PERSUASIVE EFFECTS OF EMOTIONAL FLOW IN NARRATIVES

by

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(Under the Direction of Jiyeon So)

ABSTRACT

This study empirically tested Nabi and Green's (2015) theoretical postulations regarding the persuasive effects of emotional flow in the context of a narrative health message about alcohol mixed with energy drinks. Messages inducing emotional flow were hypothesized to promote transportation and identification which in turn were predicted to influence attitudes, beliefs, and behavioral intention about consuming alcohol mixed with energy drinks. Additionally, evoking emotional flow was hypothesized to promote information seeking and social sharing intention among audiences. The study employed a 2 (emotional shift; shift vs. no shift) x 2 (valence; positive vs. negative) between-subjects factorial design and collected responses from 347 participants. Results revealed that emotional shift messages induced greater transportation and identification than messages that did not induce an emotional shift. Additionally, transportation and identification mediated the effects of emotional shift on attitude and behavioral intention. However, emotional shift messages did not promote greater information seeking and social sharing intention among participants.

INDEX WORDS: Emotions, emotional flow, narrative persuasion, health communication

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CHAPTER 1

INTRODUCTION

For decades, researchers have been exploring the power of narratives to influence attitudes, beliefs, and behaviors for a variety of health issues (Singhal & Rogers, 1999). Narratives are defined as a "representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed" (Kreuter et al., 2007, p. 222). Narratives may come in the form of entertainment education programs, personal testimonials, films, news stories, and public service announcements. These stories have been shown to exert persuasive influence, primarily through two overarching mechanisms: narrative involvement and character involvement (Moyer-Guse, 2008). Therefore, the extant narrative literature has focused on how involvement variables such as identification and transportation underlie persuasive influence, with a key question being: what promotes these types of involvement (de Graaf, Sanders & Hoeken, 2016)?

Recent research has suggested that experiencing fluctuations in emotions from a storyline can promote persuasion. This concept, known as emotional flow, is defined as the "evolution of the emotional experience during exposure to a media message, which is marked by a series of emotional shifts" (Nabi & Green, 2015, p. 143). Nabi and Green (2015) explained that emotional flow may facilitate the persuasive effects of narrative messages because such messages evoke emotional highs and lows in the viewers that motivate continued engagement with the story and characters. Audiences experience these fluctuations in emotion in response to the triumphs and challenges that a character faces, ultimately leading to persuasion in the form of

attitude, belief and behavior change. Not only does emotional flow promote persuasion in the form of attitude and belief change, but Nabi and Green (2015) suggested that narratives inducing flow also promote information seeking and social sharing among audiences. The purpose of this paper is to empirically test Nabi and Green's (2015) theoretical postulations in a narrative persuasion context and examine if emotional flow evoked from a narrative message promotes narrative and character engagement, influences attitudes and beliefs, and promotes information seeking and social sharing among audiences. This study will first review the theoretical and empirical research regarding emotional flow and its persuasive effects and then describe an experiment conducted to test the effects of emotional flow in a narrative health message about the topic of alcohol mixed with energy drinks.

CHAPTER 2

LITERATURE REVIEW

Emotional Flow

Emotion has long been viewed as an essential component to persuasion. Emotions are defined as internal mental states that vary in intensity and arise from evaluative cognitions and reactions to events or objects (Ortony, Clore, & Collins, 1988). Emotions are typically intense, short-lived, and directed toward some type of external stimuli. Research suggests that emotion is a concept characterized by five components: cognitive appraisal or evaluation of a situation, the physiological component of arousal, motor expression, a motivational component or action tendencies, and subjective feelings (Scherer, 1984). There are two basic models of emotion that guide research: dimensional perspective and discrete perspective. The dimensional perspective focuses on emotion as a generalized motivational state characterized by two affective dimensions: arousal and valence (Lang & Bradley, 2000). The discrete emotion perspective identifies different emotions by the unique set of cognitive appraisals, or thought patterns, underlying them (Frijda, 1986; Lazarus, 1991). Each discrete emotion is posited to evoke a specific action tendency to address a specific evolutionarily need (e.g. flight for fear). This study takes the dimensional perspective of emotions.

Much of the research, in the persuasion area, and particularly in narrative persuasion has focused on the final emotional state evoked by a story or a message (Dunlop et al., 2010; Green, Chatham & Sestir, 2012). Recently, however, Nabi and Green (2015) suggested scholars also devote attention to changes in the emotional experience across a message. The two authors

theorize that the experience of emotional flow in a narrative context accounts for audience's engagement with both the storyline and the characters, which in turn exert influence on persuasive outcomes. Thus far, empirical evidence for the postulations of the emotional flow framework are scare. Though, there have been a limited number of studies that have examined the effects of health messages that contain emotional shift in non-narrative formats (Carrera, Muñoz, & Caballero, 2010; Peinado, 2017).

Nabi and Green (2015) conceptualize three types of emotional shift that may occur in a message: shifts between emotions of opposing valences, shifts between different discrete emotions of the same valence, and shifts in the intensity of a single emotion. Shifts between emotions of opposing valences are characterized by a shift from a negative to positive emotion (e.g., fear to hope) or from a positive to negative emotion (e.g., happiness to sadness). Shifts between emotions of the same valence are characterized by a shift from one positive emotion to another positive emotion (e.g., hope to happiness) or from one negative emotion to another negative emotion (e.g., fear to anger). Lastly, emotional flow can be also be characterized by a shift in the intensity of an emotional state (e.g., uneasiness to fright; Nabi, 2015).

As stated earlier, this study takes a dimensional perspective of emotion and will therefore focus on shifts between emotions of opposing valences because such shifts may be more common for narrative messages since they frequently contain challenges and triumphs for characters, particularly if the main character is a transitional character. The following sections will describe the theoretical postulations of the emotional flow framework and propose a set of hypotheses to test the persuasive effects of emotional flow in a narrative message about the topic of alcohol mixed with energy drinks.

Transportation

Nabi and Green (2015) argued emotional flow may heighten and sustain narrative involvement with the storyline. According to Moyer-Guse (2008), narrative involvement generally refers to being engaged in the story rather than one's own immediate surroundings and involves experiencing vicarious emotional and cognitive responses. The concept of transportation, falls under this umbrella term of narrative involvement and will be the focus of this study. Transportation is a psychological state characterized by an integrative melding of imagery, attention, and feelings that is focused on story events (Green & Brock, 2000). Transported individuals feel so swept up into the world of a story that they forget the world around them, releasing their hold on reality. While much narrative persuasion research has focused on understanding transportation and its effects, scholars are still exploring the antecedents of transportation, including prior knowledge (Green, 2004), perceived similarity with the character (de Graaf, Sanders, & Hoeken, 2016), individual differences such as need for affect (Appel & Richter, 2010), and narrative quality (Green & Brock, 2002). Research on emotional flow suggests that it may also be one of the antecedents of transportation. Nabi and Green (2015) posited that transportation is not only maintained by plot events but by the fluctuations of emotions that are associated with those shifting events. In other words, the fluctuating emotions associated with events across a storyline may promote transportation. Emotional flow may motivate continued attention among audiences that may help sustain engagement throughout the story (Nabi & Green, 2015).

There are other reasons to believe that emotional flow may exert influence on transportation. Nabi and Green (2015) cite literature on suspense which suggests fluctuations in emotion in the audience evoked by suspenseful narratives may promote transportation (Bezdek et

al., 2015; De Graaf & Hustinex, 2011). Suspense is described by Zillmann (1996) as an ambivalent emotional experience that that is evoked when audiences encounter narrative events with unknown outcomes that threaten liked protagonists. Zillmann (1996) theorized that audiences who experience suspense feel hope for a favorable outcome for a liked protagonist but also fear for an unfavorable outcome for a liked protagonist. For example, in a suspenseful narrative, the main protagonist may be in peril, evoking fear in the audience. The protagonist's friend may learn of the problem, evoking hope. The friend may be delayed in rescuing the protagonist, evoking fear again. As illustrated, research in suspense suggests that emotional shifts may also promote transportation in audiences. As characters experience triumphs and challenges across a story, audiences experience shifts in various emotions and not just shifts in hope and fear that evoke transportation.

The concept of emotional flow is rather new and empirical research on this topic is quite scarce. Since the small body of empirical work on emotional flow may not be sufficient to offer a useful insight, research on multiple and mixed emotions may be the next best resource to draw from to make predictions about the effects of emotional flow. Research has shown that messages that evoked multiple emotions elicited greater transportation in the viewers than messages that simply evoked one emotion. For instance, a cancer testimonial message in a narrative format designed to evoke both pleasant and unpleasant emotions elicited greater transportation than one designed to evoke only pleasant emotions and unpleasant only emotions messages (Leshner et al., 2008). While research on the effects of mixed emotions is promising, it remains unclear whether these pleasant and unpleasant emotions were experienced simultaneously or sequentially, which would be more representative of emotional flow. Leshner et al's study suggests that a narrative message that induces emotional flow, whether it's a shift from positive

to negative or vice versa, would likely promote transportation among audiences. Therefore, based on the above evidence, the following hypothesis is proposed:

H1: Narratives inducing emotional shifts will lead to greater transportation than those with no emotional shift

Identification

Nabi and Green (2015) argued that emotional shifts promote engagement in the form of identification as well. Identification is defined as a cognitive and emotional process of putting oneself in a character's shoes, which comprised of four dimensions: empathic, which involves sharing feelings with the character; cognitive, which involves sharing the perspective of the character; motivational, which involves internalizing the goals of the character; and absorption or the degree to which self-awareness is lost during exposure (Cohen, 2001). In other words, when we identify with characters, we see ourselves as the character and feel what they feel, and take on their goals as our own. Thus far, researchers have identified antecedents of identification to be: perceived similarity or how similar an individual perceives he or she is to a character (Cohen, 2006; de Graaf, Sanders & Hoeken, 2016), liking which refers to positive evaluations of a character (Cohen, 2006), narrator point of view which refers to the perspective by which the story is told (Brunyé, Ditman, Mahoney, Augustyn, & Taylor, 2009), and parasocial interaction referring to a one-sided relationship that audience members develop with celebrities and media figures (Horton & Wohl, 1956; Schiappa, Allen, & Greg, 2005). Building upon this research, emotional flow may represent another antecedent to identification. The following paragraphs will describe two predictors of identification that suggest that audiences might identify with characters who undergo challenges and triumphs across a storyline, which evoke fluctuations in emotions for audiences.

Transitional characters, defined as characters that start out resisting the recommended behaviors but later become converted to a healthier path (Singhal & Rogers, 1999), suggests emotional flow may promote identification with characters, as argued by Nabi and Green (2015). Narratives, particularly the ones used in entertainment education programs, typically employ these types of characters to convey a health message (Singhal & Rogers, 1999). By design, storylines involving these transitional characters are likely to induce emotional flow, because such characters evolve over the course of a narrative, with viewers experiencing emotional lows from the character's struggles and later experiencing emotional highs from the character's triumphs (Nabi & Green, 2015). Entertainment education narratives typically employ a transitional character because research suggests that audiences are likely to identify with transitional characters more so than other characters (Bandura, 2008; Lovell et al., 2008). For instance, Bandura (2008) posits that viewers are prone to take inspiration from and identify with transitional characters because viewers see them overcome relatable life circumstances. Indeed, audiences relate to the uncertainty and doubt transitional characters experience when they are first considering a new behavior (Pajares, Prestin, Chen, & Nabi, 2009; Singhal & Rogers, 1999). Based on the previous research, narratives with transitional characters, which induce emotional flow, may promote greater identification among audiences.

Research on perceived realism also suggests a relationship between emotional flow and identification with a character in a narrative message. Perceived realism is the extent to which an audience member judges the narrative world to reflect the real world (Hall, 2003). One dimension of perceived realism is ''identity'' or a feeling of closeness to characters (Potter, 1988). Consistent with this dimension, empirical research has found that perceived realism facilitates identification with a character (Cho, Shen, & Wilson, 2014; So & Nabi, 2013),

suggesting that characters who experience both triumphs and challenges across a storyline may be perceived by audiences as more representative of the real world. Indeed, Lovell and colleagues (2008) found that some audience members identified with a transitional character upon listening to a radio serial drama designed to provide behavioral role models for HIV prevention and reproductive health in Botswana. One participant reported that she saw parallels in the obstacles the transitional character faced (e.g. unintended pregnancy), which would suggest that this character was relatable and realistic. Transitional characters may foster feelings of closeness in audiences and therefore promote identification. In other words, emotional flow may serve as the mechanism by which individuals identify with transitional characters. Overall, based on the research on perceived realism and transitional characters, audiences may identify with characters that undergo challenges and triumphs across a storyline, a story component that likely evokes changes in audience's emotional experience.

H2: Narratives inducing emotional shifts will lead to greater identification than those with no emotional shift

Attitudes and Beliefs

Character and narrative engagement, heightened by emotional shifts, has implications for post-message attitudes and beliefs. Attitude refers to the degree to which a person is unfavorably or favorably inclined toward a particular object and may be viewed as a general evaluation about an object while story-consistent beliefs may be viewed as beliefs that line up with the content or lessons of the particular story (Green, 2004). If emotional shift messages are able to promote engagement with the story, then they may indirectly lead to story-consistent beliefs and attitudes. Several theories and empirical studies have demonstrated that participants who report greater character and narrative engagement report stronger story consistent beliefs and attitudes. The

theorized relationship between narrative and character engagement variables and attitudes and beliefs is consistent with Slater and Rouner's (2002) extended elaboration likelihood model. It postulates that absorption in the narrative make the audiences invest their full cognitive attention on processing the plot alone, which allows them to circumvent potential counterargument and lead to greater persuasion or, specifically, story-consistent beliefs, and attitudes. Consistent with this prediction, studies have observed that participants who are more transported into a narrative reported stronger story consistent beliefs and attitudes (Green & Brock, 2000; Green, 2004; Van Laer et al., 2014.). For example, Green and Brock (2000) found that transportation into a written narrative was positively associated with accepting the beliefs portrayed in the narrative. In a later study, Green (2004) found that highly transported readers of a 3,800 word narrative about a homosexual man attending his college fraternity reunion, reported a number of story-consistent beliefs including beliefs about homophobia in fraternities and pledging and hazing.

Several empirical studies have also observed that participants who reported greater identification with a character also reported stronger story-consistent beliefs and attitudes. Identification with characters was shown to mediate exposure to a film promoting a favorable image of immigration on attitudes toward immigration and beliefs about the consequences of immigration in societies receiving them (Igartua, 2010; Igartua & Barrios, 2012). Furthermore, identification led to more unfavorable attitudes toward drinking and meth in short narrative PSAs (Cho, Shen, & Wilson, 2014), and to more unfavorable attitudes toward taking a Pap test in a cervical cancer-related film (Murphy, Chatterjee, & Baezconde-Garbanati, 2013). Furthermore, based on the theory of planned behavior (Ajzen & Fishbein, 1980), story-consistent beliefs are likely to predict attitude and in turn behavioral intention. Overall, these studies demonstrate that if the experience of emotional flow leads to greater transportation and identification, then

audiences are expected to undergo attitude, belief, and intention change. Thus, the following mediational hypotheses are proposed:

H3: Narratives inducing emotional shifts will lead to **a)** transportation, which in turn will lead to **b)** greater story-consistent beliefs, which in turn will lead to **c)** greater story-consistent attitudes and in turn **d)** greater behavioral intentions (see Figure 1)

H4: Narratives inducing emotional shifts will lead to a) identification, which in turn will lead to b) greater story-consistent beliefs, which in turn will lead to c) greater story-consistent attitudes and in turn d) greater behavioral intentions (see Figure 2)

Information Seeking

Nabi and Green (2015) argue that emotional shifts may promote information seeking, inspiring audiences to further research the topic of a message depicted in the narrative message. Information seeking is conceptualized as an active effort to acquire information that is outside of the normal realm of exposure to interpersonal and mediated sources (Atkin, 1973). This includes any nonroutine media use such as using the Internet to find information about a specific health topic or viewing a special program about a health treatment (Niederdeppe et al., 2007). Research has shown that individuals often seek further information after exposure to health campaigns (Rimal, Flora, & Schooler, 1999), entertainment education (Brodie et al., 2001; Singhal & Rogers, 1999) and media coverage of health issues (Myrick, 2017). Information seeking literature regarding health risk messages supports the claim that emotions, in general, play an

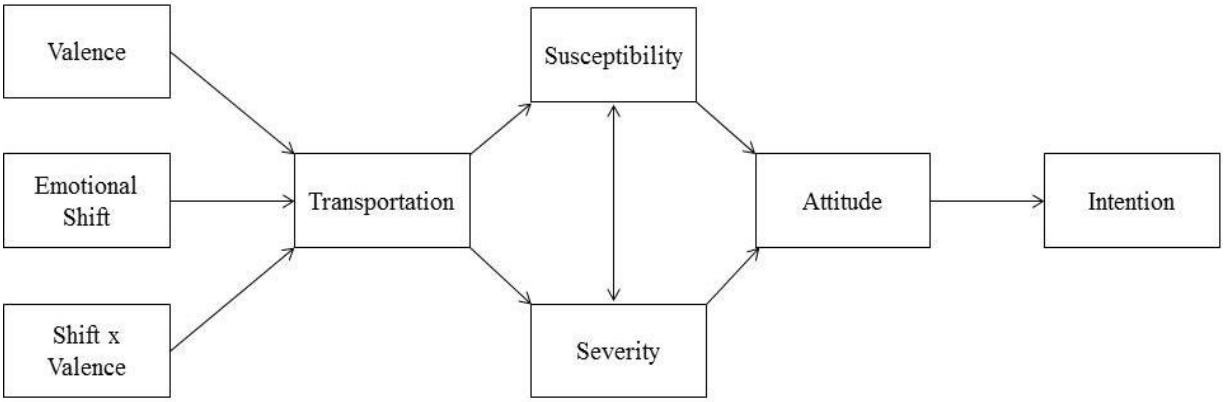

Figure 1. Conceptual model of the hypothesized effects of emotional shift messages on transportation and, in turn, persuasive outcomes

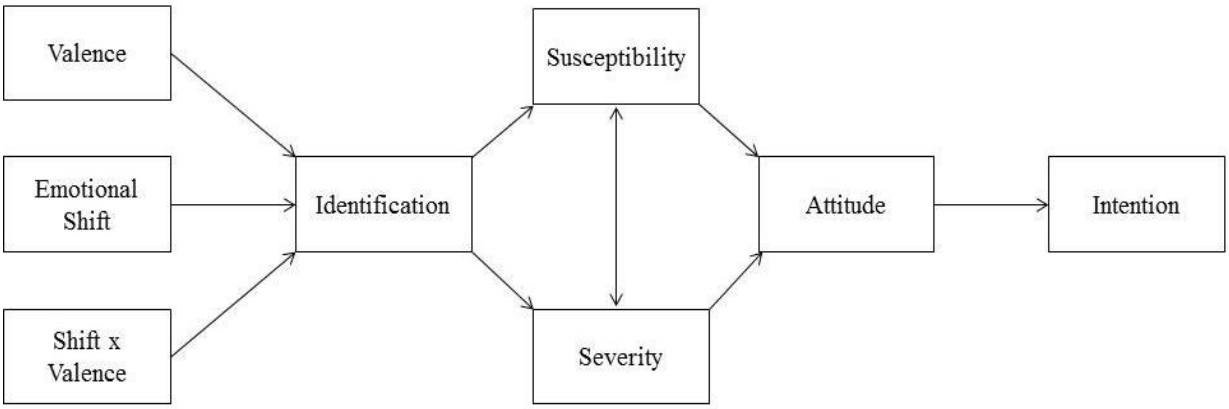

Figure 2. Conceptual model of the hypothesized effects of emotional shift messages on identification and, in turn, persuasive outcomes.

important role in prompting message recipients to seek information. A handful of studies have found that threat-related emotions such as fear and anxiety motivate information-seeking in response to fear appeal messages (Lee et al., 2008; So, Kuang & Cho, 2016, 2017). Unlike the research on health risk messages and information seeking, it remains unclear what prompts audience's reported information seeking (Kennedy, Leary, Beck, Simpson & Pollard, 2004; Singhal & Rogers, 1999) upon exposure to narrative messages. For instance, Brodie and colleagues (2001) reported that one in five regular *ER* viewers sought out additional health information after seeing a health storyline on *ER* with one in seven viewers reporting that they

spoke with a healthcare provider because of something they saw on *ER*. Kennedy and colleagues (2004) found that after the broadcast of a daytime drama that incorporated HIV prevention information into the plotline, calls to the National STD and AIDS hotline increased dramatically. In both of these studies, it remains unclear what feature of the narrative prompted such information seeking in audiences.

Recently, some studies have begun to explore what feature of the narrative experience motivated information seeking in a narrative. A study by Murphy and colleagues (2011) suggests that narratives that evoke emotions in audiences play an important role in promoting information seeking. Along with transportation, audience's positive and negative emotional responses to a *Desperate Housewives* health storyline were shown to predict intention to seek out additional information in their study. Specifically, participants who reported positive emotional reactions and negative emotional reactions to the story were more likely to seek out additional information. Murphy's study provides insight into the role of emotional flow in promoting information seeking as it suggests that the emotional ups and downs depicted in the storyline likely encouraged participants to desire to seek out additional information. While the authors did not specifically measure "flow" of emotions, the events depicted in the health storyline suggest that perhaps viewers experienced fluctuations in emotion across the episodes given that the episodes in the study depicted a character first being diagnosed with lymphoma, then undergoing chemotherapy, and then finally showed the character learning she was cancer free. This plotline may be interpreted as inducing emotional shifts because of the alternations in fear and hope over the course of the episodes.

Evidence from the surprise and interest literature suggests that evoking emotional shifts may promote information seeking. Narratives designed to induce emotional flow are likely to be

comprised of unexpected events, which may elicit surprise or interest from audiences, as argued by Nabi and Green (2015). Nabi and Green (2015) posit that surprise and interest are two emotional states that have been theorized to motivate information-seeking behavior among audiences (Meyer, Reisenzein, & Schützwohl, 1997; Silvia, 2005). These emotions belong to the knowledge family of emotions, which are emotions that are central to the process of thinking, learning, and exploring (Darwin, 2009). Surprise is described as an emotion that is elicited from appraising an event as unexpected or discrepant from existing schema (Meyer et al., 1997) or elicited from perceiving novelty in the environment (Frijda, 1986; Lazarus, 1991). Surprise is nonvalenced, neither goal-congruent or goal incongruent because it occurs before one assesses goal relevance (Scherer, 1984). The action tendency of surprise is to allocate attention to a stimulus and invest on subsequent analysis of the stimulus (Dillard & Peck, 2001; Meyer et al., 1997). Given the action tendency of surprise, it is expected that it would motivate further information seeking. Indeed, Wang and Ahern (2015) found that surprise upon learning of the H1N1 virus was associated with more information seeking about the H1N1 flu among a sample of college students. Overall, based on the previous research, it appears that narratives that induce emotional flow will be comprised of dramatic events that elicit surprise about a character, an emotion that has been theorized to promote further exploration of a surprise-eliciting event.

Narrative messages that evoke emotional shifts may provoke information seeking because such messages are able to incite interest (Nabi & Green, 2015), an emotion that is associated with information-seeking behavior (Silvia, 2005). Interest has been linked to concepts of exploration, curiosity, and information seeking (Fredrickson 1998; Silvia, 2005). Interest arises when individuals appraise a situation or event as goal relevant, goal congruent, and containing novelty and complexity (Silvia, 2005). Interest functions to motivate people to

explore and engage with the environment around them (Izard, 1977; Silvia, 2005). Silvia (2005) argues that the following message factors are linked to interest: novelty-complexity, vividness, surprising-ness, unexpectedness, suspense, and emotiveness. Overall, narratives inducing emotional shifts may be comprised of such message factors and thus promote information seeking in audiences. Furthermore, evidence from mixed emotional messages suggests that the presence of fluctuating emotions may influence information seeking. Leshner and colleagues (2008) found that messages containing both pleasant and unpleasant emotions elicited higher information seeking than pleasant only or unpleasant only emotions in a narrative cancer testimonial. The authors based their study on the motivated cognition perspective, and reasoned that pleasant and unpleasant emotions experienced from a breast cancer narrative activate appetitive and aversive reactions that influence how individuals process and respond to their environment. Overall these studies suggest that emotional shifts may lead to greater information seeking:

H5: Narratives inducing emotional shifts will lead to greater information seeking than messages with no emotional shifts

Social Sharing

Not only might emotional shifts motivate viewers to seek out additional information about a topic, but it may also encourage them to share and discuss what they learned with others, a concept known as social sharing. Nabi and Green (2015) argue that emotional shifts promote post-message engagement behavior in the form of social sharing. Social sharing is defined as the sharing of health and story related messages with others, through mediated or interpersonal avenues (Rimé, 1995). According to the social sharing of emotions theory (SSE; Rimé, 1995), individuals have an instinctive need to disclose to other people when they experience aroused

emotions. The more intense the emotional experience or the greater the emotional disruption, the more likely the message is to be socially shared (Rimé, 1995). Social sharing is an impactful phenomenon as it spreads the message across audience's social networks (So et al., 2016). Researchers are currently exploring predictors of social sharing behaviors. Thus far, researchers have found that identification (Moyer-Gusé, Chung, & Jain, 2011; Myrick, 2017), transportation (McQueen et al, 2011), and emotional reactions (Christophe & Rimé, 1997; So et al., 2016) predict sharing behavior.

There is reason to believe that emotional flow may also promote social sharing behavior in narratives as Nabi and Green (2015) suggest. Emotional shifts, because they may evoke greater emotional intensity (Peinado, 2016; Zillmann, 1996), motivate individuals to socially share the information they learned (Berger & Milkman, 2012; Luminet, Bouts, Delie, Manstead & Rimé, 2000). The reason that emotional shifts may be perceived as more intense can be explained with excitation transfer theory. The theory describes how emotional excitation of one media exposure can intensify emotional response to a subsequent media exposure (Zillmann, 1983, 1996). Consistent with this theory, Peinado (2017) found that a health message evoking shifts in emotional valence was more emotionally intense than a message with a single valence, which in turn led to greater social sharing behavior in the form of interpersonal discussions. Peinado (2017) reasoned, based on emotional excitation theory, that emotional excitation may transfer in an emotional shift message from the first emotional experience to the second, resulting in a more intense message compared to a message that evokes a single emotional experience. Overall, based on the previous research, it appears that emotional shift messages generate greater intensity and deeper processing that motivate social sharing.

H6: Narratives inducing emotional shifts will lead to greater social sharing than messages with no emotional shift

It may be useful to also examine whether the valence of emotions leads to different persuasive effects. Indeed Carrera et al. (2010) found that a negative-positive pattern of emotions generated lower post-message discomfort compared to a solely negative message and thus generated lower levels of defensiveness toward the health message about binge drinking, depicted in the experiment. Additionally, Peinado (2017) tested whether or not emotional shift messages that ended with a positive emotion versus a negative emotion influenced various variables such as depth of processing and talking behavior, but overall did not find significant effects. Drawing upon Peinado's (2017) study, this study also focuses on the valence of emotion induced at the end of an emotional shift message as well as the valence of emotion induced in a message with no shift. Since there is little previous research comparing the valence of emotions within narrative messages, the following research question is proposed:

RQ1: Does the emotional valence influence the following variables: a) transportation, b) identification, c) information seeking d) social sharing intention?

CHAPTER 3

METHOD

Participants

This study examined the persuasive effects of emotional shift after exposure to a narrative message about the practice of mixing alcohol with energy drinks. Given that the practice of mixing alcohol and energy drinks is prevalent among young adults (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2015), college students were recruited for the study. A total of 347 participants were recruited from the research subject pool in the department of Communication Studies at the University of Georgia. After preliminary examination of the data, one participant was dropped from the study due to being an outlier on the "total time spent information seeking" variable. This individual spent 991.7 seconds on information seeking, which was over three standard deviations above the mean of information seeking (M = 37.09, SD = 66.73), and was therefore dropped from the study. This participant was initially identified after it was noticed that the participant had taken three days to complete the survey. Participation in the study either fulfilled their course requirement or earned them a small portion of extra credit.

Students were asked to participate in an online study via *Qualtrics*. To be eligible for the study, participants had to be 18 years or older. In order to participate, students signed up through the research subjects pool website to attend a lab session or complete the study online. For students who signed up for the lab session (n= 304), once they were

present at their particular lab session, they were sent a link to the study. For students who signed up for the online study, (*n*= 43), they were immediately sent an email that contained a link to the study. Participants' age ranged from 18 to 27 years (*M* = 19.26, *SD* = 1.26). Two hundred and two participants (58.2%) were female and 141 (40.6%) were male, and four (1.2%) did not report their sex. The majority of participants identified as White/Caucasian/European (*n* = 272; 78.4%), followed by Asian (*n* = 38; 11.0%), Black/African American (*n*= 29; 8.4%), Hispanic/Latino (*n* = 17; 4.9%), Native American (*n* = 1; .3%), and Other (*n* = 3; 0.9%).

Participants were asked questions about their consumption of alcohol and their consumption of alcohol mixed with energy drinks at the beginning of the study prior to message exposure.

Design and Procedure

The experiment consisted of a 2 (emotional shift; shift vs. no shift) x 2 (valence; positive vs. negative) between-subjects factorial design. In the emotional shift conditions, the valence of the message refers to the valence of the second part of the message, following previous research on emotional flow (Peinado, 2017). First, participants were asked to give consent to participate in the study and then asked a series of questions regarding their alcohol consumption and alcohol mixed with energy drink consumption. Next, respondents were randomly assigned into one of four message conditions: positive-only/no emotional shift (*n* = 87), negative-only/no emotional shift (*n* =98), negative-positive/emotional shift (*n* = 74), and positive-negative/emotional shift (*n* = 88). After reading the message, participants answered a manipulation check question and then answered a series of measures assessing transportation, identification, story-

consistent beliefs, attitudes, intention to consume alcohol mixed with energy drinks in the future, and social sharing intention. Information seeking behavior was also unobtrusively measured within *Qualtrics* (see p. 28 for details). Lastly, demographic questions were assessed at the end of the study and then participants were debriefed and thanked for their participation, as well as given the researcher's contact information for any additional questions.

Stimuli Material

Health-related behavior of interest. The behavior addressed in the messages was the practice of mixing alcohol with energy drinks. Mixing alcohol with energy drinks is a popular practice, particularly among young people in the United States. In 2015, 13% of students in grades 8, 10, and 33.5% of young adults in the U.S. aged 19 to 28 reported consuming alcohol mixed with energy drinks (AmED hereafter) at least once in the past year (Johnston, O'Malley, Bachman, Schulenberg & Miech, 2015). College students report consuming alcohol mixed with energy drinks for a number of reasons including: simply liking the taste (Verster et al., 2014), to slow the onset of intoxication (Marczinski, 2011), to reduce the sedative effects of alcohol or feel less tired while drinking (Marczinski, 2011), to increase their ability to consume more alcohol (Pennay & Lubman, 2012), to increase sociability (Pennay & Lubman, 2012), and to sober up more quickly (Woolsey et al., 2010). It has been estimated that the number of emergency department visits involving energy drinks nearly doubled between 2007 and 2011, with 13%–16% of these admissions related to AmED use (Center for Behavioral Health Statistics and Quality, 2013). This practice can be harmful because when alcohol is mixed with caffeine, the caffeine may mask the depressant effects of alcohol, making drinkers feel more alert than they would otherwise. As a result, individuals may drink more alcohol and become more impaired

than they realize, increasing the risk of alcohol-related consequences (Marczinski & Fillmore, 2014). Risks associated with mixing alcohol and energy drinks include: increased high-risk sexual behavior including unwanted or unprotected sex, elevated rates of binge drinking, greater intentions to drive while impaired or ride with a driver who is impaired, and increased risk of intentional and accidental injuries from car accidents, falls, and physical violence (Centers for Disease Control and Prevention, 2017; Marczinski & Fillmore, 2014). Additionally, combining energy drinks with alcohol is associated with negative psychological effects such as feeling tense or irritable and physiological effects such as: heart palpitations, sleep difficulties, agitation, tremors, and jolt and crash episodes (Peacock, Bruno & Martin, 2012).

Messages. This study employed a 2 X 2 factorial design experiment resulting in four narrative conditions including 1) a positive-only/no emotional shift message 2) a negative-only/no emotional shift message 3) a negative-positive emotional shift message and 4) a positive-negative emotional shift message. The information presented in the stimuli was drawn from news articles from ABC news (Taylor, 2013), news.com.au (News Corp Australia Network, 2015), and 16 x 9 Global News (16x9 Global News, 2012) about individuals who had been hospitalized or had died from consuming AmED (see Appendix B for the stimuli messages). For the single-valence positive emotional message (206 words), the message described the experience of a college student named Justin experiencing a fun time after drinking Red Bull mixed with vodka while at a bar with his friends. For the single-valence negative emotional message (232 words), the message describes how Justin undergoes cardiac arrest and is hospitalized after drinking Red Bull mixed with vodka, a form of AmED. For the positive-negative emotional shift message (429 words), Justin is described as experiencing a fun time after drinking Red Bull mixed with vodka while at a bar with his friends and then he undergoes

cardiac arrest and is hospitalized. For the negative-positive emotional shift message (419 words), this positive-negative emotional message is reversed, with Justin undergoing cardiac arrest and being hospitalized, and then recalling how the night had begun with him experiencing a fun time at the bar with his friends. For the emotional shift messages, the story was divided into Part 1 and Part 2, where each part evoked a different emotional valence depending on the valence condition. This ensured that participants could more accurately identify the emotions that they were feeling during each part of the story later in the manipulation check. The story was not divided into parts for the messages evoking no emotional shift.

Measures

Emotional shift. In this study, emotional shifts are operationalized as a single shift in emotional valence from a negative to a positive emotion or from a positive to a negative emotion. Based upon Peinado's (2017) measure, emotional shift was assessed by asking participants in the emotional shift conditions to report the valence of the emotions they felt during the first and second part of the narrative. Specifically the questions were: "How did you feel while reading Part 1 of the story?" followed by "How did you feel while reading Part 2 of the story?" Responses to these two questions were given on a 7-point Likert scale [1= *extremely negative* to 7 = *extremely positive*]. Similarly, participants within the no shift conditions were asked the following questions, which assessed the degree of emotional shift from the beginning to the end of the story: "How did you feel while reading the beginning of the story?" followed by "How did you feel while reading the end of the story?" with responses given on a 7-point Likert scale [1= *extremely negative* to 7 = *extremely positive*].

Behavioral status. Past alcohol use and past alcohol mixed with energy drink use was assessed using various items. To measure lifetime history of alcohol use, participants were

asked: “Have you ever, even once, had a drink of any type of alcoholic beverage?” with a response option of yes or no. In this study, 313 undergraduates (90.2 %) reported that they had consumed alcohol at least once in their lifetime. If they reported yes, participants were asked questions assessing the frequency of alcohol consumption and the quantity of consumption on average. Drawing from measures used in previous research (Marczinski, 2011), frequency of alcohol consumption was assessed by asking, “During the PAST 30 DAYS, approximately how many days did you have at least one alcoholic drink?” and provided a dropdown box containing 1 to 30 days (M = 6.18, SD = 5.06). Drawing from measures used in previous research (Sales et al. 2014), quantity of alcohol consumption was assessing by asking, “On average, when you consume alcohol, how many drinks do you have in one sitting?” (M = 3.93, SD = 2.40). The same set of questions was used to assess AmED history of use, including frequency of AmED consumption in a given month (M = 2.28, SD = 2.29), and quantity of AmED consumption at one sitting (M = 1.84, SD = 1.34). In this study, 169 undergraduates (48.7%) reported that they had consumed AmED at least once in their lifetime.

Transportation. Transportation was assessed using Green and Brock’s (2000) scale. Participants responded to 10 items using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Sample items include “I could picture myself in the scene of the events described in the story.” and “Activity around me was on my mind” (reverse coded). Responses to items were averaged into a composite score (M = 4.31, SD = .87, α = .73).

Identification. Identification was assessed using Cohen’s (2001) scale. Ten items were used to measure the construct using a 7-point Likert scale (1= *strongly disagree* to 7= *strongly agree*). Sample items include “I tend to understand why Justin did what he did.” and “While

reading, I felt I could really ‘‘get inside’’ Justin’s head.” Responses to items were averaged into a composite score (M = 3.66, SD = 1.23, α = .90).

Attitudes toward AmED consumption. Attitude toward consuming AmED was measured by asking participants to respond to the following statement, ““I think that consuming alcohol mixed with energy drinks is…” with five 7-point semantic differential scale items, anchored with undesirable/desirable, bad/good, foolish/wise, unpleasant, pleasant, and unsafe/safe. Responses were averaged to form an overall attitude measure with lower scores indicating a more negative attitude toward consuming AmED (M = 2.44; SD = 1.20; α = .90).

Story-consistent beliefs. Consistent with de Graaf (2014), story-consistent beliefs were operationalized as perceived susceptibility and perceived severity of experiencing the negative consequences of AmED consumption. The perceived susceptibility measure was adapted from Witte, Cameron, McKeon, and Berkowitz’s (1996) study. Participants responded to three items using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Sample items include “I believe that I’m at risk of experiencing negative consequences of consuming alcohol mixed with energy drinks” and “It’s likely that I will experience negative consequences after consuming alcohol mixed with energy drinks (M = 4.78, SD = 1.72, α = .82). Additionally, participants’ perceived severity was measured with three items adapted from Witte et al. (1996) including “I believe that consuming alcohol mixed with energy drinks has serious consequences” and “I believe that the consequences of consuming alcohol mixed with energy drinks are deadly” (M = 4.98, SD = 1.65, α =.92).

Behavioral intention. Intention to consume AmED was assessed with three items using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). A sample item is: “I am

likely to consume alcohol mixed with energy drinks in the near future" (M = 2.04, SD = 1.46, α =.96).

Information seeking behavior. Adapted from So et al.'s (2017) measure of information seeking, participants' information seeking activity was unobtrusively recorded in *Qualtrics*. Upon completing the previous measures, participants were given an opportunity to seek information about AmED by clicking on one or more of the AmED topics provided to them on a page. The participants were also provided an option to entirely skip information seeking activities. The page included a list of eight topics including: why do people do this, what happens when you do this, chemical mechanism involved, prevalence, negative consequences, risk factors, prevalence of negative health consequences, and recommendations. Participants who clicked on a topic(s) of their interest were led to the corresponding page(s) which contained information about the chosen topic. The number of pages visited by the participants and the amount of time spent on seeking information, was unobtrusively recorded. Information seeking was operationalized in two ways: 1) the total amount of time spent on seeking information and 2) the total number of pages visited by the participants (So et al., 2017). The total time spent and the total number of pages visited represent different dimensions of information seeking: depth and breadth (Ozanne, Brucks, & Grewal, 1992; Valentino, Hutchings, Banks, & Davis, 2008), and thus were used as different dependent variables during later analyses following previous research (e.g., So et al., 2017).

Of the 347 participants, 280 individuals (80.7%) sought at least one type of information and the remaining skipped the activity completely. Participants who sought information spent an average of 33.68 seconds (SD = 34.51) on total time spent in seeking information and visited an average of 6.16 information pages out of a total of 8 pages (SD = 2.73). For the purpose of

analysis utilizing data from all participants, variables representing time spent and pages visited were recoded as zero, which resulted in a decrease in the total time spent information seeking (*M* = 27.17, *SD* = 33.72) and total number of pages visited (*M* = 4.97, *SD* = 3.46). This data from both information seekers and non-information seekers were kept and used for later analyses. Because the total time spent information seeking data was positively skewed and had a high kurtosis, (skewness = 2.34, kurtosis = 7.34) the variable was square root transformed and this transformed variable was used in the analyses. Since total pages visited (skewness = -.41, kurtosis = -1.66) had a normal distribution, this variables was not transformed.

Social sharing intention. In order to assess social sharing intention**,** participants were asked: "Select the preferred social media icon (s) if you wish to share this story with your family and friends." They were provided social media icons of: Facebook, Twitter, Instagram, Google Plus, Google Mail, and an option to not share the story as well (*M* = .07, *SD* = .28). Because social sharing intention data was positively skewed and had a very high kurtosis, (skewness = 4.60, kurtosis = 22.57) the variable was transformed using inverse function following convention (see Tabachnick & Fidell, 2007). This transformed variable was used during later analyses. Overall, of the 347 participants, 20 participants reported they would share the story on social media.

CHAPTER 4

RESULTS

Manipulation check

A manipulation check was conducted using Analysis of Covariance (ANCOVA) to confirm whether emotional shift messages generated greater changes (or shifts) in emotion (between Part 1 and Part 2 of the story) than the no emotional shift messages. Emotional shift was computed by creating a difference score using the responses to the emotional shift questions that were asked to all participants (i.e. "How did you feel while reading the beginning [Part 1] of the story", "How did you feel while reading the end [Part 2] of the story"). We then took the absolute value of the difference score since only the magnitude of difference mattered and not whether or not the variable was positive or negative. Participants in the shift condition were expected to have a higher difference score, signifying a significant emotional shift while participants in the no shift conditions were expected to have a very small difference score close to zero, since the message should only evoke one emotional valence. This emotional difference score variable was used as a dependent variable for the manipulation check of emotional shift.

To check the manipulation of emotional shifts, we conducted a univariate ANCOVA with emotional shift (shift/no shift) condition, valence condition, and the two-way interaction between the two conditions as independent variables predicting the dependent variable, which was the emotional difference score. AmED frequency was also included as a covariate. The results confirmed that the shift messages led to greater shifts in emotion from the first and second part of the story than the no shift messages, F (1, 295) = 89.32, $p < .001$, $\eta_p^2 = .23$. Specifically, the

participants within the shift conditions (M = 2.94, SD = 1.50) reported a significantly greater difference in emotions than the participants in the no shift condition (M = 1.45, SD = 1.25). Therefore, the manipulation was successful. Of note, valence condition also had a significant effect on the emotional difference score, F (1, 295) = 8.57, p = .004, η_p^2= .03. The participants within the negative valence conditions (M = 2.41, SD = 1.50) reported a greater shift in emotions than the participants in the positive valence conditions (M = 1.86, SD = 1.56). There were no significant effects for the interaction between shift and valence, F (1, 295) = 2.40, p = .12, η_p^2= .01 and no significant effects of the covariate of AMED frequency, F (1, 295) = .20, p = .66, η_p^2= .00.

Since valence was operationalized as the emotional valence induced in the end of the message, emotional valence was computed using the response to the question "How did you feel while reading the end [Part 2] of the story" with 1= *extremely negative* and 7 = *extremely positive*). Participants in the positive valence were expected to have a higher score, indicating that they felt more positive at the end of the story, while participants in the negative valence were expected to have a lower score, indicating that they felt more negative at the end of the story. To check the manipulation of valence, another univariate ANCOVA was conducted with valence condition (positive, negative), emotional shift (shift/no shift) condition, and the two-way interaction between the two conditions as independent variables predicting the dependent variable, which was the response to the emotional valence question. AmED frequency was also included as a covariate. There was a significant main effect of valence on the dependent variable, F (1, 295) = 231.39, p < .001, η_p^2 = .44. Specifically, the positive valence condition inducing more positive emotions (M = 4.21, SD = 1.27) than the negative valence condition (M = 2.14, SD = 1.22). Therefore, the manipulation was successful. Of note, there was a significant

interaction between shift and valence ($p < .001$), such that shift messages ending with a negative valence led to lower valence means, indicating more negative emotional reactions, ($M = 1.66$, $SD = .13$) compared to no shift negative valence messages ($M = 2.63$, $SD = .13$). Conversely, shift messages ending with a positive valence led to higher valence means, indicating more positive emotional reactions, ($M = 4.51$, $SD = .15$) compared to no shift positive valence messages ($M = 3.97$, $SD = .14$). In other words, shift messages led to more intense negative and positive emotions compared to messages with no shift. Lastly, there were no significant main effects of shift ($p = .12$) or AMED frequency ($p = .90$) on valence.

The effect of emotional shifts and valence on transportation

The first hypothesis predicted that emotional shift messages would induce greater transportation in audiences than the no emotional shift messages. This hypothesis was tested by conducting a univariate ANCOVA in which the independent variables were emotional shift (shift/no shift), valence condition, and interaction between the two conditions while the dependent variable was transportation, and the covariate was AmED frequency. There was a significant main effect of emotional shift on transportation, F (1, 292) = 16.48, $p < .001$, $\eta_p^2 = .05$, such that participants within the shift conditions ($M = 4.52$, $SD = .80$) reported greater transportation than participants in the no shift condition ($M = 4.11$, $SD = .87$). Thus, H1 was supported. There were no significant effects of AMED frequency on transportation, F (1, 292) = 1.48, $p = .22$, $\eta_p^2 = .01$.

RQ1a asked whether valence influenced transportation. The analysis showed that valence had a significant main effect on transportation, F (1, 292) = 5.77, $p = .02$, $\eta_p^2 = .02$. Participants within message conditions that ended with a negative valence ($M = 4.43$, $SD = .87$) reported greater transportation than participants within message conditions that ended with a

positive valence (M = 4.16, SD = .83). Simple main effects analysis showed that the main effect of valence on transportation was primarily driven by the effects of valence in the no shift condition, F (1, 292) = 7.11, p = .008, η_p^2= .02). Within the no shift messages, the negative condition had significantly greater transportation (M = 4.29) than the positive condition (M = 3.93). Within the shift condition, although messages ending with a negative emotion (M = 4.56) induced slightly higher transportation than messages ending with positive emotion (M = 4.45), the effect was not significant (p = .44). Lastly, there were no significant effects for the interaction between shift and valence, F (1, 292) = 1.62, p = .21, η_p^2= .01

The effect of emotional shifts and valence on identification

The second hypothesis predicted that emotional shift messages would induce greater identification in audiences. This hypothesis was tested by conducting an univariate ANCOVA in which the dependent variable was identification and the independent variables were emotional shift (shift/no shift), valence, and the interaction between shift and valence. The covariate remained AmED frequency. There was a significant main effect of emotional shift on identification, F (1, 292) = 14.44, p < .001, η_p^2 = .05, such that participants within the shift conditions (M = 3.94, SD = 1.17) reported greater identification than participants in the no shift condition (M = 3.39, SD = 1.20). Thus, H2 was supported. There was also a main effect of AMED frequency on identification, F (1, 292) = 5.99, p = .02, η_p^2= .02.

RQ1b asked whether valence influenced identification. The analysis showed that valence condition did not have a significant effect on identification, F (1, 292) = .06, p = .81, η_p^2= .00 and there were no significant interaction effects between shift and valence, F (1, 292) = .14, p = .71, η_p^2= .00.

Transportation as mediator of the effect of emotional shift and valence on persuasive outcomes

The third hypothesis predicted that emotional shifts would lead to transportation, which in turn would lead to greater story-consistent beliefs, which in turn would lead to story-consistent attitudes and behavioral intentions. This model was tested to demonstrate the role of transportation in mediating the persuasive outcomes of emotional shift and valence. Emotional shift condition, emotional valence conditions, as well as the interaction between shift and valence were specified as exogenous predicting transportation. A meditational model of predicted relationships among these variables was tested with a path analysis using *Mplus* version 7.0 *(*Muthén & Muthén, *1998–2012)*. Model fit was evaluated using chi-square, comparative fit index (CFI), SRMR, and root mean square error of approximation (RMSEA). Fit statistics for the model (see Figure 3) suggest a good fit with the data: χ^2 (16) = 42.91, $p < .05$, CFI = .95, RMSEA = .08 (.05, .10), SRMR = .03. As shown in the model in Figure 2, emotional shift messages (β= .16, p = .05) and valence (β = - .21, p = .01) predicted transportation. However, the interaction between shift and valence did not predict transportation (β = .12, p = .20). Transportation led to story-consistent beliefs, in the form of perceived susceptibility (β = .24, $p < .001$) and perceived severity (β =.26, $p < .001$). Consistent with expectation, perceived severity, in turn negatively influenced attitude (β= -.55, $p < .001$), indicating that the more severe participants thought AmED was, the less favorable attitude toward AmED they reported. However, the path from perceived susceptibility to attitude was not significant (β = .01, p = .75). Finally, as predicted, the path from attitude to intention was significant (β = .55, $p < .001$). Thus, H3a. H3b, and H3d were supported. H3c received mixed support since only perceived severity

beliefs led to story-consistent attitudes but perceived susceptibility beliefs did not lead to attitude.

Identification as mediator of the effects of emotional shift and valence on persuasive outcomes

The fourth hypothesis predicted that emotional shifts would lead to identification, which in turn would lead to greater story-consistent beliefs, which in turn would lead to story-consistent attitudes, and behavioral intentions. This model was tested to demonstrate the role of identification in mediating the persuasive outcomes of emotional shifts and valence. A parallel mediational model with the three exogenous variables leading to identification was tested with a path analysis using *Mplus* version 7.0 (Muthén & Muthén, 1998–2012). Fit statistics for the model (see Figure 4) suggest a good fit with the data, χ^2 (16) = 55.55, $p < .01$, CFI = .92, RMSEA = .09 (.07, .12), SRMR = .04. As shown in the model in Figure 4, emotional shift messages ($\beta = .24$, $p = .001$) predicted identification. However, valence ($\beta = .04$, $p = .65$) and the interaction between shift and valence ($\beta = -.03$, $p = .70$) did not lead to identification. Identification led to story-consistent beliefs, in the form of perceived susceptibility ($\beta = .24$, $p < .001$) and perceived severity ($\beta = .13$, $p < .05$). Perceived severity, in turn negatively influenced attitude ($\beta = -.55$, $p < .001$) indicating that the more severe participants perceived AmED to be, the less favorable attitude they reported. However, the path from perceived susceptibility to attitude was not significant ($\beta = .01$, $p = .75$), although perceived susceptibility and perceived severity were significantly related to each other ($\beta = .25$, $p < .001$). Finally, the path from attitude to intention was significant ($\beta = .55$, $p < .001$). Thus, H4a. H4b, and H4d were supported. Again, H4c received mixed support since perceived severity beliefs lead to story-consistent attitudes but perceived susceptibility beliefs did not have a significant path to attitude.

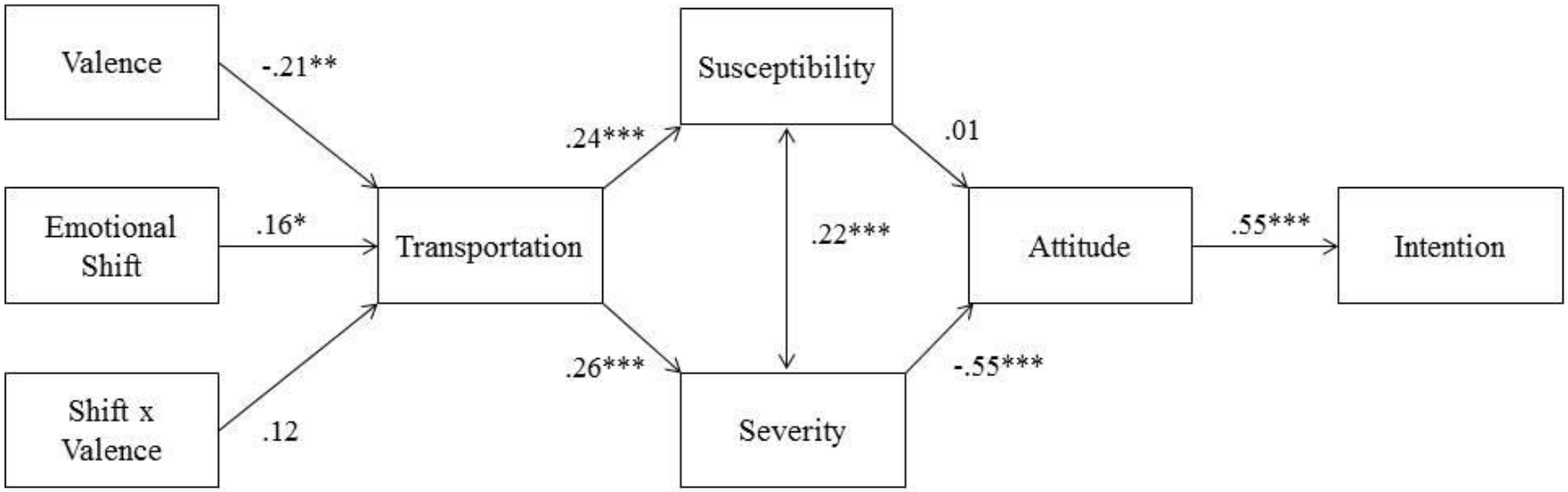

Figure 3. Path model of the effects of emotional shift messages on transportation and, in turn, persuasive outcomes.

χ^2 (16) = 42.91, $p < .05$, CFI = .95, RMSEA = .08 (.05, .10), SRMR = .03.

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

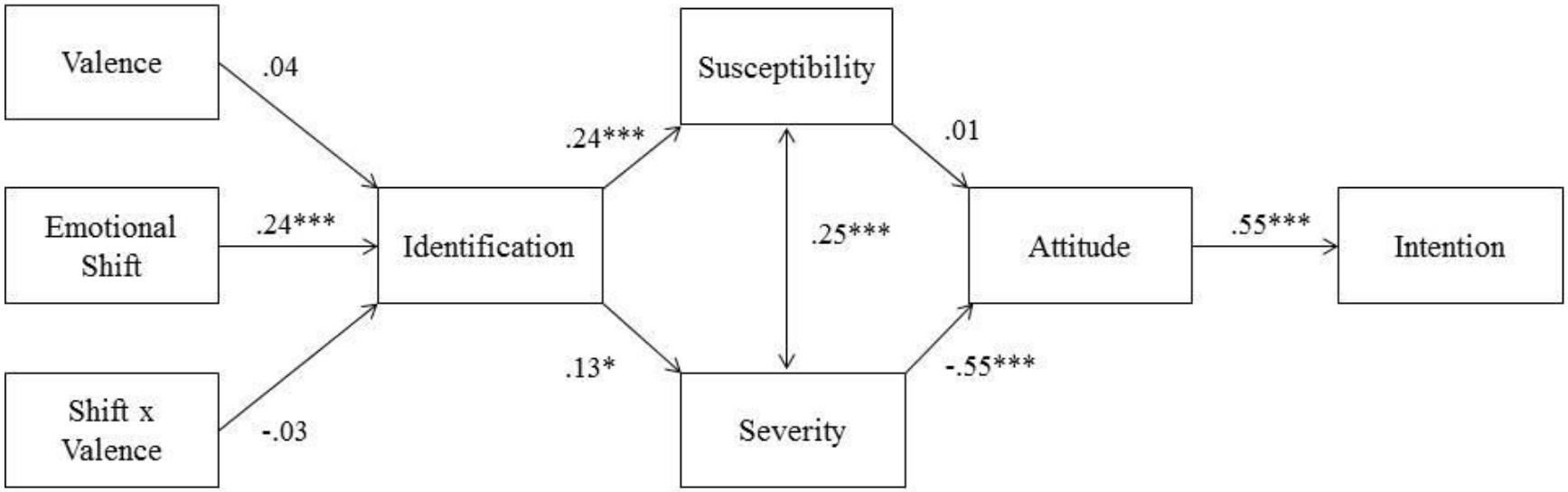

Figure 4. Path model of the effects of emotional shift messages on identification and persuasive outcomes.

χ^2 (16) = 55.55, $p < .01$, CFI = .92, RMSEA = .09 (.07, .12)

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

The effects of emotional shifts and valence on information seeking

The fifth hypothesis predicted that emotional shift messages would encourage greater information seeking behavior. This hypothesis was tested by conducting a series of ANCOVAs in which the independent variables were emotional shift (shift/no shift), valence, and the two-way interaction between shift and valence while the dependent variables were: the total time spent on information seeking and total pages visited. The covariate remained AmED frequency. The main effect of emotional shift on total time spent on information seeking was not significant, F (1, 296) = .16, p = .69, η_p^2 = .00. Therefore, H5 was not supported. The main effect of emotional shift on total pages visited was not significant, F (1, 296) = 2.49, p = .12, η_p^2 = .01. Additionally, there were no main effects of AMED frequency on total time spent information seeking (p = .94) and total pages visited (p = .37).

RQ1c asked whether valence influenced information seeking. However, there were no significant main effects on the total time spent information seeking (p = .74) or on the total pages visited (p = .35). Finally, the interaction effect between shift and valence was not significant for total time spent (p = .58) or for the total pages visited (p = .14).

The effects of emotional shift and valence on social sharing

The sixth hypothesis predicted that emotional shift messages would lead to greater social sharing intention. This hypothesis was tested by conducting an ANCOVA in which the dependent variable was social sharing intention; the independent variables were emotional shift (shift/no shift), valence, and the interaction between shift and valence. AmED frequency remained a covariate. The main effect of emotional shift on social sharing intention was not

significant, F (1, 296) = .83, p = .36, η_p^2 = .00. Therefore, H6 was not supported. Additionally, there were no significant main effects for AMED frequency on social sharing intention (p = .14).

RQ1d asked whether valence influenced social sharing intention. However, there were no significant main effects of valence on social sharing intention, *(*p = .89) and no significant interaction effects between shift and valence (p = .40).

CHAPTER 5

DISCUSSION

This study empirically tested Nabi and Green's (2015) theoretical postulations regarding the persuasive effects of emotional flow in a narrative health message about AmED. The results demonstrated that messages designed to evoke emotional shifts promoted greater transportation and identification than messages that were not designed to evoke a shift in emotions. Not only did emotional shift messages evoke greater transportation and identification but these narrative engagement variables, in turn, promoted persuasive outcomes. This study contributes to the expanding literature on the antecedents to narrative engagement variables, which are known to be key mediators of persuasion. Scholars have examined various antecedents to narrative engagement, such as perceived realism (Cho et al., 2014; So & Nabi, 2013) and perceived similarity between the reader and character (de Graaf, 2014). Our findings reveal that another antecedent to narrative engagement may involve evoking emotional shifts within a story. This is important because narrative engagement mediates persuasive impact as theorized and tested by a number of scholars (Moyer-Gusé, 2008). In our own study, we found this to hold true, finding that inducing emotional shifts indirectly led to greater story-consistent attitude and behavioral intention about AmED through the mediators of transportation and identification.

There are a few unexpected findings in this study that should be noted. Although both meditational models represented a good fit to the data, the path between susceptibility and attitude was not significant across the two models employing transportation and identification as mediators, respectively. This unexpected finding may be explained by examining previous

research that has found severity and susceptibility to have differing effects on attitude. Indeed de Hoog, Stroebe and Wit (2007) found that perceived vulnerability (i.e., susceptibility) did not significantly predict attitudes but found that perceived severity significantly predicted attitudes. The researchers explained that attitudes aimed at protective action are objective evaluations of information, and, thus, should not be affected by feelings of vulnerability or personal susceptibility. This finding may also be attributed to the operationalization's of perceived severity and perceived susceptibility in this study. Our study operationalized severity as a general perception about the serious consequences of consuming AmED (i.e. "I believe that consuming alcohol mixed with energy drinks has serious consequences"). In contrast, susceptibility was operationalized as one's own likelihood of experiencing negative consequences of AmED (i.e. "I believe that I'm at risk of experiencing negative consequences of consuming alcohol mixed with energy drinks"). Since severity was operationalized as a general perception about AmED it may have served as a stronger predictor of attitude, given that attitude is also a more general evaluation people have of another person, object, or idea (Petty, Wheele, & Tormala, 2013). In contrast, since susceptibility was operationalized as more of a specific personal risk of consuming AmED, it may not have predicted attitude, a more general evaluation. In other words, because perceived severity had the same level of specificity to attitude, it may have served as a better predictor.

The results did not show support for the effects of emotional shifts on social sharing intention and information seeking. A previous study (Peinado, 2017) found emotional shift messages to promote greater social sharing behavior in the form of interpersonal discussions. Similarly, but slightly differently, this study operationalized social sharing as intention to share the message via social media and did not find that emotional shift messages motivated

individuals to engage in this form of social sharing. Based on emotional excitation theory (Zillmann, 1983), it was theorized that shift messages would be more emotionally intense than no shift messages. Since emotions motivate individuals to socially share the emotionally charged event (Rimé, 1995) it was predicted that emotional shift messages would encourage individuals to share the message via social media. Although it was not part of the inquiry, we collected data on emotional reactions to the messages and found that shift messages were significantly more intense than no shift messages ($p < .001$). However, even if these messages were more intense, it is likely participants felt less motivated to share the story because the story was not in the form of a news article or a blog format, which is the format of messages that tends to be shared in social media (Berger & Milkman, 2012) and contained no additional details about the author of the story or when it was written. For future studies involving emotional shifts, placing context regarding an emotional shift message may encourage participants to share the message with others. Another explanation could be that our sample demographic, comprised of 18 to 27 year olds, is not motivated to share health related information on social media. Indeed, in a recent study, among a sample of adolescents and young adults, although 98% had used social media in the past month, only half of the sample reported actually sharing health information on social media (Hausmann, Touloumtzis, Gooding, White, & Colbert, 2017). Research on impression management may explain why individuals may be less likely to share health information on social media. Impression management, or the process by which individuals engage in strategic actions to develop and maintain a particular image (Goffman, 1959), is particularly important for adolescents and young adults. Participants may not have been motivated to share the health narrative because doing so would not contribute positively to their self-presentation or impression among their social media networks (Fergie, Hunt, & Hilton,

2016). Indeed, a qualitative study found that young adults felt social media, in particular *Facebook*, was not a space for serious or health related discussion and that posting such content could negatively impact an individual's presentations of themselves online (Fergie, Hunt, & Hilton, 2016). Rather than sharing health related information online, perhaps young adults be more likely to share and discuss health issues through interpersonal communication with peers and family members. Thus, future studies may measure interpersonal communication to ascertain whether individuals would share a health narrative with family or friends.

This study predicted that emotional shift messages would promote greater information seeking behavior than no shift messages. However, no significant effects were found for the hypothesis. Participants across conditions spent, on average, about the same amount of time seeking information. Based on the research on surprise and interest, it was predicted that messages designed to evoke emotional shifts would likely evoke surprise or interest due to shifting dramatic events in a story. Perhaps participants in the shift condition felt surprise due to Justin experiencing such an emotional high followed by an emotional low (or vice-versa) and were motivated to read additional information. It is possible that participants in the no shift condition were also motivated to read additional information, but for a different reason. Given that individuals in the no shift condition read a story that was shorter with a storyline that was less fleshed out, participants may have felt motivated to spend time reading additional details about the topic of AmED. Since the story did not provide as much information or context regarding the topic, these participants may have felt curious to read additional information.

While it was not the focus of this study, the valence of the emotions also made a difference in regards to persuasive effect. In the no shift condition, there were significant main effects of valence condition on transportation, such that participants exposed to no shift messages

that ended with a negative emotion reported greater transportation than those exposed to no shift messages that ended with a positive emotion. These findings may be explained by examining research regarding the differing effects of positive emotion versus negative emotion. Previous research has found that positive affect leads individuals to process messages in a more heuristic manner whereas negative affect facilitates more systematic or deeper processing (Schwarz & Bless 1991). This is because negative affect signals that the present environment has a problem and something must be fixed while positive affect signals that the environment is not threatening (Schwarz & Bless 1991). Thus, participants who read the negative message may felt more mentally involved in the story. Additionally, evoking negative emotions at the end may have provided a sense of suspense or curiosity and left participants wanting to learn what would happen to the main character and thinking about how the story could have turned out differently, both of which correspond to items in the transportation scale (Green & Brock, 2000).

Implications

Persuasion research typically focuses on the single, most dominant, final emotional state evoked by a story (Dunlop et al., 2008; Green, Chatham, & Sestir, 2012) but the findings from this study demonstrate that scholars should also devote attention to changes in the fluctuations and dynamics of audience's emotional experience across a narrative message. As demonstrated in this study, the messages that induce these changes in emotional experience over the course of a story may lead to greater persuasive outcomes than messages that do not.

Our findings also revealed that the transportation model represented a better fit than the identification model, reinforcing the belief that identification and transportation are two conceptually different variables. Given that one out of the four dimensions of identification is absorption or transportation (Cohen, 2001), there has been debate regarding the conceptual

overlap between the variables. Indeed, a number of studies have found transportation and identification to be positive correlated to each other. For instance, Green, Rozin, and Aldao, (2004) found significant correlations between the two variables across different types of text and similarly, Bilandzic and Busselle (2011) found positive correlations between the two across three films that ranged in genre from crime to romantic comedy. Although identification and transportation may be correlated to each other, research has found that the two are conceptually distinct. For example, So and Nabi (2013), found that the two variables led to differing effects on perceived social distance, with identification reducing social distance to a greater extent than transportation. Furthermore, upon reviewing 56 studies that examined the antecedents and consequences of transportation and identification, Tal-Or and Cohen (2016) concluded that the two represent distinct forms of audience's engaging with narratives and that each plays a distinct role in narrative persuasion. Our findings also reveal that identification and transportation are distinct variables and contribute to narrative persuasion research. In terms of practical implications, since transportation served as a stronger mediator for persuasive effects, practitioners may use this knowledge when designing interventions involving narrative messages.

Message designers may benefit from creating narrative messages that induce a shift in emotions – as opposed to a singular emotion with sustained intensity - since such messages may promote persuasive outcomes, as demonstrated in this study. One example of a PSA that can be interpreted as evoking an emotional shift in its audiences is the popular skin cancer PSA, "Dear 16-Year-Old Me" that has over 10 million views on YouTube. This PSA depicts different individuals telling jokes to their 16-year-old selves followed by stories about regretting dangerous skin-related behaviors, such as tanning or not using sunscreen. Rather than simply

focusing on just the negative consequences of a health behavior, and evoking fear in audiences, the PSA also induces positive emotions in viewers. It appears that messages designed with emotional flow in mind are possible to create and may resonate well with audiences.

Limitations and future research

One significant limitation in this study was the difference in the stimuli message length between the no shift message and the shift message. The stimuli message for the shift conditions was approximately double the length of the stimuli messages for the no shift condition, creating the possibility of experimental confound: Participants may have felt more transported or identified more with the character as a result of the longer story length than as a result of the shift. Although it would have been ideal if all messages were approximately the same length, we did not make the message with no emotional shift longer as this would have added further substance and detail into the story, which may have created an experimental confound. For this reason, the shift messages were developed first and the negative part of the shift message was used for the no shift negative condition while the positive half of the shift message was used for the no shift positive emotion. This, at least, ensured that all participants would be reading a story with the same character and setting. Another difference was that messages with an emotional shift were divided into Part 1 and Part 2 while messages with no shift were not divided into different parts. However, it is unlikely that this small detail would have led to significant effects.

Future research can examine other types of emotional shifts that Nabi and Green (2015) described in their study. This study examined and tested effects for one of the simplest types of emotional shift: one shift in the emotional valence of a story. For future studies, it may also be fruitful to examine other types of emotional shift, such as shifts in discrete emotions or shifts in the emotional intensity across a story. In regards to emotional intensity, a shift in the emotional

intensity of a message, such as evoking uneasiness within the story first and then fear, may build narrative engagement as the story develops. Furthermore, in our empirical test of emotional flow, we designed a stimuli message to evoke one emotional shift; however research on multiple shift points may also prove useful and interesting. Narratives naturally contain highs and lows throughout a story, and therefore, experiencing a multitude of emotions throughout a story may help intensify and immerse audiences within the story, leading to persuasive effects.

Rather than solely relying on self-report measures, using physiological measures to obtain a more accurate and dynamic representation of participant's emotional shifts as participants watch or read a narrative health message may also prove useful. There are a number of technologies by which emotional responses have been assessed such as facial electromyography (EMG) and functional magnetic resonance imaging (fMRI). Facial EMG's involve placing electrodes on the face to measure electric potential from facial muscles. Studies indicate that this technique is particularly useful to assess the valence of a person's emotional state, but is limited in understanding discrete emotional reactions (Mauss & Robinson, 2009). Another technique that may assess more specific emotions is the fMRI, which measures brain activity by detecting changes associated with blood flow (Mauss & Robinson, 2009). fMRI can identify which brain areas are associated with particular types of emotional states (Kassam et. al, 2013). These techniques could be used to more accurately track the dynamic changes in emotions that individuals experience as they watch or read a narrative designed to evoke emotional shifts.

Finally, another potentially fruitful inquiry is to examine emotional shifts among different types of communication medium. This study used a text-based story, however, future work can explore whether shifts in entertainment education videos or shifts in personal testimonials

influence persuasive outcomes differently. Given that narratives come in various forms, knowledge of emotional shifts in various communication medium may ultimately help in designing persuasive narrative health message.

CHAPTER 6

CONCLUSION

Based upon Nabi and Green's (2015) theoretical framework, this study tested the persuasive effects of emotional flow in the context of a health narrative about AmED. Results revealed that messages designed to evoke emotional shifts promoted greater transportation and identification than messages with no shift. In addition, transportation and identification mediated the effects of shift on story-consistent attitudes, behavioral intention, and partially promoted story consistent beliefs about AmED. Therefore, these findings demonstrate support for a number of theoretical postulations about the persuasive effects of emotional flow in narrative messages. Future research should continue to test the effects of emotional flow to determine whether shifts are effective at promoting persuasive outcomes and ultimately lead to health behavior change.

CHAPTER 7

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Appendix A: Table 1

Correlations and Descriptive Statistics (N = 347)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. shift	-											
2. valence	-.01	-										
3. AmED freq.	.08	-.05	-									
4. Transportation	.21**	-.17**	.10	-								
5. Identification	.20**	-.01	.15**	.63**	-							
6. Suscep.	.02	-.04	-.04	.23**	.20**	-						
7. Severity	.11*	-.20**	-.25**	.24**	.07	.31**	-					
8. Attitude	.02	.09	.45**	-.03	.12*	-.18**	-.64**	-				
9. Intention	.04	.02	.58**	.01	.15**	-.11*	-.47**	.69**	-			
10. SocialShare	.07	.00	.09	.01	-.01	.00	.02	-.02	-.05	-		
11. Pages Visited	.10	-.05	.06	.10	.01	-.07	.04	.08	.06	-.03	-	
12. Time Spent	-.00	.02	.00	.11*	.05	.01	.02	.01	.01	-.14**	.63**	-
M	.47	.46	.93	4.31	3.67	4.78	4.98	2.44	2.04	.97	4.97	4.21
SD	.50	.50	1.84	.87	1.23	1.72	1.65	1.21	1.46	.12	3.46	3.07

*$p < .05$ ** $p < .01$

APPENDIX B: Questionnaire

Pre-experiment questionnaire

Instruction: We are going to ask you questions about your alcohol consumption. Please note that all your answers are confidential and the researchers can not link your answers to your identity. So please feel comfortable being honest about your alcohol consumption even if you are under 21.

Behavioral status

1) Alcohol Use:

   Lifetime history of use. Have you ever, even once, had a drink of any type of alcoholic beverage? Please do not include times when you only had a sip or two from a drink. (1=Yes, 0= No)

   If yes:

   Drinking Frequency. [INSTRUCTION] During the PAST 30 DAYS, approximately how many days did you have at least one alcoholic drink?
   [1 to 30 dropdown box] _____ days

   Quantity of Consumption. [INSTRUCTION]. On average, when you consume alcohol, how many drinks do you have in one sitting? (Sales et al. 2014)
   [1 to 39, last option being "40 or more" dropdown box] _____drinks

2) Mixed Alcohol and Energy Drink Use:

   Lifetime history of use. Have you ever, even once, consumed an alcoholic beverage mixed with an energy drink (e.g. vodka and Red Bull)? Please do not include times when you only had a sip or two from a drink. (1=Yes, 0= No)

   If yes:

   Drinking frequency. [INSTRUCTION] During the PAST 30 DAYS, approximately how many days did you have at least one alcoholic beverage mixed with an energy drink?
   [1 to 30 dropdown box] _____ days

   Quantity of consumption. [INSTRUCTION]. On average, when you consume alcoholic beverages mixed with energy drinks, how many drinks do you have in one sitting?
   [1 to 39, last option being 40 or more dropdown box]

Experimental exposure (post-exposure)

Instruction: In the following page, you will be asked to read a story and then answer questions about your experience of the story.

1. Emotional Flow Manipulation Check
    a. NoEmotionFlow Condition: Did you experience any changes in the emotions you felt while reading the end of the story compared to the beginning of the story?
        - Yes (1)
        - No (0)
    b. NoEmotionFlow:
        - How did you feel while reading the beginning of the story? [7 – point likert type scale: 1- extremely negative to 7 – extremely positive]
        - How did you feel while reading the end of the story? [7 – point likert type scale: 1- extremely negative to 7 – extremely positive]

    a. EmotionFlowConditions: Did you experience any changes in the emotions you felt while reading Part 2 compared to Part 1?
        a. Yes (1)
        b. No (0)
    b. EmotionFlowManip: Please indicate how you felt while reading the story.
        a. How did you feel while reading Part 1 of the story? [7 – point likert type scale: 1- extremely negative to 7 – extremely positive]
        b. How did you feel while reading Part 2 of the story? [7 – point likert type scale: 1- extremely negative to 7 – extremely positive]

2. Transportation [INSTRUCTION]. Please indicate how much you experienced each of the following state while reading the story (1 = Not at All, 7 = Very Much).
    - While I was reading the story, activity going on in the room around me was on my mind. (R)
    - I could picture myself in the scene of the events described in the story.
    - I was mentally involved in the story while reading it.
    - After finishing the story, I found it easy to put it out of my mind. (R)
    - As I was reading, I wanted to learn how the story ended.
    - The story affected me emotionally.
    - I found myself thinking of ways the story could have turned out differently.
    - I found my mind wandering while reading the story. (R)
    - The events in the story are relevant to my everyday life.
    - The events in the story have changed my life.

3. Identification [INSTRUCTION] Please indicate how much you experienced each of the following state while reading the story (1 = Not at All, 7 = Very Much).
    - I think I have good understanding of Justin.

- I tend to understand why Justin did what he did.
- While reading, I felt like Justin felt.
- At key moments in the story, I felt I knew exactly what Justin was going through.
- While reading, I felt I could really ‘‘get inside’’ Justin’s head.
- While reading I wanted Justin to succeed in achieving his goals.
- When Justin was having a good time I felt happy, but when he was having a difficult time, I was sad.

4. Perceived susceptibility. [INSTRUCTION] Please indicate how much you agree or disagree with the following statements (1 = Strongly disagree, 7 = Strongly agree)
    - I believe that I’m at risk of experiencing negative consequences after consuming alcohol mixed with energy drinks.
    - It’s likely that I will experience negative consequences after consuming alcohol mixed with energy drinks.
    - It’s possible that I will experience negative consequences after consuming alcohol mixed with energy drinks.

5. Perceived severity [INSTRUCTION] Please indicate how much you agree or disagree with the following statements (1 = Strongly disagree, 7 = Strongly agree)
    - I believe consuming alcohol mixed with energy drinks has serious consequences.
    - I believe that the consequences of consuming alcohol mixed with energy drinks are deadly.
    - I believe consuming alcohol mixed with energy drinks is fatal.

6. Attitudes [INSTRUCTION] Now we would like to ask you some questions about your attitudes toward consuming alcohol mixed with energy drinks. There are no right or wrong answers so please give honest answers about what you think. When answering these questions, please use the scale from -3 to 3 , where -3 represents the word/idea on the left and 3 represents the word/idea on the right. Your answer can fall on the ends or anywhere in between.

    <u>I think that consuming alcohol mixed with energy drinks is...</u>
    - Bad-Good
    - Unsafe-Safe
    - Foolish-Wise
    - Undesirable-Desirable
    - Unpleasant-Pleasant

7. Intention. [INSTRUCTION] Please indicate how much you agree or disagree with the following statements (1 = Strongly disagree, 7 = Strongly agree).
    - I am likely to consume alcohol mixed with energy drinks in the near future (1)
    - I will probably consume alcohol mixed with energy drinks in the near future (2)
    - I plan to consume alcohol mixed with energy drinks in the near future (3)

8. Social Sharing. [INSTRUCTION] Select the preferred social media icon if you wish to share this story with your family and friends. (no click = 0, click =1)

- Twitter
- Facebook
- Google +
- Instagram
- Email
- I do not wish to share this story via social media

9. Information Seeking [INSTRUCTION] Below is a list of information about the practice of mixing alcohol and energy drinks. Please select the information you are interested in reading. Please note that:
   - On each selected page, you will be able to continue reading the next information or return to the table of contents to select other information.
   - PLEASE DO NOT VISIT THE SAME PAGE MORE THAN ONCE.
   - If you finish reading all the information you are interested in, please return to the table of contents and select "skip information seeking" to end the survey.

10. Information about mixing alcohol and energy drinks:
    - Why do people do this?
    - What happens when you do this?
    - Chemical mechanism involved
    - Prevalence of mixing alcohol and energy drinks
    - Negative consequences of mixing alcohol and energy drinks
    - Risk factors
    - Prevalence of negative health consequences
    - Recommendations
    - Skip information seeking session

11. Demographics
    - Sex
    - Age
    - Major
    - Ethnicity

Debriefing

Class Credit Info

APPENDIX C: Stimuli

Positive only

21-year old Justin Wagner had arrived at the bar sober just before midnight, having just finished a long shift at the restaurant. He was looking forward to catching up with his friends and soaking up some fun before the start of the spring semester in two days.

He spotted his friends Robert and Kyle, who were already buying drinks and he walked over to join them. Justin had first met the two during freshmen orientation and they had been friends ever since then.

He grinned when he saw a two-for-one offer on drinks at the bar. Unable to resist the cheap offer, he ordered four glasses of Red Bull energy drink mixed with vodka.

"Cheers to a crazy night!!" he shouted as he clinked glasses with Robert and Kyle, who had ordered shots of tequila. He downed the four drinks one after the other and instantly felt a surge of energy, feeling like he could stay up all night to party.

By 1 a.m., the bar was packed with college students, their hands in the air, jumping ecstatically to the beat of the music. Justin was having a good time with his friends, pumping his fists to the music and laughing at Robert's terrible dance moves.

Negative only

A few hours after drinking four glasses of Red Bull energy drink mixed with vodka, 21-year old Justin Wagner began to feel sick and rushed to the bathroom. He started having a cardiac arrest, his chest jolting, and collapsed on the floor, hitting his head on the toilet as he fell. He blacked out.

Robert, noticing that Justin was missing began to look for him. He opened the bathroom door and was horrified to find Justin slumped, motionless, on the floor. He tried to rouse him, but he remained unresponsive. He noticed Justin's pulse felt faint and that he had started to turn purple.

He quickly dialed 911 and he was transported to the hospital and taken to the intensive care unit. The doctors put him in a medically induced coma to protect his brain and heart after he suffered another cardiac arrest. His family and friends faced an agonizing wait to see if he would recover. His mom sobbed seeing him covered in tubes.

Two weeks later, Justin woke up. He had an IV in each arm and more tubes than he could count connecting him to monitors and machines. The doctor explained to him that when the alcohol he drank had worn off, the caffeine in his system from the energy drink took control of his heart rate – causing it to accelerate wildly. He had barely escaped with his life.

Positive-negative

Part 1

Justin Wagner, a 21-year-old college student, arrived at the bar sober just before midnight, having just finished a long shift at the restaurant. He was looking forward to catching up with his friends and soaking up some fun before the start of the spring semester in two days.

He spotted his friends Robert and Kyle, who were already buying drinks and he walked over to join them. Justin had first met the two during freshmen orientation and they had been friends ever since then.

He grinned when he saw a two-for-one offer on drinks at the bar. Unable to resist the cheap offer, he ordered four glasses of Red Bull energy drink mixed with vodka.

"Cheers to a crazy night!!" he shouted as he clinked glasses with Robert and Kyle, who had ordered shots of tequila. He downed the four drinks one after the other and instantly felt a surge of energy, feeling like he could stay up all night to party.

By 1 a.m., the bar was packed with college students, their hands in the air, jumping ecstatically to the beat of the music. Justin was having a good time with his friends, pumping his fists to the music and laughing at Robert's terrible dance moves.

Part 2

After about an hour, things took a turn for the worse. Feeling sick, he rushed to the bathroom. He started having a cardiac arrest, his chest jolting, and collapsed on the floor, hitting his head on the toilet as he fell. He blacked out.

Robert, noticing that Justin was missing began to look for him. He opened the bathroom door and was horrified to find Justin slumped, motionless, on the floor. He tried to rouse him, but he remained unresponsive. He noticed Justin's pulse felt faint and that he had started to turn purple.

He quickly dialed 911 and he was transported to the hospital and taken to the intensive care unit. The doctors put him in a medically induced coma to protect his brain and heart after he suffered another cardiac arrest. His family and friends faced an agonizing wait to see if he would recover. His mom sobbed seeing him covered in tubes.

Two weeks later, Justin woke up. He had an IV in each arm and more tubes than he could count connecting him to monitors and machines. The doctor explained to him that when the alcohol he drank had worn off, the caffeine in his system from the energy drink took control of his heart rate – causing it to accelerate wildly. He had barely escaped with his life.

Negative- positive

Part I

21-year old Justin Wagner began to feel sick and rushed to the bathroom. He started having a cardiac arrest, his chest jolting, and collapsed on the floor, hitting his head on the toilet as he fell. He blacked out.

Robert, noticing that Justin was missing began to look for him. He opened the bathroom door and was horrified to find Justin slumped, motionless, on the floor. He tried to rouse him, but he remained unresponsive. He noticed Justin's pulse felt faint and that he had started to turn purple.

He quickly dialed 911 and he was transported to the hospital and taken to the intensive care unit. The doctors put him in a medically induced coma to protect his brain and heart after he suffered another cardiac arrest. His family and friends faced an agonizing wait to see if he would recover. His mom sobbed seeing him covered in tubes.

Two weeks later, Justin woke up. He had an IV in each arm and more tubes than he could count connecting him to monitors and machines. The doctor explained to him that when the alcohol he drank had worn off, the caffeine in his system from the energy drink took control of his heart rate – causing it to accelerate wildly. He had barely escaped with his life.

Part 2

Justin recalls how last night had begun so perfectly.

He had arrived at the bar sober just before midnight, having just finished a long shift at the restaurant. He was looking forward to catching up with his friends and soaking up some fun before the start of the spring semester in two days.

He spotted his friends Robert and Kyle, who were already buying drinks and he walked over to join them. Justin had first met the two during freshmen orientation and they had been friends ever since then.

He grinned when he saw a two-for-one offer on drinks at the bar. Unable to resist the cheap offer, he ordered four glasses of Red Bull energy drink mixed with vodka.

"Cheers to a crazy night!!" he shouted as he clinked glasses with Robert and Kyle, who had ordered shots of tequila. He downed the four drinks one after the other and instantly felt a surge of energy, feeling like he could stay up all night to party.

By 1 a.m., the bar was packed with college students, their hands in the air, jumping ecstatically to the beat of the music. Justin was having a good time with his friends, pumping his fists to the music and laughing at Robert's terrible dance moves.