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It's Not What You Say, It's How You Say It: The Role of Evidence Type in Changing Violent Media Consumption

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ABSTRACT

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in Changing Violent Media Consumption

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The amount of violent media that is consumed on a daily basis by the average American and the empirically proven effects associated with such regular consumption have led scholars to consider violent media a public health threat, the risks of which, the public may not even fully appreciate (Huesmann, Dubow, & Yang, 2013). Previous research in the field of public health communication has found that different forms of evidence in public health risk messages are more or less effective in changing behavior depending on individual recipient characteristics (de Wit, Das & Vet, 2008; Reinard, 1988; Slater & Rouner, 1996). The present research investigated the effectiveness of different forms of evidence (narrative or statistical) in decreasing violent media consumption by increasing an individual's risk perceptions and negative attitude associated with violent media. In accordance with the Theory of Planned Behavior (Ajzen, 1991), it was hypothesized that these risk perceptions and attitudes would predict intentions toward violent media consumption, as well as subsequent consumption. The study was conducted via MTurk with a sample of one hundred and fifty participants (53% Male). Results showed that an individuals' violent media consumption predicted their attitude toward violent media ($p = .035$), and that their risk perception and attitude toward violent media significantly predicted their intentions to decrease violent media consumption (ps $< .05$). Though no significant difference was found between the effect of narrative and statistical evidence on general violent media consumption, exploratory analyses of effects on specific forms of media showed that narrative evidence resulted in a significant decrease in violent video game consumption ($p = .042$). Additionally, age predicted risk perception, the older the participant the less risk they perceived in violent media consumption ($p = .010$). Future research should investigate the effect of including all elements of the Theory of Planned Behavior on the ability of different evidence types to change behavior, and perhaps extend the time frame within which change is measured in order to maximize the ability to observe any true change in behavior.

Keywords: violent media consumption, evidence type, risk perception, attitude, intention

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Media Consumption

The goal of the present research is to identify the most effective form of evidence to

utilize in health risk messages to influence predictors of violent media consumption (such as risk

perception, attitude towards consumption, and intention to decrease consumption) in order to

ultimately decrease violent media consumption. We will first discuss media consumption in the

U.S. and prevalence/consumption of violent media specifically along with the effects research

has found to be associated with this consumption. Next, three predictors of violent media

consumption – risk perception, attitude and intention to consume – will be reviewed. Drawing on

previous research in the field of health communications, it is hypothesized that the most effective

form of evidence to communicate the risk of violent media to consumers and manipulate their

perceived risk, attitudes and intentions in order to ultimately change violent media consumption

behavior depends on the individual. Specifically, two variables (violent media consumption and

gender) are hypothesized to moderate the effect of message type. Finally, we will review the

results and implications associated with the present research.

Media Consumption

The percent of homes owning a television rose from 63% in 1955 to 98% in 1985

(Nielson Media Research, 1998). As of 2015, 116.3 million of the United States' 124.6 million

households (roughly 93%) own a television, and while this number is slightly lower than the

1985 average, the trend of television ownership in households has stayed stable over the past 10

years with a slow and steady increase (Nielson Media Research, 2014; U.S. Census Bureau,

2015). This means that media are available 24-hours a day at the flick of a switch in most homes

in the U.S. With technology continuing to rapidly develop, it (and the media it brings) is an ever-

increasing presence in day-to-day life. It is within the last generation that having household computers, easy Internet access, and portable devices, such as iPods and cell phones (many being Smartphones), has become common (Kaiser Family Foundation 2010, Lenhart et al., 2011; Smith, 2013). Today, the majority of teens and 96% of college students have a cell phone – for most, this is an ever-present source of media (Jacobsen & Forste, 2011).

In addition to the amount of media presence in the home and day-to-day life, researchers have studied how much time individuals spend consuming media content. Research has shown that the average American child spends more time consuming entertainment media than an adult does at a full-time job, approximately 53 hours of entertainment media per week (Kaiser Family Foundation, 2010). With the advances in technology available today, children have many more outlets available to them for media consumption than just television. Looking deeper at those 53 hours a week, many children spend that time with multiple devices (e.g., they stream videos on their phone while they watch television). This means that although a child may spend seven and a half hours a day consuming media, he or she actually consumes about 11 hours of content.

The amount of time spent on media consumption in children is similar to the amount of time emerging adults spend on media consumption. Research shows that emerging adults (i.e., individuals ages 18-25) consume approximately 12 hours of media a day (Alloy Media & Marketing, 2009), including television, movies, and video games (Coyne, Padilla-Walker, and Howard, 2013). College students spend one to two hours a day watching television (Jacobsen & Forste, 2011; Mokhtari, Reichard, & Gardner, 2009). In terms of video game consumption, there seems to be some variability, as some emerging adults don't play video games at all while others play several hours a day, and practices seem to vary by gender. Roughly 55% of emerging adult men report playing video games at least once a week,

compared to only 6% of women (Jones, 2003). In fact, over 50% of women report they never play video games, while only 15% of men say the same. Research on Internet use indicates the average emerging adult spends approximately 3 ½ hours a day on the Internet (Padilla-Walker, Nelson, Carroll, & Jensen, 2010) and roughly 50 minutes a day on social networking sites, predominantly Facebook (Jacobsen & Forste, 2011).

Presence of Violence in Media

With the ever-increasing presence and convenience of media, individuals are also consuming more and more violent content. It has been noted that there does not seem to be a scientifically uniform definition for "violence" in media violence research and that perhaps this is a goal for researchers to work toward as it would allow for better comparisons to be made across studies (Wilson, 2008).

According to research, including a content analysis of over 8,000 hours of television (both cable and broadcast), 60% of all television programs, 90% of movies and 68% of video games contain violence (National Television Violence Study, 1996; 1997; 1998; Wilson, 2008). Shows with violence average six acts of violence per hour and more than half of the shows containing violence include lethal acts (Kunkel, 2007). By the time they graduate from elementary school, the average American child will have watched more than 8,000 murders and over 100,000 other violent acts, such as assault and rape (Huston et al., 1992).

In addition to television, violent video games are a common source of violent media. In fact, 85% of the most popular video games among children are violent video games (Provenzo, 1991). Among fourth grade children, 59% of girls and 73% of boys report that most of their favorite video games are violent in nature (Buchman & Funk, 1996). An analysis of 60 of the most popular video games, for Nintendo 64, Sega Dreamcast and Sony Play Station, showed that

68% of all the sampled video games contained violence. Of those 60 games, 20 were rated "T" (for Teen, ages 13 and up) and "M" (for Mature, ages 17 and up). And, of those 20, 90% contained violence, defined in this research as "any overt depiction of a credible threat of physical force or the actual use of such force intended to physically harm an animate being or group of beings" (Smith, Lachlan, & Tamborini, 2003). Another study of "T" rated video games found that 98% of video games included violent content, 36% of the actual playing time involved violence, 90% required or rewarded the player for harming other characters, and 69% required or rewarded the player for killing (Haninger & Thompson, 2004). These content analyses, while somewhat dated, are still the most recent research into the presence of violent content in media. Considering the growth of technology and increasing prevalence of media over the last 10-15 years, future research should look at obtaining a more current perspective of the presence of violence in media (Alloy Media & Marketing, 2009).

Researchers have found it difficult to cite an average amount of time for actual violent video game consumption as there is such variability in the amount of time users spend consuming (Jacobsen & Forste, 2011). In regards to violent video game play in emerging adulthood, 21% of men, compared to less than 1% of women, say they play violent video games 3 times a week or more; additionally, 81% of women, compared to only 25% of men, say they never play violent video games (Padilla-Walker et al., 2010).

Researchers have concluded that approximately two-thirds of all video games marketed to general audiences, and nearly all video games targeted towards older audiences, contain violence (Wilson, 2008). This research shows the presence of media, and particularly violent media, in the lives of most Americans on a daily basis.

Consequently, it is critical to discuss the effects associated with such frequent exposure to these stimuli.

Effects of Violent Media Consumption

Increased Aggression

Short-term effects. Exposure to violent media has a number of immediate effects that lead to an increase in aggressive responses. Violent media exposure has been shown to cause heightened physiological arousal, such as increased heart rate and blood pressure (Bushman & Huesmann, 2006; Fergusen, 2007). Researchers suggest this increase in physiological arousal may facilitate more aggressive responses in provoked individuals since, in a state of heightened arousal, an individual may misattribute the arousal as anger or hostility in response to the provocation (Zillmann & Bryant, 1974; Zillmann 1979). Aside from physiological arousal, studies have shown that violent media exposure can lead to affective arousal and individuals often experience state anger or hostility which can lead to aggressive behavior (Bushman & Huesmann, 2006; Anderson et al., 2010).

Violent media exposure can also trigger aggressive cognitions, emotions, and even self-concepts. Research in which participants were asked to read, watch or play violent content compared to non-violent content all showed similar effects: those asked to watch violent videos produced more aggressive words in a word association task and were faster to identify aggressive words in letter strings (Bushman, 1998; Bushman & Anderson, 2002), playing violent video games led to faster recognition of aggression-related words (Bosche, 2010) and reading violent comic books led individuals to choose more aggressive words in a cognitive task (Berkowitz, 1973). In addition to eliciting aggressive cognition, violent media consumption can affect one's cognitive interpretation of a situation, leading one to perceive a neutral situation as hostile

(Carver, Ganellen, Froming, & Chambers, 1989). Research regarding hostile lyrics in music has shown that men and women who listened to music demeaning of the opposite sex behave more aggressively toward the opposite sex than did participants who had listened to neutral lyrics (Fischer and Greitmeyer, 2006). Additionally, playing violent video games, particularly ones in which the player can personalize their character's physical appearance after their own, elicits an aggressive perception of self, as demonstrated by increases in the speed of association one has between aggression-related words and the self as measured in an Implicit Association Test (Bluemke et al., 2010; Fischer, Kastenmuller, & Greitemeyer, 2010; Uhlmann & Swanson, 2004).

Research has shown the aggression which violent media consumption primes, leads to a preference for more violent content (Langley, O'Neal, Craig, & Yost, 1992). These findings suggest a vicious cycle between violent media consumption, aggression and an increased preference for more violent media. This leads to the question of what effects may occur if violent media consumption becomes habitual.

Long-term effects. In 1960, Leonard Eron conducted the Columbia County Longitudinal study (Eron, Huesmann, Lefkowitz, & Walder, 1972), eventually concluding that individuals who watched more violent television as children were significantly more aggressive as young adults. These findings held true even controlling for childhood aggressiveness, as aggression as a child did not predict violent media consumption. Utilizing these data and advanced statistical methods, Eron et al. was able to establish a causal relationship between violent television consumed in childhood and participants' aggression later in life, eliminating the possibility that the causal arrow went the other way.

Research in violent video games has shown similar findings; five months after playing violent video games participants had a greater likelihood of interpreting behavior as hostile. This attribution of hostile intent was also linked to greater physical aggression from the participant (Gentile & Gentile, 2008). Consistent violent video game play has also been connected to trait hostility, which has in turn been associated with relational and physical aggression (such as verbal arguments and physical altercations; Gentile, Lynch, Linder, & Walsh, 2004). The General Aggression Model (Anderson & Bushman, 2002) posits that these effects occur because violent media depicts pro-aggression beliefs, attitudes and behavioral scripts that are learned, rehearsed and reinforced through repeated exposure.

Habitual exposure to violent media has also been linked to desensitization (Anderson & Dill, 2000). When desensitization occurs, an individual habituates to an arousing stimulus through repeated exposure. In the context of violent media consumption, this means that the natural physiological and affective responses of the individual decrease little by little with repeated exposure to violent stimuli. According to Bushman and Huesmann (2006), desensitization can explain the "reduction in distress-related physiological reactivity to media portrayals of violence" (p. 349) that is seen as an individual is repeatedly exposed to violent stimuli.

Repeated exposure to violent media can decrease the negative affect associated with the violent media as with repeated exposure the violent stimuli lose the ability to elicit strong emotions (i.e. people become accustomed to it and it no longer evokes feelings of distress; Anderson & Dill 2000). Research has demonstrated that the more violent media an individual consumes the less responsive they become emotionally to the violent material (Averill, Malstrom, Koriat, & Lazarus, 1972). In addition to this decreased emotional response, research

has shown that habitual violent video game play is associated with reduced empathy and helping behavior (Funk, Baldacci, Pasold, & Baumgardner, 2004; Funk, Buchman, Jenks, & Bechtoldt, 2003)

These physiological responses that are diminished through habituation and desensitization are important cues that tell a person when a stimulus is potentially harmful. With a decrease in these physiological responses, it can therefore be concluded that an individual might begin to perceive less risk associated with violent media as he or she becomes increasingly desensitized to it. Previous research shows that there is a strong negative correlation between violent media consumption and an individual's perception of risk associated with it (Farley & Ridge, 2015). This is problematic as it is possible that as people perceive less and less risk in consuming violent media, their violent media consumption may actually increase, thereby putting them at a greater risk for negative consequences associated with this consumption, such as increased aggression.

Based on the research discussed thus far, it is apparent that the high levels of media consumption within the United States (Alloy Media & Marketing, 2009; Coyne et al., 2013; Kaiser Family Foundation, 2010) and the strong presence of violence in the media indicates that people are consuming high quantities of violent media (Kunkel, 2007; Smith, Lachlan, & Tamborini, 2003; National Television Violence Study, 1996; 1997; 1998). Considering the negative effects associated with violent media consumption (Bluemke et al., 2010; Fischer, Kastenmuller, & Greitemeyer, 2010; Gentile & Gentile, 2008; Uhlmann & Swanson, 2004), researchers have expressed concern that violent media consumption is so prevalent, and that perhaps people do not appreciate the risks (Huesmann, Dubow, & Yang, 2013; Prot, 2015). In order to better understand why it is that individuals consume violent media, we will

discuss three predictors of behavior (risk perceptions, attitudes and intentions) and explain how they may work together to explain violent media consumption (Ajzen & Fishbein, 1977; 2005; Byrnes, Miller and Schafer, 1999; Jianakoplos & Bernasek,1998; Sheeran, Harris, & Epton, 2014; Webb & Sheeran, 2006).

Predictors of Violent Media Consumption

Risk Perception

Risk perception is "the ability to sense and avoid harmful environmental conditions" (Slovic, 2000, p. 220). Originating in research aimed at understanding decision-making processes and probability assessments of individuals (Edwards, 1961), psychology has long sought to understand the way in which individuals process information to assess risk. Kahneman, Slovic and Tversky (1982), made great advances in the field of risk perception when they discovered a set of heuristics and mental strategies people reliably use in order to organize information and come to conclusions about risk. However, their studies showed a number of factors, including misleading personal experiences and biased media coverage, could lead to faulty assessments of risk with these assessments sometimes overestimating and sometimes underestimating the risk (Slovic, 2000). Additionally, risk perception was associated with risk-taking behavior (Byrnes, Miller and Schafer, 1999). For example, differences in neural development make adolescents sensitive to rewards, as well as lacking certain top-down processing capabilities. Thus, they are prone to perceive less risk and engage in more risk-taking behavior (Blum & Nelson-Mmari, 2004; Casey et al., 2008; Figner, Mackinlay, Wilkening, and Weber, 2009; Gladwin et al., 2011; Gogtay et al., 2004; Huttenlocher, 1990; Huttenlocher & Dabholkar, 1997; Somerville et al., 2010; Tamnes et al., 2010). Additionally, individuals perceive less risk and, consequently, engage in a behavior when they like it or they perceive

benefits from it (i.e. the more an individual likes a behavior, the less risk they perceive;

Alhakami & Slovic, 1994). In a meta-analysis of 150 studies, researchers found men reliably

perceive less risk than do women and engage in more risk-taking behavior (Byrnes, Miller and

Schafer, 1999; Jianakoplos & Bernasek,1998). Previous research has shown repeatedly that risk

perception reliably predicts behavior (Figner and Weber, 2011; Sheeran, Harris, & Epton, 2014)

and lower levels of perceived risk predict higher levels of violent media consumption (Farley &

Ridge, 2015).

Attitude

A person's attitude is their favorable or unfavorable evaluative reaction toward

something or someone (Bohner & Dickel, 2011). There are times when an individual's attitudes

are poor predictors of behavior. For example, research shows people often indicate they would

express being upset if someone were to make racist comments, yet subsequently show

indifference when they hear racist remarks (such as use of derogatory names for certain

ethnicities; Kawakami et al., 2009). In fact, an analysis of studies showed little correspondence

between attitudes and behaviors (Wicker, 1969).

There are times, however, when attitudes can accurately predict an individual's behavior.

Attitude reliably predicts behavior when the attitude is specific to the behavior examined. In a

review of 27 studies of attitudes predicting behavior, Ajzen and Fishbein (1977, 2005) concluded

that specific attitudes about a situation reliably predict behavior. Asking a person about their

attitude toward running is a better predictor of their running behavior than asking them about

their attitude toward physical fitness in general; the same has been shown with recycling and

condom use, specific attitudes toward these actions predict behavior (Abarracin, Johnson,

Fishbein, & Muellerleile, 2001; Nigbur, Lyons, & Uzzell, 2010). From this research, we

conclude that in order to influence people's violent media consumption, specific attitudes toward violent media consumption must first be influenced.

Intention

The theory of planned behavior states that attitudes (among other critical variables) inform intentions and intentions lead to behavior (Ajzen, 1991). Congruently, research shows that both risk perception and attitude predict intentions toward a behavior (Ajzen & Fishbein, 1977; 2005; Sheeran, Harris, & Epton, 2014). And, intentions predict behavior: a meta-analysis of experimental studies showed that inducing new intentions toward a behavior predicted new behavior engagement (Webb & Sheeran, 2006). Another meta-analysis corroborated these findings by showing that when intentions toward a behavior rise, behavioral engagement rises (Sheeran, Harris, & Epton, 2014). To summarize, in order to change behavior, first risk perceptions and attitudes must change, informing intentions and ultimately effecting behaviors. Thus, the critical question is how to communicate risk in a way that will change perceptions of risk and attitudes regarding violent media consumption.

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Evidence Type Research

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In trying to communicate the risks of certain behaviors to people, researchers have shown that some form of proof or evidence increases persuasion (Reinard, 1988) and that this proof can come in multiple forms, but is generally grouped as either narrative/anecdotal evidence or statistical/objective evidence (Perloff, 2003). Narrative evidence refers to an interesting and emotionally compelling first-person account of someone who has experienced a specific situation or condition that could potentially affect the message recipient as well. Conversely, statistical (or objective) evidence refers to the use of numbers, data, or factual assertions, such as the likelihood of experiencing a condition, in order to persuade the message recipient of their

potential risk of being affected by the problem. Interestingly, some research indicates that the efficacy of the different message types may be dependent on the relationship that the message recipient initially has with the message content (i.e., they already agree with the content versus being in opposition to it; Slater & Rouner, 1996). Research shows that when a message recipient is in agreement with the message content, statistical evidence is most persuasive. However, those who are in opposition to the message content are not as persuaded by statistical evidence, but are more persuaded by narrative evidence (Slater & Rouner, 1996).

Researchers have proposed that this discrepancy in message type effectiveness is a function of how the different messages are processed cognitively (de Wit, Das & Vet, 2008; Reinard, 1988). The Elaboration Likelihood Model of Attitude Change (Petty & Wegener, 1999) proposes two ways in which a message could be processed: the central route or the peripheral route. The central route involves a great deal of deliberation, message scrutiny and argument analysis, whereas the peripheral route depends primarily upon situational cues and elicited heuristics. A message is most likely to be processed via the central route when the message recipient is highly invested or influenced by the issue presented.

If a highly involved and invested message recipient is not in agreement with the content presented, then statistical evidence is likely to elicit greater levels of defensiveness and counter argument through the central route (Chaiken, 1992). When this occurs, it inhibits the persuasive influence of statistical evidence (Slater & Rouner, 1996). Researchers posit that narrative evidence is more persuasive when the message recipient is not in agreement with the content as the narrative evidence elicits affective and heuristic processes in the peripheral route, thereby avoiding intense message scrutiny in the central route (Slater & Rouner, 1996).

There are a number of heuristic effects present in the peripheral route that narrative evidence such as a first-person case is likely to elicit. The availability heuristic states that when evidence is vividly presented in a first-person format of a historical narrative, it is more likely to easily and quickly come to mind at a later point when the message recipient is faced with a relevant decision (Tversky & Kahneman, 1973). The simulation heuristic states that when the recipient can more easily imagine a scenario, this will increase their perception of the likelihood of occurrence, (Janssen, Osch, Vries, & Lechner, 2013; Rotliman & Scwarz, 1998; Tversky & Kahneman, 1974).

In addition to these heuristics, a first-person narrative case history is likely to elicit a strong emotional response. The risk-as-feelings hypothesis (Loewenstein, Weber, Hsee, & Welch, 2001) proposes that the affect experienced at the decision-making moment (specifically, anticipatory emotions) will inform decision-making directly, independent of any cognitive message processing. Research on individuals' intention to start and/or continue to get flu vaccinations revealed that anticipatory emotions (such as regret and worry) were strong predictors of future vaccination (Loewnstein et al., 2001; Chapman & Coups, 2006).

In attempting to capture the comprehensive persuasive effects of a narrative message, Green and Brock (2000) introduced the concept of transportation. They suggest that a first-person case narrative allows individuals to fully immerse themselves in the scenario with their imagination, feelings and attention. This full immersion transports the individual to a state of message engagement that does not involve high message scrutiny, making it less likely to create defensive reactions in the recipient and more likely for the availability and simulation heuristic processes to take place.

Research in health communication aimed at changing risk perceptions, intentions and behavior showed that message resistant recipients were significantly more likely to engage in the presented preventative health behavior in response to a narrative evidence message (de Wit, et al., 2008; Lemal & Van den Bulck, 2010). Indeed, research has shown that narrative evidence is effective across a wide range of conditions, its effects are enduring over time, and it is particularly effective with message-resistant recipients (Dahlstrom, 2012).

Research has found that message-congruent recipients are most influenced by statistical evidence (de Wit, Das, & Vet, 2008). Considering the Elaboration Likelihood Model, it is logical that since message-congruent recipients agree with the content, they are likely to judge a statistical evidence message as subjectively strong, and rehearse favorable thoughts, leading to persuasion. The message will have reinforced the recipient's existing attitudes and beliefs through the inner rehearsal of what they perceive to be strong evidence.

Although there is this growing literature on the effect of message type on persuasion in health risk scenarios, there has not yet been any research on the impact of message type on persuasion effectiveness in risk messages regarding violent media consumption. This is surprising, given the impact that violent media consumption has on a person's increased aggression (Berkowitz, 1973; Bushman & Geen, 1990; Eron & Huesmann, 1986; Eron et al., 1972) and society as a whole, such as increased crime rates (Bushman & Anderson, 2001; Centerwall, 1989:1992; Huesmann, Moise-Titus, Poldoski & Eron, 2003). The growing pervasiveness of violent media consumption within society today (Huston et al., 1992; Kaiser Family Foundation, 2010; National Television Violence Study, 1996; 1997; 1998; Nielson Media Research, 1998; Provenzo, 1991) indicates there is a large population of individuals at-risk for these effects of violent media consumption. Consequently, it seems critical to identify the

most effective way to reach this population to increase risk perception associated with violent media consumption and decrease consumption.

Considering the literature reviewed thus far, there are a number of supportable and testable hypotheses regarding the type of evidence in risk messages that will be most influential (depending on individual differences) in increasing risk perception and negative attitudes to ultimately change intentions and, consequently, behaviors. The literature suggests that individual differences that make a person more resistant to the message would act as moderators on the effect of message type on subsequent behavior. In this research, two specific variables will be tested that may make an individual resistant to the message of risk associated with violent media and therefore should also moderate the effect of message type on violent media consumption.

Individual Differences as Moderators

Violent Media Consumption

High levels of violent media consumption are associated with desensitization (Anderson & Dill, 2000; Averill et al., 1972) and lower perceptions of risk (Farley & Ridge, 2015). To the extent that such media are perceived as low-risk and do not produce aversive arousal, it is reasonable to assume that high violence consumers enjoy them more than low violence consumers. Since a message regarding the risks of consuming violent media is incongruent with the beliefs and behaviors of high consumers, these individuals are likely to be message resistant. Thus, they are likely to respond unfavorably to statistical evidence in support of an anti-media violence message. It is predicted that those who have higher levels of violent media consumption will have greater risk perceptions and negative attitudes in response to a narrative evidence risk message than a statistical evidence message, since they should be message resistant (Hypothesis 1). Conversely, those who have higher risk perceptions have lower violent media consumption

(Farley & Ridge, 2015), it is therefore predicted that they will have greater risk perceptions and negative attitudes in response to a statistical evidence risk message than a narrative evidence risk message, as the message is congruent with their beliefs and behaviors (Hypothesis 2).

Gender

In a meta-analysis of 150 studies Byrnes, Miller and Schafer (1999) found men perceive significantly lower levels of risk across a myriad of categories, compared to women. Outside of the laboratory, field studies have corroborated these findings (Jianakoplos & Bernasek, 1998). In previous research of violent media and risk perception men showed significantly lower perceived risk associated with violent media consumption than did women (Farley & Ridge, 2015).

Since lower perceptions of risk are associated with higher consumption (Farley & Ridge, 2015), it is not surprising that 55% of men and only 6% of women report playing video games once a week (Alloy Media & Marketing, 2009). Considering the previously discussed high levels of violent content present in video games alone, this is a consistent source of violent content for those men. Additionally, more than 81% of women say they never play violent video games, compared to only 25% of men (Padilla-Walker, Nelson, Carroll, & Jensen, 2010). This research indicates that men are consuming higher levels of violent media than are women.

Lower perceived risk and high consumption of violent media are both factors that are likely to make an individual more resistant to a message of risks associated with violent media consumption as the message will be reporting risks incongruent with the current beliefs and practices of the individual. Since men report both lower perceptions of risk and higher levels of consumption, it is predicted that men will be more resistant to the risk messages than will women and will, therefore, have greater perceived risk and negative attitudes regarding violent media in response to the narrative message compared to the statistical message (Hypothesis 3).

Conversely, women will have greater perceived risk and negative attitudes in response to a statistical message since they report higher perceived risks and lower violent media consumption and should, therefore, be message congruent (Hypothesis 4). Additionally, it is proposed that both risk perception and attitude will predict intention toward violent media consumption (Hypothesis 5) and intention will predict subsequent consumption (Hypothesis 6). These hypotheses are reflected in the structural equation model depicted in Figure 1 and are compatible with the theory of planned behavior (Ajzen, 1991). These hypotheses were tested in the present study.

Method

Participants

One hundred fifty individuals were recruited for the current research, (53% Male). This participant pool size was comparable to similar studies in the communication literature (Janssen et al., 2013; Sheeran, Harris, & Epton, 2014). Eighteen participants failed to complete the follow up assessment. This study was conducted online; all participants were residing in the U. S. and were recruited via Amazon's Mechanical Turk. With the rise of MTurk in popularity among psychologists and social scientists as a research tool, there has been a great deal of speculation and study regarding the characteristics and sampling issues with this growing participant pool and the quality of data that can be derived from it (Paolacci & Chandler, 2014).

The MTurk population consists of more than 500,000 individuals. These individuals come from 190 countries, with over 75% from the United States or India (Paolacci et al., 2010; Ross et al., 2010). While MTurk may have a rather large sample population, it is not necessarily representative of the general population. As a group, MTurk participants tend to be overeducated, underemployed, more liberal, less religious and on the younger side with the

average participant being approximately 30-years old (Berinsky, Huber, & Lenz, 2012; Paolacci et al., 2010; Shapiro, Chandler, & Mueller, 2013). However, when data quality is assessed MTurk participants show the same cognitive biases (such as framing effects), behavior in economic games and performance on cognitive tasks as the general population (Amir, Rand, & Gal, 2012; Crump et al., 2013; Goodman et al., 2013; Horton, Rand, & Zeckhauser, 2011; Paolicci et al., 2010). Since the theoretical basis for the manipulation in the present study was that narrative and statistical messages differ in their effectiveness due to the ways in which they are cognitively processed, it is logical to conclude that the same effects should emerge from an MTurk sample as would be found from a representative sample of the population. Understanding these principles, the current participant sample had a mean age of 32 ($SD = 9.18$), with a range of 21-68 years in age. Most were educated, with 48% having a 4-year degree or more, 41.3% having some college education, and 10.6% having a High School diploma or GED equivalent. Participants identified their ethnicity as White (75.5%), Hispanic/Latino (9.3%), Asian (6.6%), African American (5.3%), Native American (1.3%), or Other (1.3%). Participants reported their religious preference as atheist (37.3%), Protestant (24.0%), Catholic (15.3%), Mormon (1.3%), Jewish (<1%), Muslim (<1%) or "Other" (20%). Additionally, participants indicated their marital status as single (47.3%), never married (12.0%), married (36.0%) or divorced (4.6%).

Another critique of MTurk often discussed is that of sampling issues. Since MTurk participants are free to choose whichever studies they wish to participate in, there is concern that they would favor and choose studies with classic paradigms with which they are already familiar. Additionally, some research has shown that 41% of the research studies completed on MTurk are done by 10% of the participant population. Since a small percentage of the overall participant pool is completing nearly half of all studies finished, it begs the question of whether or not these

participants are becoming significantly different from a novel participant. Research shows that more experienced MTurk participants are more familiar with classic behavioral study paradigms and indicates that their prior experience may influence their responses in studies (Chandler, Mueller, & Paolacci, 2014; Fort, Adda, & Cohen, 2011). However, research has also shown that these practice effects can be avoided by using novel or lesser known measures and stimuli (Chandler et al., 2014). In the case of the present research classic behavioral paradigms were not used. The measures that were used are lesser known and the stimuli were novel. For these reasons, the MTurk participant pool was appropriate for the present research.

Consistent with the MTurk format, participants were monetarily compensated for their participation. Before participants chose to sign up for the task they were able to see the allotted compensation for the task. As the study was estimated to take approximately 10 minutes to complete, participants were paid $1.50 for their participation. This amount is a competitive and comparable compensation for tasks of similar duration. MTurk takes 20% of the participants' compensation as a service fee, which means that participants actually received $1.20 for participating in the study. Given a national minimum wage of $7.25 per hour, $1.20 is appropriate for approximately 10 minutes of work.

Procedures

Participants for this research were recruited via Amazon's service Mechanical Turk (MTurk). They found the present study, described as a study of health communication (Appendix A), and chose to participate of their own will. These individuals followed a link to the study in Qualtrics. Once participants entered the study, they first completed an informed consent form (Appendix B). Next, they answered some basic demographic questions regarding gender, age,

ethnicity and education level (Appendix C). These questions served to understand the characteristics of the sample collected.

Following the demographic survey, participants completed a measure of their violent media consumption (Appendix D), as well as exploratory questions about their violent media consumption (Appendix E). Following these measures, participants were randomly assigned to one of two groups and received a risk message regarding the risks of violent media consumption based on either statistical evidence or narrative evidence (a first-person case history; Appendix F). The participants received and read the risk message three separate times, each time the message was followed by one of the latent variable measurement scales: perceived risk, attitude, or intentions regarding future violent media consumption (Appendix G). Participants were told they were receiving the message multiple times in order to evaluate different aspects of the message. This format of multiple presentations of the stimulus message has been used in previous research to allow participants the opportunity to become familiar with and absorb the content; it also mimics "real world" viewing experiences in which individuals often see the same advertisements multiple times (Clary, Snyder, Ridge, Miene, & Haugen, 1994).

While participants' initial responses to the measures indicated the immediate comparative effectiveness of message type on risk perception of violent media consumption, attitudes and intention to change behavior, research shows that intentions are not perfect predictors of behavior (Kawakami et al., 2009 Webb, & Sheeran, 2006;); consequently, a follow up study was conducted. The study utilized the same measures as the first study of perceived risk and or violent media consumption. Although perceived risk at the follow up study was not a part of the proposed model, it is informational data that may be involved in exploratory analyses. Following the example of other research in health behaviors after intervention (Lemal & Van den Bulck,

2010), this study was made available for participants 48 hours later and again assessed their

violent media consumption and perceptions of the risks. Through these measures, changes in

violent media consumption over time (whether or not violent media consumption has increased,

decreased, or maintained since the first assessment), due to message type were identified.

Through a new service, Turk Prime, researchers have the ability to collect participants'

MTurk worker ID in order to make them aware of the opportunity to participate in follow up

studies. This service was utilized in order to make the follow up study available for participants.

Materials

Violent media consumption measure. This measure consisted of four items (Appendix

D). Prefaced by asking participants to think about the last month, they indicated how frequently

they were "Watching television or movies in which people are hurt or killed", "Watching

television or movies with VERY violent themes (e.g., rated TV-M or rated R movies with strong,

bloody violence)", "Playing video games in which people are hurt or shot", and "Playing video

games that had VERY violent themes (e.g., M rated video games such as Grand Theft Auto, Call

of Duty, Halo)." Responses for these items were given on a scale ranging from 1 (Once a month)

to 5 (More than once a day). Although simple and brief, these items encompassed both the

severity of the violence being consumed and the frequency with which it was consumed. To

obtain an overall violent media consumption score for each participant, the sum of the four items

was divided by the number of items (four) to obtain the average. This means that potential

violent media consumption scores ranged from one to five, with higher scores indicating more

frequent consumption of violent media. This is a somewhat novel measure of violent media

consumption being used in current research. Although this measure is relatively new, research

has recently found similarly brief and simple measures to adequately assess violent media consumption (Nikkelen et al., 2014; Vandewater & Lee, 2009).

A potential concern regarding this measure could be the use of self-report in regards to the severity of the violence being consumed; if an individual is consuming violent media on a regular basis and, consequently, becoming desensitized to the content, it is reasonable to assume they may underestimate the severity of the violence they are consuming. However, research has shown that expert and consumer ratings of violence in media content are highly correlated and reliable (Busching et al., 2015). Consequently, a self-report of the severity of violent content consumed is defensible for the current research.

Exploratory violent media consumption items. Participants were asked what percent of the media they consume contains violence and indicated their responses on a sliding scale ranging from 0% to 100% (Appendix E). For example, "What percent of the media you consume contains violence?" They were asked this same question for their consumption in each of the following specific categories: TV, movies, video games, music and books. These items were solely for the purpose of exploratory analyses and were analyzed individually to allow for insight into how specific categories of violent media may be influenced by the risk messages presented.

Risk messages. Since there has been no previous research on the effect of risk messages regarding violent media consumption, these novel stimuli were created involving empirically demonstrated consequences of violent media consumption. In so doing, we followed the example of previous research in the public health communication field (de Wit, Das & Vet, 2008; Appendix F). These messages were equivalent in both length of passage and also the kind of risks of violent media consumption communicated. The only significant difference between the two messages was the evidence base for the asserted risks.

Both messages began with the same first paragraph: "Individuals who consume violent media are significantly more likely to become aggressive – both in the immediate and more distant future. Those who consume higher levels of violent content are at an increased risk of becoming aggressive. These effects have been shown across all ages, genders, and ethnicities." Following this assertion of the risks of violent media consumption, the narrative and statistical messages differed by the forms of evidence presented.

The statistical evidence message ("statistical message") next stated that violent media consumption leads to more aggressive cognition in the majority (70%) of individuals, resulting in not only more aggressive thoughts, but also the interpretation of neutral stimuli or situations as hostile. The final two paragraphs outline the interpersonal risks of consuming violent media and subsequent increased aggression. They state that individuals who watch violent media are twice as likely to assault their spouse, and "82% more likely than those who do not consume high amounts of violent media to act physically aggressive and shove, punch, beat, and choke other people." The message concluded by stating that these effects have been shown to emerge across all groups and that all individuals, regardless of natural dispositions, are susceptible to these risks, but research indicates that by reducing exposure to violent media individuals can expect to see this increased aggression subside.

The narrative evidence message ("narrative message") proceeded in the second paragraph by introducing Adam, a 23-year-old male, who has recently become aware of the effects of violent media consumption in his life. The rest of the message is given in a first-person narrative. In the narrative, Adam describes how he has long been a consumer of violent television, movies and video games without thinking much of it. Recently, his girlfriend called his attention to how these stimuli were affecting him. He states that he began to notice how aggressive his thoughts

were, and how short his temper had become (particularly whenever he had recently consumed violent media). He also recounts how he even interpreted a neutral situation aggressively and, consequently, ended up shoving a friend. He states that he had heard of such things associated with violent media before, but figured that it would never actually affect him in that way. He concludes by saying that he has seen a decrease in his aggression as he has reduced the amount of violent media he consumes.

The narrative message was made gender specific – males received the narrative with a male name (Adam) and females received the same narrative with a female name (Amy). Ensuring the first-person narrative evidence was gender specific should promote the availability and simulation heuristics, as the participant may more easily be able to identify with the individual in the message. Since the statistical message included no gender specificity in the data presented, it was the same message for both genders.

Both messages asserted the same risks (aggressive cognition, hostility, physical aggression), indicated that no one is immune to the risks of these effects, and finally, both messages also offered the participant the solution that reducing violent media consumption can alleviate the effects (such as increased aggression). The opportunity for a solution was important in the messages because perceived control over an outcome is important in attitudes and intentions toward behavior (Ajzen, 1985; Hukkelberg, Hagtvet, & Kovac, 2014). It is important to note that just as the first-person narrative outlined in the narrative message was fictitious, so were the specific numbers utilized in the statistical message. However, the risks they supported are empirically documented risks. Being that the goal of this research was to test the effectiveness of message type in changing violent media consumption, the concern is that the messages be perceived as equivalent except for evidence type. Consequently, these messages

were pilot tested to confirm that the manipulation was strong in that they were appropriately perceived as either a narrative or a statistical message. Results of piloting testing showed that the messages were received as intended and individuals accurately identified the type of evidence presented in the message they received and the messages demonstrated equivalence in all other measured aspects.

Risk perception, attitude, and intention scales. These measures were created by the authors for this study and were closely based on measures used in similar studies published in the field of public health and have been shown to be reliable assessments (de Wit, Das & Vet, 2008; Appendix G). Specifically, to assess the perception of risk associated with violent media consumption ("Risk"), participants responded to the following three items ($\alpha = .95$), "The likelihood of me becoming more aggressive because of the violent media I watch and/or play is substantial", "It is possible that I will become more aggressive in the future because of the violent media I watch and/or play" and, "It is likely that I will become more aggressive because of the violent media I watch and/or play." Participants responded on a 7-point Likert-type scale, (1 = Totally Disagree, to 7 = Totally Agree). To obtain an overall perceived risk score for each participant the sum of the three items was divided by the total by the number of items (three). Potential perceived risk scores ranged from one to seven, with higher scores indicating a greater perception of risk.

Attitude regarding violent media consumption ("Attitude") was measured by asking participants to indicate their agreement with five separate statements ($\alpha = .91$) regarding violent media consumption, two of which were reverse scored (e.g. "Violent media consumption can increase one's aggression." "Violent media consumption can negatively impact one's behavior." "Violent media consumption is unlikely to result in harmful consequences." "Playing violent

video games is harmless." "Watching violent TV shows can make one more aggressive.").

Responses were given on a 7-point Likert-type scale, (1 = Totally Disagree, to 7 = Totally

Agree). To obtain an overall attitude score for each participant, the sum of the five items was

divided by the total number of items (five). Potential attitude scores ranged from one to seven,

with higher scores indicating a more unfavorable attitude toward violent media consumption.

Intention to decrease their violent media consumption ("Intention") was likewise assessed

using three items (α = .96; e.g. "I am planning to decrease the amount of violent media I

consume," "It is likely that I will decrease the amount of violent media I consume in the near

future," "I want to decrease the amount of violent media I consume"). Individuals indicated their

response on a 7-point Likert-type scale, (1 = Totally Disagree, to 7 = Totally Agree). Finally, to

obtain an overall intention score for each participant, the sum of the three items was divided by

the total by the number of items (three). Potential intention scores ranged from one to seven, with

higher scores indicating a greater intention to decrease violent media consumption.

Manipulation check items. Participants responded to nine manipulation check questions

that were used in exploratory analyses (Appendix H). These items assessed different aspects of

the message manipulation such as if the argument was perceived to be compelling, strong,

whether or not this strength came from evidence type and if the participant could identify with

the message. The measure ascertained if certain heuristics, such as vividness and ease of

imagination, were accessed by asking participants to respond to items indicating how vividly the

message was presented and how easily they could imagine the risks presented. Participants also

responded to an item asking them to indicate if the message evoked feelings for them (in

consideration of the risks-as-feelings hypothesis). And finally, two items measured if the

participant could recognize the type of evidence presented in the message – one stated that the

message presented statistical evidence and the other stated that the message presented anecdotal evidence. All items were posed as statements and participants responded by indicating their agreement/disagreement on a 7-point Likert-type scale, (1 = Totally Disagree to 7 = Totally Agree).

Analytic strategy. First, initial data screening was performed to prepare the data for analyses. Next, manipulation check items were analyzed to confirm that the messages were perceived as equivalent in all measured aspects except for message type (i.e., those in the narrative group accurately identify the message as narrative evidence and those in statistical group perceive the message to be based on statistical evidence). Following the example of Anderson and Gerbing (1988), the model was then assessed in a two-step approach: a confirmatory factor analyses followed by the structural equation model. The confirmatory factor analysis was performed to test the measurement model and confirm appropriate fit to the data. Then, in order to simultaneously analyze the outlined hypotheses and to account for all relationships between variables and avoid inflation of type one error with multiple analyses, the structural equation model proposed in Figure 1 was estimated using the statistical software package STATA. This model was subsequently estimated again to test the differences between genders. Finally, exploratory analyses were performed utilizing the exploratory consumption questions (Appendix E).

To assess model fit at each stage, it was confirmed that the model met adequate fit values in each of the following: Root Mean Square Error of Approximation (RMSEA; .05 or lower for good fit, .06 -.09 for moderate fit), Comparative Fit Index (CFI; .9 or higher). All results were assessed at a critical value of $p = .05$, and all p-values and confidence intervals reported are standardized.

Results

Data Screening

Scatterplots of all variables revealed there were no univariate or bivariate outliers and the data showed homoscedasticity and linearity. There were 18 cases of missing data at time two due to participant attrition; this represents 12% of the sample. In order to determine if there was a significant pattern to the missing data, a dummy variable was constructed for the dependent variable with *0* representing the presence of data and *1* indicating missing values. A correlation analysis showed there were no significant correlations between the missing data and any other variable, indicating that the data were missing at random. It was decided that all cases would be retained and the model would be conducted using the maximum likelihood missing values estimation to appropriately handle the missing data.

Analysis of violent media consumption at time one and time two revealed the data were positively skewed. Transformations for the data were considered, however, none of the transformations reduced the skew of violent media consumption at time one. While a square transformation would have reduced the skew of violent media consumption data at time two, the difference between the chi-square and *p*-values for the transformed data ($\chi^2 = 12.68[2]$ $p = .002$) and the raw data ($\chi^2 = 14.40[2]$ $p = .001$) was negligible and the authors determined to preserve the data in its raw state. We acknowledge that the data for these variables are violating the assumption of normality. Nevertheless, maximum likelihood estimation in structural equation modeling, as utilized in the present research, is considered to be relatively robust against violations of the normality assumption (Bollen, 1989; Diamantopoulos, Siguaw, & Siguaw, 2000).

Table 1 provides descriptive statistics for all model variables and Table 2 provides a correlation matrix for these same variables. The manipulation check items were analyzed next to ensure that the narrative and statistical messages were perceived as equivalent in all measured aspects except for message type.

Table 1

Descriptive Statistics for Model Variables

Variable	Total Sample ($N = 150$)		Narrative Group ($n = 76$)		Statistical Group ($n = 74$)	
	M (*SD*)	Range	*M* (*SD*)	Range	*M* (*SD*)	Range
Consumption T1	2.31 (0.95)	3.75	2.21 (0.97)	3.75	2.41 (0.92)	3.5
Constumption T2	2.34 (1.03)	3.5	2.17 (0.98)	3.5	2.5 (1.05)	3.5
Attitude	4.16 (1.46)	6	4.03 (1.48)	6	4.29 (1.45)	5.8
Risk	3.04 (1.81)	6	3.11 (1.80)	6	2.97 (1.84)	6
Intention	3.01 (1.74)	6	3 (1.71)	6	3.02 (1.78)	5.66

Table 2

Correlation Matrix of all Structural Equation Model Variables

Variable	Consumption T1	Consumption T2	Risk	Attitude	Intention
Consumption T1	1.000				
Consumption T2	0.349*	1.000			
Risk	-0.089	-0.124	1.000		
Attitude	-0.252*	-0.235*	0.673*	1.000	
Intention	-0.154	-0.157	0.630*	0.546*	1.000

Note. *$p < .05$

Manipulation Check Analysis

Two-sample *t*-tests were used to analyze differences between message type groups on responses to all manipulation check items. Results showed that there were no statistically significant differences between means of the statistical and narrative message type groups in response to the questions about elements of the message presented (e.g., vividness, how compelling it was, how much the participant identified with the message, how strong the argument was [and if that strength came from how the message was presented], how much it evoked feelings for them and how easily they could imagine the situation presented), indicating the messages were perceived as equivalent along all measured dimensions (all ts[130] < 0.95, ps > .34). Although conducting a series of *t*-tests in this manner may cause alpha inflation and increase Type I error, no adjustments were made to critical values as no results neared significance.

Only two items resulted in significantly different responses from the two message type groups. One-tailed *t*-tests were conducted to assess the differences between the groups' responses on the manipulation check items since there were specific expectations as to how the two groups would differ. A Bonferroni correction (Holm, 1979) was applied to the *p*-value resulting in a critical level of $p = 0.025$. As anticipated, those who received the narrative message were significantly more likely to agree that the message presented anecdotal evidence ($M = 4.98$, $SD = 0.197$), than those in the statistical group ($M = 4.23$, $SD = 0.191$), $t(130) = -2.72$, $p < 0.01$, $d = -0.47$. Conversely, those who received the statistical message were significantly more likely to agree that the message presented statistical evidence ($M = 4.20$, $SD = 0.221$), than were those in the narrative group ($M = 3.10$, $SD = 0.209$), $t(130) = 3.59$, $p < .001$, $d = 0.62$. Thus, the messages were received as intended.

Confirmatory Factor Analysis

A confirmatory factor analysis of the latent variables (Risk, Attitude, and Intention) and the items that assessed these variables was conducted to test the measurement model and confirm it had adequate fit to the data. The model had three latent variables and each latent variable loaded onto more than two observed variables indicating that the model was identified. While the individual factor loadings were all significant ($p < .001$), the model as a whole showed poor fit, (χ^2 (65) = 164.244, $p = < .001$, RMSEA = .101, CFI = 0.950). Modification indices indicated that to improve model fit it would be most advantageous to co-vary the error terms of attitude item number two ("Violent media consumption can negatively impact one's behavior") and intention item number one ("I am planning to decrease the amount of violent media I consume"). This modification has grounds theoretically as individuals' attitude toward violent media may logically vary with their intention toward consumption (e.g., the greater an individual's negative attitude toward violent media, the more likely they are to intend to decrease their consumption). These two items are, therefore, likely to share error. Modification indices also suggested co-varying the errors of attitude item numbers three ("Violent media consumption is unlikely to result in harmful consequences") and four ("Playing violent video games is harmless" [these item were reverse scored]). This also seems a logical adjustment as both items are meant to assess a person's attitude toward violent media and are likely to share error.

With these two modifications, the confirmatory factor analysis was again conducted, moderate model fit was found (χ^2 (63) = 107.440, $p < .001$, RMSEA = 0.069, CFI = 0.978), and again, all factor loadings were significant ($p < .001$), showing that the items were measuring the indicated latent variables. Because the measurement model had moderate fit for the data we were

able to proceed and utilize it in the structural equation model. For descriptive statistics, as well as a correlation matrix of all model variables, see Tables 1 and 2, respectively.

Structural Equation Models

In order to test the proposed Hypotheses 1, 2, 5 and 6, the observed independent variables (Message Type, Message type x Consumption, and Consumption1) and the dependent variable (Consumption2) were added to the model with the latent variables (Risk, Attitude, and Intention), as seen in Figure 1, and the complete model was estimated. Assessment of model fit showed the model had moderate fit to the data (χ^2 (76) = 130.360, $p < 0.001$, RMSEA = 0.069, CFI = 0.973). Table 3 shows the standardized coefficients for all paths specified in Figure 1.

Table 3

Standardized Coefficients for all Paths Specified in Figure 1

Predictors	Risk β (SE)	Attitude β (SE)	Intention β (SE)	Consumption T2 β (SE)
Message Type	0.201 (.21)	-0.140 (.21)		-0.342 (.20)
MessageXConsumption	-0.184 (.22)	0.004 (.22)		0.266 (.22)
Constumption T1	-0.004 (.12)	-0.243* (.11)		0.224* (.11)
Risk			0.512*** (.08)	
Attitude			0.191* (.08)	
Intention				-0.119 (.08)

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Hypotheses 1 and 2 predicted an interaction between the amount of violent media an individual consumes and the type of message an individual receives. Specifically, Hypothesis 1 predicted that people who consume more violent media would perceive more risk and have more of a negative attitude toward violent media consumption in response to a narrative message as opposed to a statistical message. Conversely, Hypothesis 2 predicted that people who consume less violent media would perceive more risk and have more negative attitude toward violent media consumption in response to a statistical message as opposed to a narrative message. The
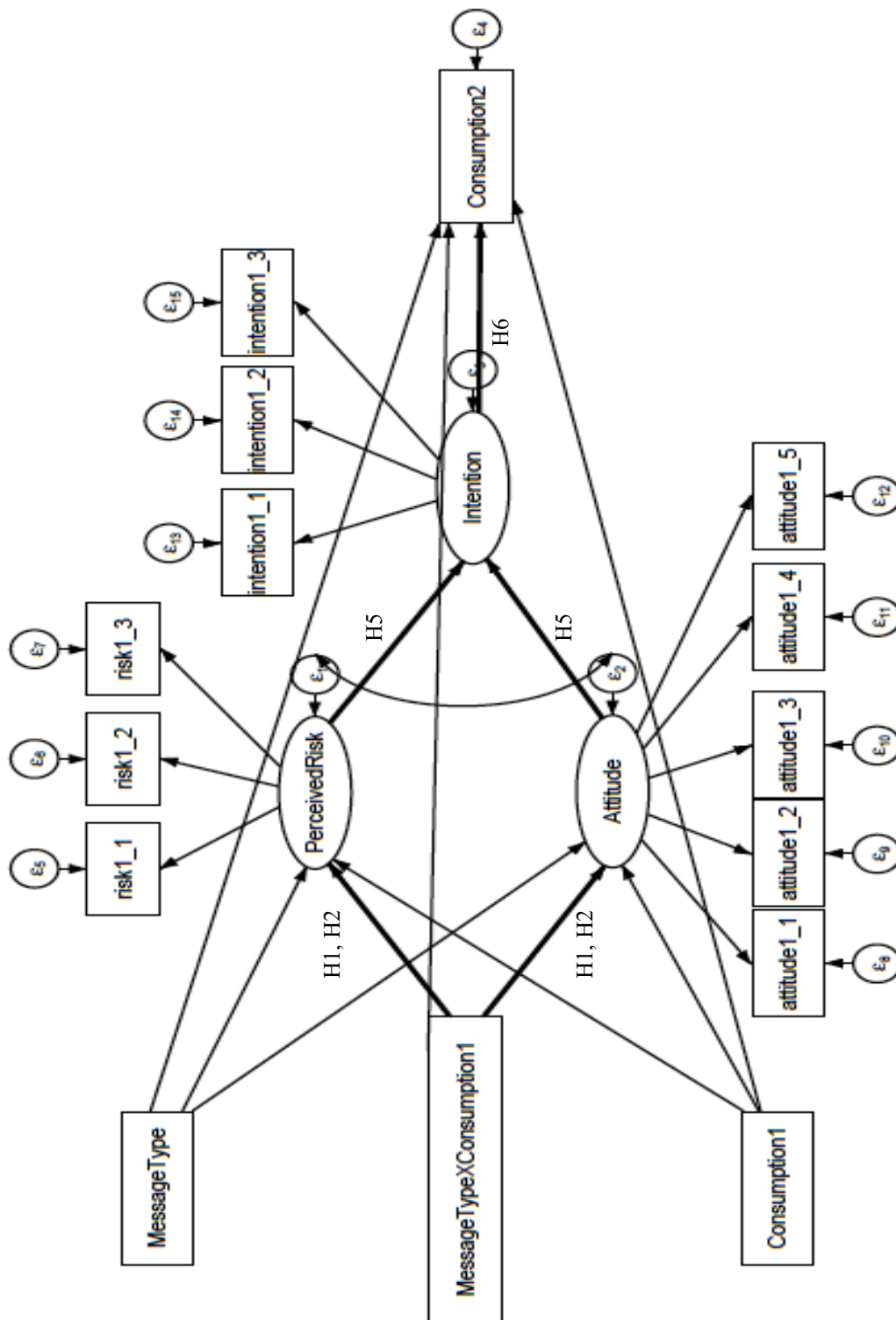
Figure 1. This structural equational model depicts the hypothesized relationships (in bold) regarding the effects of message type and violent media consumption on perceived risk and attitude predicting intention and subsequent violent media consumption.

model shown in Figure 2 reveals that the paths between the interaction variable and attitude and risk perception were not significant. No significant differences were found in the effectiveness of the two messages due to how much violent media the individual consumed. We can, therefore, conclude that the results did not support Hypotheses 1 and 2.

Hypothesis 5 predicted that the amount of risk people perceived and their attitude toward violent media consumption would predict their intention to decrease consumption. Results confirmed that attitude toward violent media consumption did predict intention ($\beta = 0.191$ [$SE = 0.089$], $p = .032$, 95% CI [0.016, 0.365]). Specifically, when peoples' negative attitude toward violent media consumption increased so did their intention to decrease their consumption. Perceived risk also significantly predicted intention ($\beta = 0.512$ [$SE = 0.083$], $p < .001$, 95% CI [0.348, 0.677]), suggesting that the more risk people perceived in violent media consumption, the more they intended to decrease their consumption. Given that both attitude and risk perception significantly predicted intention to decrease violent media consumption, we conclude that Hypothesis 5 is supported.

Additionally, Hypothesis 6 stated that intention to reduce consumption would predict violent media consumption at time two (i.e., the more people intended to decrease their consumption, the lower their consumption would be at time two). Results revealed that the predicted path between intention and consumption at time two was not significant, showing that peoples' intention toward their consumption did not reliably predict their subsequent consumption. We, therefore, conclude that Hypothesis 6 is not supported.

In addition to the hypothesized relationships, the model revealed the following significant relationships between variables: Violent media consumption at time one predicted violent media consumption at time two ($\beta = 0.224$ [$SE = 0.113$], $p = .048$, 95% CI [0.002, 0.447]), which
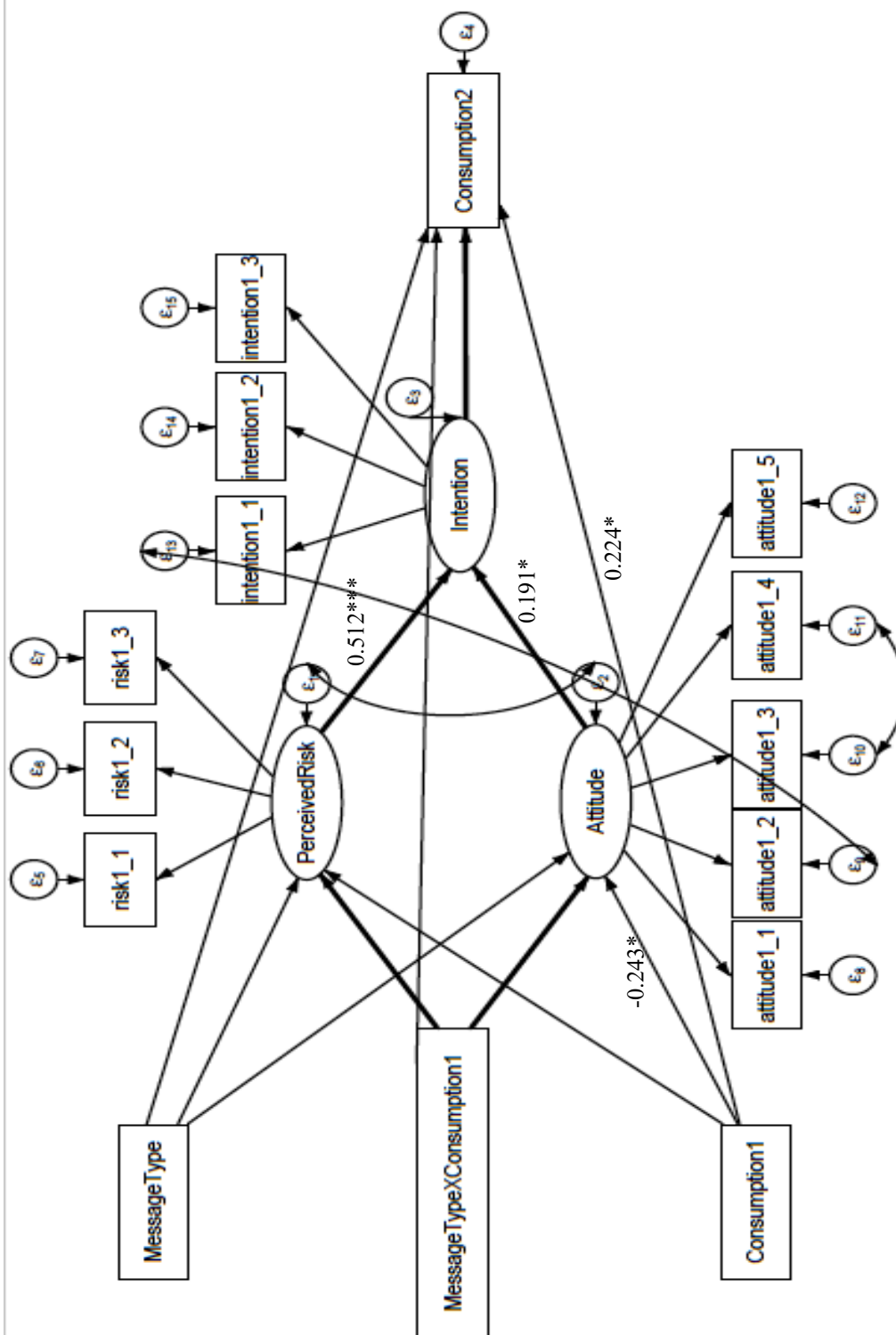
Figure 2. Completed SEM for proposed hypotheses. Bolded paths indicate hypotheses. Standardized coefficients for significant paths indicated. *p < .05, **p < .01, ***p < .001

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means that how much a person consumed violent media at time one significantly predicted how much they would consume at time two. Attitude toward violent media consumption was also predicted by violent media consumption at time one (β = -0.243 [SE = 0.115], p = .035, 95% CI [-0.470, -0.017]), suggesting that the more violent media an individual consumed, the less harmful they perceived violent media to be.

Gender. In order to test Hypotheses 3 and 4, the model in Figure 1 was estimated again to assess differences between genders. As there was an a priori hypothesis regarding the relationship between gender and message type effect, omnibus tests were not conducted and gender differences were instead assessed directly through group structural path coefficients. Hypothesis 3 predicted that men would perceive more risk and have greater negative attitude in response to a narrative message as opposed to statistical message. Conversely, Hypothesis 4 predicted that women would perceive more risk and have greater negative attitude in response to a statistical message as opposed to a narrative message.

Results for the model estimated for men and women are presented in Figure 3. Message type predicting attitude toward violent media consumption was clearly nonsignificant for women (β = 0.025 [SE = 0.303], p = .933, 95% CI [-0.570, 0.621]), but approached significance for men, (β = -0.464 [SE = 0.237], p = .051, 95% CI [-.930, 0.001]). Convention dictates that anything exceeding a p = .05 is nonsignificant, and although the relationship for men was technically nonsignificant, the path suggests an interesting effect. It appears men who received a narrative evidence message may have had lower negative attitude toward violent media consumption than did men who received a statistical evidence message. In other words, the narrative message was less successful in men than the statistical message, which is contrary to
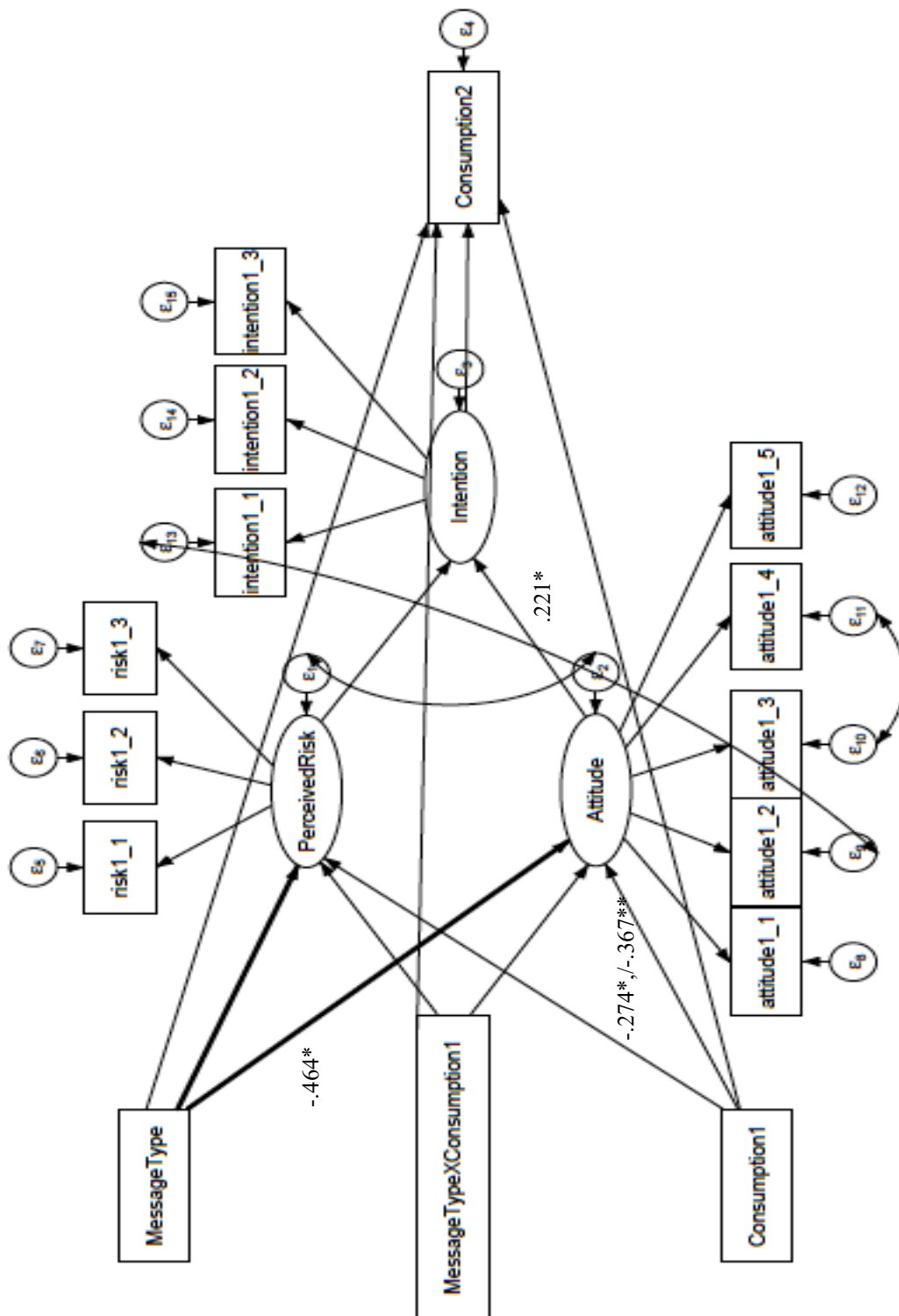
Figure 3. SEM estimated for men/women, standardized coefficients. **p* < .05, ***p* < .01, ****p* < .001

Hypothesis 3. Therefore, we conclude that Hypothesis 3 is not supported. There were no significant paths between message type and attitude or risk perception in the model conducted for women. This indicates that there was no difference between a narrative or statistical message for women, revealing that Hypothesis 4 is not supported.

Aside from the proposed hypotheses, the following paths emerged as predictors. Violent media consumption at time one predicted attitude toward violent media consumption for both men (β = -0.274 [SE = 0.120], p = .023, 95% CI [-0.510, -0.038]), and women (β = -0.367 [SE = 0.134] p = .006, 95% CI [-0.630, -0.104]). Attitude toward violent media consumption predicting intention to decrease consumption was significant for men (β = 0.221 [SE = 0.101], p = .029, 95% CI [0.022, 0.420]), but not for women (β = 0.140 [SE = 0.115], p = .221, 95% CI [-0.048, 0.366]). These results indicate that as negative attitude toward violent media consumption rises in men, so does their intention to decrease their consumption. Women's negative attitude toward violent media consumption did not significantly influence their intention to decrease their consumption.

Exploratory Analyses

In trying to understand other individual difference variables that may influence the way different types of evidence messages are received, we considered age. Research has shown that mechanisms and processes associated with deliberative processing deteriorate with age (Salthouse, 2006). As individuals age they use less complex strategies to make decisions and form opinions and instead rely more heavily on affective processing (Peters, Hess, Västfjäll, & Auman, 2007). Due to this relationship between age and cognitive processing, we decided to explore the relationship of age to message type and subsequent violent media consumption by conducting the same structural equation model we estimated initially and replacing violent media

consumption at time one with age (see Figure 4). As with the first model, we found moderate

model fit (χ^2 (76) = 122.291, p < .001, RMSEA = 0.064, CFI = 0.977). Age significantly

predicted risk perception (β = -0.274 [SE = 0.107], p = .010, 95% CI [-0.485, -0.064]),

suggesting that the older the participant was, the less risk they perceived in consuming violent

media. Intention was significantly predicted by both risk perception (β = 0.512 [SE = 0.084], p <

.001, 95% CI [0.347, 0.677]), and attitude (β = 0.189 [SE = 0.089], p = .034, 95% CI [0.014,

0.365]). Additionally, intention predicted consumption at time two, (β = -0.170 [SE = 0.086], p =

.047, 95% CI [-0.339, -0.002]), showing that the more people intended to decrease their

consumption the less violent media they reported consuming at time two.

Another individual difference variable that may influence individuals' cognitive

processing of messages and ultimately influence consumption is education. Individuals who are

higher in their need for cognition seek out opportunities to engage in "effortful cognitive

endeavors" (Cacioppo, Petty, Feinstein & Jarvis, 1996) and are more likely to pursue higher

levels of education (Cacioppo, Petty, Feinstein & Jarvis, 1996). This means that those who

achieve higher levels of education are likely to have greater need for cognition. Greater need for

cognition also indicates a person relies on critically evaluating any argument or persuasive

message presented to them in order to form attitudes and opinions (Petty, Briñol, Loersch &

McCaslin, 2009). Understanding the known associations between these variables, it is possible

that those who have advanced further in their education will have greater need for cognition and

will be more influenced by statistical evidence. Their need for cognition leads them to critically

evaluate the message evidence presented and their deliberate processing of arguments may lead

them to be less swayed by narrative/first-person appeals. To evaluate the potential influence of

message type due to education we conducted the same structural equation model as previously
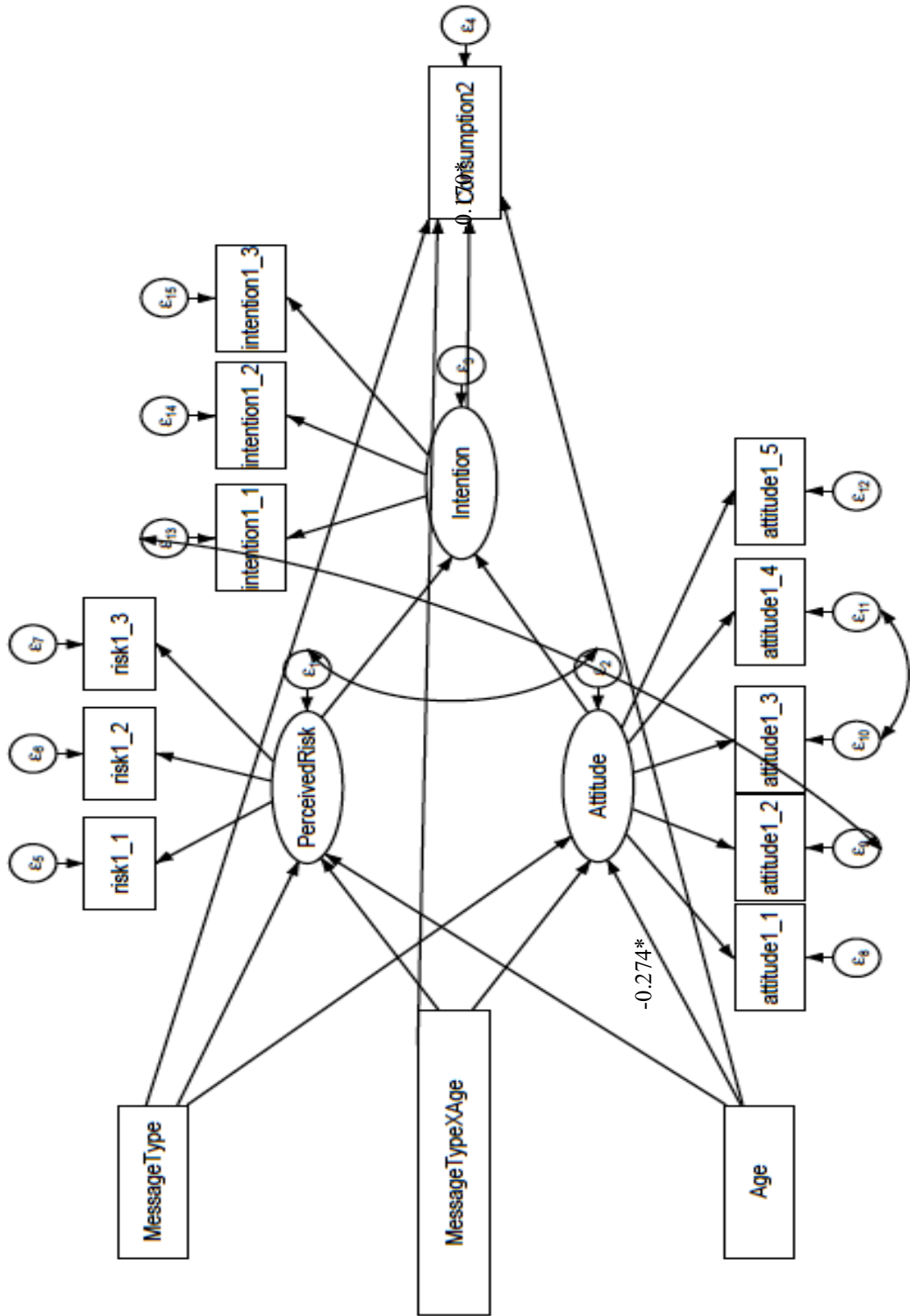
Figure 4. SEM estimated with age by message type predicting consumption. *p* < .05, **p* < .01,
***p* < .001

described and replaced violent media consumption at time one with education. Results showed that although the model had good fit (χ^2 (76) = 107.160, $p < .001$, RMSEA = 0.052, CFI = 0.984), education did not significantly predict violent media consumption or any other model variables.

A series of linear regression analyses were performed utilizing the exploratory items concerning the percent of media consumption that contained violence, in which the consumption at time two was regressed onto consumption at time one as well as the message type variable to ascertain if, controlling for time one consumption, message type predicted consumption at time two. This analysis was conducted for each of the percent of media consumption items individually. In Table 4 we see that results showed the narrative group's violent media consumption means were lower at time two than the statistical group in every category (all media, television, videogames, movies, music, and books). While none of these effects were statistically significant, the trend prompted further investigation.

Table 4

Regression Analyses Showing Effect of Message Type on Time Two Consumption Controlling for Time One Consumption

Dependent Variable	b	SE	β	p	95% Confidence Interval	
Percent Media	-7.343	4.464	-0.135	0.102	-16.175	1.489
Percent Television	-7.630	4.410	-0.140	0.086	-16.356	1.096
Percent Videogame	-7.256	5.914	-0.097	0.222	-18.957	4.444
Percent Movies	-6.480	4.347	-0.117	0.139	-15.081	2.121
Percent Music	-5.566	3.185	-0.139	0.083	-11.868	0.735
Percent Books	-7.240	4.551	-0.136	0.114	-16.246	1.765

Note. Narrative group is coded as 1 and statistical group coded as 0. All coefficients indicate narrative group shows lower consumption than statistical group on every measured item.

To assess the possibility of category specific consumption changes due to message type, we decided to submit each of the violent media percentage consumption items individually to the structural equation model analysis in which the item replaced the original measure of violent media consumption at time one and time two. For example, the item "What percent of the media you consume contains violence?" measured at time one and time two, would replace the previous violent media consumption measure used at time one and time two in the structural equation model. This model was conducted with each of the percent consumption questions. Results for the model, shown in Figure 5, revealed that participants who received a narrative message decreased the percent of their video game consumption containing violence significantly more than did participants who received the statistical message ($\beta = -0.234$ [$SE = 0.115$], $p = .042$, 95% CI [-0.460, -0.008]). The percent of individuals' video game consumption containing violence at time one predicted the percent of their violent video game consumption at time two ($\beta = 0.300$ [$SE = 0.102$], $p = .004$, 95% CI [0.098, 0.502]). Once again, intention was predicted by attitude, ($\beta = 0.190$ [$SE = 0.089$], $p = .033$, 95% CI [0.015, 0.365]), and risk perception ($\beta = 0.513$ [$SE = 0.083$], $p < .001$, 95% CI [0.348, 0.677]). This model showed moderate fit to the data (χ^2 (76) = 116.900, $p < .001$, RMSEA = 0.060, CFI = 0.980).

Discussion

Violent Media Consumption Moderation

Results of the present research were mixed in terms of supporting the hypotheses proposed by the model. Hypotheses 1 and 2 predicted the ability of the two message types to raise individuals' negative attitudes and risk perceptions about violent media would depend on the amount violent media the individual consumed. Since there was no significant difference between the effectiveness of a narrative versus a statistical message as a function of the
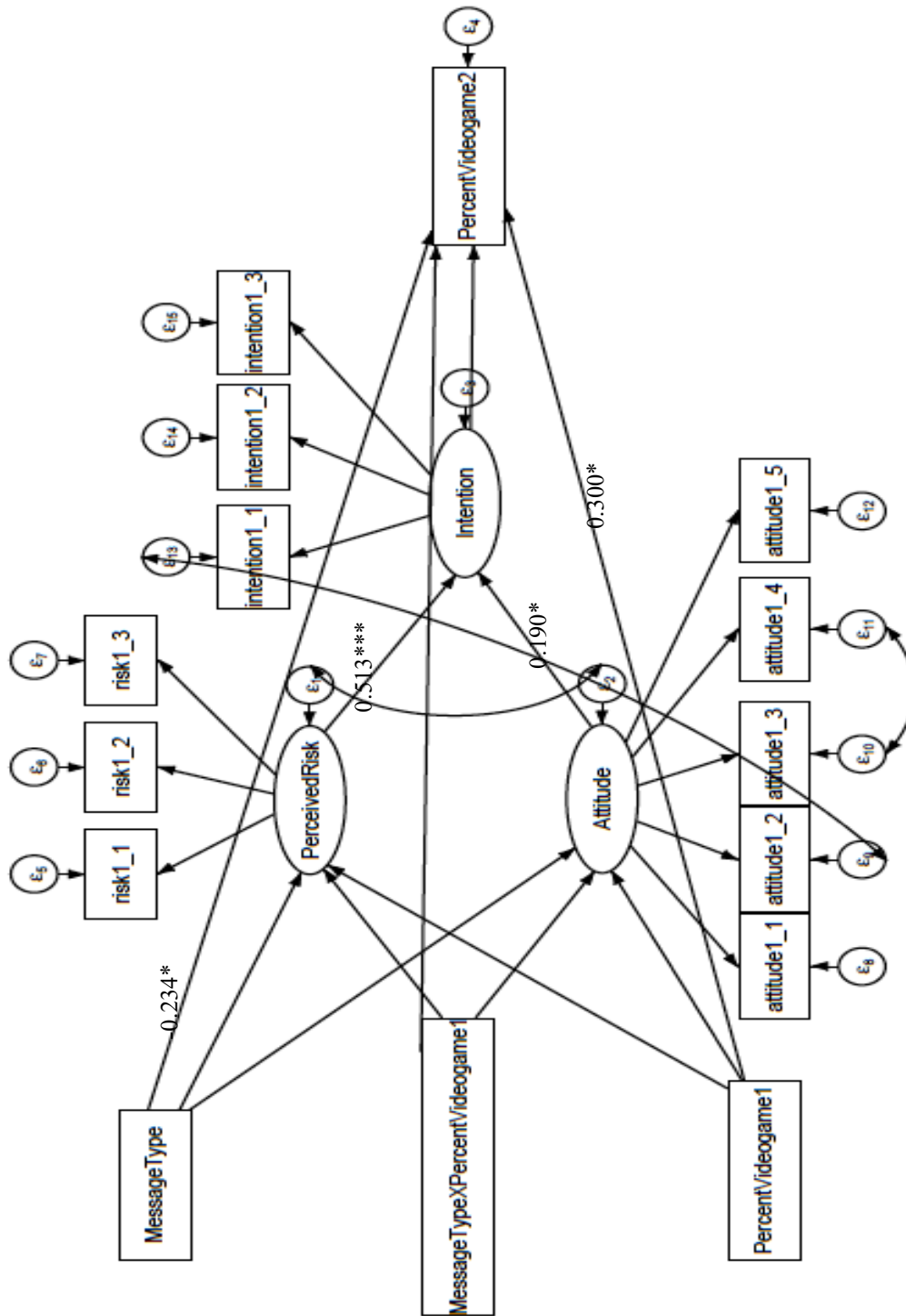
Figure 5. SEM estimated using percent of violent videogame play as the dependent measure. Significant paths indicate the stimulus (Message type) significantly predicted consumption at time two. *p < .05, **p < .01, ***p < .001

individual's violent media consumption, this proposed moderation was not supported. A review of the descriptive data in Table 1 reveals that violent media consumption did not change from time one to time two. The fact that there is no change as a product of either message indicates that perhaps there was not adequate time for any significant change in consumption to occur, and if there is insufficient time to observe an effect, we would not be able to observe any moderation. The time between the initial and follow up assessments is a variable we will discuss more later, however it should be noted that research in the health communication field regarding the impact of risk messages on subsequent behavior has been known to conduct follow up assessments often three to four weeks after exposure to the message (Janssen, Osch, Vries, & Lechner, 2013; Lemal & Van den Bulck, 2010). Future research should investigate the ability to obtain a significant change in violent media consumption with greater time between time one and time two assessments, and whether or not this effect might be moderated as hypothesized here.

It is interesting to note that violent media consumption directly predicted attitude toward violent media consumption. The more violent media a person consumed, the less negative their attitude toward it (i.e., the more violent media a person consumed, the less harmful they felt it was). This is congruent with previous research that has found the more violent media a person consumes the more desensitized they become to it (Anderson & Dill, 2000; Averill et al., 1972) and the less negative they believe it to be (Farley & Ridge, 2015).

Predicting Intentions and Subsequent Consumption

The next part of the model specified that risk perception and attitude would predict an individual's intention to decrease their consumption (Hypothesis 5). Results supported this hypothesis and indicated that the more risk a person perceived in violent media consumption, the more likely their intention to decrease their consumption. This is congruent with previous

literature which shows that risk perception and attitude can be reliable predictors of intention (Ajzen, 1991; Ajzen & Fishbein, 1977; 2005; Sheeran, Harris, & Epton, 2014).

It was hypothesized that the more a person intended to decrease the amount of violent media they consumed at time one, the lower their consumption would be at time two (Hypothesis 6). Although previous research and theory has confirmed intention as a reliable predictor of behavior (Sheeran, Harris, & Epton, 2014; Webb & Sheeran, 2006), intention failed to reliably predict subsequent consumption in this study. Past research has pointed out that there are a number of causes for the discrepancy between intention and behavior, such as perceived social norms (Fishbein & Ajzen, 1975, 1980; Wong & Sheth, 1985). It was proposed that intention would predict behavior based on the research reviewed, as well as the theory of planned behavior (Ajzen, 1991). However, an integral part of the theory of planned behavior is subjective norms. It is possible that although an individual may have a negative attitude toward a behavior, the subjective norm toward the behavior is strong enough to dictate the person's actions more so than their intention toward the behavior. An individual may wish to decrease their violent media consumption, but if the subjective norm leads them to believe that this action would not be perceived well by others, this influence may lead them to continue their consumption. If an individual goes to the movies with friends and everyone else wants to see the newest violent horror flick, they may feel it would be viewed unfavorably by others if they were to abstain from seeing the movie and deviate from the norm, therefore, they choose to follow the subjective norm and watch the violent movie with the group despite their intentions to decrease their consumption of violent media. Research concerning the influence of perceived social norms on engagement in risky behaviors such as binge alcohol drinking in college, has shown that perceived social norms are a significant predictor of behavior engagement (Perkins, 2002) and

suggest that interventions to reduce misperceptions about the norms can reduce behavior engagement (Fitzpatrick, Martinez, Polidan, & Angelis, 2016).

Additionally, it is possible that the individual feels a perceived lack of control over their ability to reduce their consumption. According to the theory of planned behavior (Ajzen, 1991), perceived control is a crucial variable that influences action. If a person feels they lack control over their ability to reduce their violent media consumption, it is unlikely that their behavior will be congruent with their intentions. Research on success in attempted weight loss revealed that perceived control was the most significant predictor of the amount of weight an individual was able to lose over the course of six weeks (Schifter, & Ajzen, 1985). When a person believed they had the adequate resources and opportunities to lose the weight they were significantly more successful in their weight-loss attempts than those who did not.

Future research models should assess subjective norms and perceived behavioral control in addition to attitude. With all predictive elements of the theory of planned behavior present, it may be possible to better understand the discrepancy between intention and behavior observed here. Additionally, researchers should consider adding components to the message that would indicate reducing violent media consumption as an acceptable social norm, and prompt the recipient to feel they have the ability to reduce their consumption.

Gender Moderation

It was hypothesized that men and women would respond differently to the two messages – the narrative message would raise risk perception and negative attitudes most effectively for men, and the statistical message would do the same for women. Results showed that both of these hypotheses were not supported. In fact, men had lower negative attitude toward violent media in response to a narrative message, as opposed to a statistical message. This is intriguing

as it is the opposite of the hypothesized effect. Reactance theory (Brehm, 1966) states that when an individual feels their freedoms to engage in a behavior are threatened, they will resist psychologically and more strongly support the opinions or beliefs opposite to those they are being encouraged to adopt, creating a boomerang effect. It is possible that men who received the narrative message felt the first-person account was a very personally directed attempt to decrease their consumption; an anecdotal tale of warning intended to change their behavior, more so than an impersonal message consisting of statistics to which they could form counter-arguments and reason away as inapplicable to themselves. If this were the case, it is logical that men would experience reactance to the narrative message and, consequently, a boomerang effect might occur. The boomerang effect would dictate that instead of increasing their negative attitudes regarding violent media, they would actually reaffirm and adhere more vigilantly to their initial opinion that violent media consumption is not necessarily bad for a person, and their negative attitudes would decrease.

Research on reactance and boomerang effects shows that people experience more reactance in response to messages that are perceived as perceptually vivid, absolute, overt, and even dogmatic in their presentation of the argument (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003; Miller, Lane, Deatrick, Young, & Potts, 2007; Rains & Turner, 2007; Quick & Stephenson, 2008). However, messages that refer more to an individual's ability to choose, and don't include absolutes and imperatives, are less likely to elicit a boomerang effect (Quick & Stephenson, 2008). In applying these principles, future persuasive health messages, might benefit from promoting an individual's choice in the forms of media they consume and beware of posing the risks in any way that might be perceived as a threat to the individual's autonomy.

Interestingly, men's negative attitude toward violent media significantly predicted their intentions toward future consumption, though women's attitude did not. This finding was both unexpected and surprising. Research into the current literature in this field does not indicate any premise or support for this effect. Further analyses were conducted to assess potential differences between genders in regards to violent media consumption at time one and also how the messages were perceived. It was posited that women's consumption was perhaps already so low that they may not have felt the need to decrease their consumption further, or perhaps the messages were perceived differently by men and women thereby resulting in different effects. Analyses showed there were no significant differences in how men and women responded to any of the manipulation check items indicating they perceived the messages equivalently, they identified with them equally and they found them equally strong. Additionally, there was not a significant difference in the amount of violent media consumed by men and women at time one. Therefore, future research should look to replicate this finding to confirm reliability.

Exploratory Analyses

The exploratory analyses conducted in this research provide some interesting findings that deserve further exploration. The structural equation model in Figure 5 that utilized age and message type as predictors of consumption revealed that age significantly predicted an individual's perception of risk associated with violent media consumption. In other words, as a person gets older the less risk they see in consuming violent media. A possible explanation is the effect that violent media consumption has on risk perception. Research shows that greater violent media consumption is associated with decreased perception of risk (Anderson & Dill, 2000; Averill et al., 1972; Farley & Ridge, 2015). It is possible that the older a person gets and the more years of media consumption (and violent media consumption) they have accrued, their risk

perception is a product of the aggregate of years of exposure and, consequently, it decreases with time.

The present research suggests that there may be specific populations, such as those that play video games, which respond particularly well to a narrative message. When participants were asked to report the percent of their videogame play that contained violence both at time one and time two, those who received the narrative message had significantly decreased their consumption 48 hours later, compared to those who had received the statistical message. Of all the different media assessed at time one and time two, video game play was the only medium in which a significant difference in the decrease of violent content consumption was seen in response to a specific message type.

Considering differences in the forms of media consumption measured, it is possible that video games are perhaps the easiest form of media in which to reduce consumption quickly. With two days between time one and time two measurements, during the work week, it's possible participants had not yet had the chance to go to the movie theater and choose to view a non-violent movie. Or perhaps their favorite violent television program airs weekly and they had not yet had the chance to skip it and cease watching – thereby decreasing their consumption. Conversely, video games are an ever-present option for those who play them. They own them, they are in the home, and studies indicate that many who play videogames play often, even daily (Padilla-Walker et al., 2010). For this population, it might be much easier to identify a decrease in consumption in 48 hours time.

Additionally, research on video game consumption shows that women are significantly less likely than men to play videogames and when they do, they play significantly fewer hours a week (Lucas & Sherry, 2004). Returning to the research presented

on violent video game play, over 80% of women report never playing violent video games, compared to only 25% of men; while 21% of men, compared to less than 1% of women, report playing violent video games three times a week or more (Padilla-Walker et al., 2010). This suggests that violent video game consumers differ from other media consumers in that they appear to be predominantly male, while research on other media does not indicate gender differences in consumption (Van den Bulck & Van den Bergh, 2000; Chamorro-Premuzic, Swami, & Cermakova, 2012; Austin, 1986).

Considering violent video game play was the only medium that exhibited a significant decrease in consumption at time two, future research should explore how violent video game consumers differ from those of other media. The fact that video games may be easier to cut back on quickly and that their consumers seem to be predominantly male are a couple of components that may give insight into the effect seen in video game consumption in response to the narrative message. Further investigation should be done to discover other divergent characteristics of both video game consumption and video game consumers that might explain this effect, and thereby inform best practices in any public health policy and outreach toward this population.

Limitations

A potential limitation of this study is the time frame in which it was conducted. In order to maximize the potential for finding occurring effects due to the stimulus, it was determined that the follow up would be 48 hours after the initial time one survey. Although this was successful in the case of violent video game consumption, future research may wish to extend the time between assessments in order to allow more opportunity for participants to decrease consumption in other forms of media. Participants need more time to have opportunities such as movie-going,

or the showing of a favorite television program, to choose to decrease their violent media consumption (e.g., if a person's favorite program is "The Walking Dead" and they choose to stop watching it, they have to wait until the next episode airs to choose not to watch and decrease their consumption).

Conclusions

The purpose of the present research was to identify the most effective form of evidence to use in messages to influence an individual's violent media consumption. In the process of this research, we discovered some unexpected and intriguing findings that can guide future research in the continued effort to understand how most effectively risks could be communicated to a specific audience. Results suggested that older adults may be an at-risk population when it comes to violent media, because they perceive less risk. Lower risk perception is associated with greater violent media consumption (Farley & Ridge, 2015), and this indicates the potential for a cycle in which the lack of perceived risk leads people to consume more, and this increased consumption decreases the perception of risk that much more. Their increased consumption could put people at risk for the negative effects associated with violent media, such as increased aggression and hostility (Anderson et al., 2010; Bushman & Huesmann, 2006). It would be beneficial in the future to investigate further the relationship between age and violent media consumption.

It was also found that risk perception and attitude predicted intention; however, intention does not always predict behavior. Future research on persuasive messages should investigate how to influence other variables that influence behavior (such as subjective norms and perceived behavioral control), in order to create greater change in behavior. It is also important that any persuasive messages used to inform individuals of risks in violent media consumption be careful to emphasize individual autonomy and choice, in order to avoid potential reactance and a

boomerang effect. Results showed that a narrative message significantly decreased violent video game play compared to a statistical message. That this specific form of intervention may be especially effective for those who play violent video games is a unique and original finding that deserves further exploration given that it not only adds to academic knowledge but also informs public health policy and outreach.

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Appendix A

MTurk Study Description

A study of health communication. Read passages and answer short questionnaires. Total time: approximately 10 minutes.

Appendix B

Informed Consent

Consent to be a Research Subject

<u>**Introduction**</u>

This research study is being conducted by Felicia Farley, in the Department of Psychology at Brigham Young University to investigate how people perceive information presented in certain health promoting messages.

<u>**Procedures**</u>

Your participation in this study will require that you read a brief health message passage and complete a few short questionnaires. Total time commitment is approximately 10 minutes. You will be paid for your participation in this study. Your participation and responses will be anonymous. You will be contacted 48 hours after completion of this study with a follow up questionnaire, for which you will also be paid.

<u>**Risks/Discomforts**</u>

There are minimal risks associated with participation in this study. Some of the demographic questions may address potentially sensitive topics. You may feel some emotional discomfort when answering questions. You may skip any questions that you don't want to answer.

<u>**Benefits**</u>

There are no direct benefits to you.

<u>**Confidentiality**</u>

The research data will be kept on a password-protected computer and only the researcher and approved research assistants will have access to the data. The data will be kept on a secure internet server that may be accessed only by using a pass code.

<u>**Compensation**</u>

Upon completion of the study, you will receive $1.20.

<u>**Participation**</u>

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely.

<u>**Questions about the Research**</u> and <u>**Your Rights as a Research Participant**</u>

If you have questions regarding your rights as a research participant contact IRB Administrator at (801) 422-1461; A-285 ASB, Brigham Young University, Provo, UT 84602; irb@byu.edu.

For a copy of the consent form, contact Felicia Farley at felicia@farleyfamily.net.

Appendix C

Demographics Questionnaire

Q1. Are you:

-Male

-Female

-Rather not say

Q2. What is your current age? (in years)

-18 – 19

-20 – 22

-23 – 25

Q3. What is your ethnicity?

-White/Caucasian

-African American

-Hispanic/Latino

-Asian

-Native American

-Pacific Islander

-Other (please specify)

Q4. What is your highest level of education completed?

-Less Than High School

-High School/GED

-Some College

-2-year College Degree

-4-year College Degree

-Masters Degree

-Doctoral Degree

-Professional Degree (JD, MD)

Q5. Where do you currently reside in the United States? (indicate state)

Q6. What is your religious preference?

-Catholic

-Protestant,

-Mormon (Latter-Day Saint)

-Jewish

-Muslim

-Hindu

-Atheist

-Other (please specify)

Q7. What is your current marital status?

-Single

-Never Married

-Married

-Divorced

-Widowed

Appendix D

Violent Media Consumption Measure

Think about the past month. How much time do you spend:

1. Watching television or movies in which people are hurt or killed?

1=Once a month, 2=2-3 times a month, 3=Once a week, 4=Once a day, 5=More than once a day

2. Watching television or movies with VERY violent themes (e.g., rated TV-M or rated R movies with strong, bloody violence)?

1=Once a month, 2=2-3 times a month, 3=Once a week, 4=Once a day, 5=More than once a day

3. Playing video games in which people are hurt or shot?

1=Once a month, 2=2-3 times a month, 3=Once a week, 4=Once a day, 5=More than once a day

4. Playing video games that had VERY violent themes (e.g., M rated video games such as Grand Theft Auto, Call of Duty, Halo)?

1=Once a month, 2=2-3 times a month, 3=Once a week, 4=Once a day, 5=More than once a day

Appendix E

Exploratory Consumption Questions

Violence has been defined by experts as any behavior intended to harm another person through physical means. Examples include shooting, stabbing, punching, biting, etc. Consider your own media consumption and answer the following questions.

What percent of the media you consume contains violence?
(Sliding scale 0%-100%?)

What percent of the television you watch contains violence?
(Sliding scale 0%-100%?)

What percent of the video games you play contain violence?
(Sliding scale 0%-100%?)

What percent of the movies you watch contain violence?
(Sliding scale 0%-100%?)

What percent of the music you listen to contains violence?
(Sliding scale 0%-100%?)

What percent of the books you read contain violence?
(Sliding scale 0%-100%?)

Appendix F

Risk Messages

Statistical Evidence Message

Individuals who consume violent media are significantly more likely to become aggressive in the future – both in the moment and in the future. Those who consume higher levels of violent media are at an increased risk of becoming aggressive. These effects have been shown across all ages, genders, and ethnicities.

Research has shown that individuals who consume violent media are 70% more likely to have aggressive thoughts and interpret situations as more aggressive than individuals who have not been consuming violent media.

Additionally, individuals who have watched more violent media as children are 2X as likely to have assaulted their spouse. These individuals are more likely to commit crimes and they are significantly more aggressive than individuals who consume less violent television.

Studies have shown that those who view more violent media are 82% more likely to act physically aggressive and shove, punch, beat, and choke other people. These studies have shown these effects to be true across all groups - regardless of the individual's natural disposition they will become more aggressive with increased exposure to violent media. Fortunately, research indicates that once an individual decreases their exposure to violent media they can expect to see this increased aggression subside.

Narrative Evidence Message – Men

Individuals who consume violent media are significantly more likely to become aggressive in the future – both in the moment and in the future. Those that consume higher levels of violent media are at an increased risk of becoming aggressive. These effects have been shown across all ages, genders, and ethnicities.

Adam is a twenty-three year old male who recently became aware of the effect violent media consumption was having on his life: "I've always loved action and war movies - I'm also a big fan of all the zombie apocalypse stuff that's popular now. I never thought about the possibility that it was affecting me… until my girlfriend told me she didn't like the way I was when I watched that stuff so much."

"Once my girlfriend brought it up, I started to pay attention to how I acted when I watched the bloody and violent shows she didn't like. I noticed I was a lot quicker to lose my temper and get frustrated with myself, and others. I even shoved one of my friends once at what I thought was an insult, only to realize afterward that he was only making a joke."

(Page 1 of 2)

"I started to realize that the shows I'd gotten so into were making me a lot more aggressive and hot headed. I'd heard before that that could happen, but I never figured that it would really affect me. But, I've noticed that since I stopped watching so many violent TV shows and movies and cut back on how much time I spend playing those kinds of video games, I'm less likely to lose my temper and or act aggressively. "

Narrative Evidence Message – Women

Individuals who consume violent media are significantly more likely to become aggressive in the future – both in the moment and in the future. Those that consume higher levels of violent media are at an increased risk of becoming aggressive. These effects have been shown across all ages, genders, and ethnicities.

Amy is a twenty-three year old female who recently became aware of the effect violent media consumption was having on her life: "I've always loved action and war movies - I'm also a big fan of all the zombie apocalypse stuff that's popular now. I never thought about the possibility that it was affecting me… until my boyfriend told me he didn't like the way I was when I watched that stuff so much."

"Once my boyfriend brought it up, I started to pay attention to how I acted when I watched the bloody and violent shows he didn't like. I noticed I was a lot quicker to lose my temper and get frustrated with myself, and others. I even shoved one of my friends once at what I thought was an insult, only to realize afterward that she was only making a joke."

"I started to realize that over time the shows I'd gotten so into were making me a lot more aggressive and hot headed. I'd heard before that that could happen, but I never figured that it would really affect me. But, I've noticed that since I stopped watching so many violent TV shows and movies and cut back on how much time I spend playing those kinds of video games, I'm less likely to lose my temper and or act aggressively."

Appendix G

Perceived Risk, Attitude, and Intention Scales

Perceived Risk Scale

The likelihood of me becoming more aggressive because of the violent media I watch and/or play is substantial
(1 = totally disagree, to 7 = totally agree)

It is possible that I will become more aggressive in the future because of the violent media I watch and/or play
(1 = totally disagree, to 7 = totally agree)

It is likely that I will become more aggressive because of the violent media I watch and/or play
(1 = totally disagree, to 7 = totally agree)

Attitude Scale

Violent media consumption can increase one's aggression.
(1 = totally disagree, to 7 = totally agree)

Violent media consumption can negatively impact one's behavior.
(1 = totally disagree, to 7 = totally agree)

Violent media consumption is unlikely to result in harmful consequences.
(1 = totally disagree, to 7 = totally agree)

Playing violent video games is harmless
(1 = totally disagree, to 7 = totally agree)

Watching violent TV shows can make one more aggressive.
(1 = totally disagree, to 7 = totally agree)

Intention Scale

I am planning to decrease the amount of violent media I consume
(1 = totally disagree, to 7 = totally agree)

It is likely that I will decrease the amount of violent media I consume in the near future
(1 = totally disagree, to 7 = totally agree)

I want to decrease the amount of violent media I consume
(1 = totally disagree, to 7 = totally agree)

Appendix H

Manipulation Check Items

I identified with this message.
(1=strongly disagree; 7=strongly agree)

This message presented a strong argument.
(1=strongly disagree; 7=strongly agree)

The strength of the argument presented came from how the risks were communicated.
(1=strongly disagree; 7=strongly agree)

I could easily imagine the situation presented in the message.
(1=strongly disagree; 7=strongly agree)

The message vividly described the risks of violent media consumption.
(1=strongly disagree; 7=strongly agree)

The message presented evoked feelings for me.
(1=strongly disagree; 7=strongly agree)

The evidence presented was really compelling.
(1=strongly disagree; 7=strongly agree)

This message presented statistical evidence.
(1=strongly disagree; 7=strongly agree)

This message presented anecdotal evidence.
(1=strongly disagree; 7=strongly agree)