issue would show a more positive attitude than those who are exposed to factual information. However, ANOVA analysis did not find a significant relationship between message type and individuals’ attitudes toward detecting the Hepatitis C virus, \( F(2, 250) = 1.306, p = .273, \eta_p^2 = 0.010 \). Post-hoc analyses using Tukey’s HSD also revealed there are no significant differences between narratives and factual information \( (p = .252) \), or between exemplars and factual information \( (p = .925) \). Therefore, H1a and H2a were not supported. A possible explanation could be the “ceiling effect,” which means most of the participants rated their attitude at or near the upper limit for potential responses. Because college students are very susceptible to the Hepatitis C virus and the disease has a highly negative outcome, the participants in the narrative condition \( (M = 6.28, SD = 1.19) \), in the exemplification condition \( (M = 6.06, SD = 1.18) \), and in the non-narrative condition \( (M = 6.00, SD = 1.25) \) all showed a very strong positive attitude toward detecting and preventing Hepatitis C, indicating they think it is beneficial and wise to do so.

Nevertheless, although there were no significant differences between participants’ attitudes toward the disease, the results revealed that as the message type varied, participants showed different attitudes toward the message, \( F(2, 250) = 4.684, p = .010, \eta_p^2 = 0.036 \). More specifically, post-hoc analyses using Tukey’s HSD revealed that participants in the narrative condition \( (M = 5.334, SD = 1.10) \) believed the message was more persuasive and convincing than participants in the exemplar condition \( (M = 4.918, SD = 0.94, p = .034) \) and participants in the non-narrative condition \( (M = 4.896, SD = 0.98, p = .013) \), while the participants in the latter two conditions did not differ significantly, \( p = .988 \). In light of these results, it can be concluded that adding plot and story in addition to characters and numbers can make a message more believable, and hence prompt individuals to develop a more favorable attitude.
H1b posited that those who are exposed to narratives about the health issue would show a stronger behavioral intention than those who are exposed to factual information. And H2b predicted that those who are exposed to exemplars about the health issue would be more likely to show behavioral intention than those who are exposed to factual information. In order to test H1b and H2b, an ANOVA test was performed, and the result is significant: $F(2, 250) = 3.34, p = .037, \eta^2_p = 0.026$. Participants in the narrative condition ($M = 4.25, SD = 1.44$) showed significantly more intention to detect the Hepatitis C virus than those in the non-narrative condition ($M = 3.745, SD = 1.53, p = .030$). Similarly, those in the exemplar condition ($M = 4.23, SD = 1.54$) also demonstrated a stronger intention than those in the control condition ($p = .033$). Therefore, H1b and H2b were supported. Consequently, we can conclude that when people are exposed to only statistics and factual information, they will be less likely to act in response to the message than when they are exposed to exemplars and stories.

Table 1 summarizes the mean and standard deviation scores associated with the dependent variables.

RQ1 asked whether narratives are more persuasive than exemplars. The results of one-way ANOVA showed that people in the narrative condition ($M = 5.334, SD = 1.10$) generated stronger perceived persuasiveness than those in the exemplar condition ($M = 4.918, SD = 0.94, F(2, 250) = 4.684, p = .010, \eta^2_p = 0.036$). More specifically, people in the narrative condition perceived the message as more compelling, believable, and convincing. However, no evidence showed narratives are more persuasive than exemplars in terms of participants’ attitudes toward detecting and preventing the disease, or their behavioral intentions.
H3a predicted that transportation would mediate the relationship between message and attitude toward detecting and preventing Hepatitis C. In order to test H3a, mediation analysis was conducted to examine the mediating role of transportation. In this analysis, dummy coding was used to code message conditions. Bootstrapping procedures using 2000 bootstrap samples and a 95% bias-corrected confidence interval were employed in this analysis. The result showed a significant indirect effect via transportation for the exemplar message ($\beta = .023, p = .039$) and a significant indirect effect via transportation for the narrative message ($\beta = .048, p = .008$). Therefore, H3a was supported. Because the direct effects of the message on attitude toward detecting Hepatitis C is not significant (Exemplar: $\beta = .003, p = .956$; Narrative: $\beta = .061, p = .405$), while the indirect effect through transportation is significant, it can be concluded that transportation perfectly mediated the relationship between message type and attitude toward detecting and preventing Hepatitis C. Figure 1 presents the standardized coefficients of the mediation test.

Place Figure 1 about here

H3b posited that the relationship between message and behavioral intention toward detecting and preventing Hepatitis C could also be mediated by transportation. In order to test H3b, the same analysis with bootstrapping procedures using 2000 bootstrap samples and a 95% bias-corrected confidence interval were performed. The results showed a significant indirect effect via transportation for the narrative message, $\beta = .121, p = .001$. However, no significant indirect effect via transportation was found for the exemplar message, $\beta = .058, p = .063$. Therefore, H3b was partially supported. Because the direct effects of message on behavioral intention toward detecting Hepatitis C is not significant for the narrative message ($\beta = .029, p$
= .625), while the indirect effect through transportation is significant, we could conclude that transportation also perfectly mediated the relationship between narrative message and behavioral intention toward detecting and preventing Hepatitis C. Figure 2 presents the standardized coefficients of the mediation test.

Place Figure 2 about here

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Based on the literature review, involvement with character, together with involvement with story, could mediate message effect on people’s attitudes and behavioral intentions (Green & Brock, 2000; Kim, et al., 2012; etc.). A plethora of previous research asserts that narrative engagement is a two-fold concept, including bonding with characters and immersion in storylines (e.g., Green & Brock, 2000). The two aspects of narrative together play a vital part in affecting message receivers. On the other hand, it has also been claimed that engaging with a character in a story can facilitate the process of transportation, and thus lead to a more positive attitude and behavioral intention (Moyer-Gusé, 2008). And as Van Laer, De Ruyter, Visconti, and Wetzel’s (2013) postulated, transportation is an experience of entering the narrative world and imagining the plot induced by a feeling of empathy for the narrative’s character. Therefore, it is also reasonable to postulate that identification is a prerequisite for transportation. Because of these two conflicting assertions, it is necessary to examine the underlying mechanisms of how narrative messages exert effects on message receivers. Figure 3 and Figure 4 demonstrate the two hypothesized models.
Data analysis using AMOS software determined that when comparing identification parallel to transportation, the model fit is not acceptable, $\chi^2 (5, N = 250) = 97.456, p < .001$, with fit indices of: Comparative Fit Index (CFI) = .604, Adjusted Goodness of Fit (AGFI) = .589, AIC = 129.456; and Root Mean Square of Approximation (RMSEA) = .271. In addition, identification had no significant effect on people’s attitudes and behavioral intentions. Figure 5 presents the standardized coefficients and significance of the first hypothesized model test.

However, the second proposed model fit the data well, $\chi^2 (8, N = 250) = 12.774, p = .120$, with fit indices of: Comparative Fit Index (CFI) = .980, Adjusted Goodness of Fit (AGFI) = .957; and Root Mean Square of Approximation (RMSEA) = .049. A model that fits the data well demonstrates a non-significant $\chi^2$, a CFI and AGFI rating above .90, and a RMSEA rating less than .06, (Craig, Igiel, Wright, Cuningham, & Ploeger, 2007). Most importantly, the AIC for this model (38.774) was much less than the AIC of the first model (118.508). Therefore, the second model is a much better fit overall than the first model. After looking at the modification indices, there was no path we could add to significantly improve the model. In addition, the indirect effect of narrative message on participants’ attitudes toward detecting the disease through
identification and transportation is significant, \( \beta = .026, p = .005 \). Similarly, the indirect effect of message on people’s behavioral intentions toward detecting the disease through identification and transportation is also significant, \( \beta = .061, p = .002 \). Putting all these together, it can be concluded that the second model is a good representation of the results. The model suggested that the state of being transported to a narrative world is a consequence of identification. Transportation is not parallel with identification; instead, it should be considered as a result of identification with a character. Figure 6 provides the standardized path coefficients and significance for the second hypothesized model test.

RQ2 asked whether motivation has an impact on the persuasion effects of health messages on people’s attitudes and behavioral intentions toward detecting and preventing Hepatitis C. In order to answer this question, a 2 × 2 factorial ANOVA was conducted with issue attitude as the dependent variable, and message type and motivation as the independent variables. However, analysis showed a non-significant main effect of message type on issue attitude, \( F(2, 247) = 1.22, p = .298, \eta_p^2 = 0.010 \). Additionally, no significant main effect of motivation was found, \( F(1,247) = 0.099, p = .754, \eta_p^2 = 0.000 \). There was also no significant two-way interaction between message type and motivation, \( F(2, 247) = 0.429, p = .652, \eta_p^2 = 0.003 \). In addition, another 2 × 2 factorial ANOVA was conducted with behavioral intention as the dependent variable, and message type and motivation as the independent variables. The results showed a significant main effect of message type on behavioral intention, \( F(2, 247) = 3.427, p \)
.034, \eta_p^2 = 0.027. A significant main effect of motivation was also found, \( F (1,247) = 5.261, p = 0.023, \eta_p^2 = 0.023 \). However, there was no significant two-way interaction between message type and motivation, \( F (2, 247) = 1.359, p = .259, \eta_p^2 = 0.011 \).

Since motivation has a main effect on behavioral intention, a two-tailed t-test was conducted to examine where the differences are. As a result, a significant difference between the low-motivation condition and the high-motivation condition was found, \( t (251) = -2.36, p = .019 \). Participants in the high-motivation condition (\( M = 4.26, SD = 1.48 \)) reported a stronger behavioral intention to detect and prevent the Hepatitis C virus compared to the low-motivation condition (\( M = 3.81, SD = 1.53 \)). Therefore, it can be concluded that when people are motivated to read a message more carefully, they will be more likely to take action in response to the message.

In addition, a significant interaction was found between transportation and motivation in people’s attitudes toward the issue, \( F (3, 249) = 5.024, p = .002 \). More specifically, in the condition with low motivation, transportation is not significantly related to attitude, \( b = 0.10, SE = 0.12, p = .39 \). On the contrary, in the condition with high motivation, the level of transportation significantly predicted attitudes toward detecting the Hepatitis C virus, \( b = 0.500, SE = 0.13, p < .001 \). However, the interaction between transportation and motivation in the participants’ behavioral intentions is not significant. To summarize, the results showed that motivation could moderate the effect of transportation on people’s behavioral intentions toward detecting and preventing the Hepatitis C virus. Specifically, in the low-motivation condition, transportation is not significantly related to participants’ attitudes toward detecting and preventing the Hepatitis C virus. However, in the high-motivation condition, when participants are highly transported by the
message, they will be more likely to think detecting and preventing Hepatitis C is wise and responsible. Figure 7 illustrates the interaction effects.

Additional analysis

Gender differences in narrative persuasion were also frequently discussed in extant research. Prior research indicated that women are more likely to be influenced by stories because of their inclination to express empathy toward characters in stories (Van Laer et al., 2013). They suggested that females tend to be involved in a higher level of narrative transportation compared to males, and thus they are more likely to behave accordingly in response to messages. Although their study supported that postulation and gender has been proved to be an important factor that should be taken into account when creating messages, research that considers gender and motivation together is rare in the literature on narrative. In order to examine the effect of gender and motivation, a 2 x 2 ANOVA analysis was conducted. The results showed a non-significant main effect of gender on behavioral intention, \( F(1, 249) = 2.156, p = .143, \eta^2_p = 0.009 \). However, there was a significant interaction effect between gender and motivation on behavioral intention, \( F(2, 249) = 6.093, p = .014, \eta^2_p = 0.024 \). Post-hoc comparisons based on estimated marginal means with the Sidak correction showed that males and females differed significantly when they were assigned to the high-motivation condition. Females \( (M = 4.60, SD = 1.35) \) demonstrated a stronger behavioral intention than males \( (M = 3.84, SD = 1.54) \). Nonetheless, in the low-
motivation condition, there was no such difference (female: $M = 3.74, SD = 1.47$; male: $M = 3.94, SD = 1.63$). Figure 8 illustrates the interaction effects.

Data analysis was also conducted to test whether motivation can moderate the effects of gender on attitude toward the message. Again, a significant interaction effect between gender and motivation was found, $F(1, 249) = 5.1, p = .025, \eta_p^2 = 0.020$. In the low-motivation condition, females ($M = 4.93, SD = 1.08$) rated the message as equally convincing as males did ($M = 5.03, SD = 0.88$). However, in the high-motivation condition, females ($M = 5.31, SD = 1.09$) demonstrated a significantly more favorable attitude toward the message than males ($M = 4.82, SD = 0.85$). Figure 9 illustrates the interaction effects.
**DISCUSSION**

As storytelling is more and more frequently utilized in health campaigns in the hope of persuading people effectively, there is strong interest in how narratives exert their effects and what makes them more effective. While engaging with characters will certainly facilitate the process of transportation, vivid details and plots can also promote involvement with a story. Therefore, the question of which element of narratives is more important, character or plot, warrants the researcher’s examination. Narratives typically have both plots and characters, whereas exemplars contain only characters. In addition, although narratives have repeatedly been shown to be more powerful than non-narratives, it would be interesting to explore whether there are exceptions. It will be important to explore whether the persuasion effects of narratives be moderated by other factors, such as motivation. The current study examined the relationship between message types (non-narrative vs. exemplar vs. narrative) and level of motivation (low vs. high) and their interaction effects on identification, transportation, attitude, and behavioral intention toward a health issue. This study utilized a 3 (Message: Control vs. Exemplar vs. Narrative) × 2 (Motivation: Low vs. High) experiment in which individuals were assigned to one of six conditions. Each condition contained a health message with different instructions for the participants to manipulate the message format as well as participants’ level of motivation.

The findings of this study lend support to our initial expectation that narratives will lead to higher levels of identification and transportation than the other two types of messages. In the experiment, individuals who were assigned to the narrative condition generally perceived the message in a way more similar to the main character, and rated a greater level of transportation. This finding is consistent with the literature concerning narratives and their influence on identification as well as transportation (e.g., Gerrig, 1993; Green & Brock, 2000; Moyer-Gusé, 2008).
However, the results showed that those who are exposed to narratives and exemplification did not show a more positive attitude toward detecting and preventing the Hepatitis C virus than those who are exposed to factual information. A possible reason for this could be that the three messages were all very powerful in terms of persuasion. Most of the participants rated a very high score for their attitude, which was almost at the upper limit in the response scale. In this case, even if narratives can lead to a greater attitude change, there is no significant difference within the given scale. Nonetheless, as hypothesized, the non-narrative message format resulted in less behavioral intention than the other two conditions. In concordance with the previous literature, when people are exposed to only statistics and factual information, they will be less likely to act in response to the message than if they are exposed to exemplars and stories.

The current study also explored whether narratives are more persuasive than exemplification. The results showed that when individuals are exposed to narratives they will show a significantly more favorable attitude toward the message, such that they will perceive the message as more convincing and persuasive. As demonstrated above, participants exposed to the narratives showed a higher level of identification and transportation. This means that when exposed to narratives, people more easily see and feel the event through the lens of the protagonist, which thus leads to greater involvement in the story. In this case, they will probably think less critically toward the message, and, not surprisingly, they will be more likely to perceive the message as more persuasive. However, no evidence showed narratives are more persuasive than exemplars in terms of people’s attitudes toward detecting and preventing the disease, or in terms of their behavioral intention. One possible reason for this could be that the stimulus was so strong that the participants in all three conditions showed a substantial change in
attitude as well as behavioral intention toward detecting the disease. Although there are differences among the conditions, they are not statistically significant. Another possible explanation could be that involvement with the character can facilitate narrative engagement whether there is a detailed plot or not. When it comes to people’s attitudes and behavioral intentions, vivid stories have no advantages compared to just exemplification. To a certain extent, the results revealed that stories are persuasive mainly because of the presence of their characters.

In addition, as hypothesized, transportation fully mediated the relationship between narratives and people’s attitudes, as well as their behavioral intentions. A great deal of support for this result was found in the previous literature. For instance, Gerrig (1993) suggested that when people are reading a story, their cognitive resources are completely occupied by the character and the storyline. In other words, they are transported into the narrative world of the story. During this process, their attitudes were influenced by the story even without their awareness. Green and Brock (2000) also ascertained that it is through transportation that messages can influence their audiences. The results of the current study are consistent with the findings in the previous literature.

Furthermore, though our final model suggested that transportation mediated the effects of narrative on people’s attitudes and behavioral intentions, there was also another significant mediator: identification. According to the model, not only is the indirect effect of message type on attitude through transportation significant, but the effect of message on transportation is also mediated by identification. In addition, past scholars indicated that identification could be elicited by transportation, meaning transportation is a prerequisite of identification. However, a model analysis revealed that putting transportation in front of identification did not fit our data well, $\chi^2 (8, N = 250) = 44.452$, $p < .001$, CFI = .844, AGFI = .862, AIC = 70.452, RMSEA
= .134. Considering these results together, the present study provides a clear framework of how narratives can be more effective in persuading people than non-narrative messages. When there is a discernable character in a message, the message recipients should identify with the characters in the story first. In this case, they are more likely to experience transportation, and as a result, their attitudes will be influenced by the information embedded in the narrative. Nonetheless, Tal-or and Cohen (2010) found that transportation can be viewed as a process distinct from and not necessarily related to identification. In their study, they created a story that could influence the degree of transportation but not the degree of identification. In this sense, transportation could be generated without identification.

A very interesting finding of the present study is that motivation moderated the relationship between transportation and attitude toward detecting and preventing Hepatitis C. According to the results, when people are in a low-motivation condition, transportation is not related to attitude toward the issue. On the other hand, when people are highly motivated, these two variables are positively related. Generally speaking, when individuals are highly involved in a story, they are more likely to generate attitudes that are in keeping with the message. However, this is only true in high-motivation conditions. One possible explanation for this is that the participants were relatively unfamiliar with the issue in the stimulus. They did not have much existing knowledge to doubt the truthfulness of the message. In the low-motivation condition, participants did not counter-argue against the message, regardless of whether they are transported. However, in the high-motivation condition, people who are not transported tried to counter-argue with the message and developed a less favorable attitude toward it.

Prior research has indicated that gender and motivation might influence the persuasion effect on people’s attitudes. In order to explore this possibility, I also examined whether there are
interactions between gender and motivation. The results indicated that there were significant interaction effects between gender and motivation on behavioral intention and attitude toward the message. The present study found that in the high-motivation condition, female students tended to have a more favorable attitude and stronger behavioral intentions. This finding is consistent with the findings in previous literature. Meece and Painter (2008) suggested that males and females will act differently to an extrinsic motivation. Females are found to be more sensitive and easily influenced by motivation. The current study utilized a male character for the exemplar condition as well as the narrative condition, which also provided a possible explanation for our results. Male participants are more likely to identify with the character regardless of their motivational levels. However, for female participants, they will only identify with the character and be influenced by the message when they are highly motivated. That is probably why females are more likely to be affected by motivation than males. Although gender differences have been frequently discussed with the concept of motivation, these two variables are rarely put together in the context of narrative persuasion.

The findings of the present study have both theoretical and practical implications. First, narrative messages transport readers into a health-related storyline by presenting a character that readers can identify with. Our results suggested that the use of exemplars plays an important role in enhancing readers’ engagement with messages. In order to optimize persuasive effects, creating a story with a vivid character should be the top priority when designing health messages. In addition, past research in narrative persuasion has made clear the difficulty of creating a story with both high quality and credibility (Kim et al., 2012). Exemplars are relatively easier to craft, and thus they should be easier to utilize in public health practice. Second, the current study showing gender difference in reacting to different levels of motivation suggested that in order to
best achieve communication goals, health practitioners should consider their targeted audience. They should motivate or not motivate the audience according to the targeted population.

**Limitations and Future Research**

This study replicated the findings of previous research in the context of a new health issue. It also explained various mechanisms that influence readers’ levels of transportation and changes in attitude and behavioral intention. Though the current study provides health communication practitioners advice on how to design health messages effectively, it does have some limitations.

One strange finding of this study is that there were no differences across the three message types in terms of attitude toward preventing and detecting the Hepatitis C virus. As mentioned above, this may be explained by the ceiling effect. However, the results did not show enough evidence to support the speculation. Therefore, designing stimuli that can avoid this kind of situation should be beneficial in future research. Furthermore, the current study showed that narratives are not more persuasive than exemplars in terms of attitude toward the issue or behavioral intention. Since narratives do not explicitly express their intention to persuade, they can exert their persuasive effect by overcoming resistance. However, in a laboratory setting, participants are aware of researchers’ purposes to persuade them to adopt a certain attitude and behavior. Therefore, future research should determine whether our results could be replicated in a non-laboratory setting.

Another limitation in this study concerns the manipulation of motivation. According to the manipulation check, participants in the high-motivation condition indicated that they devoted more effort to processing the message than those in the low-motivation condition. However, we
recorded the time participants took to read the message, and there was no significant difference between the low- and high-motivation conditions. That means that even though the instructions in the high-motivation condition cued the participants to put more effort into reading the message, they actually spent no more time reading the message than the participants in the low-motivation condition. Therefore, it is important to make sure that the participants in the high-motivation condition pay more attention to the message in future research.

Furthermore, the topic of the message used in this study is not controversial. In other words, it is not a topic that can easily generate counter-arguing. More importantly, the participants did not have much knowledge about the issue and they did not have a strong pre-existing attitude toward it. Therefore, they are less likely to think critically toward the message. Future research should consider using other topics that are more likely to generate both pro- and counter-arguments.

Lastly, we used the issue of Hepatitis C as the context of the current study, and the valence of the message we utilized is negative. For the sake of generalizability, in future research, a variety of issues should be used to test if the findings are valid in other situations. Moreover, we should also use positive messages to examine if the results can be replicated in a situation with a positive message valence.

In summary, the current study can lead to several interesting topics for future research. For example, future studies could measure people’s intrinsic motivation, like existing attitude and the need for cognition, instead of manipulating their extrinsic motivation. Also, this study only used negative information in the context of one health issue. Future research should employ more health issues, and more importantly, test the hypothesis using a positive message.
REFERENCES

Baker, M., & Shen, F. (August 2011). The Effect of Narrative Messages on Young Adults’ Response to a Health Message About Hepatitis C. Paper presented the annual conference of the Association for Education in Journalism and Mass Communication, St. Louise, MO.


APPENDIX A

TABLES AND FIGURES

Table 1. Mean and Standard Deviation Scores of Dependent Variables by Conditions

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Low-motivation</th>
<th>High-motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control (N =56)</td>
<td>Exemplar (N =37)</td>
</tr>
<tr>
<td>Identification</td>
<td>3.486 (1.224)</td>
<td>3.730 (1.065)</td>
</tr>
<tr>
<td>Transportation</td>
<td>3.690 (0.910)</td>
<td>4.111 (0.875)</td>
</tr>
<tr>
<td>Attitude toward the</td>
<td>4.829 (0.928)</td>
<td>4.822 (0.900)</td>
</tr>
<tr>
<td>message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward issue</td>
<td>5.926 (1.230)</td>
<td>5.969 (1.203)</td>
</tr>
<tr>
<td>Behavioral intention</td>
<td>3.488 (1.434)</td>
<td>4.234 (1.488)</td>
</tr>
</tbody>
</table>

Note: Cell numbers are means and numbers in parentheses are the standard deviation in each condition.
Figure 1. The Mediational Role of Transportation on Attitude toward Detecting and Preventing the Hepatitis C Virus.

Note: Coefficients are standardized partial regression weights. Exemplar refers to health messages dummy coded as the non-narrative condition omitted, the exemplar condition = 1, and the narrative condition = 0. Narrative refers to health messages dummy coded as the non-narrative condition omitted, the exemplar condition = 0, and the narrative condition = 1. Dashed line indicated the indirect effects of message on issue attitude.
Figure 2. The Mediational Role of Transportation on Behavioral Intention toward Detecting and Preventing the Hepatitis C Virus.

Note: Coefficients are standardized partial regression weights. Exemplar refers to health messages dummy coded as the non-narrative condition omitted, the exemplar condition = 1, and the narrative condition = 0. Narrative refers to health messages dummy coded as the non-narrative condition omitted, the exemplar condition = 0, and the narrative condition = 1. Dashed line indicated the indirect effects of message on issue attitude.
Figure 3. The Hypothesized Model 1.
Figure 4. The Hypothesized Model 2.
Note: Coefficients are standardized partial regression weights. Message refers to health messages dummy coded as the non-narrative condition = 1, the exemplar condition = 2, and the narrative condition = 3. The model is a poor fit, \( \chi^2 (3, N = 250) = 94.508, p < .001, \) CFI = .515, AGFI = .442; and RMSEA = .348.
Figure 6. The Analysis of Hypothesized Model 2.

Note: Coefficients are standardized partial regression weights. Message refers to health messages dummy coded as the non-narrative condition = 1, the exemplar condition = 2, and the narrative condition = 3. The model is a good fit, $\chi^2(5, N = 250) = 0.808$, $p = .081$, CFI = .975, AGFI = .954; and RMSEA = .56.
Figure 7. Transportation × Motivation Interaction on Issue Attitude.
Figure 8. Gender × Motivation Interaction on Behavioral Intention.
Figure 9. Gender × Motivation Interaction on Message Attitude.
APPENDIX B
MESSAGE MANIPULATIONS

Stimulus

Non-narrative information:

Hepatitis C, If Undetected, Can Lead be Life-Threatening

Every year, Hepatitis C goes undetected for millions of Americans. Those who are infected but undetected are at high risk for chronic liver disease or other related chronic diseases, and cannot avoid becoming a potential source of transmission to others. Many people do not experience symptoms for more than 10 years after initial infection, therefore not taking a Hepatitis C test delays treatment, and the condition can become life-threatening.

Hepatitis C is an infection caused by a virus that attacks the liver and leads to inflammation. Hepatitis C virus can be transmitted through any activities that allow infected blood to enter your body – such as intravenous drugs, blood transfusions, piercings, sexual activity, even sharing toothbrushes or razors.

Many infections are “community-acquired” and may have been caused by either risky behaviors or sometimes unnoticed or forgotten exposure from cuts or wounds. According to the National Institutes of Health, approximately 4 million Americans have been infected with the Hepatitis C virus and about 35,000 new cases are estimated to occur in the United States each year.

Studies indicate that 40% of chronic liver diseases are Hepatitis C-related, resulting in over 10,000 deaths per year. Deaths due to Hepatitis C are projected to increase over the next ten
years to approximately 30,000 per year. Hepatitis C-associated end stage liver disease is the most frequent cause for liver transplantation among adults.

Unlike Hepatitis A and B, there is no vaccine against Hepatitis C. Only through a blood test can Hepatitis C be detected early and effectively treated. To avoid becoming infected with the Hepatitis C virus, you should consider getting a blood test, too.

This message is sponsored by the University Center for Health. For more information about the Hepatitis C virus, talk to your doctor.

Exemplification:

Hepatitis C, If Undetected, Can Lead be Life-Threatening

Every year, Hepatitis C goes undetected for millions of Americans. Those who are infected but undetected are at high risk for chronic liver disease or other related chronic diseases, and cannot avoid becoming a potential source of transmission to others. Many people do not experience symptoms for more than 10 years after the initial infection, therefore not taking a Hepatitis C test delays treatment, and the condition can become life-threatening. For example, Jordan, who is a 21-year-college student, is one of the victims who got infected by the Hepatitis C virus after getting a tattoo. And his roommate Bryce also got Hepatitis C virus by sharing a razor with Jordan.

Hepatitis C is an infection caused by a virus that attacks the liver and leads to inflammation. Hepatitis C virus can be transmitted through any activities that allow infected
blood to enter your body – such as intravenous drugs, blood transfusions, piercings, sexual activity, even sharing toothbrushes or razors.

Many infections are “community-acquired” and may have been caused by either risky behaviors or sometimes unnoticed or forgotten exposure from cuts or wounds. According to the National Institutes of Health, approximately 4 million Americans have been infected with the Hepatitis C virus and about 35,000 new cases are estimated to occur in the United States each year.

Studies indicate that 40% of chronic liver diseases are Hepatitis C-related, resulting in over 10,000 deaths per year. Deaths due to Hepatitis C are projected to increase over the next ten years to approximately 30,000 per year. Hepatitis C-associated end stage liver disease is the most frequent cause for liver transplantation among adults.

Unlike Hepatitis A and B, there is no vaccine against Hepatitis C. Only through a blood test can Hepatitis C be detected early and effectively treated. **For patients like Jordan and Bryce, to avoid becoming infected with the Hepatitis C virus, they should consider getting a blood test, too.**

This message is sponsored by the University Center for Health. For more information about the Hepatitis C virus, talk to your doctor.

**Narratives:**

Hepatitis C, If Undetected, Can Lead be Life-Threatening
Jordan was a 21-year-old college senior, getting good grades and excited about his active social life and career possibilities after graduation. One night, he and his friends decided to get tattoos at a local shop near their campus. Jordan thought nothing about the shabby conditions of the shop and didn’t notice if the tattoo artist sterilized the equipment. An hour later, Jordan walked out of the shop with a tattoo of his college mascot and Hepatitis C.

That was 10 years ago. Because most people who are infected with Hepatitis C have no symptoms until a decade or more from the time they were infected, Jordan had no idea he had the Hepatitis C virus. When he began to have flulike symptoms accompanied by tenderness in the area of his liver, his doctor conducted a blood test that confirmed the presence of Hepatitis C and severe liver damage. Further tests revealed several cancerous tumors in his liver. Today, Jordan is suffering from liver cancer – a disease with a very low survival rate – as a result of an infection he contracted in his 20s.

Jordan was infected with Hepatitis C through equipment that had not been sterilized, but any activity that allows infected blood to enter your body – such as intravenous drugs, blood transfusions, piercings, sexual activity, even sharing toothbrushes or razors – can lead to Hepatitis C. And Hepatitis C, if undetected, can lead to severe liver damage, including cancer, scarring of the liver tissue (cirrhosis), and liver failure.

Studies indicate that 40% of chronic liver diseases are Hepatitis C-related, resulting in over 10,000 deaths per year. Deaths due to Hepatitis C are projected to increase over the next ten years to approximately 30,000 per year. Hepatitis C-associated end stage liver disease is the most frequent cause for liver transplantation among adults. Unlike Hepatitis A and B, there is no vaccine against Hepatitis C. Only through a blood test can Hepatitis C be detected early and
effectively treated. To avoid becoming infected with the Hepatitis C virus, you should consider getting a blood test, too.

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APPENDIX C

QUESTIONNAIRES

PQ1: In general:

a. I daydream and fantasize, with some regularity, about things that might happen to me.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b. I often have tender, concerned feelings for people less fortunate than me.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c. I get really involved with the feelings of a character in a novel.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

d. Sometimes I don’t feel very sorry for other people when they are having problems.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

e. I am usually objective when I watch a movie or play, and I don’t often get completely caught up in it.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

f. When I see someone being taken advantage of, I feel kind of protective towards them.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree
g. Becoming extremely involved in a good book or movie is somewhat rare for me.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

h. Other people’s misfortunes do not usually disturb me a great deal.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

i. After seeing a play or movie, I have felt as though I were one of the characters.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

j. When I see someone being treated unfairly, I sometimes don’t feel very much pity for them.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

k. When I watch a good movie, I can very easily put myself in the place of a leading character.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

l. I am often quite touched by things that I see happen.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree

m. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
   Strongly disagree  1  2  3  4  5  6  7  Strongly agree
n. I would describe myself as a pretty soft-hearted person.

Strongly disagree  1  2  3  4  5  6  7  Strongly agree

Demographic Information

PQ2: What is your age? ______________

PQ3: Please circle your ethnic background.
   1. African American
   2. Asian American
   3. Caucasian
   4. Hispanic
   5. Other ____________________________

PQ4: Please circle your class ranking.
   1. Freshman
   2. Sophomore
   3. Junior
   4. Senior
   5. Graduate Student

PQ5: Please circle your gender.
   1. Male
   2. Female
Post-experiment Questionnaire

Q1: Identification with character.

Strongly disagree  1  2  3  4  5  6  7  Strongly agree

a. While I was reviewing the message/narrative, I forgot myself and was fully absorbed.
b. I was able to understand the information in the message/event in the story in a manner similar to someone who is affected by Hepatitis C/that in which Jordan understood it.
c. I think I have a good understanding of someone is affected by Hepatitis C/Jordan in the story.
d. While viewing the message/narrative, I could feel the emotions of someone who is affected by Hepatitis C/Jordan.
e. During viewing the message/narrative, I felt I could really know how people who get Hepatitis C feel/Jordan feel.

Q2: Transportation.

Strongly disagree  1  2  3  4  5  6  7  Strongly agree

a. I could easily picture the events in the message taking place.
b. Activity going on in the room around me was on my mind.
c. I could picture myself in the scene of the events described in the message.
d. I was mentally involved in the message.
e. I wanted to learn how the message ended.
f. The message affected me emotionally.
g. I found myself thinking of ways the message could have turned out differently.
h. While reading the message, I found my mind wandering.
i. I found the events in the narrative relevant to my everyday life.
j. I had a vivid mental image of the people who get Hepatitis C/characters in the message.

Q3: Reactance.

Strongly disagree  1  2  3  4  5  6  7  Strongly agree

a. The message threatened my freedom to choose.
b. The message tried to make a decision for me.
c. The message tried to manipulate me.
d. The message tried to pressure me.

Q4: How much do you like the message you have just read?

I do not like it at all.  1  2  3  4  5  6  7  I like it a lot.

Q5: Attention.

Strongly disagree  1  2  3  4  5  6  7  Strongly agree

When I read the message…
a. I paid close attention to the contents of the message.
b. I expended effort thinking of the contents of the message.
c. I skimmed through the contents of the message.
d. I felt confused by the contents of the message.
e. I could follow the message smoothly.
f. I felt the message was easy to understand.

Q6: Attitude toward the message/perceived persuasiveness.
Q7: Attitude toward detecting and preventing Hepatitis C.
After reading the message, I think getting a blood test to detect and prevent Hepatitis C is ____________.

Bad 1 2 3 4 5 6 7 Good
Harmful 1 2 3 4 5 6 7 Beneficial
Negative 1 2 3 4 5 6 7 Positive
Irresponsible 1 2 3 4 5 6 7 Responsible
Dangerous 1 2 3 4 5 6 7 Safe
Foolish 1 2 3 4 5 6 7 Wise

Q8: Behavioral intention

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

After reading the message,

a. I intend to get more information about the Hepatitis C Virus.
b. I will get a blood test to detect Hepatitis C if I am at risk.
c. I will tell people who I know about this information.

Q9. Now that you have read the message, please list all of the thoughts that came to mind as you were reading the message. Write up to eight thoughts.
In the lines provided below, please write down the first thought that comes to your mind on the first line, the second thought/idea on the second line, etc. You do not need to fill out every line.

Please state your thoughts and ideas as concisely as possible…. You may use single words, phrases, or short sentences. Do not worry about spelling, grammar, and punctuation. There are no right or wrong answers.

*Please take about 2 minutes to write your thoughts.*

1st thought

2nd thought

3rd thought

4th thought

5th thought

6th thought

7th thought

8th thought
Q10: Manipulation Check.

I think this message emphasizes...

a. Facts or Statistics 1 2 3 4 5 6 7 Personal or Story

b. Research findings 1 2 3 4 5 6 7 Personal experience about Hepatitis C

a. When I was reading the message, I am motivated to look carefully at the message and think about it.

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b. I think my opinions are important.

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c. To which extent do you think about the message.

   Very low 1 2 3 4 5 6 7 Very high

d. How much time do you spend on thinking about the message.

   Very little 1 2 3 4 5 6 7 Very much

e. How much attention did you pay to the issues arising from the message.

   Very little 1 2 3 4 5 6 7 Very much

Q13: Please rate your perception of the message on the following measures:

a. The reading material was personally relevant.

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b. The events described in the message will have an impact on my life.

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree
Please circle the appropriate response.

Q11: Have you ever received a blood test to detect the Hepatitis C Virus?
   1. No  2. Yes

Q12: Have any of your friends or family members received a blood test to detect the Hepatitis C Virus?
   1. No  2. Yes  3. Not Sure

Q13: On campus, have you ever seen any promotional messages related to getting a blood test to detect the Hepatitis C Virus?
   1. No  2. Yes