What Makes Emotional Ads Go Viral?: The Mediating Role of Emotional Intensity and the Moderating Role of Narrative Transportation

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A Thesis
In the Department of
Marketing

Presented in Partial Fulfillment of the Requirements
For the Degree of
Master of Science (Marketing)

at Concordia University
Montréal, Québec, Canada

March 2024

CONCORDIA UNIVERSITY

School of Graduate Studies

This is to certify that the thesis prepared

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Entitled: What makes emotional ads go viral?: The mediating role of emotional intensity and the moderating role of narrative transportation

and submitted in partial fulfillment of the requirements for the degree of

Master of Science (Marketing)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

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Lingyun Jing

This study investigates the impact of negative emotional appeals in digital marketing, specifically focusing on how emotions of fear and sadness influence the intention to share. Viral marketing utilizes the immense influence of social media to help brand advertisements achieve faster and wider distribution. Previous studies have mainly focused on the effects of positive emotional ad appeals, or have compared the effects of positive versus negative ad appeals on consumer outcomes. Conversely, this study explores how different negative emotions (fear, sadness) differentially influence consumers' intentions to share. This study also explores the mediating role of emotional intensity and the moderating effect of narrative transportation. Through two experimental studies, the findings reveal that high arousal negative appeals (i.e., fear and high-intensity sadness) are more likely to increase sharing intentions among people who are either moderately or deeply engaged with the story in the advertisement, in contrast to low arousal negative appeals (i.e., low-intensity sadness) and positive emotional appeals (i.e., joy). The investigation provides new insight for digital marketing professionals to create compelling advertising content that encourages content sharing.

Acknowledgements

First and foremost, my deepest gratitude goes to my supervisor Dr. Kamila Sobol, whose invaluable assistance and patience were pivotal throughout my thesis journey. She has always been patient, understanding, and readily available, offering me professional support. Without her knowledge, input, and support, completing this journey would have been impossible.

I also want to thank the members of my thesis committee, Dr. Darlene Walsh and Dr. Moien Javadian. Their valuable feedback and suggestions have significantly contributed to enhancing my research.

Special thanks are also due to my friends, both those I met in Montreal and in China, for their ever-present support. This journey would have been significantly more challenging without the unwavering support from my boyfriend, whose encouragement and belief in my abilities pushed me to completion.

I am profoundly grateful to my family for their unwavering encouragement. Furthermore, my heartfelt thanks go to my sister who is pursuing her studies in Toronto. Her support, especially being in the same time zone, was invaluable throughout this journey.

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Introduction

Digital marketing reshaped the marketing landscape, altering how businesses connect with their audience. The ease of sharing content on social media opens up the possibility of viral advertising. Traditional media typically only reaches a limited audience, such as newspapers reaching their subscribers and television programs reaching their viewers. In contrast, content posted on social media has the potential to reach a much broader and larger audience. According to Porter & Golan (2006), encouraging users to circulate an online video advertisement on social media is viewed as a potent method to amplify ad and brand visibility. As such, brands constantly seek good reviews, user-generated content, and are eager for consumers to share their posts. As brands like Amazon, Apple, and BMW build their presence on platforms like YouTube, Instagram, TikTok, and more, the focus has shifted to maximizing visibility and engagement. The ultimate goal is not only to generate positive reactions, but also to go viral on social media and via other forms of word of mouth.

For example, McDonald's recently launched a purple milkshake in celebration of Grimace's (their purple blob mascot) birthday (Ueland, 2023). With a vibrant purple hue, a meme-worthy mascot, and a dedicated Gen Z following, McDonald's had everything it needed to make the Grimace's milkshake a viral sensation. And it succeeded. This campaign, along with the user-generated content that followed, resulted in millions of engagements and mentions, ranking it among the top three hashtags on TikTok during the summer of 2023.

Compared to traditional marketing strategies, viral marketing is characterized by its ability to quickly and systematically reach a large number of potential customers (Porter & Golan, 2006). Once consumers recognize and value a certain product, service, or brand image, they naturally share it with their friends and family, significantly enhancing the brand's visibility

and influence (Reza Jalilvand & Samiei, 2012). Moreover, this organic sharing acts as an endorsement, providing credible and authentic information to a wider audience (Porter & Golan, 2006).

Previous studies have indicated that emotions elicited by online video advertisements can influence consumers' intentions to share (Berger & Milkman, 2012; Tellis et al., 2019). Several factors, such as emotional intensity (Choi, 2022) and narrative transportation (Kang et al., 2020) have been identified as key drivers of virality. Emotional intensity refers to the strength of the emotions elicited by the content, while narrative transportation refers to the extent to which the audience becomes absorbed in the story being told. However, past research on eWOM and narrative transportation have predominantly focused on ad content that elicits positive emotions (Choi, 2022), largely neglecting ads that evoke negative emotions.

Thus, this research aims to examine the relationship between negative emotional ad appeals and the intention to share online content. Specifically, this research aims to examine the differential effects of low-intensity versus high-intensity negative emotions (i.e., sadness and fear, respectively). I will also examine the mediating role of emotional intensity, and the moderating role of narrative transportation.

This research is conducted through two experimental studies. The main findings reveal that exposure to viral campaigns that elicit negative emotions enhance sharing intentions, especially when the emotion elicits strong emotional intensity, such as fear. Furthermore, the findings show that narrative transportation moderates the relationship between ad appeal and sharing intention through emotional intensity under certain conditions. This study has practical implications for digital marketing professionals, providing them with new insights on how to create more compelling ad content.

Literature Review

1. Electric Word of mouth in advertising

Electronic Word of Mouth (eWOM), a digital evolution of traditional word of mouth, involves consumers utilizing online platforms to influence an audience by delivering content that encompasses products, usage experiences, and brand-released advertisements (Porter & Golan, 2006; Ismagilova et al., 2021). In this context, consumers become key players in the communication of information (Dafonte-Gómez, 2014), converting passive viewers into active participants who disseminate brand and product messages on behalf of the company. Distinct from its traditional version, eWOM spreads both rapidly and extensively. The concept of eWOM encompasses activities such as liking, sharing, commenting, and creating social media posts pertinent to a product or brand (Lou et al., 2019), and span across various media channels, including Facebook, Instagram, YouTube, and TikTok (Akpinar & Berger, 2017; Indrawati et al., 2023). Alghizzawi (2019), in a comprehensive survey, explored how platforms like Facebook, Twitter, and Instagram can transform eWOM into a formidable marketing tool, highlighting social media's capacity to augment both the speed and reach of eWOM dissemination.

1.1 The impact of eWOM on consumer behavior

Numerous studies have demonstrated that word-of-mouth significantly influences product selection, information dissemination, and sales (Bastos & Moore, 2021; Indrawati et al., 2023; Iyengar et al., 2011; Porter & Golan, 2006; Reza Jalilvand & Samiei, 2012; Yadav et al., 2021). Encouraging users to share content is a key tactic for amplifying advertisement reach and persuasiveness (Porter & Golan, 2006). Porter & Golan (2006) confirmed that word-of-mouth communication holds greater influence, as consumers tend to perceive information sourced from

their family, friends, or other real consumers as more credible than messages from advertisers. Reza Jalilvand and Samiei (2012) empirically established that the utilization of eWOM in the manufacturing industry can strengthen consumer perceptions and consumer-brand relationships, notably impacting purchase intentions. Yeap et al. (2014) identified key attributes of an effective eWOM platform in the entertainment industry, further underscoring its utility and value for decision-makers. Yadav et al. (2021) also discovered that tourism marketers could leverage customer journeys to foster destination preferences through organic information exchange with prospective travelers. Additionally, Indrawati et al. (2023) conducted a study using a Google online questionnaire and found that the quality, quantity, and credibility of product information about beauty products shared on TikTok significantly influence consumer acceptance, positively impacting purchase intention.

In recognition of these favorable outcomes, numerous corporations now embrace word-of-mouth marketing, given its significant impact on consumer outcomes and its cost-effectiveness (Trusov et al., 2009). This trend is apparent when looking at corporate expenditure on social media marketing, which facilitate communication and sharing among users. Brands like GoPro, Nike, and Spotify stand out as top performers active on social media (Harrigan et al., 2020). Taking Nike as an example, the company spent approximately $150 million in social media advertising in 2021 (Eser, 2023). The investment in social media resulted in 306 million followers on Instagram, 39 million followers on Facebook, and 1.84 million subscribers on YouTube, as per the statistics recorded from Nike's official accounts on these platforms as of February 2024.

1.2 The key drivers behind eWOM dynamics

Previous studies on eWOM marketing have identified several factors that influence consumers' propensity to share advertisements. These include the nature of the communication channel, consumer individual characteristics (such as their relationship to the product and brand, personal personality traits), and content factors (Ismagilova et al., 2021). Hayes et al., (2016) argued that stronger consumer-brand connections significantly influence sharing intentions, thereby enhancing the viral potential of ads. Tellis et al., (2019) discovered that emotional advertisements are more frequently shared on platforms such as Facebook, Google+, and Twitter, compared to LinkedIn. Kulkarni et al., (2019) found that people with extraversion and openness traits are more likely to share viral ads. Moreover, people who enjoy effortful cognitive activities prefer sharing viral ads with emotional appeals versus a brand-focus appeals (Kulkarni et al., 2020). As for ad content, how consumers perceive ad information plays a critical role in shaping effective eWOM communication (Ismagilova et al., 2021). Porter and Golan (2006) observed that viral ads often leverage provocative content more than traditional ads to ignite spontaneous consumer discussions. Similarly, Nikolinakou & King (2018) found that ads that provoke strong reactions and discussions are more likely to be shared.

Researchers investigating the motivations behind eWOM have discovered that emotions are one of the most influential factors (J. Berger & Milkman, 2012). While previous studies have highlighted the impact of positive emotions, less empirical research investigated the effects of advertisements that evoke negative emotions in WOM communication, although such ads are relatively common on social media (Brennan et al., 2020). In this study, I examine the differential effects of different types of negative emotional ads on consumer intentions to share.

2. Emotional appeals in advertising

Emotional advertising aims to provoke intense emotional reactions thereby establishing memorable connections with the brand or product (Vrtana & Krizanova, 2023). The efficacy of emotional appeals in advertising has been extensively studied, highlighting them as powerful tools capable of influencing consumer preferences, judgment and behaviors (Kwon et al., 2022; Mehta & Purvis, 2006; Tellis et al., 2019). Tellis et al., (2019) discovered that emotional appeals are superior to informational appeals in eliciting sharing. Kwon et al. (2022) demonstrated that, compared to emotional content, non-emotional content resulted in lower engagement with charity advertisements. Further supporting this, Mehta and Purvis (2006) demonstrated that emotional content enhances memory retention, indicating that advertisements evoking strong emotional responses are more likely to be remembered and potentially shared.

Emotional appeals in advertising can also trigger diverse emotional states in consumers (Stout & Leckenby, 1986). Discrete emotions are classified according to valence (positive or negative) and arousal (high or low). Positive emotions, such as joy and pleasure, are linked to increased well-being and resilience, whereas negative emotions, like fear, anger, and sadness, stem from an individual's negative assessment of external stimuli (Song et al., 2022). Arousal represents the level of calmness or excitement in emotional expression; high arousal emotions lead to increased physiological arousal, such as fear and excitement and are considered to evoke stronger emotional intensities (Reisenzein, 1994). Meanwhile, low arousal emotions are associated with calmness, such as relaxation and sadness and evoke weak emotional experiences (Toisoul et al., 2021).

2.1 The significance of emotional appeals

Researchers highlight the critical role of emotional appeals in driving the shareability and effectiveness of advertising content (Akpinar & Berger, 2017; J. Berger & Milkman, 2012; Dafonte-Gómez, 2014; Kulkarni et al., 2020; Kwon et al., 2022; Tellis et al., 2019). Berger & Milkman (2012) found that content eliciting high arousal emotions is more likely to become viral, with any strong emotional content, be it humorous, joyful, or angry, being more shareable. Dafonte-Gómez (2014) specifically analyzed the content of the 25 most shared viral video advertisements between 2006 and 2013, identifying surprise and joy as the key emotions driving their success. This analysis aligns with the broader finding that emotional content significantly enhances the shareability of advertisements.

Supporting this, Akpinar & Berger (2017) demonstrated through both the analysis of real online advertisement share data and controlled laboratory experiments that emotional appeals effectively influence consumer attitudes and behaviors. Further research by Tellis et al. (2019) added that content which triggers positive emotions such as entertainment, excitement, inspiration, and warmth, especially when featuring dramatic elements, including babies, animals, and celebrities, tends to be shared more. Kwon et al. (2022) extended this insight to charitable advertising, noting that aligning images and text to evoke high arousal emotions significantly boosts viewer engagement on social media, thereby enhancing the effectiveness of these campaigns.

2.2 Negative ad appeals

Many studies on emotional appeal have focused on positive emotions within the context of eWOM (Choi, 2022; Wang & Tang, 2021), while extant empirical evidence suggests that negative emotions exert various influences on consumer behavior (Dobele et al., 2007; Morales

et al., 2012). For instance, Morales et al. (2012) discovered that in the presence of stimuli with high emotional intensity, content that evokes negative emotions can enhance memory retention and resist forgetting. Further empirical research by Buratto et al. (2014) demonstrated that when consumers are exposed to emotionally charged images, negative stimuli (as compared to neutral or positive stimuli) are more effective in capturing the audience's attention and are less susceptible to the effects of attentional diversion.

Moreover, the elicitation of negative emotions can significantly enhance engagement and influence consumer behavior (Erlandsson et al., 2018; Song et al., 2022; Yousef et al., 2021, 2022). Yousef et al. (2021) observed consumers' reactions to anti-drunk driving advertisements and found that appeals to negative emotions (such as fear, guilt, and shame) can effectively improve audience adherence to social norms, more so than positive emotional appeals. This is because the consequences highlighted by negative ad appeals often evoke empathy among viewers. Erlandsson et al. (2018) discovered that negative appeals in charitable advertising might be more effective in attracting actual donations compared to positive emotional appeals, as the consequences of negative appeals can trigger feelings of anger, thereby motivating a change in action. Furthermore, Yousef et al. (2022) conducted experiments on charitable advertisements and found that ads containing negative emotional information generated more interactions, significantly increased engagement, and encouraged charitable behavior. Additionally, research by Song et al. (2022) indicated that in the context of ritualistic consumption, the elicitation of negative emotions such as sadness can stimulate a need for control among consumers, subsequently increasing their propensity to engage in shopping.

Negative emotional appeals are frequently used in the dissemination of false information to increase audience engagement, with negatively biased fake news boosting people's willingness

to share news stories. Fake news achieves its spread by triggering negative emotional responses in the audience, particularly anger. However, fake news often effectively impacts specific groups, such as those with firm political affiliations in political topics (Horner et al., 2021). Past research primarily focused on the high arousal negative emotional response triggered by fake news, such as anger, without thoroughly exploring how discrete negative emotions – namely fear and sadness, function in an advertising context.

2.3 Fear appeal and sadness appeal in advertising

Fear appeals, which elicit highly arousing emotion, have been proven to influence behavioral changes in individuals by emphasizing potential threats (Brennan et al., 2020; Dobele et al., 2007; Morales et al., 2012; Sobol & Giroux, 2023; Yousef et al., 2021). Employed in campaigns addressing social issues (such as abortion and gun control, Dobele et al., 2007), as well as health-related concerns (such as skin cancer, Morales et al., 2012), fear appeals are a common strategy to influence consumer behaviors. Tannenbaum et al. (2015) in their meta-analysis, observed that fear appeals were more effective when the message depicted relatively high amounts of fear. Based on Witte's extended parallel process model, the more threatened individuals feel, the more fear it evokes, providing consumers with more energized drive to engage in motivate behavior (Sobol & Giroux, 2024). Further, threatening fear appeals elicit stronger efficacy assessments (Witte & Allen, 2000). If the threat is deemed insignificant, people will readily dismiss fear appeals. Conversely, when individuals believe they can take effective recommended actions against the threat, they are prompted to react in a way that addresses the threat (Witte & Allen, 2000).

However, previous research has demonstrated the presence of a threshold at which stimuli evoking too much fear might backfire, and hinder the reception of information (De Hoog

et al., 2008; Witte & Allen, 2000). This curvilinear relationship between fear and persuasion has been shown across various domains, including social campaigns (e.g., road safety and anti-cigarette campaigns) and the healthcare domains (e.g., hypoglycemia) (Borawska et al., 2020; De Hoog et al., 2008; Ray & Wilkie, 1970). De Hoog et al. (2008) found that in studies on hypoglycemia consequences, participants tended to minimize perceived danger when faced with severe threats. Additionally, Witte's extended parallel process model shows that while effective action beliefs against fear appeals can motivate threat control actions, overly intense threats may lead to doubts about these actions' effectiveness, resulting in defensive responses due to perceived efficacy (Witte & Allen, 2000).

Looking more broadly at high-arousal negative emotions, previous research has already validated that such emotions can promote sharing (Berger & Milkman, 2012; Nelson-Field et al., 2013; Teeny et al., 2020), because sharing negative feelings can alleviate the tense arousal caused by negative emotions (Teeny et al., 2020). Berger (2011) and subsequent research (i.e., Berger & Milkman, 2012) consistently demonstrated that high arousal emotions, both positive (i.e., amusement, awe) and negative (i.e., anger, anxiety), promote the desire to share content, whether it be a piece of news or a recently watched movie. Nelson-Field (2013) further demonstrated that in commercial videos, high arousal negative emotions (i.e., disgust, shock, anger) can promote more sharing compared to low arousal negatives.

However, these studies overlooked the discrete emotion of fear, whose potential backfire characteristic makes its effects on promoting sharing particularly worthy of investigation. Additionally, fear is one of the primary negative emotions utilized in advertising (Dobele et al., 2007). Therefore, I focused on fear appeal as a high arousal negative emotion condition in this

research to fill this research gap. In contrast, I selected sadness as the low arousal emotion condition (Reisenzein, 1994).

In sum, previous research (Berger & Milkman, 2012; Nelson-Field et al., 2013; Teeny et al., 2020) emphasizes the strong influence of high arousal emotions, especially negative emotions (Dobele et al., 2007; Song et al., 2022), in driving content sharing. This suggests a direct link between the emotional appeal of an ad and its virality. Thereby, the following hypothesis is proposed:

H1: High arousal negative appeal (fear) has a stronger impact on intention to share comparing to low arousal negative appeal (sadness).

3. Emotional intensity as a mediator

Emotional intensity in advertising refers to the strength or power of the emotional response elicited by an advertisement (Bachorowski & Braaten, 1994; Frijda et al., 1992). Reisenzein (1994) suggests that the intensity of an emotion is determined by the degree of pleasure or displeasure experienced, as well as the level of physical activation or deactivation encountered. Rickard (2004) found that emotionally intense music can induce greater physiological arousal (i.e., skin conductance and chills), supporting the notion that strong emotions are accompanied by increased arousal. Furthermore, research shows that emotional intensity, regardless of whether it is positive or negative, serves as a pivotal driving force behind the sharing of social media content (Botha & Reyneke, 2013; Choi, 2022). As observed by Christophe & Rimé (1997), people tend to share emotionally intense experiences with others to re-experience positive events, alleviate negative emotions, or gain social currency (Nikolinakou & King, 2018). Consequently, exposure to highly intense emotional content often triggers more frequent and repetitive sharing. This perspective underscores the fundamental role that the

strength of emotional responses plays in influencing the spread of content, highlighting the critical importance of emotional intensity in the dynamics of video sharing behavior.

Of particular relevance to this study, previous research indicates that when confronted with negative information, individuals tend to seek support by sharing negative experiences with others as a means to alleviate their own intense negative emotions (Gentzler et al., 2010). Brans et al. (2013) affirmed that emotions encourage social sharing, especially when these emotions are strong and negative (i.e., anger), because sharing can facilitate emotional soothing, both in duration and residual intensity. Therefore, the stronger the emotions generated by an event, the more likely people are to talk about it. These findings underscore the mediating role that emotional intensity may play in sharing intentions.

In sum, past research suggests that a state of high arousal is associated with more intense emotional experiences, in contrast to a state of low arousal (Reisenzein, 1994, which triggers sharing behavior (Christophe & Rimé, 1997; Choi (2022). This suggests that the emotional intensity may mediate the relationship between the emotions elicited by the ad appeal and the intention to share. Hence, the following hypothesis is proposed:

H2: High (versus low) arousal negative appeal has a stronger impact on intention to share by evoking stronger emotional intensity. Specifically, high (low) negative appeal elicit stronger (weaker) emotional intensity which in turn impacts the intention to share.

4. Narrative transportation as a moderator

Narrative transportation theory posits that when individuals engage with a storytelling narrative, they experience "transportation to a narrative world as a distinct mental process, an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p. 701), leading to a deep immersion that can influence attitudes and behaviors (Green & Brock, 2000). This

phenomenon is particularly noteworthy in advertising, as storytelling can attract audiences, enhance engagement, and improve audience evaluations through increased emotional connections (Botha & Reyneke, 2013; Van Laer et al., 2019).

Research indicates that narrative transportation has a profound impact on persuasion (Brechman & Purvis, 2015; Cao et al., 2021; Green & Brock, 2000; Seo et al., 2018). Brechman and Purvis (2015) analyzed national audience sample data from the Super Bowl in 2011 and 2012, and observed that when audiences were captivated by the advertisment's narratives, narrative-based storytelling ads (vs. argument-based ads) effectively elicited shifts in attitudes. Cao et al. (2021) studied short advertising videos produced on social media for touristic destinations and found that the narrative nature of short videos fostered positive attitudes towards the destination, as these video clips provided immersive experiences, triggering positive feedback and reducing critical thoughts towards the ad information. Seo et al. (2018) examined consumer habits of sharing advertisements on social media platforms, discovering that narrative transportation positively influences the virality of ad posts between friends.

Deeper immersion in negative narratives is associated with stronger emotional engagement and responses (Sukalla et al., 2016), yet overly strong reactions to negative emotional ads can backfire. Particularly, when consumers engage with high arousal negative emotional content, narrative transportation may amplify their negative experience, leading to a defensive response. Therefore, it is reasonable to propose that narrative transportation moderates the relationship between emotional ads and sharing behavior. By examining the underexplored role of narrative transportation in the context of negative emotional appeals and their impact on eWOM (Wang & Tang, 2021), this research aims to offer insights into effective marketing strategies.

In sum, narrative transportation leads to persuasion and encourages sharing through strong emotional reactions (Botha & Reyneke, 2013; Green & Brock, 2000; Kwon et al., 2022), particularly when the underlying emotional response to the negative advertisement is minimal (i.e., in the case of low arousal negative appeal). However, when the as appeal elicits highly arousing negative emotional reactions, a deep immersion into the ad's narrative might elicit an excessively negative experience (Sukalla et al., 2016), leading to a backlash effect (Borawska et al., 2020). This suggests that narrative transportation might alter the dynamics between ad appeal and the audience's sharing intentions. Therefore, the following hypothesis is proposed:

H3: Narrative transportation moderates the relationship between emotional ad appeal and intention to share. Specifically, narrative transportation reduces the effect of high arousal negative appeals on intention to share by evoking overwhelming emotional intensity. On the other hand, narrative transportation increases the effect of low arousal negative appeals on intention to share by evoking stronger emotional intensity.

Conceptual Model

Based on the literature review, this research aims to investigate the impact of emotional ad appeal on consumers' intention to share. Additionally, the research will investigate the mediating role of emotional intensity and the moderating role of narrative transportation (see Figure 1).

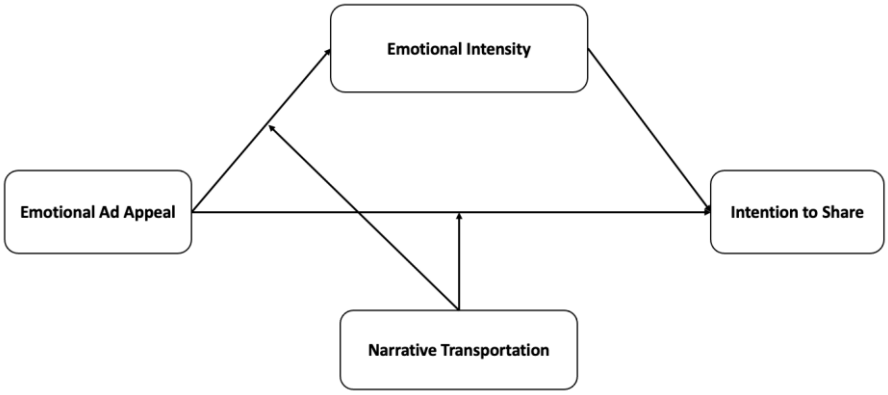


Figure 1 Conceptual Model

Overview of Experiments

This research employed an experimental approach, comprising of two pretests and two main studies. The studies were conducted online using Qualtrics. Participants were recruited from Concordia University's Marketing Research Practicum (MRP) for study 1 and Amazon's Mechanical Turk (MTurk) for the pretests and study 2.

The first pretest aimed to evaluate the effectiveness of three ad appeals (fear; sadness; joy) for use in study 1. Study 1 focused on the direct impact of the ad appeals on the intention to share and explored the mediating effect of emotional intensity. Building on the findings from study 1, a new, less arousing sadness appeal was designed for study 2, which was first pretested (i.e., pretest 2). Study 2 investigated how the four ad appeals (fear; high arousal sadness; low arousal sadness; joy) and narrative transportation (high vs. low) interacted to impact participants' intention to share the viewed content, while re-examining the mediating role of emotional intensity.

Stimuli Design

In order to accurately design the emotional ad stimuli that authentically mirror real-world advertisements, I carefully examined a large number of advertisements posted on social media in recent years, and coded for the ad's focal emotion. Specifically, I examined ads featured on the YouTube Ads Leaderboard spanning from Q3 2019 to Q2 2023[1]. I also examined YouTube ads released by brands listed on Adage's Top 100 Brands of 2022[2]. This examination included videos that emphasized both negative and positive emotions. Among the 97 reviewed videos, 69% emphasized positive emotions, such as joy, excitement, pleasure, and relaxation. Conversely, 26% of the ads focused on negative emotions, including fear, disgust and sadness. Overall, the ads covered a wide range of topics, including environment protection (A wake up call to end plastic pollution, 2023[3]), technology (The Singularity, 2023[4]), skin cancer ('Arrows' Video | Protect Your Skin from UV, 2023[5]), and driving safety (Moments, 2017[6]).

Three advertising appeals were developed for study 1, comprising two treatment groups and one control group. This study aims to explore the distinct impacts of high (vs. low) arousal negative emotional appeals. By integrating a positive high arousal condition as a control, it highlights that my focus isn't just on arousal intensity but specifically on the unique effects of negative high-arousal emotions.

The treatment groups focused on negative emotional appeals, with one intended to evoke high arousal fear and the other low arousal sadness. The control group was centered around a positive ad appeal featuring high arousal joy. The focal product category, sunscreen, was chosen

[1] https://www.youtube.com/ads/news-and-inspiration/ads-leaderboard/
[2] https://adage.com/article/datacenter/introducing-worlds-largest-advertisers-2022/2456301
[3] https://www.youtube.com/watch?v=voPkttQKe70
[4] https://youtu.be/lIf27sHt2QA
[5] https://www.youtube.com/watch?v=bgo4el6iVPU
[6] https://www.youtube.com/watch?v=AM-2HlgPftE&ab_channel=RoadCasting

due to its frequent use of fear appeals in advertising (e.g., urging the use of sunscreen to avoid burns or reduce the risk of skin cancer). The familiarity participants have with this type of advertising would serve to prevent the fear appeal from catching them off guard or causing them to feel overwhelmed, thus minimizing defensive responses (Borawska et al., 2020).

In designing the stimuli, I mimicked the structure of an existing viral ad promoting sunscreen entitled "Dear 16-year-old Me" released by DCMFCanada (2011[7]). This approach enabled me to uphold consistency in the storyline across stimuli, and only manipulate the emotion triggered by each ad. In the fear appeal ad, a character shares their personal story of developing melanoma from too much sun exposure and their journey through medical treatment. In the sadness appeal ad, the focus is on a character remembering a friend who passed away from melanoma. In the joy appeal ad, a character fondly recalls happy times in the sun with family and friends. All three advertisements conclude with the narrator underscoring the importance of using sunscreen and warning against excessive sun exposure (adapted from Morales et al., 2012). Four images accompanied each stimulus to enhance the evoked emotional experience. Most pictures used were generated by the AI platform MidJourney based on the script. Several pictures are credited to Adobe Stock. The complete stimulus script and pictures are provided in Appendix A.

Pretest

Pretest 1 aimed to assess the effectiveness of three advertising appeals: fear – i.e., high arousal negative emotion; sadness – i.e., low arousal negative emotion; and joy – i.e., high arousal positive emotion. This was achieved by evaluating participants' initial emotional feeling after viewing the stimuli within a 3-factor between subject design.

[7] https://www.youtube.com/watch?v=_4jgUcxMezM&ab_channel=DCMFCanada

Method

The study engaged 99 participants (M_{age} = 41.18, SD = 11.20; 33.3% female) from Amazon's Mechanical Turk using CloudResearch platform, offering a $0.70US compensation for a 3-minute online survey. According to Hauser & Schwarz (2016)'s research, using MTurk for participant recruitment and testing has proven to be an effective methodology. Also, the MTurk online sample offers more socioeconomic and ethnic diversity compared to lab participants and those recruited via social media, as noted by Casler et al. (2013). For the recruitment of MTurk panelists, only those residing in the United States and those with an MTurk approval rate of 80% or higher were recruited. These criteria were used to enhance the quality and reliability of our experimental results. Identical criteria were used in the remaining studies.

At the beginning of the study, participants were asked to complete a consent form displayed on their screens; those who did not consent were directed to the survey's end page and thanked for their time. The pretest focused on evaluating the effectiveness of three different emotional ad stimuli: fear appeal, sadness appeal, and joy appeal. Participants were randomly assigned to view one of these stimuli. Each participant was asked to read the ad narrative and examine the accompanied images, while imagining that they were watching this ad as a video on YouTube. A minimum time of 30 seconds on the ad page was enforced on Qualtrics. After viewing the ad, participants were prompted to indicate the emotion elicited by the ad using a multiple-choice format: fear, sadness or joy. They then rated whether the ad evoked negative or positive feelings (-3 = negative emotion, 3 = positive emotion). Further, they were asked to rate their discrete feelings (1 = not at all- 7 = extremely strong): fearful, threatened, sad, alarmed, joyful, happy, content, depressed, down. Finally, demographic information (age, gender, English

proficiency) and data quality measures (response device used) were collected. Detailed questionnaire materials are available in Appendix B.

Results and Discussion

The results confirmed that the ad appeals evoked different emotions across the three groups ($\chi 2 = 33.16$, df = 4, $p < .001$). Within the fear appeal, the majority of participants felt fear-based emotions (72.73%). In the sadness appeal, the majority felt sadness (65.63%), while some reported feeling fear (34.38%). Surprisingly, in the joy appeal condition, almost half of the participants reported feeling fear (47.06%), 23.53% of participants reported feeling sadness, and only 29.41% of participants reported feeling joy.

Additionally, an ANOVA test revealed statistically significant differences in participants' experiences of positive or negative emotions among the three groups ($F(2, 96) = 9.080$, $p < 0.001$). The fear appeal generated the highest negative emotion score ($M_{fear} = -1.85$, SD = 1.28), which was unsurprisingly not significantly different from the score generated by the sadness appeal ($M_{sadness} = -1.79$, SD = 1.24, $t(96) = -0.21$, $p = 0.835$), but was significantly greater than that reported in the joy appeal condition ($M_{joy} = -0.65$, SD = 1.37, $t(96) = -3.79$, $p < 0.001$).

Next, the emotional feeling reported by participants were analyzed across the three ad appeal conditions. Before analyzing the data, I created 3 variables: fear (consisting of the following 3 items: fearful, threatened, alarmed; $\alpha = 0.92$), sadness (3 items: sad, depressed, down; $\alpha = 0.91$), and joy (3 items: joyful, happy, content; $\alpha = 0.92$). Participants in the fear appeal condition expressed a stronger fear emotion ($M_{fear} = 4.41$, SD = 1.47), compared to those in the sadness appeal ($M_{sadness} = 3.57$, SD = 1.79, $t(96) = 1.93$, $p = 0.056$) and those in the joy appeal ($M_{joy} = 3.16$, SD = 1.95, $t(96) = 2.93$, $p = 0.004$) conditions. Unexpectedly, participants in the sadness appeal reported feeling similar levels of sadness ($M_{sadness} = 3.69$, SD = 1.73) as

those in the fear appeal (M_{fear} = 3.70, SD = 1.73, t(96) = 0.02, p = 0.983), but significantly higher levels of sadness than participants in the joy appeal condition (M_{joy} = 2.67, SD = 1.90, t(96) = 2.36, p = 0.020). Finally, participants in the joy appeal condition experienced the greatest joy (M_{joy} = 2.77, SD = 1.74) compared to the fear appeal (M_{fear} = 2.03, SD = 1.47, t(96) = 1.96, p = 0.053) and sadness appeal ($M_{sadness}$ = 1.80, SD = 1.42, t(96) = 2.54, p = 0.013) conditions. Figure 2 shows the descriptive statistics for each condition.

Measured emotional feelings	Fear appeal	Sadness appeal	Joy appeal
Fear_avg	4.41(1.47)	3.57(1.79)	3.16(1.95)
Sadness_avg	3.70(1.73)	3.69(1.73)	2.67(1.90)
Joy_avg	2.03(1.47)	1.80(1.42)	2.77(1.74)

Figure 2 Descriptive statistics for emotional feeling in pretest 1

Based on the pretest results, the joy appeal was modified by omitting the negatively framed concluding statement, and instead focusing solely on the positive narrative of having a pleasant time in the sunshine with family and friends. This was complemented by four images that illustrated positive emotional experiences in the sun (see Appendix C). The revised joy-based ad appeal was used in study 1.

Study 1

The primary objective of study 1 was to examine the main effects of an ad's emotional appeal on intentions to share the ad with others (H1). This study also tested the mediating role of emotional intensity (H2). After exposure to one of the three pretested ad stimuli, participants responded to a series of questions designed to assess their emotional response to the advertising and their sharing intentions.

Participants and Procedure

A total of 229 undergraduate students were recruited through Concordia University's Marketing Research Practicum. They completed the 5-minute online survey in exchange for partial course credit. Participants who did not complete the survey, who failed the attention check questions or who wrote suspicious comments to the researcher were excluded from the analysis. In total, the analysis incorporated data from 221 participants, mainly aged between 18 and 24 years, with females constituting 48.9% of the sample.

In study 1, participants were first provided with a consent form informing them of the study's purpose and conditions. All participants who gave informed consent were randomly assigned to one of three conditions: fear-based ad appeal, sadness-based ad appeal, and joy-based ad appeal. Participants were asked to read the ad narrative and view the accompanying four images. Although the images were static, participants were asked to imagine themselves watching the ad as if it were a video on YouTube. As with the pretest, the duration spent on the ad page was required to be no less than 30 seconds.

After viewing the ad, participants first reported their emotional intensity using Choi's (2022) scale. Namely, the scale consisted of 4 items measured on a 7-point Likert scale: "This ad evoked a very strong emotion.", "While engaging with the ad narrative and images, my emotional feeling was very intense.", "While engaging with the ad narrative and images, the degree of my emotional feeling was high.", "My emotional experience with this ad was very intense as a whole."(1 = strongly disagree, 7 = strongly agree, $\alpha = 0.95$). Next, participants reported their intention to share the ad, using a 3-item scale on a 7-point Likert scale (borrowed from Choi, 2022): "I plan to pass along this online video ad.", "I will make an effort to pass

along this online video ad.", "I intend to pass along this online video ad." (1 = strongly disagree, 7 = strongly agree; $\alpha = 0.95$).

Subsequently, as a manipulation check, participants were asked to report the emotion triggered by the advertisement (fear, sadness, joy). They also rated whether the feelings evoked by the ad were primarily negative or positive (-3 = negative emotion, 3 = positive emotion). Additionally, they rated their current feelings on nine discrete emotions (1 = not at all, 7 = very strong): fear fearful, threatened, frightened; joyful, happy, content; sad, depressed and down. In contrast to the pretest, words representing the same emotion were grouped to prevent a mix of fear and sadness descriptions, which could potentially confuse participants. Three overall emotions were computed to be used in the analysis: fear (3 items: $\alpha = 0.91$), sadness (3 items: $\alpha = 0.88$), joy (3 items: $\alpha = 0.94$).

Since the study's ad stimuli was adapted from a real advertisement that went viral, participants were asked if they had seen the ad before participating in the survey, followed by an attention check question instructing participants to "please select 'Agree' for quality assurance purposes". Afterwards, as potential control variables, product involvement and sunscreen use frequency (1= never, 7 = very often) were recorded. Product involvement was measured using the following three questions: "To me, sunscreens are: 1 = unimportant, 7 = important; 1 = irrelevant, 7 = relevant; 1 = means a lot to me, 7 = means nothing to me" ($\alpha = 0.87$). The scale is adapted from Choi (2022), where we replaced reference of automobile products to sunscreen. Finally, participants provided demographic information including their age, gender, English proficiency level, and the device they used for responding. Detailed questionnaire materials can be found in Appendix D.

Results and Discussion

Manipulation Check

Before testing the hypotheses, a manipulation check was conducted to verify the effectiveness of the three ad stimuli. Initially, a chi-square analysis revealed significant differences among the three groups in terms of elicited emotional responses ($\chi 2 = 150.881$, df = 4, $p < 0.001$). In the revised joy condition, 77% of participants felt joy. Further, 69% of participants in the fear appeal condition experienced fear. However, the sadness manipulation proved a bit less effective, with only 47% of participants in that condition feeling sad (50% felt fear, and 2.6% felt joy).

When asked about the polarity of the emotions elicited, an ANOVA analysis indicated that participants in the sadness appeal group reported the most negative emotions ($M_{sadness} = -1.16$, SD = 0.94). Those in the fear appeal group experienced similar negative emotions ($M_{fear} = -1.11$, SD = 0.89 vs. $M_{sadness} = -1.16$, SD = 0.94, $t(218) = 0.27$, $p = 0.79$), while participants in the joy appeal condition reported significantly more positive emotions than participants in the latter two conditions ($M_{joy} = 0.59$, SD = 1.17, $ps < 0.001$). Figure 3 includes the descriptive data of each condition.

Further, when asked about their specific feelings, participants in the fear appeal condition reported feeling fear ($M_{fear} = 3.85$, SD = 1.43) to the same extend as participants in the sadness appeal condition ($M_{sadness} = 3.96$, SD=1.50, $t(218) = -0.53$, $p = 0.595$). Participants in the sadness appeal condition reported feeling more sad than those in the fear appeal condition ($M_{sadness} = 3.48$, SD = 1.48 vs. $M_{fear} = 3.01$, SD = 1.49, $t(218) = -2.13$, $p = 0.035$). Finally, participants exposed to the joy appeal ad expressed feeling joy ($M_{joy} = 3.72$, SD = 1.54) to a higher degree

than participants in the fear appeal (M_{fear} = 1.60, SD = 0.96, t(218) = 11.08, p < 0.001) and sadness appeal ($M_{sadness}$ = 1.50, SD = 0.83, t(218) = 11.76, p < 0.001) conditions. Figure 4 shows the details from contrast analysis.

Measured emotional feelings	Fear appeal	Sadness appeal	Joy appeal
Fear_avg	3.85(1.43)	3.96(1.50)	1.57(1.12)
Sadness_avg	3.01(1.49)	3.48(1.48)	1.58(0.98)
Joy_avg	1.60(0.96)	1.50(0.83)	3.72(1.54)

Figure 3 Descriptive statistics for emotional feeling in study 1

Measured emotional feelings	Contrast	t (218)	*p*
Fear	**Fear vs. Sadness**	-0.53	0.595
	Fear vs. Joy	10.03	<.001
	Sadness vs. Joy	10.75	<.001
Sadness	**Fear vs. Sadness**	-2.13	0.035
	Fear vs. Joy	6.45	<.001
	Sadness vs. Joy	8.71	<.001
Joy	**Fear vs. Sadness**	0.48	0.63
	Fear vs. Joy	-11.08	<.001
	Sadness vs. Joy	-11.76	<.001

Figure 4 Contrast analysis for emotional feeling in study 1

Unfortunately, the manipulation check results suggest that the sadness ad appeal evoked unexpectedly high levels of fear – which might impact the results of the main analyses.

Direct Effect (Hypothesis 1)

A one-way ANOVA confirmed the impact of the three emotional appeal stimuli on sharing intention (F(2, 218) = 9.04, p < 0.001). Unsurprisingly (given the manipulation check

results), sharing intentions did not significantly differ across the sadness appeal ($M_{sadness} = 4.09$, SD = 1.59) and fear appeal ($M_{fear} = 4.00$, SD = 1.48, $t(218) = 0.32$, $p = 0.748$) conditions, failing to support Hypothesis 1. However, sharing intentions were significantly lower for the joy appeal condition ($M_{joy} = 3.10$, SD = 1.61), than for the sadness appeal ($t(218) = 3.86$, $p < 0.001$) and fear appeal ($t(218) = 3.47$, $p < 0.001$) conditions.

Indirect Effect (Hypothesis 2)

To test whether the level of emotional intensity mediated the effect of the ad appeal on participants' sharing intentions, a mediation analysis was conducted using PROCESS Model 4 (10,000 bootstrap samples; Hayes, 2017). The independent variable was the type of ad appeal (fear appeal, sadness appeal, joy appeal), with emotional intensity as the mediator, and sharing intention as the dependent variable. Two dummy coded variables (X1 and X2) were created for the independent variable, where X1 represents the comparison between the fear appeal group and sadness appeal group (0 = fear appeal; 1 = sadness appeal); and X2 represents the comparison between fear appeal group and joy appeal group (0 = fear appeal; 1= joy appeal). The overall index of mediation was insignificant for the X1 contrast ($\beta = 0.16$, SE = 0.10, 95%CI = [-0.03, 0.35]). However, the mediation index for the indirect effect of X2 on sharing intentions with emotional intensity as mediator was significant ($\beta = -0.36$, SE = 0.13, 95%CI = [-0.64, -0.14]). Specifically, X2 contrast significantly impacted emotional intensity ($\beta = -0.79$, SE = 0.22, 95%CI = [-1.22, -0.36]), which in turn had a significant effect on sharing intentions ($\beta = 0.46$, SE = 0.07, 95%CI = [0.31, 0.61]). The residual effect of the fear versus joy ad appeals on sharing intentions remained significant ($\beta = 0.-0.54$, SE = 0.25, 95%CI = [-1.03, -0.05]), supporting a partial mediation model. In other words, the findings confirm that fear appeals stimulate higher sharing intentions than joy appeals by evoking stronger emotional intensity. These findings

suggest that fear-inducing ad appeals can achieve higher sharing intentions then positive ad appeals through increased emotional intensity. The detailed output from SPSS is included in Appendix E.

In a follow up analysis, I wanted to examine whether removing participants who wrongfully recalled the emotion triggered by the ad would improve the results. Specifically, participants within the fear or sadness conditions who reported experiencing joy, as well as those in the joy condition who reported feelings of sadness or fear, were excluded. In total, 19 responses were removed. A mediation analysis was conducted utilizing PROCESS Model 4 (employing 10,000 bootstrap samples; Hayes, 2017). Contrary to expectations, this exclusion did not alter the overall findings. The results revealed that the mediation index for the indirect effect of X2 on sharing intentions, with emotional intensity acting as the mediator, was statistically significant ($\beta = -0.32$, SE = 0.13, 95% CI = [-0.61, -0.11]), indicating a shift from partial mediation to full mediation. Specifically, the contrast of X2 had a significant negative impact on emotional intensity ($\beta = -0.73$, SE = 0.23, 95% CI = [-1.17, -0.28]), which, in turn, significantly influenced sharing intentions ($\beta = 0.44$, SE = 0.08, 95% CI = [0.28, 0.61]). Furthermore, the residual effect of the fear versus joy advertisement appeals on sharing intentions remained significant ($\beta = -0.53$, SE = 0.26, 95% CI = [-1.07, -0.00]), supporting a partial mediation.

Overall, in study 1, the sadness appeal and fear appeal induced similar intentions to share the advertisement, failing to support Hypothesis 1. It is likely that the null effect occurred because the sadness appeal, which was hypothesized (and confirmed in the pretest) to evoke low-arousal emotions, actually elicited highly arousing emotions, as suggested by the manipulation check results. If this is the case, our theoretical framework and Hypothesis 1 could still hold for low-arousal sadness appeals. The results also indicate that discrete emotions such as sadness are

not consistently low in arousal; instead, they can be felt across a range of emotional intensities. Upon examination of the sadness stimuli, the elicited high emotional intensity might be attributed to the use of a death narrative, which can evoke strong emotions (Lillie et al., 2021). Additionally, participant demographics varied between the pretest (MTurk, predominantly U.S. residents, M_{age} = 41.18) and study 1 (Concordia University students, mostly Canadian, aged 18-24), potentially contributing to different manipulation results.

Pretest 2

Based on study 1 results, an additional ad stimuli was designed to evoke a low-arousal sadness emotion. To create this stimuli, I modified the narrative of the original sadness ad appeal, shifting the narrative's focus away from death to a storyline that highlights the narrator's experience of a lonely summer due to a sun rash, which prevented them from enjoying outdoor activities with family and friends. The purpose of pretest 2 was to evaluate the effectiveness of the new ad appeal in evoking low-intensity sadness. The procedure was similar to pretest 1, evaluating participants' initial emotional responses after viewing the stimuli, measuring positive and negative emotions, and examining the participants emotional feelings. Additionally, a set of questions was introduced to measure the intensity of emotions aroused by the stimuli.

Participants and Procedure

The pretest recruited 81 participants from Amazon's Mechanical Turk (Mage = 39.1, SD = 9.87; 23.46% female) using CloudResearch, offering them $0.70US for completing a 3-minute online survey. The procedure of pretest 2 was almost identical to pretest 1, with the addition of a few new questions assessing emotional intensity. Participants were first asked to provide consent; those who did not consent were directed to the end of the survey. Participants were randomly assigned to one of two conditions: high-intensity sadness appeal, and low-intensity

sadness appeal. As in the previous experiments, after reading the ad narrative accompanied by imagery, participants first reported their overall emotion (fear, sadness, joy) in response to the ad appeal, and rated whether the ad evoked negative or positive emotions (-3 = negative emotion; 3 = positive emotion). Then, they were asked three questions assessing the ad's evoked emotional intensity adapted from Frijda et al. (1992), including: "How intense was your emotional experience while examining the ad?" (1 = not at all, 7 = extremely), "How strong was the emotional impact you felt while watching the ad?" (1 = not at all, 7 = extremely), and "What degree of emotional intensity did you experience while examining the ad?" (1 = very low, 7 = extremely high). These items were averaged to create the emotional intensity variable (α = 0.98). Additionally, as before, participants were asked to rate nine emotions (1 = not at all; 7 = extremely strong) which were later averaged into three variables: fear (3 items: α = 0.95), sadness (3 items: α = 0.92), joy (3 items: α = 0.88). Finally, demographic information (age, gender, English proficiency) and data quality measures (response device used) were collected. Detailed questionnaire materials are available in Appendix F.

Results and Discussion

A chi square revealed that participants reported feeling similar emotions across the two conditions ($\chi 2$ = 1.19, df = 2, p = 0.552). Specifically, 56% of participants perceived the low-intensity sadness appeal as evoking sadness, while 52.5% felt the same for the high-intensity sadness appeal. Participants also reported comparable experiences of negative emotions in both conditions ($M_{high\text{-}intensity\_sadness}$ = -1.65, SD = 1.29; $M_{low\_intensity\_sadness}$ = -1.20, SD = 1.15; F(1, 79) = 2.82, p = 0.097); as well as similar feelings of sadness ($M_{high\text{-}intensity\_sadness}$ = 3.81, SD = 1.72; $M_{low\_intensity\_sadness}$ = 3.18, SD = 1.73; F(1, 79) = 2.70, p = 0.105), fear ($M_{high\text{-}intensity\_sadness}$ = 3.86,

SD = 1.91; $M_{low\_intensity\_sadness}$ = 3.21, SD = 1.95; F(1, 79) = 2.27, p = 0.136) and joy ($M_{high-intensity\_sadness}$ = 1.46, SD = 0.84; $M_{low\_intensity\_sadness}$ = 1.72, SD = 1.36; F(1, 79) = 1.11, p = 0.295). A one-way ANOVA revealed that the level of emotional intensity aroused by the high-intensity sadness appeal ($M_{high-intensity\_sadness}$ = 4.20, SD = 1.64) was higher than that aroused by the low-intensity sadness appeal ($M_{low\_intensity\_sadness}$ = 3.80, SD = 1.50, F(1, 79) = 1.28, p = 0.261), but not significantly.

In summary, the low-intensity sadness appeal evoked less intense emotions compared to the high-intensity sadness appeal, although the difference was not significant. Based on these results, further modifications were made to reduce emotional intensity of the low-intensity sadness appeal. This was achieved by omitting the detailed description of the symptoms associated with the sun rash, and instead, focusing on the emotional impact of altered summer plans, thereby enhancing the effectiveness of the low-intensity sadness appeal. The full stimuli is presented in Appendix G.

Study 2

The objective of study 2 was to test the full conceptual model with the added low-intensity sadness condition. Specifically, I examined the relationship between the advertising's emotional appeal and sharing intentions, as well as the mediating role of emotional intensity. Additionally, this study investigated the moderating effect of narrative transportation. Prior research indicates that an increase in narrative transportation can lead to a heightened willingness to share (Kang et al., 2019). However, in the case of fear appeals, I propose that narrative transportation might backfire. Specifically, by inducing absorption into the storyline, narrative transportation is predicted to elicit overly intense negative emotions (Sukalla et al., 2016), consequently reducing intentions to share due to excessive distress (Borawska et al., 2020).

Similar to study 1, participants were randomly assigned to view one of four advertisements (fear, high-intensity sadness, low-intensity sadness, joy), followed by a series of questions assessing emotional intensity, sharing intentions, and the degree of narrative transportation.

Participations and Procedure

Four hundred and one participants were recruited through Amazon's Mechanical Turk using Cloudresearch and compensated $0.70US for a 5-minute survey. Consistent with previous studies, responses that were incomplete, contained suspicious comments to the researchers, or failed the attention check were excluded. After this exclusion, 397 participants (Mage = 44.67; SD = 12.081; 49.6% female) were included in the analysis.

Study 2 followed procedures similar to study 1, with a few differences. After confirming their consent, participants were randomly assigned to one of four ad appeal conditions. As in study 1, participants were required to spend at least 30 seconds on the ad page. After viewing the advertisement, participants first reported their emotional intensity. To measure emotional intensity, the same 4-item scale borrowed from Choi (2022) was used as in study 1, with an additional item adapted from Frijda et al., (1992) to capture the peak intensity of the emotional experience: "My emotional feeling was intense at its peak" (1 = strongly disagree, 7 = strongly agree) ($\alpha = 0.98$). Next, the same 3-item scale was used to measure intentions to share the ad (Choi, 2022) as in study 1 ($\alpha = 0.99$). Further, participants reported their level of narrative transportation using a 7-item scale adapted from Kang et al., (2019), with the context shifted from radio ads to video ads. The scale included the following statements assessed on a 7-point Likert scale: "I could easily picture what was described in the ad", "I could picture myself experiencing what was described in the ad", "I was mentally involved in the ad", "I had a hard

time keeping my mind in focusing on the ad", "My attention was focused on the ad", "It was easy to follow the action and events taking place in the ad", "I could easily image myself in a similar situation to what is described in the ad" (1 = strongly disagree, 7 = strongly agree) (α = 0.75).

Subsequently, as in the previous study, manipulation check questions assessed participants' overall emotional reaction to the ad (fear, sadness, joy), negative or positive emotional arousal (-3 = negative emotion, 3 = positive emotion), as well as the participants' ratings of the discrete emotions experienced after viewing the ad: fearful, threatened, frightened, joyful, happy, content, sad, depressed and down, on a scale from 1 (not at all) to 7 (extremely strong). These emotions were later classified into fear (3 items: α = 0.94), sadness (3 items: α = 0.94) and joy (3 items: α = 0.95).

Like in study 1, participants were asked if they had seen the original ad before and then answered an attention check question. Additionally, they rated their product involvement level on a 3-item scale ("To me, sunscreens are: 1 = unimportant, 7 = important; 1 = irrelevant, 7 = relevant; 1 = means a lot to me, 7 = means nothing to me") (adapted from Choi, 2022, (α = 0.85) and the frequency of sunscreen use on a 1-item scale (1 = never, 7 = very frequently). Finally, participants provided demographic information, including age, gender, English proficiency level, and the device used for the survey. Detailed questionnaire materials are available in Appendix H.

Results and Discussion

Manipulation check

The manipulation check confirmed that the ad appeals evoked different emotions across the four conditions ($\chi 2$ = 289.891, df = 6, $p < 0.001$). Specifically, 64% of participants in the fear appeal condition reported experiencing fear, 60% in the high-intensity sadness appeal condition

felt sadness, 74% in the low-intensity sadness appeal condition reported experiencing sadness, and 79% in the joy appeal group felt joy. Regarding their positive or negative feelings, participants in the fear appeal condition experienced similarly negative emotions (M_{fear} = -1.71, SD = 1.12) as participants in the high-intensity sadness condition ($M_{high\_intensity\_sadness}$ = -1.50, SD = 1.17, t(393) = -1.23 , p = 0.219). Whereas, participants in the low-intensity sadness condition experience less negative emotions ($M_{low\_intensity\_sadness}$ = -0.94, SD = 1.08) than those in the fear (t(393) = -4.49, p < 0.001) and high-intensity sadness (t(393) = -3.27, p < 0.001) conditions. Finally, participants in the joy appeal condition reported more positive emotions (M_{joy} = 4.40, SD = 1.42) than those in the three remaining conditions (ps < 0.001).

In terms of specific emotional responses (see Figure 5), participants in the fear appeal group experienced higher levels of fear (M_{fear} = 4.28, SD = 1.77) compared to participants in the other conditions (ps < 0.05; see Figure 6). Those in the two sadness appeal conditions felt more sadness ($M_{high\_intensity\_sadness}$ = 4.00, SD = 1.76, $M_{low\_intensity\_sadness}$ = 3.00, SD = 1.80) than those in the joy conditions (ps < 0.001), while similar sadness for the contrast between high-intensity sadness appeal and fear appeal (M_{fear} = 3.69, SD = 1.72, t(373) = -1.33, p=0.18). And participants in the joy appeal condition experienced the highest levels of joy (M_{joy} = 4.63, SD = 1.90), significantly more than participants in the other conditions (ps < 0.001).

Measured emotional feelings	Fear appeal	High-intensity Sadness appeal	Low-intensity Sadness appeal	Joy appeal
Fear_avg	4.28(1.77)	3.74(1.82)	2.52(1.64)	1.49(1.05)
Sadness_avg	3.69(1.72)	4.00(1.76)	3.00(1.80)	1.67(1.27)
Joy_avg	1.43(1.04)	1.41(0.74)	1.79(1.06)	4.63(1.90)

Figure 5 Descriptive statistics for specific emotional feeling in study 2

Measured emotional feelings	Contrast	t (373)	*p*
Fear	**Fear vs. High-intensity Sadness**	2.41	0.017
	Fear vs. Low-intensity Sadness	7.75	<.001
	Fear vs. Joy	12.35	<.001
	High-intensity Sadness vs. Low-intensity Sadness	5.36	<.001
	High-intensity Sadness vs. Joy	9.94	<.001
	Low-intensity Sadness vs. Joy	4.50	<.001
Sadness	**Fear vs. High-intensity Sadness**	-1.33	0.184
	Fear vs. Low-intensity Sadness	2.93	0.004
	Fear vs. Joy	8.62	<.001
	High-intensity Sadness vs. Low-intensity Sadness	4.25	<.001
	High-intensity Sadness vs. Joy	9.95	<.001
	Low-intensity Sadness vs. Joy	5.62	<.001
Joy	**Fear vs. High-intensity Sadness**	0.13	0.897
	Fear vs. Low-intensity Sadness	-1.97	0.050
	Fear vs. Joy	-17.93	<.001
	High-intensity Sadness vs. Low-intensity Sadness	-2.10	0.037
	High-intensity Sadness vs. Joy	-18.06	<.001
	Low-intensity Sadness vs. Joy	-15.82	<.001

Figure 6 Contrast analysis for emotional feeling in study 1

Direct Effect (Hypothesis 1)

A one-way ANOVA was applied to test the impact of ad appeal on sharing intentions ($F(3, 393) = 6.03$, $p < 0.001$). Specifically, pairwise contrast results indicated that participants in the fear appeal condition reported similar sharing intentions ($M_{fear} = 3.75$, $SD = 2.05$) as participants in the high-arousal sadness condition ($M_{high\_intensity\_sadness} = 3.79$, $SD = 1.92$, $t(393) = -0.15$, $p = 0.882$). Importantly, participants in the fear appeal condition reported significantly higher sharing intentions, compared to participants in the low-intensity sadness appeal

($M_{low\_intensity\_sadness}$ = 2.86, SD = 1.71, t(393) = 3.27, p = 0.001) and joy appeal (M_{joy} = 3.07, SD = 1.93, t(393) = 2.51, p = 0.013) conditions. The result also showed that participants in the high-intensity sadness appeal condition reported higher sharing intentions than participants in the low-intensity sadness appeal and joy appeal (ps < 0.01) conditions. For contrast details refer to Figure 7. These findings support Hypothesis 1, suggesting that highly arousing negative emotional appeals induce higher intentions to share compared to low-arousal negative appeals.

	Contrast	**t(393)**	***p***
Intention to Share	**Fear vs. High-intensity Sadness**	-0.15	0.882
	Fear vs. Low-intensity Sadness	3.27	0.001
	Fear vs. Joy	2.51	0.013
	High-intensity Sadness vs. Low-intensity Sadness	3.41	<.001
	High-intensity Sadness vs. Joy	2.66	0.008
	Low-intensity Sadness vs. Joy	-0.78	0.438

Figure 7 Contrast analysis for sharing intention between emotional appeal groups in study 2

Indirect Effect (Hypothesis 2)

The PROCESS Model 4 (10,000 bootstrap samples) from Hayes (2017) was used to verify the mediating role of emotional intensity. The independent variable was the type of ad appeal (fear, high-intensity sadness, low-intensity sadness, joy), the mediator was emotional intensity, and the dependent variable was sharing intentions. Three dummy coded variables (X1, X2 and X3) were created for the independent variable. X1 represents the comparison between the fear appeal condition and high-intensity sadness appeal condition (0 = fear appeal; 1 = high-intensity sadness appeal); X2 represents the comparison between the fear appeal condition and

low-intensity sadness appeal condition (0 = fear appeal; 1= low-intensity sadness appeal); and X3 represents the comparison between the fear appeal condition and joy appeal condition (0 = fear appeal; 1 = joy appeal).

Overall, the results showed that there was a significant indirect impact of the X2 contrast and X3 contrast on sharing intentions through emotional intensity (X2: β = -1.40, SE = 0.19, 95%CI = [-1.80, -1.02]; X3: β = -0.79, SE = 0.19, 95%CI = [-1.17, -0.42]), indicating that the fear appeal stimulated higher sharing intentions through emotional intensity compared to low-intensity sadness and joy appeals (see Figure 8). Specifically, the mediation analysis revealed that there was a significant impact of X2 and X3 contrast on emotional intensity (X2: β = -1.76, SE = 0.24, 95%CI = [-2.22, -1.29]; X3: β = -0.99, SE = 0.23, 95%CI = [-1.45, -0.53]), suggesting that the fear appeal evoked stronger emotional intensity than low-intensity sadness and joy appeals. In turn, emotional intensity had a significant impact on sharing intentions (β = 0.80, SE = 0.04, 95%CI = [0.71, 0.88]). Finally, when the mediator was included in the model, X2 contrast remained a significant determinant of sharing intentions (X2: β = 0.51, SE = 0.21, 95%CI = [0.10, 0.92]), while X3 contrast no longer had a significant impact on sharing intentions (X3: β = 0.11, SE = 0.20, 95%CI = [-0.28, 0.50]). However, the index of mediation for X1 contrast was insignificant (X1: β = -0.22, SE = 0.17, 95%CI = [-0.56, 0.12]), showing that fear appeals and high-intensity sadness appeals prompt similar emotional and intention responses, which is consistent with study 1 results.

The findings thus supports Hypothesis 2, suggesting that high arousal negative emotional appeals prompt higher sharing intentions compared to low arousal negative appeals by increasing emotional intensity. The findings also indicates that high arousal negative emotional appeals can

lead to higher sharing intentions compared to positive emotional appeals by increasing emotional intensity.

Path	β	SE	LLCI	ULCI
X1 → Emotional Intensity	-0.27	0.23	-0.74	0.19
X2 → Emotional Intensity	-0.99	0.23	-1.45	-0.53
X3 → Emotional Intensity	-1.76	0.24	-2.22	-1.29
Emotional Intensity → Sharing Intention	0.80	0.04	0.71	0.88
X1 → Sharing Intention (direct)	0.26	0.19	-0.13	0.64
X1 → Sharing Intention (indirect)	-0.22	0.17	-0.56	0.12
X2 → Sharing Intention (direct)	0.11	0.20	-0.28	0.50
X2 → Sharing Intention (indirect)	-0.79	0.19	-1.17	-0.42
X3 → Sharing Intention (direct)	0.51	0.21	0.10	0.92
X3 → Sharing Intention (indirect)	-1.40	0.19	-1.80	-1.02

Figure 8 Mediation analyses output in study 2

Moderation Effect (Hypothesis 3)

To test the moderation effect of narrative transportation on the relationship between emotional ad appeal and consumers' intention to share, I conducted a moderation analysis utilizing PROCESS Model 1 (10,000 bootstrap samples) by Hayes (2017) to test Hypothesis 3. In this analysis, the four ad appeals (fear, high-intensity sadness, low-intensity sadness, joy) served as the independent variable, narrative transportation as the moderator, and sharing intention as the dependent variable.

First, I set the fear (high arousal negative emotion) appeal as the focal condition. Three dummy coded variables (X1, X2 and X3) were created for the independent variable. X1 represents the comparison between the fear appeal condition and high-intensity sadness appeal condition (0 = fear appeal; 1 = high-intensity sadness appeal); X2 represents the comparison between fear appeal condition and low-intensity sadness appeal condition (0 = fear appeal; 1= low-intensity sadness appeal); and X3 represents the comparison between fear appeal condition and joy appeal condition (0 = fear appeal; 1 = joy appeal). The moderation analysis from PROCESS model 1 showed that overall the interaction effect was not significant across all three contrasts (X1 × narrative transportation: $\beta = 0.02$, SE = 0.33, t = 0.08, p=0.94, 95% CI = [-0.62, 0.67]),; X2 × narrative transportation: $\beta = -0.46$, SE = 0.31, t = -1.46, p = 0.14, 95% CI = [-1.07, 0.16]), ; X3 × narrative transportation: $\beta = -0.25$, SE = 0.31, t = -0.80, p = 0.42, 95% CI = [-0.86, 0.36]).

In a follow up analysis, I set the other high arousal negative emotional appeal (i.e., high-intensity sadness) as the focal condition. Three dummy coded variables (X1, X2 and X3) were created for the independent variable accordingly: X1 represents the comparison between the high-intensity sadness appeal condition and joy appeal condition (0 = high-intensity sadness appeal; 1 = joy appeal); X2 represents the comparison between high-intensity sadness appeal condition and fear appeal condition (0 = high-intensity sadness appeal; 1 = fear sadness appeal); and X3 represents the comparison between high-intensity sadness appeal condition and low-intensity sadness appeal condition (0 = high-intensity sadness appeal; 1= low-intensity sadness appeal). The moderation analysis consistently showed that the moderation was not significant across all three contrasts (X1 × narrative transportation: $\beta = -0.27$, SE = 0.31; t = -0.88, p = 0.38, 95% CI = [-0.88, 0.34]),; X2 × narrative transportation: $\beta = -0.02$, SE = 0.33, t = -0.08, p = 0.94,

95% CI = [-0.67, 0.62]),; X3 × narrative transportation: β = -0.48, SE = 0.31, t = -1.54, p = 0.12, 95% CI = [-1.09, 0.13]).

In order to see whether narrative transportation moderates the relationship between ad appeal and consumers' willingness to share the ad content through emotional intensity, PROCESS Model 8 (10,000 bootstrap samples) by Hayes (2017) was employed (Hypothesis 3). In this analysis, the four ad appeals (fear, high-intensity sadness, low-intensity sadness, joy) served as the independent variable, while narrative transportation served as the moderator, emotional intensity as the mediator, and sharing intentions as the dependent variable.

As I did previously, I first investigated the effect when the fear appeal (high arousal negative emotion) was the focal condition. Three dummy coded variables (X1, X2 and X3) were used: X1 contrasts fear appeal condition with high-intensity sadness appeal condition (0 = fear appeal; 1 = high-intensity sadness appeal); X2 contrasts fear appeal condition with low-intensity sadness appeal condition (0 = fear appeal; 1= low-intensity sadness appeal); and X3 contrasts fear appeal condition with joy appeal condition (0 = fear appeal; 1 = joy appeal). The findings revealed that the overall index of moderated mediation was significant for the X2 contrast (X2: index = -0.52, SE = 0.19, 95% CI = [-0.91, -0.17]), while it was insignificant for either the X1 contrast (X1: index = -0.01, SE = 0.20, 95% CI = [-0.41, 0.38]) and the X3 contrast (X3: index = -0.30, SE = 0.21, 95% CI = [-0.69, 0.12]).

When focusing on the X2 contrast, the results confirmed a significant interaction effect [(i.e., fear versus low-intensity sadness contrast) × narrative transportation] on emotional intensity (β = -0.67, SE = 0.25, 95% CI = [-1.15, -0.18]). This implies that the impact of high-arousal fear appeal in comparison to low-arousal sadness appeal, on the intention to share increases through emotional intensity as influenced by narrative transportation. This outcome is

reverse to Hypothesis 3. Specifically, the findings confirm that narrative transportation moderates the relationship between negative ad appeal (fear, low-intensity sadness) and the intention to share, but do not provide evidence for the predicted backfire effect. In fact, a high arousal negative appeal (fear), compared to a low arousal negative appeal (sadness), leads to a higher intention to share among individuals who are highly immersed in the advertised content. Figure 9 shows the detailed statistics of the model.

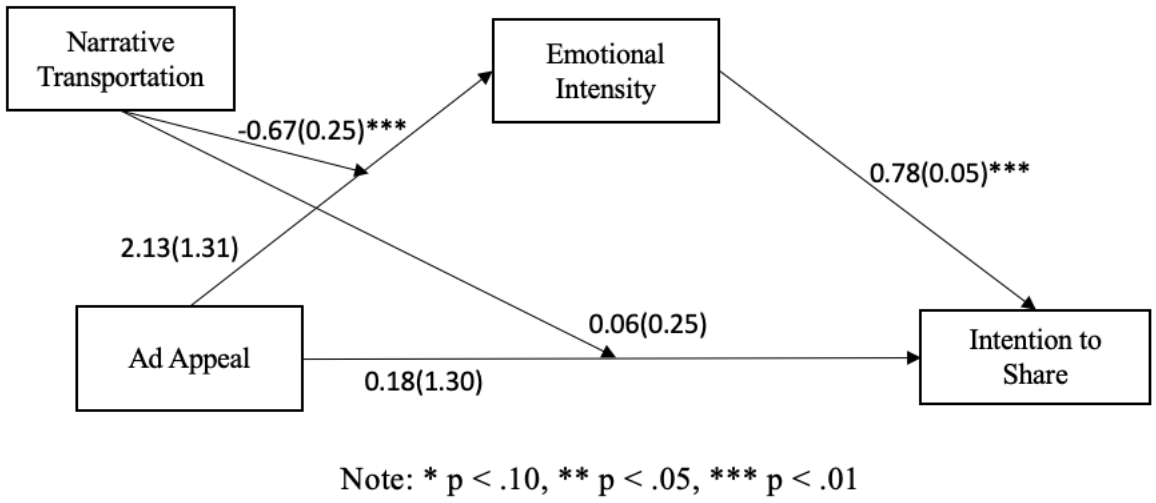


Figure 9 Moderated mediation effect of narrative transportation (fear appeal vs. low-intensity appeal contrast)

In a follow up analysis, I set the other high arousal negative emotional appeal (i.e., high-intensity sadness) as the focal condition, and found a consistent moderation mediation effect for only the contrast between high- versus low-intensity sadness appeals. Three dummy coded variables (X1, X2 and X3) were created for the independent variable accordingly: X1 contrasts the high-intensity sadness appeal condition with joy appeal condition (0 = high-intensity sadness appeal; 1 = joy appeal); X2 contrasts high-intensity sadness appeal condition with fear appeal condition (0 = high-intensity sadness appeal; 1 = fear sadness appeal); and X3 contrasts high-

intensity sadness appeal condition with low-intensity sadness appeal condition (0 = high-intensity sadness appeal; 1= low-intensity sadness appeal). The findings revealed that the overall index of moderated mediation was significant for the X3 contrast (X3: index = -0.51, SE = 0.21, 95% CI = [-0.95, -0.10]), while it was insignificant for either the X1 contrast (X1: index = -0.29, SE = 0.23, 95% CI = [-0.75, 0.16]) or X2 contrast (X2: index = -0.01, SE = 0.20, 95% CI = [-0.38, 0.40]).

For the X3 contrast (high-intensity sadness appeal vs. low-intensity sadness appeal), the result confirmed a significant interaction effect of ad appeal and narrative transportation on emotional intensity (β = -0.65, SE = 0.25, 95% CI = [-1.14, -0.17]). This indicates that the low-intensity sadness appeal's impact on the intention to share is reduced in comparison to the fear appeal, with this reduction mediated by emotional intensity as influenced by narrative transportation. Figure 10 shows the detailed statistics of the model.

This result confirmed the findings that narrative transportation moderates the relationship between the negative emotional ad appeal (high-intensity sadness, low-intensity sadness) and the willingness to share, partially supports Hypothesis 3. Specifically, high arousal negative appeal (high-intensity sadness) is more effective in increasing the desire to share among people who are either moderately or deeply engaged with the story in the advertisement, in contrast to low arousal negative appeal (low-intensity sadness).

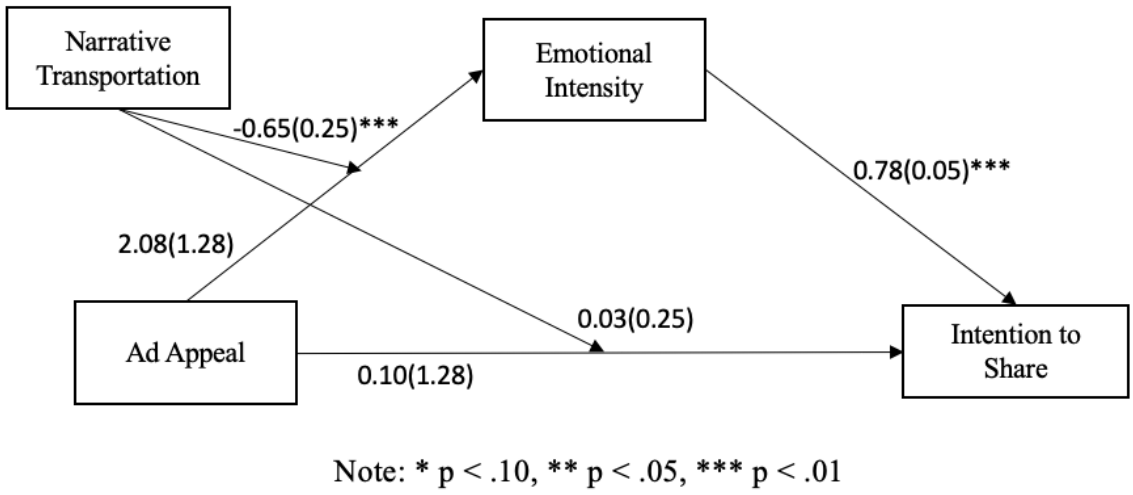


Figure 10 Moderated mediation effect of narrative transportation (high-intensity sadness appeal vs. low-intensity sadness appeal)

General Discussion

My research explores the impact of negative emotional ad appeals on consumers' willingness to share the advertisement with others. Additionally, I examine the moderating role of narrative transportation and the mediating role of emotional intensity. Overall, two experiments show that negative emotional appeals eliciting highly arousing emotions (i.e., fear or high-arousal sadness) prompt higher sharing intentions compared to emotional appeals that elicit weakly arousing negative emotions (i.e., low-arousal sadness) and emotional appeals that elicit positive emotions (i.e., joy). Furthermore, this research demonstrates that this effect is mediated by emotional intensity. Finally, the research findings reveal that narrative transportation plays a moderating role in enhancing the effect of negative emotional appeals on sharing intentions. Specifically, narrative transportation amplifies the elicited emotional intensity of high-arousal negative ad appeals, and consequently prompts stronger sharing intentions.

Theoretical Contributions and Managerial Implications

In the digital era, understanding the factors that drive the viral spread of digital advertising is crucial for brands aiming to capture the attention of their target audience and increase their engagement. This study contributes to a deeper understanding of the relationship between negative ad appeals and their potential to go viral, along with the key roles of narrative transportation and emotional intensity. It also has practical implications for digital marketing practitioners, offering insights into how to create more viral content.

Extensive research has demonstrated the positive effect of emotional ad appeals on consumer sharing behavior (Ismagilova et al., 2021; Kwon et al., 2022; Porter & Golan, 2006; Tellis et al., 2019), with high arousal emotional content achieving higher shares compared to low arousal emotional content (Berger, 2014; Botha & Reyneke, 2013). Emotional intensity (Brans et al., 2013; Choi, 2022) and narrative transportation (Botha & Reyneke, 2013; Kang et al., 2020) have been identified as important factors contributing to the effect. However, much of the research has focused on ad appeals that elicit positive emotions, while less attention has been offered to the study of ad appeals that elicit negative emotions (Poels & Dewitte, 2019; Wang & Tang, 2021). Within this limited research area, most studies compared the effects of negative emotional appeals to positive emotional appeals (Dobele et al., 2007; Yousef et al., 2021). While Berger and Milkman (2012) discovered that high arousal emotions, regardless of being positive or negative, lead to increased sharing, their research mainly examined anger and anxiety as forms of negative high arousal emotions, neglecting others like fear, which exhibits a curvilinear response in consumer reactions (Witte & Allen, 2000). Additionally, Berger and Milkman's exploration of negative high arousal emotion (i.e., anger) centered on consumer experiences, rather than within the context of narrative advertisements. Therefore, my research fills this gap

by empirically testing the differential impact of different types of negative ad appeals (i.e., fear, high-intensity sadness, low-intensity sadness) on sharing intentions.

My findings also contribute to the literature on emotions. An unexpected finding of my research suggests that the arousal level of the discrete emotion of sadness is not always low, as previously classified (Toisoul et al., 2021); on the contrary, sadness can be experienced across a range of emotional intensities. In the current research, the original sadness stimuli evoked the negative feelings of sadness, but simultaneously evoked high emotional intensity. It is possible that certain narratives, such as those involving the concept of death (Lillie et al., 2021), are particularly arousing, resulting in this paradoxical emotional experience, combining sadness and emotional intensity. This suggests that the two-dimensional classification of emotion based on valence and arousal might prove to be an oversimplified depiction of the discrete emotions that govern consumer judgments and behaviors.

Extent research examining the factors contributing consumers' sharing intentions acknowledges that emotional intensity plays a crucial role in sharing behavior. Consequently, many studies have sought to identify how to increase the emotional intensity of ad appeals. For example, individuals with higher affect intensity traits showed stronger emotional responses than those with lower affect intensity traits to both positive and negative emotional appeals (Moore & Harris, 1996); also, the intensity of consumers' negative emotional reactions is related with the severity of an emotional event (Habermas & Diel, 2010). My research extends this literature by demonstrating that narrative transportation or immersion can also serve as a factor that triggers a highly emotional experience, thereby stimulating sharing intentions of the advertisement.

From a managerial perspective, marketers should consider utilizing high arousal negative emotional appeals to increase the likelihood of advertisement content being shared. This strategy

proves especially effective for social issue advertisements, such as those focusing on health and safety, especially within industries that commonly utilize fear-based appeals. The positive impact of emotional intensity on the intention to share indicates that marketers should not only focus on the type of emotions elicited by their ad but also aim to optimize the intensity of these emotional responses. Creating ad stories that evoke strong emotional reactions may be key to enhancing the virality of advertisement content. Given the moderating role of narrative transportation, engaging and immersive advertisements can amplify the effect of emotional appeals and promote sharing behavior even further. Marketers are encouraged to confidently employ advertisements that evoke negative emotions, invest in narrative techniques, and boost narrative transportation to ensure that emotional appeals more effectively drive sharing behaviors.

Limitation and Future Research

This study has several limitations that can offer future research opportunities. In my experimental design, the stimuli, adapted from real advertisements, allowed for the control of several variables but might not fully capture the complexity of watching ads in the real world. Some studies suggest that using actual advertisements may yield higher effectiveness (Choi, 2022; Tellis et al., 2019). Future research could explore the relationship between negative ad appeal and sharing behavior using real world print and video advertisements.

This study focused on two specific types of negative emotional appeals, those eliciting fear (high arousal) and sadness (low arousal). While these emotions are crucial for understanding the range of negative emotional responses, other negative emotions, such as anger (high arousal) and disgust (high arousal), could also significantly impact consumers' willingness to share ad content. Future research could broaden the scope of negative emotions studied to provide a more comprehensive account of the effects of negative emotional ad appeals on sharing intentions.

In my research, I did not find a backfire effect for fear appeal. It is possible that the emotional intensity triggered by the fear appeal in our study was insufficiently strong (Borawska et al., 2020). This may be due to consumers' familiarity with, and possible desensitization to such appeals commonly employed in sunscreen product marketing (Eastabrook et al., 2018; McLoone et al., 2014). The potential for a backfire effect could be higher for branded advertisements, as consumers are unfamiliar to see brands deploy fear appeals, which are more commonly associated with public service announcements. Furthermore, since branded ads are widely perceived as tools designed to persuade consumers into making purchases, there's a likelihood that consumers might view the use of fear as a deliberate strategy by brands to instill an unpleasant state of fear, with the intent of coercing them into buying products. Such an approach may lead consumers to feel manipulated (Borawska et al., 2020), fostering a sense of anger. This perception could in turn lead to a backfire effect. Future studies could further investigate the possible conditions under which fear appeals might backfire. This includes exploring contexts where fear appeals are less commonly used, or targeting consumers who are more sensitive to threatening stimuli (Kuo & Linehan, 2009). These investigations would be instrumental in providing guidance to mitigate potential adverse effects in campaigns utilizing negative appeals.

Moreover, while this study highlights the importance of narrative transportation in facilitating the spread of ads evoking high arousal emotions (i.e., fear and high-intensity sadness), it does not investigate other factors that might influence this relationship. Specifically, the research does not consider how personal experiences and the ability of audience to relate the story of the ad to their own lives might enhance narrative transportation (Tchernev et al., 2023). Additionally, when individuals perceive the actions suggested in the advertisements as positive

and effective, they are more likely to be deeply engaged by the narrative (McFerran et al., 2010)). Future research should examine how personal traits moderate the effect of narrative transportation in the relationship between the emotional appeal of advertisements and the intention to share them. This exploration is essential for understanding the nuanced interplay of these factors in shaping consumer responses to advertising.

This study relied on self-reported data to evaluate emotional intensity, While this approach directly captures participants' emotional states, it may not entirely depict the arousal level of their emotional responses, given consumers are generally unaware of these levels (Peterson et al., 2015; Rickard, 2004). This might also, at least partially, explain why participants reported high emotional intensity in response to the sadness ad appeal in study 1. Future research might benefit from measuring emotional intensity using physiological measures of emotional intensity for a more detailed assessment of emotional responses to advertisements.

Reference

Akpinar, E., & Berger, J. (2017). Valuable Virality. *Journal of Marketing Research*, *54*(2), 318–330. https://doi.org/10.1509/jmr.13.0350

Alghizzawi, M. (2019). A survey of the role of social media platforms in viral marketing: The influence of eWOM. *International Journal of Information Technology*, *3*(2), 54–60.

Bachorowski, J.-A., & Braaten, E. B. (1994). Emotional intensity: Measurement and theoretical implications. *Personality and Individual Differences*, *17*(2), 191–199. https://doi.org/10.1016/0191-8869(94)90025-6

Bastos, W., & Moore, S. G. (2021). Making word-of-mouth impactful: Why consumers react more to WOM about experiential than material purchases. *Journal of Business Research*, *130*, 110–123. https://doi.org/10.1016/j.jbusres.2021.03.022

Berger, J. (2014). Word of mouth and interpersonal communication: A review and directions for future research. *Journal of Consumer Psychology*, *24*(4), 586–607. https://doi.org/10.1016/j.jcps.2014.05.002

Berger, J. A. (2011). Arousal Increases Social Transmission of Information. *Psychological Science*, *22*, 891–893. https://doi.org/10.1177/0956797611413294

Berger, J., & Milkman, K. L. (2012). What Makes Online Content Viral? *Journal of Marketing Research*, *49*(2), 192–205. https://doi.org/10.1509/jmr.10.0353

Borawska, A., Oleksy, T., & Maison, D. (2020). Do negative emotions in social advertising really work? Confrontation of classic vs. EEG reaction toward advertising that promotes safe driving. *PLOS ONE*, *15*(5), e0233036. https://doi.org/10.1371/journal.pone.0233036

Botha, E., & Reyneke, M. (2013). To share or not to share: The role of content and emotion in viral marketing: Content and emotion in viral marketing. *Journal of Public Affairs*, *13*(2), 160–171. https://doi.org/10.1002/pa.1471

Brans, K., Van Mechelen, I., Rimé, B., & Verduyn, P. (2013). The relation between social sharing and the duration of emotional experience. *Cognition & Emotion*, *27*(6), 1023–1041. https://doi.org/10.1080/02699931.2012.762758

Brechman, J. M., & Purvis, S. C. (2015). Narrative, transportation and advertising. *International Journal of Advertising*, *34*(2), 366–381. https://doi.org/10.1080/02650487.2014.994803

Brennan, L., Pochun, T., & Parker, L. (2020). Social marketing with fear, guilt and shame. In L. Parker & L. Brennan (Eds.), *Social Marketing and Advertising in the Age of Social Media*. Edward Elgar Publishing. https://doi.org/10.4337/9781786434678.00013

Buratto, L. G., Pottage, C. L., Brown, C., Morrison, C. M., & Schaefer, A. (2014). The Effects of a Distracting N-Back Task on Recognition Memory Are Reduced by Negative Emotional Intensity. *PLoS ONE*, *9*(10), e110211. https://doi.org/10.1371/journal.pone.0110211

Cao, X., Qu, Z., Liu, Y., & Hu, J. (2021). How the destination short video affects the customers' attitude: The role of narrative transportation. *Journal of Retailing and Consumer Services*, *62*, 102672. https://doi.org/10.1016/j.jretconser.2021.102672

Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior*, *29*(6), 2156–2160. https://doi.org/10.1016/j.chb.2013.05.009

Choi, C. W. (2022). The Effect of Emotional Intensity, Arousal, and Valence On Online Video Ad Sharing. *(Doctoral Dissertation)*. https://scholarcommons.sc.edu/etd/6656

Christophe, V., & Rimé, B. (1997). Exposure to the social sharing of emotion: Emotional impact, listener responses and secondary social sharing. *European Journal of Social Psychology*, *27*(1), 37–54. https://doi.org/10.1002/(SICI)1099-0992(199701)27:1<37::AID-EJSP806>3.0.CO;2-1

Dafonte-Gómez, A. (2014). The key elements of viral advertising. From motivation to emotion in the most shared videos. *Comunicar*, *22*(43), 199–207. https://doi.org/10.3916/C43-2014-20

De Hoog, N., Stroebe, W., & De Wit, J. B. F. (2008). The processing of fear-arousing communications: How biased processing leads to persuasion. *Social Influence*, *3*(2), 84–113. https://doi.org/10.1080/15534510802185836

Dobele, A., Lindgreen, A., Beverland, M., Vanhamme, J., & Wijk, R. V. (2007). *Why Pass on Viral Messages? Because They Connect Emotionally*. https://doi.org/10.1016/j.bushor.2007.01.004

Eastabrook, S., Chang, P., & Taylor, M. F. (2018). Melanoma risk: Adolescent females' perspectives on skin protection pre/post-viewing a ultraviolet photoaged photograph of their own facial sun damage. *Global Health Promotion*, *25*(1), 23–32. https://doi.org/10.1177/1757975916639871

Erlandsson, A., Nilsson, A., & Västfjäll, D. (2018). Attitudes and Donation Behavior When Reading Positive and Negative Charity Appeals. *Journal of Nonprofit & Public Sector Marketing*, *30*(4), 444–474. https://doi.org/10.1080/10495142.2018.1452828

Eser, A. (2023, July 16). *Essential Nike Advertising Statistics In 2024*. https://zipdo.co/statistics/nike-advertising/

Frijda, N. H., Ortony, A., Sonnemans, J., & Clore, G. L. (1992). The complexity of intensity: Issues concerning the structure of emotion intensity. *Emotion*, 60–89.

Gentzler, A. L., Kerns, K. A., & Keener, E. (2010). Emotional reactions and regulatory responses to negative and positive events: Associations with attachment and gender. *Motivation and Emotion*, *34*(1), 78–92. https://doi.org/10.1007/s11031-009-9149-x

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*(5), 701–721. https://doi.org/10.1037/0022-3514.79.5.701

Habermas, T., & Diel, V. (2010). The emotional impact of loss narratives: Event severity and narrative perspectives. *Emotion*, *10*(3), 312–323. https://doi.org/10.1037/a0018001

Harrigan, P., Miles, M. P., Fang, Y., & Roy, S. K. (2020). The role of social media in the engagement and information processes of social CRM. *International Journal of Information Management*, *54*, 102151. https://doi.org/10.1016/j.ijinfomgt.2020.102151

Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods*, *48*(1), 400–407. https://doi.org/10.3758/s13428-015-0578-z

Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach* (2nd ed.). Guilford Publications.

Hayes, J. L., King, K. W., & Ramirez, A. (2016). Brands, Friends, & Viral Advertising: A Social Exchange Perspective on the Ad Referral Processes. *Journal of Interactive Marketing*, *36*, 31–45. https://doi.org/10.1016/j.intmar.2016.04.001

Horner, C. G., Galletta, D., Crawford, J., & Shirsat, A. (2021). Emotions: The Unexplored Fuel of Fake News on Social Media. *Journal of Management Information Systems*, *38*(4), 1039–1066. https://doi.org/10.1080/07421222.2021.1990610

Indrawati, Putri Yones, P. C., & Muthaiyah, S. (2023). eWOM via the TikTok application and its influence on the purchase intention of somethinc products. *Asia Pacific Management Review*, *28*(2), 174–184. https://doi.org/10.1016/j.apmrv.2022.07.007

Ismagilova, E., Rana, N. P., Slade, E. L., & Dwivedi, Y. K. (2021). A meta-analysis of the factors affecting eWOM providing behaviour. *European Journal of Marketing*, *55*(4), 1067–1102. https://doi.org/10.1108/EJM-07-2018-0472

Iyengar, R., Van Den Bulte, C., & Valente, T. W. (2011). Opinion Leadership and Social Contagion in New Product Diffusion. *Marketing Science*, *30*(2), 195–212. https://doi.org/10.1287/mksc.1100.0566

Kang, J., Hong, S., & Hubbard, G. T. (2020). The role of storytelling in advertising: Consumer emotion, narrative engagement level, and word-of-mouth intention. *Journal of Consumer Behaviour*, *19*(1), 47–56. https://doi.org/10.1002/cb.1793

Kulkarni, K. K., Kalro, A. D., & Sharma, D. (2019). Sharing of branded viral advertisements by young consumers: The interplay between personality traits and ad appeal. *Journal of Consumer Marketing*, *36*(6), 846–857. https://doi.org/10.1108/JCM-11-2017-2428

Kulkarni, K. K., Kalro, A. D., & Sharma, D. (2020). The interaction effect of ad appeal and need for cognition on consumers' intentions to share viral advertisements. *Journal of Consumer Behaviour*, *19*(4), 327–338. https://doi.org/10.1002/cb.1809

Kuo, J. R., & Linehan, M. M. (2009). Disentangling emotion processes in borderline personality disorder: Physiological and self-reported assessment of biological vulnerability, baseline

intensity, and reactivity to emotionally evocative stimuli. *Journal of Abnormal Psychology*, *118*(3), 531–544. https://doi.org/10.1037/a0016392

Kwon, J., Lin, H., Deng, L., Dellicompagni, T., & Kang, M. Y. (2022). Computerized emotional content analysis: Empirical findings based on charity social media advertisements. *International Journal of Advertising*, *41*(7), 1314–1337. https://doi.org/10.1080/02650487.2021.2012070

Lillie, H. M., Jensen, J. D., Pokharel, M., & Upshaw, S. J. (2021). Death Narratives, Negative Emotion, and Counterarguing: Testing Fear, Anger, and Sadness as Mechanisms of Effect. *Journal of Health Communication*, *26*(8), 586–595. https://doi.org/10.1080/10810730.2021.1981495

Lou, C., Tan, S.-S., & Chen, X. (2019). Investigating Consumer Engagement with Influencer- vs. Brand-Promoted Ads: The Roles of Source and Disclosure. *Journal of Interactive Advertising*, *19*(3), 169–186. https://doi.org/10.1080/15252019.2019.1667928

McFerran, B., Dahl, D. W., Gorn, G. J., & Honea, H. (2010). Motivational determinants of transportation into marketing narratives. *Journal of Consumer Psychology*, *20*(3), 306–316. https://doi.org/10.1016/j.jcps.2010.06.017

McLoone, J. K., Meiser, B., Karatas, J., Sousa, M. S., Zilliacus, E., & Kasparian, N. A. (2014). Perceptions of melanoma risk among Australian adolescents: Barriers to sun protection and recommendations for improvement. *Australian and New Zealand Journal of Public Health*, *38*(4), 321–325. https://doi.org/10.1111/1753-6405.12209

Mehta, A., & Purvis, S. C. (2006). Reconsidering Recall and Emotion in Advertising. *Journal of Advertising Research*, *46*(1), 49–56. https://doi.org/10.2501/S0021849906060065

Moore, D. J., & Harris, W. D. (1996). Affect Intensity and the Consumer's Attitude toward High Impact Emotional Advertising Appeals. *Journal of Advertising*, *25*(2), 37–50. https://doi.org/10.1080/00913367.1996.10673498

Morales, A. C., Wu, E. C., & Fitzsimons, G. J. (2012). How Disgust Enhances the Effectiveness of Fear Appeals. *Journal of Marketing Research*, *49*(3), 383–393. https://doi.org/10.1509/jmr.07.0364

Nelson-Field, K., Riebe, E., & Newstead, K. (2013). The Emotions that Drive Viral Video. *Australasian Marketing Journal*, *21*(4), 205–211. https://doi.org/10.1016/j.ausmj.2013.07.003

Nikolinakou, A., & King, K. W. (2018). Viral Video Ads: Examining Motivation Triggers to Sharing. *Journal of Current Issues & Research in Advertising*, *39*(2), 120–139. https://doi.org/10.1080/10641734.2018.1428247

Peterson, S. J., Reina, C. S., Waldman, D. A., & Becker, W. J. (2015). Using Physiological Methods to Study Emotions in Organizations. In C. E. J. Härtel, W. J. Zerbe, & N. M. Ashkanasy (Eds.), *Research on Emotion in Organizations* (Vol. 11, pp. 1–27). Emerald Group Publishing Limited. https://doi.org/10.1108/S1746-979120150000011002

Poels, K., & Dewitte, S. (2019). The Role of Emotions in Advertising: A Call to Action. *Journal of Advertising*, *48*(1), 81–90. https://doi.org/10.1080/00913367.2019.1579688

Porter, L., & Golan, G. J. (2006). From Subservient Chickens to Brawny Men: A Comparison of Viral Advertising to Television Advertising. *Journal of Interactive Advertising*, *6*(2), 4–33. https://doi.org/10.1080/15252019.2006.10722116

Ray, M. L., & Wilkie, W. L. (1970). Fear: The Potential of an Appeal Neglected by Marketing. *Journal of Marketing*, *34*, 54.

Reisenzein, R. (1994). Pleasure-arousal theory and the intensity of emotions. *Journal of Personality and Social Psychology*, *67*(3), 525–539.

Reza Jalilvand, M., & Samiei, N. (2012). The effect of electronic word of mouth on brand image and purchase intention: An empirical study in the automobile industry in Iran. *Marketing Intelligence & Planning*, *30*(4), 460–476. https://doi.org/10.1108/02634501211231946

Rickard, N. S. (2004). Intense emotional responses to music: A test of the physiological arousal hypothesis. *Psychology of Music*, *32*(4), 371–388. https://doi.org/10.1177/0305735604046096

Seo, Y., Li, X., Choi, Y. K., & Yoon, S. (2018). Narrative Transportation and Paratextual Features of Social Media in Viral Advertising. *Journal of Advertising*, *47*(1), 83–95. https://doi.org/10.1080/00913367.2017.1405752

Sobol, K., & Giroux, M. (2023). Threat specificity in fear appeals: Examination of fear response and motivated behavior. *Journal of Consumer Marketing*, *40*(4), 470–480. https://doi.org/10.1108/JCM-02-2021-4487

Song, W., Zhao, T., Huang, E., & Liu, W. (2022). How Positive and Negative Emotions Promote Ritualistic Consumption Through Different Mechanisms. *Frontiers in Psychology*, *13*, 901572. https://doi.org/10.3389/fpsyg.2022.901572

Stout, P. A., & Leckenby, J. D. (1986). Measuring Emotional Response to Advertising. *Journal of Advertising*, *15*(4), 35–42. https://doi.org/10.1080/00913367.1986.10673036

Sukalla, F., Bilandzic, H., Bolls, P. D., & Busselle, R. W. (2016). Embodiment of Narrative Engagement: Connecting Self-Reported Narrative Engagement to Psychophysiological Measures. *Journal of Media Psychology*, *28*(4), 175–186. https://doi.org/10.1027/1864-1105/a000153

Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K., & Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, *141*(6), 1178–1204. https://doi.org/10.1037/a0039729

Tchernev, J. M., Collier, J., & Wang, Z. (2023). There and Back Again? Exploring the Real-Time Cognitive Journey of Narrative Transportation. *Communication Research*, *50*(3), 312–337. https://doi.org/10.1177/00936502211018577

Teeny, J., Deng, X., & Unnava, H. R. (2020). The "Buzz" Behind the Buzz Matters: Energetic and Tense Arousal as Separate Motivations for Word of Mouth. *Journal of Consumer Psychology*, *30*(3), 429–446. https://doi.org/10.1002/jcpy.1151

Tellis, G. J., MacInnis, D. J., Tirunillai, S., & Zhang, Y. (2019). What Drives Virality (Sharing) of Online Digital Content? The Critical Role of Information, Emotion, and Brand Prominence. *Journal of Marketing*, *83*(4), 1–20. https://doi.org/10.1177/0022242919841034

Toisoul, A., Kossaifi, J., Bulat, A., Tzimiropoulos, G., & Pantic, M. (2021). Estimation of continuous valence and arousal levels from faces in naturalistic conditions. *Nature Machine Intelligence*, *3*(1), 42–50. https://doi.org/10.1038/s42256-020-00280-0

Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of Word-of-Mouth versus Traditional Marketing: Findings from an Internet Social Networking Site. *Journal of Marketing*, *73*(5), 90–102. https://doi.org/10.1509/jmkg.73.5.90

Ueland, S. (2023, December 12). *10 Outstanding Marketing Campaigns from 2023*. https://www.practicalecommerce.com/10-outstanding-marketing-campaigns-from-2023

Van Laer, T., Feiereisen, S., & Visconti, L. M. (2019). Storytelling in the digital era: A meta-analysis of relevant moderators of the narrative transportation effect. *Journal of Business Research*, *96*, 135–146. https://doi.org/10.1016/j.jbusres.2018.10.053

Vrtana, D., & Krizanova, A. (2023). The Power of Emotional Advertising Appeals: Examining Their Influence on Consumer Purchasing Behavior and Brand–Customer Relationship. *Sustainability*, *15*(18), 13337. https://doi.org/10.3390/su151813337

Wang, S.-T., & Tang, Y.-C. (2021). How narrative transportation in movies affects audiences' positive word-of-mouth: The mediating role of emotion. *PLOS ONE*, *16*(11), e0259420. https://doi.org/10.1371/journal.pone.0259420

Witte, K., & Allen, M. (2000). A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns. *Health Education & Behavior*, *27*(5), 591–615. https://doi.org/10.1177/109019810002700506

Yadav, N., Verma, S., & Chikhalkar, R. D. (2021). eWOM, destination preference and consumer involvement – a stimulus-organism-response (SOR) lens. *Tourism Review*. https://doi.org/10.1108/TR-10-2020-0506

Yeap, J. A. L., Ignatius, J., & Ramayah, T. (2014). Determining consumers' most preferred eWOM platform for movie reviews: A fuzzy analytic hierarchy process approach. *Computers in Human Behavior*, *31*, 250–258. https://doi.org/10.1016/j.chb.2013.10.034

Yousef, M., Dietrich, T., Rundle-Thiele, S., & Alhabash, S. (2022). Emotional appeals effectiveness in enhancing charity digital advertisements. *Journal of Philanthropy and Marketing*, *27*(4), e1763. https://doi.org/10.1002/nvsm.1763

Yousef, M., Dietrich, T., & Torrisi, G. (2021). Positive, Negative or Both? Assessing Emotional Appeals Effectiveness in Anti-Drink Driving Advertisements. *Social Marketing Quarterly*, *27*(3), 195–212. https://doi.org/10.1177/15245004211025068

Appendix A: Stimuli

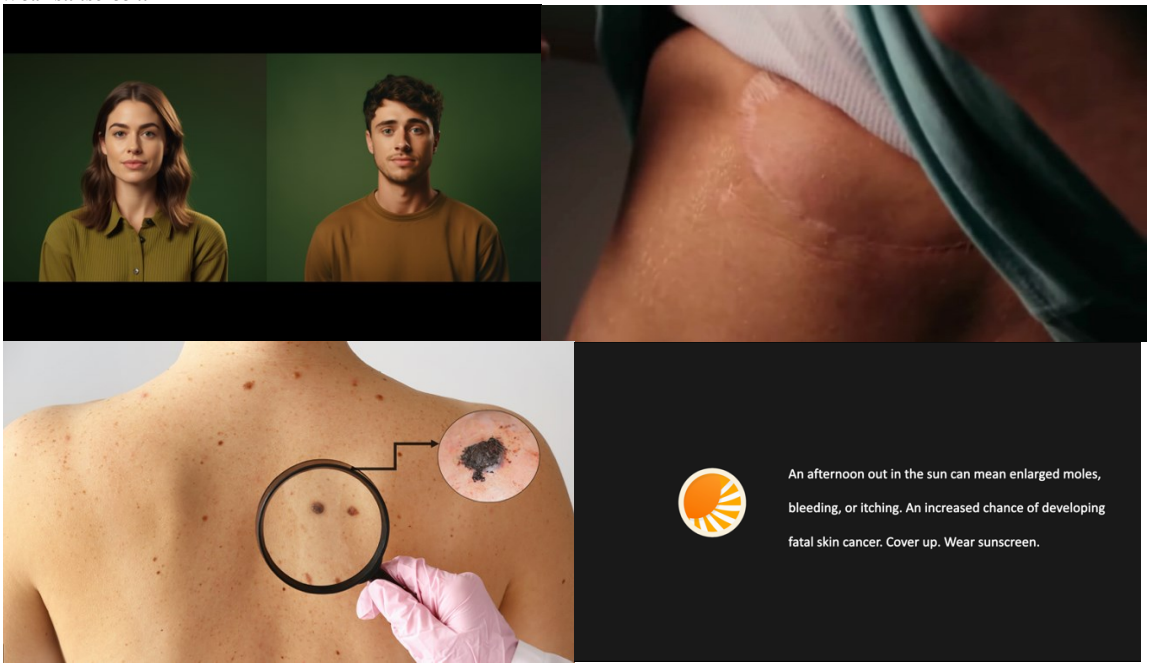
Fear appeal

Dear sixteen-year old me, you love the sun, and the beach, and tanning. But you don't know, you'll be diagnosed after a series of changes in your skin. It was something called melanoma. It's a fearful tumour that starts in your skin cells that give your hair and skin colour. It's the kind you have to catch before it spreads because it spreads so fast to places like your liver, your lungs, your brain.

Dear sixteen-year old me, the scar you see is where they took the cancer out. Melanoma is insidious. It can show up anywhere, your left eye, on your tongue, the palms of your hands and the soles of your feet. Your doctors will tell you need aggressive treatment. It could also take a year of chemotherapy. You'll need to do some of the injections yourself.

I wish I'd know that one bad sunburn before you turn eighteen doubles your chances of developing melanoma. If I had one piece of advice for you: don't start the tanning bed. I know you want a healthy glow, but it's going to double your chances of getting melanoma.

An afternoon out in the sun can mean enlarged moles, bleeding, or itching. An increased chance of developing fatal skin cancer. Cover up. Wear sunscreen.



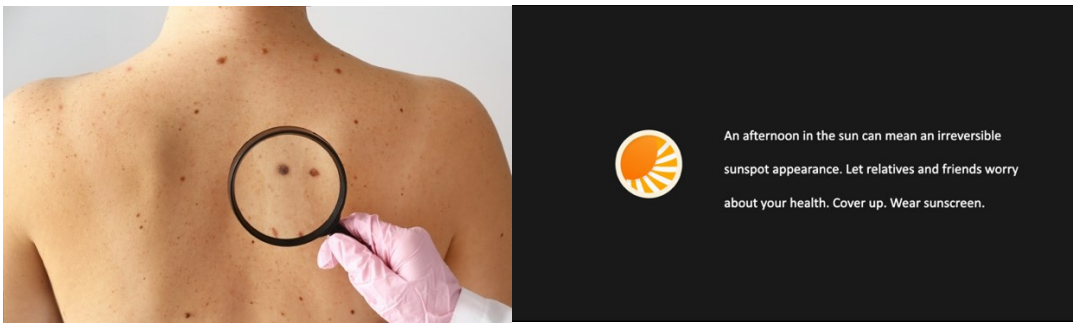
Sadness appeal

Dear sixteen-year old me, helping spread this message is how you'll honour Olivia's memory. At sixteen she's already an incredible lifeguard, she loves the sun, and the beach, and tanning. But she just doesn't know, she'll be diagnosed with melanoma when she's twenty-two and will lose her battle when she's just twenty-six. Her passing will bring immense sadness to her friends, family and all who knew and cared for her.

Dear sixteen-year old me, melanoma is insidious. It breaks apart families and creates great sorrow and grief. Melanoma can affect anyone, at anytime and requires aggressive treatment. It could also take a year of chemotherapy. Patients need to do some of the injections themselves.

I wish I'd know that one bad sunburn before you turn eighteen doubles your chances of developing melanoma. If I had one piece of advice for Olivia: don't start the tanning bed. I know that everyone wants a healthy glow, but it's going to double the chances of getting melanoma. Share this advice with your friends and love of the family.

An afternoon in the sun can mean an irreversible sunspot appearance. Let relatives and friends worry about your health. Cover up. Wear sunscreen.



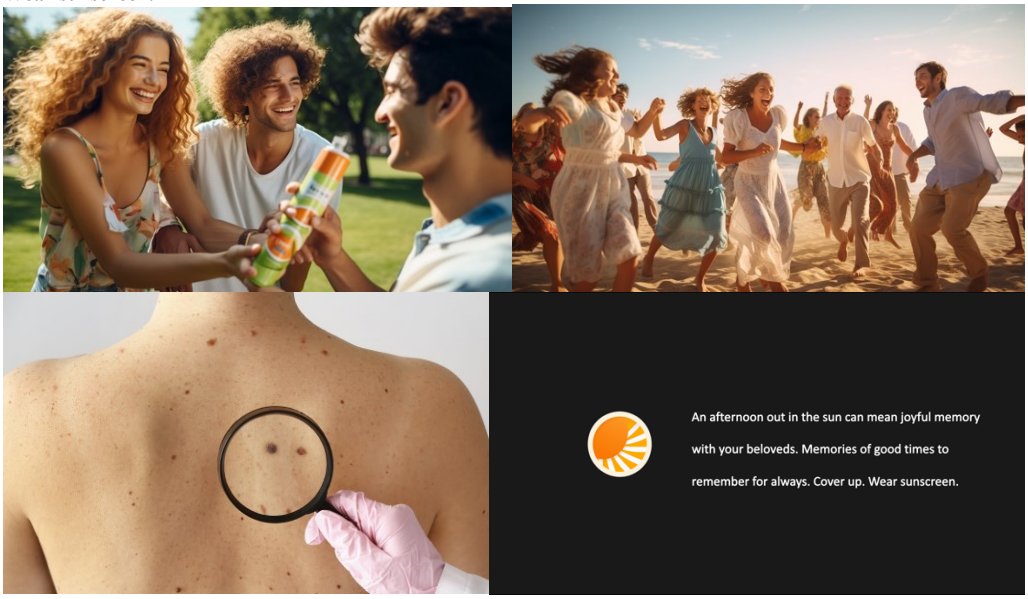
Joy appeal

Dear sixteen-year old me, you love the sun, and the beach, and tanning. The beach is irresistible, and is a place of serenity and a place where you connect with your deepest emotions. You relish the sunshin with your friends, making plans to watch the newest movie, learn the guitar, and envisioning a bright future together.

Dear sixteen-year old me, those laughter-filled days made it seem like the world was at your feet. Those glowing memories still light up your heart whether you're 28 or 36.

I'm glad you know that one bad sunburn before you turn eighteen doubles your chances of developing melanoma. You cherish each day, because you want to spend more of the days with family and friends, that means everything. There are countless sunrises ahead, full of laughter and adventure.

An afternoon out in the sun can mean joyful memory with your beloveds. Memories of good times to remember for always. Cover up. Wear sunscreen.



Appendix B: Pretest 1 Questionnaire

Description of Scenario

On the following page, you'll be presented with an ad narrative and several images from a sunscreen brand. You'll have around 30 seconds to see the material. We encourage you to read the narrative attentively and visualize its content, aided by the provided images. Pay attention to details, elements, and note any feelings or thoughts that arise as you view them. After engaging with this ad, you'll be presented with several questions.

Manipulation check

Q1 Which of the below emotions did the ad evoke in you?

- ○ Fear
- ○ Sadness
- ○ Joy

Q2 After viewing the ad, to what extent do you feel negative or positive emotion?

- ○ negative emotion (-3)
- ○ (-2)
- ○ (-1)
- ○ neutral emotion (0)
- ○ (1)
- ○ (2)
- ○ positive emotion (3)

Q3 How do you feel right now?

	Not at all (1)	(2)	(3)	(4)	(5)	(6)	Extremely (7)
Fearful	○	○	○	○	○	○	○
Threatened	○	○	○	○	○	○	○
Sad	○	○	○	○	○	○	○
Alarmed	○	○	○	○	○	○	○
Joyful	○	○	○	○	○	○	○
Happy	○	○	○	○	○	○	○
Content	○	○	○	○	○	○	○
Depressed	○	○	○	○	○	○	○
Down	○	○	○	○	○	○	○

Demographic questions

How old are you?

_____

How do you describe yourself?

- ○ Female
- ○ Male
- ○ Non-binary / third gender
- ○ Prefer to self-describe _____
- ○ Prefer not to say

How do you describe your proficiency in English?

- ○ Native
- ○ Very Good
- ○ Fair
- ○ Limited
- ○ Poor

On what device did you complete this survey

- ○ Laptop
- ○ Desktop
- ○ Tablet
- ○ Mobile Phone
- ○ Other

Do you have any comments for the research? (optional)

_____

Appendix C: Joy appeal (new)

Joy appeal (new)

Dear sixteen-year old me, you love the sun, and the beach, and tanning. The beach is irresistible, and is a place of serenity and a place where you connect with your deepest emotions. You relish the sunshin with your friends, making plans to watch the newest movie, learn the guitar, and envisioning a bright future together.

Dear sixteen-year old me, those laughter-filled days made it seem like the world was at your feet. Those glowing memories still light up your heart whether you're 28 or 36.

You cherish each day, because you want to spend more of the days with family and friends, that means everything. There are countless sunrises ahead, full of laughter and adventure.

An afternoon out in the sun can mean joyful memory with your beloveds. Memories of good times to remember for always. Cover up. Wear sunscreen.

Appendix D: Study 1 Questionnaire

Description of Scenario
You'll be presented with an ad narrative and several images from a sunscreen brand. We encourage you to spend a few minutes to read the ad narrative attentively and visualize its content, aided by the provided images. Pay attention to details, elements, and note any feelings or thoughts that arise as you view the ad. After engaging with the ad, you'll be asked to answer several questions.

Imagine now that you're viewing this ad on YouTube...

Questions
Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) This ad evoked a very strong emotion.	○	○	○	○	○	○	○
2) While engaging with the ad narrative and images, my emotional feeling was very intense.	○	○	○	○	○	○	○
3) While engaging with the ad narrative and images, the degree of my emotional feeling was high.	○	○	○	○	○	○	○
4) My emotional experience with this ad was very intense as a whole.	○	○	○	○	○	○	○

Imagine this ad is posted online. Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) I plan to pass along this online video ad.	○	○	○	○	○	○	○
2) I will make an effort to pass along this online video ad.	○	○	○	○	○	○	○
3) I intend to pass along this online video ad.	○	○	○	○	○	○	○

Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) By sharing this ad, I can show my concern for others.	○	○	○	○	○	○	○
2) By sharing this ad, I can show empathy for others.	○	○	○	○	○	○	○
3) By sharing this ad, I can help others.	○	○	○	○	○	○	○
4) Sharing this ad will help others solve their problems.	○	○	○	○	○	○	○
5) Sharing this ad will inspire others.	○	○	○	○	○	○	○

Now we would like to understand your feelings after viewing this ad...
Please answer the following questions as honestly as you can.

MC1 Which of the below emotions did the ad evoke in you?

- ○ Fear
- ○ Sadness
- ○ Joy

MC2 After viewing the ad, to what extent did you feel negative or positive emotion?

- ○ negative emotion (-3)
- ○ (-2)
- ○ (-1)
- ○ neutral emotion (0)
- ○ (1)
- ○ (2)
- ○ positive emotion (3)

MC3 How did you feel after viewing the ad?

	Not at all (1)	(2)	(3)	(4)	(5)	(6)	Extremely (7)
Fearful	○	○	○	○	○	○	○
Threatened	○	○	○	○	○	○	○
Frightened	○	○	○	○	○	○	○
Joyful	○	○	○	○	○	○	○
Happy	○	○	○	○	○	○	○
Content	○	○	○	○	○	○	○
Sad	○	○	○	○	○	○	○
Depressed	○	○	○	○	○	○	○
Down	○	○	○	○	○	○	○

The ad narrative and some of the images are adapted from a popular ad "Dear 16-year old me" from DCMF Canada. How many times have you seen this advertisement before?

	1	2	3	4	5	6	7	
Never	○	○	○	○	○	○	○	Very frequently

Attention Check: Please read the descriptions carefully and indicate how much you agree with the statement below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Please select "Agree" for quality purposes.	○	○	○	○	○	○	○

Please read each of the following adjectives carefully.
To me, sunscreens are...

	1	2	3	4	5	6	7	
unimportant	○	○	○	○	○	○	○	important
irrelevant	○	○	○	○	○	○	○	relevant
means a lot to me	○	○	○	○	○	○	○	means nothing to me

How often do you apply sunscreen (on sunny days)?

- ○ Never (1)
- ○ (2)
- ○ (3)
- ○ Sometimes (4)
- ○ (5)
- ○ (6)
- ○ Very often (7)

Demographic Questions
To help us analyze our data more accurately, please provide some basic demographic information.

How old are you?

- ○ 18-24 years old
- ○ 25-34 years old
- ○ 35-44 years old
- ○ 45-54 years old
- ○ 55-64 years old
- ○ 65+ years old

How do you describe yourself?

- ○ Female
- ○ Male
- ○ Non-binary / third gender
- ○ Prefer to self-describe _____
- ○ Prefer not to say

How do you describe your proficiency in English?

- ○ Native
- ○ Very Good
- ○ Fair
- ○ Limited
- ○ Poor

On what device did you complete this survey?

- ○ Laptop
- ○ Desktop
- ○ Tablet
- ○ Mobile Phone
- ○ Other

Please enter your student ID number.

_____

Do you have any comments for the researcher (optional)?

_____

Appendix E: Output in study 1

One-way ANOVA: IV on MC2 (negative vs. positive emotional feeling)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Tests of Between-Subjects Effects

Dependent Variable: MC2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	147.501[a]	2	73.751	72.736	<.001
Intercept	68.920	1	68.920	67.972	<.001
IV	147.501	2	73.751	72.736	<.001
Error	221.042	218	1.014		
Total	437.000	221			
Corrected Total	368.543	220			

a. R Squared = .400 (Adjusted R Squared = .395)

Pairwise Comparisons

Dependent Variable: MC2

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	.045	.166	.786	-.282	.373
	3	-1.707*	.167	<.001	-2.037	-1.378
2	1	-.045	.166	.786	-.373	.282
	3	-1.752*	.164	<.001	-2.077	-1.428
3	1	1.707*	.167	<.001	1.378	2.037
	2	1.752*	.164	<.001	1.428	2.077

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for MC2 (negative vs. positive emotional feeling)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Contrast Coefficients

Contrast	IV 1	2	3
1	1	-1	0
2	1	0	-1
3	0	1	-1
4	1	1	-2

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
MC2	Assumes equal variances	1	.05	.166	.272	218	.786	-.28	.37
		2	-1.71	.167	-10.206	218	<.001	-2.04	-1.38
		3	-1.75	.164	-10.657	218	<.001	-2.08	-1.43
		4	-3.46	.287	-12.050	218	<.001	-4.03	-2.89
	Does not assume equal variances	1	.05	.151	.300	144.979	.764	-.25	.34
		2	-1.71	.172	-9.929	135.863	<.001	-2.05	-1.37
		3	-1.75	.173	-10.105	139.786	<.001	-2.10	-1.41
		4	-3.46	.311	-11.131	119.029	<.001	-4.08	-2.84

Contrast Effect Sizes

		Contrast	Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
MC2	Cohen's d	1	1.007	.045	-.279	.368
		2	1.007	-1.695	-2.056	-1.332
		3	1.007	-1.740	-2.098	-1.379
		4	1.007	-3.436	-4.078	-2.788
	Hedges' correction	1	1.010	.045	-.278	.367
		2	1.010	-1.690	-2.049	-1.327
		3	1.010	-1.734	-2.091	-1.375
		4	1.010	-3.424	-4.064	-2.778

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation for all the groups.
Hedges' uses pooled standard deviation for all the groups, plus a correction factor.

One-way ANOVA: IV on MC3 (specific emotional feeling)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Tests of Between-Subjects Effects

Dependent Variable: MC3fear_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	268.885[a]	2	134.443	72.310	<.001
Intercept	2159.759	1	2159.759	1161.625	<.001
IV	268.885	2	134.443	72.310	<.001
Error	405.318	218	1.859		
Total	2832.667	221			
Corrected Total	674.203	220			

a. R Squared = .399 (Adjusted R Squared = .393)

Pairwise Comparisons

Dependent Variable: MC3fear_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-.120	.225	.595	-.563	.324
	3	2.273*	.227	<.001	1.827	2.719
2	1	.120	.225	.595	-.324	.563
	3	2.393*	.223	<.001	1.954	2.832
3	1	-2.273*	.227	<.001	-2.719	-1.827
	2	-2.393*	.223	<.001	-2.832	-1.954

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Tests of Between-Subjects Effects

Dependent Variable: MC3sadness_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	146.266[a]	2	73.133	40.900	<.001
Intercept	1595.412	1	1595.412	892.234	<.001
IV	146.266	2	73.133	40.900	<.001
Error	389.808	218	1.788		
Total	2136.059	221			
Corrected Total	536.074	220			

a. R Squared = .273 (Adjusted R Squared = .266)

Pairwise Comparisons

Dependent Variable: MC3sadness_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-.469*	.221	.035	-.904	-.034
	3	1.433*	.222	<.001	.995	1.871
2	1	.469*	.221	.035	.034	.904
	3	1.902*	.218	<.001	1.472	2.333
3	1	-1.433*	.222	<.001	-1.871	-.995
	2	-1.902*	.218	<.001	-2.333	-1.472

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Tests of Between-Subjects Effects

Dependent Variable: MC3joy_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	232.439[a]	2	116.220	87.256	<.001
Intercept	1141.606	1	1141.606	857.103	<.001
IV	232.439	2	116.220	87.256	<.001
Error	290.362	218	1.332		
Total	1667.547	221			
Corrected Total	522.801	220			

a. R Squared = .445 (Adjusted R Squared = .440)

Pairwise Comparisons

Dependent Variable: MC3joy_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	.092	.190	.630	-.283	.467
	3	-2.124*	.192	<.001	-2.502	-1.746
2	1	-.092	.190	.630	-.467	.283
	3	-2.216*	.188	<.001	-2.588	-1.845
3	1	2.124*	.192	<.001	1.746	2.502
	2	2.216*	.188	<.001	1.845	2.588

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for MC3 (specific emotional feeling)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Contrast Coefficients

Contrast	IV 1	2	3
1	1	-1	0
2	1	0	-1
3	0	1	-1
4	1	1	-2

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
MC3fear_avg	Assumes equal variances	1	-.1198	.22506	-.532	218	.595	-.5634	.3237
		2	2.2730	.22652	10.034	218	<.001	1.8265	2.7194
		3	2.3928	.22269	10.745	218	<.001	1.9539	2.8317
		4	4.6658	.38878	12.001	218	<.001	3.8996	5.4321
	Does not assume equal variances	1	-.1198	.24208	-.495	144.950	.621	-.5983	.3586
		2	2.2730	.21430	10.607	132.834	<.001	1.8491	2.6969
		3	2.3928	.21648	11.054	138.830	<.001	1.9648	2.8209
		4	4.6658	.35633	13.094	183.772	<.001	3.9628	5.3689
MC3sadness_avg	Assumes equal variances	1	-.4694	.22071	-2.127	218	.035	-.9044	-.0344
		2	1.4328	.22214	6.450	218	<.001	.9950	1.8706
		3	1.9022	.21838	8.710	218	<.001	1.4718	2.3326
		4	3.3350	.38127	8.747	218	<.001	2.5836	4.0865
	Does not assume equal variances	1	-.4694	.24493	-1.916	144.134	.057	-.9535	.0147
		2	1.4328	.21064	6.802	120.578	<.001	1.0158	1.8498
		3	1.9022	.20443	9.305	130.995	<.001	1.4978	2.3066
		4	3.3350	.33517	9.950	201.901	<.001	2.6741	3.9959
MC3joy_avg	Assumes equal variances	1	.0920	.19049	.483	218	.630	-.2834	.4674
		2	-2.1241	.19173	-11.079	218	<.001	-2.5019	-1.7462
		3	-2.2161	.18848	-11.758	218	<.001	-2.5875	-1.8446
		4	-4.3401	.32906	-13.189	218	<.001	-4.9887	-3.6916
	Does not assume equal variances	1	.0920	.14870	.619	139.001	.537	-.2020	.3860
		2	-2.1241	.21247	-9.997	122.891	<.001	-2.5446	-1.7035
		3	-2.2161	.20326	-10.903	111.606	<.001	-2.6188	-1.8133
		4	-4.3401	.38833	-11.176	98.709	<.001	-5.1107	-3.5696

Contrast Effect Sizes

		Contrast	Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
MC3fear_avg	Cohen's d	1	1.36355	-.088	-.411	.236
		2	1.36355	1.667	1.304	2.027
		3	1.36355	1.755	1.393	2.113
		4	1.36355	3.422	2.774	4.063
	Hedges' correction	1	1.36826	-.088	-.410	.235
		2	1.36826	1.661	1.300	2.020
		3	1.36826	1.749	1.389	2.106
		4	1.36826	3.410	2.765	4.049
MC3sadness_avg	Cohen's d	1	1.33720	-.351	-.676	-.025
		2	1.33720	1.071	.730	1.411
		3	1.33720	1.423	1.074	1.768
		4	1.33720	2.494	1.886	3.097
	Hedges' correction	1	1.34182	-.350	-.673	-.025
		2	1.34182	1.068	.727	1.406
		3	1.34182	1.418	1.071	1.762
		4	1.34182	2.485	1.879	3.087
MC3joy_avg	Cohen's d	1	1.15410	.080	-.244	.403
		2	1.15410	-1.840	-2.207	-1.470
		3	1.15410	-1.920	-2.286	-1.551
		4	1.15410	-3.761	-4.418	-3.097
	Hedges' correction	1	1.15808	.079	-.243	.402
		2	1.15808	-1.834	-2.200	-1.465
		3	1.15808	-1.914	-2.278	-1.546
		4	1.15808	-3.748	-4.403	-3.086

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation for all the groups.
Hedges' uses pooled standard deviation for all the groups, plus a correction factor.

One-way ANOVA: IV on DV (sharing intention)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Tests of Between-Subjects Effects

Dependent Variable: Sharing Intention_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	44.118[a]	2	22.059	9.044	<.001
Intercept	3075.647	1	3075.647	1260.960	<.001
IV	44.118	2	22.059	9.044	<.001
Error	531.730	218	2.439		
Total	3653.111	221			
Corrected Total	575.848	220			

a. R Squared = .077 (Adjusted R Squared = .068)

Pairwise Comparisons

Dependent Variable: Sharing Intention_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-.083	.258	.748	-.591	.425
	3	.901*	.259	<.001	.390	1.412
2	1	.083	.258	.748	-.425	.591
	3	.984*	.255	<.001	.481	1.487
3	1	-.901*	.259	<.001	-1.412	-.390
	2	-.984*	.255	<.001	-1.487	-.481

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for IV on DV (sharing intention)
IV: 1 = fear appeal, 2 = sadness appeal, 3 = joy appeal

Contrast Coefficients

Contrast	IV 1	2	3
1	1	−1	0
2	1	0	−1
3	0	1	−1
4	1	1	−2

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
Sharing Intention_avg	Assumes equal variances	1	−.0830	.25777	−.322	218	.748	−.5911	.4250
		2	.9011	.25945	3.473	218	<.001	.3897	1.4124
		3	.9841	.25506	3.858	218	<.001	.4814	1.4868
		4	1.8852	.44530	4.234	218	<.001	1.0076	2.7629
	Does not assume equal variances	1	−.0830	.25340	−.328	144.994	.744	−.5839	.4178
		2	.9011	.25617	3.518	142.762	<.001	.3947	1.4075
		3	.9841	.26128	3.767	147.827	<.001	.4678	1.5004
		4	1.8852	.45119	4.178	140.726	<.001	.9932	2.7772

Contrast Effect Sizes

		Contrast	Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Sharing Intention_avg	Cohen's d	1	1.56177	−.053	−.377	.270
		2	1.56177	.577	.246	.906
		3	1.56177	.630	.304	.955
		4	1.56177	1.207	.636	1.776
	Hedges' correction	1	1.56717	−.053	−.375	.270
		2	1.56717	.575	.245	.903
		3	1.56717	.628	.303	.952
		4	1.56717	1.203	.633	1.770

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation for all the groups.
Hedges' uses pooled standard deviation for all the groups, plus a correction factor.

PROCESS Model output

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 4
Y : DV
X : IV
M : EI

Sample
Size: 221

Coding of categorical X variable for analysis:
IV X1 X2
1.000 .000 .000
2.000 1.000 .000
3.000 .000 1.000

****
OUTCOME VARIABLE:
EI

Model Summary
R R-sq MSE F df1 df2 p
.35 .12 1.71 14.76 2.00 218.00 .00

Model
coeff se t p LLCI ULCI
constant 4.79 .15 30.90 .00 4.48 5.09
X1 .34 .22 1.58 .12 -.09 .76
X2 -.79 .22 -3.65 .00 -1.22 -.36

Covariance matrix of regression parameter estimates:
constant X1 X2
constant .02 -.02 -.02
X1 -.02 .05 .02
X2 -.02 .02 .05

```
**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
        R      R-sq       MSE         F       df1       df2         p
      .46       .21      2.09     19.52      3.00    217.00       .00

Model
            coeff        se         t         p      LLCI      ULCI
constant     1.81       .40      4.54       .00      1.02      2.59
X1           -.07       .24      -.30       .76      -.55       .40
X2           -.54       .25     -2.17       .03     -1.03      -.05
EI           .46        .07      6.12       .00       .31       .61

Covariance matrix of regression parameter estimates:
          constant        X1        X2        EI
constant       .16      -.02      -.05      -.03
X1            -.02       .06       .03       .00
X2            -.05       .03       .06       .00
EI            -.03       .00       .00       .01

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 DV

Model Summary
        R      R-sq       MSE         F       df1       df2         p
      .28       .08      2.44      9.04      2.00    218.00       .00

Model
            coeff        se         t         p      LLCI      ULCI
constant     4.00       .19     21.61       .00      3.64      4.37
X1            .08       .26       .32       .75      -.43       .59
X2           -.90       .26     -3.47       .00     -1.41      -.39

Covariance matrix of regression parameter estimates:
          constant        X1        X2
constant       .03      -.03      -.03
X1            -.03       .07       .03
X2            -.03       .03       .07


************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Relative total effects of X on Y
      Effect        se         t         p      LLCI      ULCI
X1       .08       .26       .32       .75      -.43       .59
X2      -.90       .26     -3.47       .00     -1.41      -.39

Omnibus test of total effect of X on Y
   R2-chng         F       df1       df2         p
       .08      9.04      2.00    218.00       .00
----------

Relative direct effects of X on Y
      Effect        se         t         p      LLCI      ULCI
X1      -.07       .24      -.30       .76      -.55       .40
X2      -.54       .25     -2.17       .03     -1.03      -.05

Omnibus test of direct effect of X on Y:
   R2-chng         F       df1       df2         p
       .02      2.69      2.00    217.00       .07
----------

Relative indirect effects of X on Y

 IV        ->   EI        ->   DV

      Effect    BootSE   BootLLCI   BootULCI
X1       .16       .10      -.03        .35
X2      -.36       .13      -.64       -.14

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
 10000
```

------ END MATRIX -----

Appendix F: Pretest 2 Questionnaire

Description
Q1 You'll be presented with an ad narrative and several images from a sunscreen brand. We encourage you to spend a few minutes to read the ad narrative attentively and visualize its content, aided by the provided images. Pay attention to details, elements, and note any feelings or thoughts that arise as you view the ad. After engaging with the ad, you'll be asked to answer several questions.

Imagine now that you're viewing this ad on YouTube...

Questions
Now we would like to understand your feelings after viewing this ad...
Please answer the following questions as honestly as you can.
MC1 Which of the below emotions did the ad evoke in you?

- ○ Fear
- ○ Sadness
- ○ Joy

MC2 After viewing the ad, to what extent did you feel negative or positive emotion?

- negative emotion (-3)
- (-2)
- (-1)
- neutral emotion (0)
- (1)
- (2)
- positive emotion (3)

Emotional Intensity: How intense was your emotional experience while examining the ad?

- Not at all (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- Extremely (7)

Emotional Intensity: How strong was the emotional impact you felt while watching the ad?

- Not at all (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- Extremely (7)

Emotional Intensity: What degree of emotional intensity did you experience while examining the ad?

- Very low (1)
- (2)
- (3)

- ○ (4)
- ○ (5)
- ○ (6)
- ○ Extremely high (7)

How did you feel after viewing the ad?

	Not at all (1)	(2)	(3)	(4)	(5)	(6)	Extremely (7)
Fearful	○	○	○	○	○	○	○
Threatened	○	○	○	○	○	○	○
Frightened	○	○	○	○	○	○	○
Joyful	○	○	○	○	○	○	○
Happy	○	○	○	○	○	○	○
Content	○	○	○	○	○	○	○
Sad	○	○	○	○	○	○	○
Depressed	○	○	○	○	○	○	○
Down	○	○	○	○	○	○	○

Demographic questions

How old are you?

_____

How do you describe yourself?

- ○ Female
- ○ Male
- ○ Non-binary / third gender
- ○ Prefer to self-describe _____
- ○ Prefer not to say

How do you describe your proficiency in English?

- ○ Native
- ○ Very Good
- ○ Fair
- ○ Limited
- ○ Poor

On what device did you complete this survey

- ○ Laptop
- ○ Desktop
- ○ Tablet
- ○ Mobile Phone
- ○ Other

What is your MTurk ID?

_____

Do you have any comments for the research? (optional)

_____

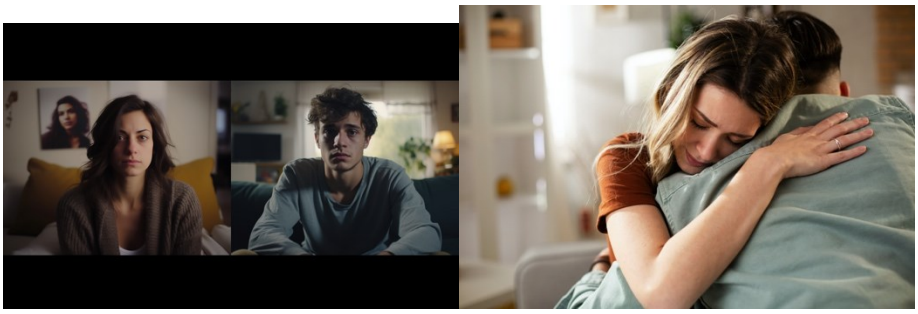
Appendix G: Lower intensity sadness appeal

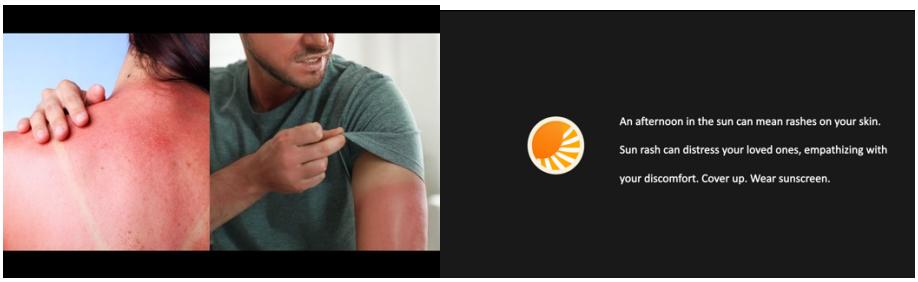
Dear 16-Year-Old Me, helping spread this message is how you'll educate others about the lessons to be learned from Olivia's experience. At sixteen she's already an incredible lifeguard, she loves the sun, the beach, and tanning. But she just doesn't know that a sun rash diagnosis will disrupt her summer plans. The relentless rash will rob her of happiness, preventing her from participating in the summer adventures we all cherish.

Dear sixteen-year-old me, it is not only Olivia who feels depressed this summer. Olivia's inability to spend time with her friends and family due to the sun rash caused profound sadness for everyone involved. Olivia felt isolated and alone most of the summer.

Dear sixteen-year old me, beware of sun rashes. If I had one piece of advice: avoid lengthy exposure to the sun without proper protection. I know that everyone wants a healthy glow, but neglecting sun protection can result in uncomfortable feelings, casting a shadow over your summer dreams and sadly keeping you from the cherished moments in outdoor activities with those you love.

An afternoon in the sun can mean rashes on your skin. Sun rash can distress your loved ones, empathizing with your discomfort. Cover up. Wear sunscreen.





Appendix H: Study 2 Questionnaire

Description of Scenario
You'll be presented with an ad narrative and several images from a sunscreen brand. We encourage you to spend a few minutes to read the ad narrative attentively and visualize its content, aided by the provided images. Pay attention to details, elements, and note any feelings or thoughts that arise as you view the ad. After engaging with the ad, you'll be asked to answer several questions.

Imagine now that you're viewing this ad on YouTube...

Questions
Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) This ad evoked a very strong emotion.	○	○	○	○	○	○	○
2) My emotional feeling was intense at its peak.	○	○	○	○	○	○	○
3) While engaging with the ad narrative and images, my emotional feeling was very intense all the time.	○	○	○	○	○	○	○
4) While engaging with the ad narrative and images, the degree of my emotional feeling was high.	○	○	○	○	○	○	○
5) My emotional experience with this ad was very intense as a whole.	○	○	○	○	○	○	○

Imagine this ad is posted online. Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) I plan to pass along this online video ad.	○	○	○	○	○	○	○
2) I will make an effort to pass along this online video ad.	○	○	○	○	○	○	○
3) I intend to pass along this online video ad.	○	○	○	○	○	○	○

Please read the descriptions carefully and indicate how much you agree with each statement stated below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1) I could easily picture what was described in the ad.	○	○	○	○	○	○	○
2) I could picture myself experiencing what was described in the ad.	○	○	○	○	○	○	○
3) I was mentally involved in the ad.	○	○	○	○	○	○	○
4) I had a hard time keeping my mind in focusing on the ad.	○	○	○	○	○	○	○
5) My attention was focused on the ad.	○	○	○	○	○	○	○
6) It was easy to follow the action and events taking place in the ad.	○	○	○	○	○	○	○
7) I could easily image myself in a similar situation to what is described in the ad.	○	○	○	○	○	○	○

Now we would like to understand your feelings after viewing this ad...
Please answer the following questions as honestly as you can.

MC1 Which of the below emotions did the ad evoke in you?

- ○ Fear
- ○ Sadness
- ○ Joy

MC2 After viewing the ad, to what extent did you feel negative or positive emotion?

- ○ negative emotion (-3)
- ○ (-2)
- ○ (-1)
- ○ neutral emotion (0)
- ○ (1)
- ○ (2)
- ○ positive emotion (3)

MC3 How did you feel after viewing the ad?

	Not at all (1)	(2)	(3)	(4)	(5)	(6)	Extremely (7)
Fearful	○	○	○	○	○	○	○
Threatened	○	○	○	○	○	○	○
Frightened	○	○	○	○	○	○	○
Joyful	○	○	○	○	○	○	○
Happy	○	○	○	○	○	○	○
Content	○	○	○	○	○	○	○
Sad	○	○	○	○	○	○	○
Depressed	○	○	○	○	○	○	○
Down	○	○	○	○	○	○	○

The ad narrative and some of the images are adapted from a popular ad "Dear 16-year old me" from DCMF Canada. How many times have you seen this advertisement before?

	1	2	3	4	5	6	7	
Never	○	○	○	○	○	○	○	Very frequently

Attention Check Please read the descriptions carefully and indicate how much you agree with the statement below.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Please select "Agree" for quality purposes.	○	○	○	○	○	○	○

Please read each of the following adjectives carefully.
To me, sunscreens are...

	1	2	3	4	5	6	7	
unimportant	○	○	○	○	○	○	○	important
irrelevant	○	○	○	○	○	○	○	relevant
means a lot to me	○	○	○	○	○	○	○	means nothing to me

How often do you apply sunscreen (on sunny days)?

- ○ Never (1)
- ○ (2)
- ○ (3)
- ○ Sometimes (4)
- ○ (5)
- ○ (6)
- ○ Very often (7)

Demographic Questions

To help us analyze our data more accurately, please provide some basic demographic information.

How old are you?

_____

How do you describe yourself?

- ○ Female
- ○ Male
- ○ Non-binary / third gender
- ○ Prefer to self-describe _____
- ○ Prefer not to say

How do you describe your proficiency in English?

- ○ Native
- ○ Very Good
- ○ Fair
- ○ Limited
- ○ Poor

On what device did you complete this survey?

- ○ Laptop
- ○ Desktop
- ○ Tablet
- ○ Mobile Phone
- ○ Other

What is your MTurk ID?

_____

Do you have any comments for the researcher (optional)?

_____

Appendix I: Output in study 2

One-way ANOVA: IV on MC2 (negative vs. positive emotional feeling)
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = joy appeal, 4 = low-intensity sadness appeal

Tests of Between-Subjects Effects

Dependent Variable: MC2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	612.423[a]	3	204.141	140.450	<.001
Intercept	187.359	1	187.359	128.903	<.001
IV	612.423	3	204.141	140.450	<.001
Error	571.219	393	1.453		
Total	1370.000	397			
Corrected Total	1183.642	396			

a. R Squared = .517 (Adjusted R Squared = .514)

Pairwise Comparisons

Dependent Variable: MC2

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-.210	.170	.219	-.545	.125
	3	-3.110*	.170	<.001	-3.445	-2.775
	4	-.772*	.172	<.001	-1.110	-.434
2	1	.210	.170	.219	-.125	.545
	3	-2.900*	.170	<.001	-3.235	-2.565
	4	-.562*	.172	.001	-.900	-.224
3	1	3.110*	.170	<.001	2.775	3.445
	2	2.900*	.170	<.001	2.565	3.235
	4	2.338*	.172	<.001	2.000	2.676
4	1	.772*	.172	<.001	.434	1.110
	2	.562*	.172	.001	.224	.900
	3	-2.338*	.172	<.001	-2.676	-2.000

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for MC2 (negative vs. positive emotional feeling)
1 = fear appeal, 2 = high-intensity sadness appeal, 3 = joy appeal, 4 = low-intensity sadness appeal

Contrast Coefficients

Contrast	IV 1	2	3	4
1	1	−1	0	0
2	1	0	−1	0
3	1	0	0	−1
4	0	1	−1	0
5	0	1	0	−1
6	0	0	−1	1

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
MC2	Assumes equal variances	1	−.21	.170	−1.232	393	.219	−.55	.13
		2	−3.11	.170	−18.241	393	<.001	−3.45	−2.77
		3	−.77	.172	−4.492	393	<.001	−1.11	−.43
		4	−2.90	.170	−17.009	393	<.001	−3.24	−2.56
		5	−.56	.172	−3.270	393	.001	−.90	−.22
		6	−2.34	.172	−13.609	393	<.001	−2.68	−2.00
	Does not assume equal variances	1	−.21	.162	−1.297	197.682	.196	−.53	.11
		2	−3.11	.181	−17.176	187.860	<.001	−3.47	−2.75
		3	−.77	.157	−4.924	194.984	<.001	−1.08	−.46
		4	−2.90	.184	−15.765	190.816	<.001	−3.26	−2.54
		5	−.56	.160	−3.510	194.534	<.001	−.88	−.25
		6	−2.34	.179	−13.032	184.394	<.001	−2.69	−1.98

One-way ANOVA: IV on MC3 (specific emotional feeling)
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal

Tests of Between-Subjects Effects

Dependent Variable: MC3fear_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	468.970[a]	3	156.323	61.191	<.001
Intercept	3593.645	1	3593.645	1406.692	<.001
IV	468.970	3	156.323	61.191	<.001
Error	1003.989	393	2.555		
Total	5076.082	397			
Corrected Total	1472.958	396			

a. R Squared = .318 (Adjusted R Squared = .313)

Pairwise Comparisons

Dependent Variable: MC3fear_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	.544*	.226	.017	.099	.988
	3	1.765*	.228	<.001	1.317	2.213
	4	2.791*	.226	<.001	2.346	3.235
2	1	−.544*	.226	.017	−.988	−.099
	3	1.221*	.228	<.001	.773	1.669
	4	2.247*	.226	<.001	1.802	2.691
3	1	−1.765*	.228	<.001	−2.213	−1.317
	2	−1.221*	.228	<.001	−1.669	−.773
	4	1.026*	.228	<.001	.578	1.473
4	1	−2.791*	.226	<.001	−3.235	−2.346
	2	−2.247*	.226	<.001	−2.691	−1.802
	3	−1.026*	.228	<.001	−1.473	−.578

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Tests of Between-Subjects Effects

Dependent Variable: MC3sadness_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	319.283[a]	3	106.428	39.031	<.001
Intercept	3785.640	1	3785.640	1388.326	<.001
IV	319.283	3	106.428	39.031	<.001
Error	1071.619	393	2.727		
Total	5178.902	397			
Corrected Total	1390.901	396			

a. R Squared = .230 (Adjusted R Squared = .224)

Pairwise Comparisons

Dependent Variable: MC3sadness_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-.311	.234	.184	-.770	.149
	3	.690*	.235	.004	.227	1.153
	4	2.013*	.234	<.001	1.554	2.472
2	1	.311	.234	.184	-.149	.770
	3	1.000*	.235	<.001	.538	1.463
	4	2.323*	.234	<.001	1.864	2.782
3	1	-.690*	.235	.004	-1.153	-.227
	2	-1.000*	.235	<.001	-1.463	-.538
	4	1.323*	.235	<.001	.860	1.786
4	1	-2.013*	.234	<.001	-2.472	-1.554
	2	-2.323*	.234	<.001	-2.782	-1.864
	3	-1.323*	.235	<.001	-1.786	-.860

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Tests of Between-Subjects Effects

Dependent Variable: MC3joy_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	724.411[a]	3	241.470	151.499	<.001
Intercept	2128.623	1	2128.623	1335.502	<.001
IV	724.411	3	241.470	151.499	<.001
Error	626.393	393	1.594		
Total	3487.152	397			
Corrected Total	1350.803	396			

a. R Squared = .536 (Adjusted R Squared = .533)

Pairwise Comparisons

Dependent Variable: MC3joy_avg

(I) IV	(J) IV	Mean Difference (I–J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	.023	.179	.897	-.328	.374
	3	-.354*	.180	.050	-.708	.000
	4	-3.201*	.179	<.001	-3.552	-2.850
2	1	-.023	.179	.897	-.374	.328
	3	-.377*	.180	.037	-.731	-.023
	4	-3.224*	.179	<.001	-3.575	-2.873
3	1	.354*	.180	.050	.000	.708
	2	.377*	.180	.037	.023	.731
	4	-2.847*	.180	<.001	-3.201	-2.493
4	1	3.201*	.179	<.001	2.850	3.552
	2	3.224*	.179	<.001	2.873	3.575
	3	2.847*	.180	<.001	2.493	3.201

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for MC3 (specific emotional feeling)

IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal

Contrast Coefficients

Contrast	IV 1	2	3	4
1	1	-1	0	0
2	1	0	-1	0
3	1	0	0	-1
4	0	1	-1	0
5	0	1	0	-1
6	0	0	-1	1
7	-1	-1	-1	3

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
MC3fear_avg	Assumes equal variances	1	.543800000	.226038883	2.406	393	.017	.099403348	.988196652
		2	1.76483402	.227779901	7.748	393	<.001	1.31701449	2.21265355
		3	2.79050000	.226038883	12.345	393	<.001	2.34610335	3.23489665
		4	1.22103402	.227779901	5.361	393	<.001	.773214494	1.66885355
		5	2.24670000	.226038883	9.939	393	<.001	1.80230335	2.69109665
		6	-1.02566598	.227779901	-4.503	393	<.001	-1.47348551	-.577846453
		7	-6.06286598	.554392971	-10.936	393	<.001	-7.15281288	-4.97291908
	Does not assume equal variances	1	.543800000	.253541587	2.145	197.841	.033	.043809089	1.04379091
		2	1.76483402	.242802779	7.269	194.621	<.001	1.28597157	2.24369647
		3	2.79050000	.205631402	13.570	161.278	<.001	2.38442274	3.19657726
		4	1.22103402	.246526444	4.953	193.985	<.001	.734817688	1.70725035
		5	2.24670000	.210015169	10.698	158.555	<.001	1.83191192	2.66148808
		6	-1.02566598	.196916796	-5.209	162.730	<.001	-1.41450756	-.636824404
		7	-6.06286598	.437594326	-13.855	284.554	<.001	-6.92419853	-5.20153343
MC3sadness_avg	Assumes equal variances	1	-.310500000	.233527940	-1.330	393	.184	-.769620277	.148620277
		2	.689908247	.235326641	2.932	393	.004	.227251690	1.15256480
		3	2.01280000	.233527940	8.619	393	<.001	1.55367972	2.47192028
		4	1.00040825	.235326641	4.251	393	<.001	.537751690	1.46306480
		5	2.32330000	.233527940	9.949	393	<.001	1.86417972	2.78242028
		6	-1.32289175	.235326641	-5.622	393	<.001	-1.78554831	-.860235195
		7	-5.65899175	.572760964	-9.880	393	<.001	-6.78505047	-4.53293304
	Does not assume equal variances	1	-.310500000	.246470788	-1.260	197.896	.209	-.796546277	.175546277
		2	.689908247	.251203755	2.746	193.914	.007	.194465864	1.18535063
		3	2.01280000	.213849283	9.412	181.865	<.001	1.59085529	2.43474471
		4	1.00040825	.253964838	3.939	194.476	<.001	.499529337	1.50128716
		5	2.32330000	.217085993	10.702	179.750	<.001	1.89493519	2.75166481
		6	-1.32289175	.222445062	-5.947	171.909	<.001	-1.76196708	-.883816429
		7	-5.65899175	.488538263	-11.584	236.182	<.001	-6.62144097	-4.69654253
MC3joy_avg	Assumes equal variances	1	.023200000	.178542696	.130	393	.897	-.327818264	.374218264
		2	-.353904124	.179917885	-1.967	393	.050	-.707626034	-.000182213
		3	-3.20070000	.178542696	-17.927	393	<.001	-3.55171826	-2.84968174
		4	-.377104124	.179917885	-2.096	393	.037	-.730826034	-.023382213
		5	-3.22390000	.178542696	-18.057	393	<.001	-3.57491826	-2.87288174
		6	2.84679588	.179917885	15.823	393	<.001	2.49307397	3.20051779
		7	9.27139588	.437901721	21.172	393	<.001	8.41047294	10.1323188
	Does not assume equal variances	1	.023200000	.127754163	.182	177.786	.856	-.228909700	.275309700
		2	-.353904124	.150192166	-2.356	194.554	.019	-.650117964	-.057690283
		3	-3.20070000	.216585571	-14.778	153.971	<.001	-3.62856286	-2.77283714
		4	-.377104124	.130592330	-2.888	170.268	.004	-.634892650	-.119315597
		5	-3.22390000	.203484592	-15.843	128.094	<.001	-3.62652620	-2.82127380
		6	2.84679588	.218271711	13.042	156.523	<.001	2.41565775	3.27793400
		7	9.27139588	.593245578	15.628	116.510	<.001	8.09645245	10.4463393

One-way ANOVA: IV on DV (sharing intention)
1 = fear appeal, 2 = high-intensity sadness appeal, 3 = joy appeal, 4 = low-intensity sadness appeal

Tests of Between-Subjects Effects

Dependent Variable: SI_avg

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	65.867[a]	3	21.956	6.033	<.001
Intercept	4496.168	1	4496.168	1235.512	<.001
IV	65.867	3	21.956	6.033	<.001
Error	1430.171	393	3.639		
Total	6003.222	397			
Corrected Total	1496.038	396			

a. R Squared = .044 (Adjusted R Squared = .037)

Pairwise Comparisons

Dependent Variable: SI_avg

(I) IV	(J) IV	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-.040	.270	.882	-.570	.490
	3	.677*	.270	.013	.146	1.207
	4	.888*	.272	.001	.353	1.422
2	1	.040	.270	.882	-.490	.570
	3	.717*	.270	.008	.186	1.247
	4	.928*	.272	<.001	.393	1.462
3	1	-.677*	.270	.013	-1.207	-.146
	2	-.717*	.270	.008	-1.247	-.186
	4	.211	.272	.438	-.324	.745
4	1	-.888*	.272	.001	-1.422	-.353
	2	-.928*	.272	<.001	-1.462	-.393
	3	-.211	.272	.438	-.745	.324

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Contrast analysis for IV on DV (sharing intention)
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = joy appeal, 4 = low-intensity sadness appeal

Contrast Coefficients

Contrast	IV 1	2	3	4
1	1	-1	0	0
2	1	0	-1	0
3	1	0	0	-1
4	0	1	-1	0
5	0	1	0	-1
6	0	0	-1	1
7	-1	-1	3	-1

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
SI_avg	Assumes equal variances	1	-.040000000	.269781848	-.148	393	.882	-.570396135	.490396135
		2	.676666667	.269781848	2.508	393	.013	.146270532	1.20706280
		3	.887560137	.271859788	3.265	393	.001	.353078735	1.42204154
		4	.716666667	.269781848	2.656	393	.008	.186270532	1.24706280
		5	.927560137	.271859788	3.412	393	<.001	.393078735	1.46204154
		6	-.210893471	.271859788	-.776	393	.438	-.745374874	.323587932
		7	-1.18243986	.661678903	-1.787	393	.075	-2.48331290	.118433179
	Does not assume equal variances	1	-.040000000	.280837292	-.142	197.250	.887	-.593828990	.513828990
		2	.676666667	.281347367	2.405	197.341	.017	.121833343	1.23149999
		3	.887560137	.268243220	3.309	190.803	.001	.358457104	1.41666317
		4	.716666667	.272569970	2.629	197.997	.009	.179153873	1.25417946
		5	.927560137	.259022146	3.581	193.512	<.001	.416691079	1.43842920
		6	-.210893471	.259575092	-.812	193.381	.418	-.722855292	.301068350
		7	-1.18243986	.666763371	-1.773	167.678	.078	-2.49877256	.133892836

PROCESS Model output
Model 4
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

**************** PROCESS Procedure for SPSS Version 4.2 ****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 4
Y : DV
X : IV
M : EI_avg

Sample
Size: 397

Coding of categorical X variable for analysis:

IV	X1	X2	X3
1.000	.000	.000	.000
2.000	1.000	.000	.000
3.000	.000	1.000	.000
4.000	.000	.000	1.000

****
OUTCOME VARIABLE:
EI_avg

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3801	.1445	2.7607	22.1211	3.0000	393.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	5.0780	.1662	30.5621	.0000	4.7513	5.4047
X1	-.2740	.2350	-1.1661	.2443	-.7360	.1880
X2	-1.7584	.2368	-7.4262	.0000	-2.2239	-1.2929
X3	-.9880	.2350	-4.2047	.0000	-1.4500	-.5260

****
OUTCOME VARIABLE:
DV

Model Summary

```
        R      R-sq       MSE         F       df1       df2         p
    .7097     .5037    1.8943   99.4429    4.0000   392.0000     .0000

Model
             coeff         se         t         p       LLCI       ULCI
constant    -.2959     .2529   -1.1701    .2427    -.7932     .2013
X1           .2581     .1950    1.3239    .1863    -.1252     .6415
X2           .5123     .2095    2.4460    .0149     .1005     .9241
X3           .1099     .1990     .5522    .5811    -.2813     .5011
EI_avg       .7961     .0418   19.0526    .0000     .7140     .8783

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 DV

Model Summary
        R      R-sq       MSE         F       df1       df2         p
    .2098     .0440    3.6391    6.0332    3.0000   393.0000     .0005

Model
             coeff         se         t         p       LLCI       ULCI
constant    3.7467     .1908   19.6403    .0000    3.3716    4.1217
X1           .0400     .2698    .1483    .8822    -.4904     .5704
X2          -.8876     .2719   -3.2648    .0012   -1.4220    -.3531
X3          -.6767     .2698   -2.5082    .0125   -1.2071    -.1463


************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Relative total effects of X on Y
      Effect         se         t         p       LLCI       ULCI
X1    .0400     .2698    .1483    .8822    -.4904     .5704
X2   -.8876     .2719   -3.2648    .0012   -1.4220    -.3531
X3   -.6767     .2698   -2.5082    .0125   -1.2071    -.1463

Omnibus test of total effect of X on Y
   R2-chng          F       df1       df2         p
    .0440     6.0332    3.0000   393.0000     .0005
----------

Relative direct effects of X on Y
      Effect         se         t         p       LLCI       ULCI
X1    .2581     .1950    1.3239    .1863    -.1252     .6415
X2    .5123     .2095    2.4460    .0149     .1005     .9241
X3    .1099     .1990     .5522    .5811    -.2813     .5011

Omnibus test of direct effect of X on Y:
   R2-chng          F       df1       df2         p
    .0088     2.3195    3.0000   392.0000     .0749
----------

Relative indirect effects of X on Y

 IV          ->    EI_avg      ->    DV

      Effect     BootSE   BootLLCI   BootULCI
X1    -.2181     .1732    -.5576     .1194
X2   -1.3999     .1983   -1.7932   -1.0159
X3    -.7865     .1928   -1.1691    -.4103

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

------ END MATRIX -----


Model 4 with covariates
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : DV
    X  : IV
    M  : EI_avg
```

Covariates:
PE PI_avg PU

Sample
Size: 397

Coding of categorical X variable for analysis:

IV	X1	X2	X3
1.000	.000	.000	.000
2.000	1.000	.000	.000
3.000	.000	1.000	.000
4.000	.000	.000	1.000

****
OUTCOME VARIABLE:
EI_avg

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5071	.2572	2.4154	22.5042	6.0000	390.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.3113	.5066	4.5623	.0000	1.3153	3.3074
X1	-.1622	.2205	-.7356	.4624	-.5956	.2713
X2	-1.6606	.2232	-7.4406	.0000	-2.0993	-1.2218
X3	-1.0301	.2200	-4.6821	.0000	-1.4626	-.5975
PE	.2705	.0860	3.1450	.0018	.1014	.4395
PI_avg	.2681	.1100	2.4377	.0152	.0519	.4844
PU	.1727	.0397	4.3545	.0000	.0947	.2507

****
OUTCOME VARIABLE:
DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7185	.5163	1.8604	59.3094	7.0000	389.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.8220	.4563	-1.8014	.0724	-1.7192	.0751
X1	.2749	.1936	1.4196	.1565	-.1058	.6555
X2	.4538	.2093	2.1681	.0308	.0423	.8653
X3	.0426	.1984	.2148	.8301	-.3475	.4328
EI_avg	.7490	.0444	16.8547	.0000	.6616	.8364
PE	.1807	.0764	2.3647	.0185	.0305	.3310
PI_avg	.0340	.0973	.3494	.7270	-.1573	.2252
PU	.0587	.0357	1.6462	.1005	-.0114	.1288

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4037	.1630	3.2107	12.6590	6.0000	390.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.9092	.5841	1.5566	.1204	-.2392	2.0576
X1	.1534	.2542	.6035	.5465	-.3463	.6531
X2	-.7900	.2573	-3.0702	.0023	-1.2959	-.2841
X3	-.7289	.2537	-2.8738	.0043	-1.2276	-.2302
PE	.3833	.0992	3.8659	.0001	.1884	.5782
PI_avg	.2348	.1268	1.8517	.0648	-.0145	.4842
PU	.1881	.0457	4.1122	.0000	.0982	.2780

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Relative total effects of X on Y

	Effect	se	t	p	LLCI	ULCI
X1	.1534	.2542	.6035	.5465	-.3463	.6531
X2	-.7900	.2573	-3.0702	.0023	-1.2959	-.2841
X3	-.7289	.2537	-2.8738	.0043	-1.2276	-.2302

Omnibus test of total effect of X on Y

R2-chng	F	df1	df2	p
.0471	7.3092	3.0000	390.0000	.0001

Relative direct effects of X on Y

	Effect	se	t	p	LLCI	ULCI
X1	.2749	.1936	1.4196	.1565	-.1058	.6555
X2	.4538	.2093	2.1681	.0308	.0423	.8653

```
X3     .0426     .1984     .2148     .8301     -.3475     .4328

Omnibus test of direct effect of X on Y:
   R2-chng         F        df1        df2          p
     .0082     2.1934     3.0000   389.0000     .0883
----------

Relative indirect effects of X on Y

 IV         ->   EI_avg     ->   DV

      Effect     BootSE   BootLLCI   BootULCI
X1    -.1215     .1527     -.4276     .1731
X2   -1.2438     .1843    -1.6162    -.8899
X3    -.7716     .1720    -1.1227    -.4487

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

------ END MATRIX -----


Model 1
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 1
    Y  : DV
    X  : IV
    W  : NT_avg

Sample
Size:  397

Coding of categorical X variable for analysis:
     IV     X1     X2     X3
  1.000   .000   .000   .000
  2.000  1.000   .000   .000
  3.000   .000  1.000   .000
  4.000   .000   .000  1.000

**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
         R       R-sq        MSE          F        df1        df2          p
     .4470      .1999     3.0773    13.8800     7.0000   389.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -2.3017     1.2651    -1.8194     .0696    -4.7890     .1856
X1           .1231     1.7584     .0700     .9442    -3.3340     3.5802
X2          1.8420     1.6465     1.1187     .2639    -1.3952     5.0792
X3           .7419     1.6823     .4410     .6595    -2.5657     4.0495
NT_avg      1.1172     .2314     4.8275     .0000     .6622     1.5722
Int_1        .0246     .3272     .0750     .9402     -.6188     .6679
Int_2       -.4551     .3107    -1.4649     .1438    -1.0658     .1557
Int_3       -.2482     .3095     -.8018     .4231     -.8567     .3604

Product terms key:
 Int_1    :       X1       x       NT_avg
 Int_2    :       X2       x       NT_avg
 Int_3    :       X3       x       NT_avg

Test(s) of highest order unconditional interaction(s):
       R2-chng         F        df1        df2          p
X*W      .0067     1.0835     3.0000   389.0000      .3559
----------
    Focal predict: IV       (X)
          Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
```

```
NT_avg    4.4231

      Effect        se         t         p      LLCI      ULCI
X1    .2317     .3853    .6013    .5480   -.5259    .9893
X2   -.1708     .3605   -.4738    .6359   -.8796    .5380
X3   -.3558     .3856   -.9228    .3567  -1.1139    .4022

Test of equality of conditional means
        F       df1       df2         p
    .9690    3.0000   389.0000    .4073

Estimated conditional means being compared:
        IV        DV
   1.0000    2.6399
   2.0000    2.8716
   3.0000    2.4691
   4.0000    2.2841
----------
Moderator value(s):
NT_avg    5.2462

      Effect        se         t         p      LLCI      ULCI
X1    .2519     .2511    1.0031    .3165   -.2419    .7457
X2   -.5454     .2576   -2.1172    .0349  -1.0518   -.0389
X3   -.5601     .2516   -2.2257    .0266  -1.0549   -.0653

Test of equality of conditional means
        F       df1       df2         p
   5.1802    3.0000   389.0000    .0016

Estimated conditional means being compared:
        IV        DV
   1.0000    3.5595
   2.0000    3.8114
   3.0000    3.0141
   4.0000    2.9994
----------
Moderator value(s):
NT_avg    6.0693

      Effect        se         t         p      LLCI      ULCI
X1    .2721     .3504    .7767    .4378   -.4167    .9610
X2   -.9199     .3654   -2.5177    .0122  -1.6383   -.2015
X3   -.7644     .3284   -2.3279    .0204  -1.4099   -.1188

Test of equality of conditional means
        F       df1       df2         p
   5.0449    3.0000   389.0000    .0019

Estimated conditional means being compared:
        IV        DV
   1.0000    4.4791
   2.0000    4.7512
   3.0000    3.5592
   4.0000    3.7147

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

W values in conditional tables are the mean and +/- SD from the mean.

------ END MATRIX -----


Model 1 with covariates
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 1
    Y  : DV
    X  : IV
    W  : NT_avg

Covariates:
 PE       PI_avg   PU

Sample
Size:  397
```

Coding of categorical X variable for analysis:

IV	X1	X2	X3
1.000	.000	.000	.000
2.000	1.000	.000	.000
3.000	.000	1.000	.000
4.000	.000	.000	1.000

****

OUTCOME VARIABLE:
DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5233	.2739	2.8143	14.5577	10.0000	386.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-2.9507	1.2923	-2.2833	.0230	-5.4916	-.4099
X1	-.3433	1.6970	-.2023	.8398	-3.6799	2.9932
X2	1.0825	1.5806	.6849	.4938	-2.0251	4.1901
X3	.3219	1.6248	.1981	.8430	-2.8725	3.5164
NT_avg	.9367	.2244	4.1747	.0000	.4955	1.3778
Int_1	.1199	.3157	.3799	.7042	-.5008	.7406
Int_2	-.3059	.2984	-1.0253	.3059	-.8926	.2807
Int_3	-.1817	.2988	-.6083	.5434	-.7692	.4057
PE	.4215	.0939	4.4901	.0000	.2370	.6061
PI_avg	.0379	.1223	.3102	.7566	-.2025	.2783
PU	.1439	.0435	3.3044	.0010	.0583	.2295

Product terms key:

Int_1	:	X1	x	NT_avg
Int_2	:	X2	x	NT_avg
Int_3	:	X3	x	NT_avg

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0045	.8029	3.0000	386.0000	.4928

Focal predict: IV (X)
Mod var: NT_avg (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
NT_avg 4.4231

	Effect	se	t	p	LLCI	ULCI
X1	.1871	.3712	.5041	.6145	-.5427	.9169
X2	-.2706	.3456	-.7830	.4341	-.9501	.4089
X3	-.4819	.3717	-1.2964	.1956	-1.2128	.2489

Test of equality of conditional means

F	df1	df2	p
1.4328	3.0000	386.0000	.2328

Estimated conditional means being compared:

IV	DV
1.0000	2.8001
2.0000	2.9872
3.0000	2.5295
4.0000	2.3181

Moderator value(s):
NT_avg 5.2462

	Effect	se	t	p	LLCI	ULCI
X1	.2858	.2405	1.1882	.2355	-.1871	.7587
X2	-.5224	.2474	-2.1114	.0354	-1.0089	-.0359
X3	-.6315	.2412	-2.6187	.0092	-1.1057	-.1574

Test of equality of conditional means

F	df1	df2	p
6.5093	3.0000	386.0000	.0003

Estimated conditional means being compared:

IV	DV
1.0000	3.5710
2.0000	3.8568
3.0000	3.0486
4.0000	2.9395

Moderator value(s):
NT_avg 6.0693

	Effect	se	t	p	LLCI	ULCI

```
X1     .3845     .3361    1.1439     .2534    -.2764    1.0454
X2    -.7742     .3516   -2.2018     .0283   -1.4656    -.0829
X3    -.7811     .3148   -2.4813     .0135   -1.4001    -.1622

Test of equality of conditional means
        F       df1       df2         p
    5.6168    3.0000  386.0000     .0009

Estimated conditional means being compared:
        IV        DV
    1.0000    4.3420
    2.0000    4.7265
    3.0000    3.5678
    4.0000    3.5609

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

W values in conditional tables are the mean and +/- SD from the mean.

------ END MATRIX -----

Model 8 – fear as a focal
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 8
    Y  : DV
    X  : IV
    M  : EI_avg
    W  : NT_avg

Sample
Size:  397

Coding of categorical X variable for analysis:
     IV     X1     X2     X3
  1.000   .000   .000   .000
  2.000  1.000   .000   .000
  3.000   .000  1.000   .000
  4.000   .000   .000  1.000

**************************************************************************
OUTCOME VARIABLE:
 EI_avg

Model Summary
        R       R-sq        MSE          F        df1        df2          p
     .6369     .4057     1.9376    37.9282     7.0000   389.0000     .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -2.4513     1.0039    -2.4418     .0151    -4.4250    -.4776
X1           .0491     1.3953     .0352     .9720    -2.6941    2.7923
X2          2.1338     1.3065    1.6332     .1032     -.4349    4.7026
X3          1.2100     1.3350     .9064     .3653    -1.4147    3.8346
NT_avg      1.3908     .1836     7.5734     .0000     1.0297    1.7518
Int_1       -.0115     .2596     -.0442     .9648     -.5220     .4990
Int_2       -.6651     .2465    -2.6982     .0073    -1.1498    -.1805
Int_3       -.3900     .2456    -1.5881     .1131     -.8729     .0928

Product terms key:
 Int_1    :       X1      x       NT_avg
 Int_2    :       X2      x       NT_avg
 Int_3    :       X3      x       NT_avg

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0158     3.4574     3.0000   389.0000     .0166
----------
    Focal predict: IV       (X)
          Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
NT_avg     4.4231
```

```
      Effect        se         t         p       LLCI      ULCI
X1    -.0017     .3058    -.0055    .9957    -.6028     .5995
X2    -.8081     .2861   -2.8249    .0050   -1.3705    -.2457
X3    -.5152     .3059   -1.6841    .0930   -1.1168     .0863

Test of equality of conditional means
         F       df1       df2         p
    4.3030    3.0000  389.0000     .0053

Estimated conditional means being compared:
        IV    EI_avg
    1.0000    3.7002
    2.0000    3.6986
    3.0000    2.8922
    4.0000    3.1850
----------
Moderator value(s):
NT_avg    5.2462

      Effect        se         t         p       LLCI      ULCI
X1    -.0111     .1993    -.0558    .9556    -.4029     .3807
X2   -1.3555     .2044   -6.6317    .0000   -1.7574    -.9537
X3    -.8363     .1997   -4.1881    .0000   -1.2289    -.4437

Test of equality of conditional means
         F       df1       df2         p
   21.4190    3.0000  389.0000     .0000

Estimated conditional means being compared:
        IV    EI_avg
    1.0000    4.8450
    2.0000    4.8339
    3.0000    3.4895
    4.0000    4.0087
----------
Moderator value(s):
NT_avg    6.0693

      Effect        se         t         p       LLCI      ULCI
X1    -.0206     .2780    -.0740    .9411    -.5672     .5260
X2   -1.9030     .2899   -6.5633    .0000   -2.4731   -1.3329
X3   -1.1573     .2606   -4.4419    .0000   -1.6696    -.6451

Test of equality of conditional means
         F       df1       df2         p
   20.0220    3.0000  389.0000     .0000

Estimated conditional means being compared:
        IV    EI_avg
    1.0000    5.9898
    2.0000    5.9692
    3.0000    4.0868
    4.0000    4.8324

**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
         R       R-sq        MSE          F        df1        df2          p
     .7103     .5045     1.9105    49.3810     8.0000   388.0000     .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant    -.3956     1.0044    -.3938     .6939    -2.3704     1.5793
X1           .0849     1.3855     .0613     .9512    -2.6391     2.8089
X2           .1827     1.3018     .1404     .8884    -2.3768     2.7422
X3          -.1990     1.3270    -.1499     .8809    -2.8080     2.4100
EI_avg       .7776     .0503    15.4452     .0000     .6786     .8766
NT_avg       .0357     .1953     .1830     .8549    -.3483     .4198
Int_1        .0335     .2578     .1298     .8968    -.4734     .5404
Int_2        .0621     .2471     .2515     .8016    -.4236     .5479
Int_3        .0551     .2447     .2253     .8219    -.4259     .5362

Product terms key:
 Int_1    :       X1      x       NT_avg
 Int_2    :       X2      x       NT_avg
 Int_3    :       X3      x       NT_avg

Test(s) of highest order unconditional interaction(s):
      R2-chng         F       df1        df2          p
X*W      .0001     .0250     3.0000   388.0000     .9946
----------
   Focal predict: IV       (X)
         Mod var: NT_avg   (W)
```

Conditional effects of the focal predictor at values of the moderator(s):
(These are also the relative conditional direct effects of X on Y)

Moderator value(s):
NT_avg 4.4231

	Effect	se	t	p	LLCI	ULCI
X1	.2330	.3036	.7674	.4433	-.3639	.8299
X2	.4576	.2869	1.5946	.1116	-.1066	1.0217
X3	.0448	.3049	.1471	.8831	-.5546	.6443

Test of equality of conditional means

F	df1	df2	p
1.1992	3.0000	388.0000	.3098

Estimated conditional means being compared:

IV	DV
1.0000	3.1300
2.0000	3.3630
3.0000	3.5875
4.0000	3.1748

Moderator value(s):
NT_avg 5.2462

	Effect	se	t	p	LLCI	ULCI
X1	.2606	.1979	1.3167	.1887	-.1285	.6496
X2	.5087	.2141	2.3756	.0180	.0877	.9297
X3	.0902	.2027	.4451	.6565	-.3083	.4888

Test of equality of conditional means

F	df1	df2	p
2.2911	3.0000	388.0000	.0778

Estimated conditional means being compared:

IV	DV
1.0000	3.1594
2.0000	3.4200
3.0000	3.6681
4.0000	3.2496

Moderator value(s):
NT_avg 6.0693

	Effect	se	t	p	LLCI	ULCI
X1	.2881	.2761	1.0436	.2973	-.2547	.8309
X2	.5599	.3034	1.8450	.0658	-.0367	1.1564
X3	.1356	.2652	.5113	.6094	-.3858	.6570

Test of equality of conditional means

F	df1	df2	p
1.2835	3.0000	388.0000	.2797

Estimated conditional means being compared:

IV	DV
1.0000	3.1888
2.0000	3.4769
3.0000	3.7487
4.0000	3.3244

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ******************

Relative conditional direct effects of X on Y

	NT_avg	Effect	se	t	p	LLCI	ULCI
X1	4.4231	.2330	.3036	.7674	.4433	-.3639	.8299
X1	5.2462	.2606	.1979	1.3167	.1887	-.1285	.6496
X1	6.0693	.2881	.2761	1.0436	.2973	-.2547	.8309
X2	4.4231	.4576	.2869	1.5946	.1116	-.1066	1.0217
X2	5.2462	.5087	.2141	2.3756	.0180	.0877	.9297
X2	6.0693	.5599	.3034	1.8450	.0658	-.0367	1.1564
X3	4.4231	.0448	.3049	.1471	.8831	-.5546	.6443
X3	5.2462	.0902	.2027	.4451	.6565	-.3083	.4888
X3	6.0693	.1356	.2652	.5113	.6094	-.3858	.6570

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
IV -> EI_avg -> DV

	NT_avg	Effect	BootSE	BootLLCI	BootULCI
X1	4.4231	-.0013	.2353	-.4521	.4721
X1	5.2462	-.0086	.1300	-.2583	.2543
X1	6.0693	-.0160	.1781	-.3701	.3289

Index of moderated mediation:

```
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.0089     .1983    -.4016     .3778

      NT_avg     Effect     BootSE   BootLLCI   BootULCI
X2    4.4231    -.6284     .2086   -1.0395    -.2199
X2    5.2462   -1.0541     .1698   -1.4105    -.7372
X2    6.0693   -1.4798     .2467   -1.9963   -1.0300

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.5172     .1858    -.8991    -.1740

      NT_avg     Effect     BootSE   BootLLCI   BootULCI
X3    4.4231    -.4007     .2311    -.8742     .0358
X3    5.2462    -.6503     .1550    -.9618    -.3589
X3    6.0693    -.9000     .2276   -1.3719    -.4751

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.3033     .2054    -.6996     .1190

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

W values in conditional tables are the mean and +/- SD from the mean.

------ END MATRIX -----


Model 8 with covariates – fear as a focal
IV: 1 = fear appeal, 2 = high-intensity sadness appeal, 3 = low-intensity sadness appeal, 4 = joy appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 8
    Y  : DV
    X  : IV
    M  : EI_avg
    W  : NT_avg

Covariates:
 PE       PI_avg   PU

Sample
Size:  397

Coding of categorical X variable for analysis:
     IV     X1     X2     X3
  1.000   .000   .000   .000
  2.000  1.000   .000   .000
  3.000   .000  1.000   .000
  4.000   .000   .000  1.000

**************************************************************************
OUTCOME VARIABLE:
 EI_avg

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6767      .4579     1.7810    32.6037    10.0000   386.0000     .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -2.9572     1.0281    -2.8765     .0042    -4.9785    -.9359
X1          -.2885     1.3500     -.2137     .8309    -2.9428    2.3658
X2          1.5503     1.2574     1.2330     .2183     -.9218    4.0224
X3           .8602     1.2925      .6655     .5061    -1.6810    3.4015
NT_avg      1.2472      .1785     6.9879     .0000      .8963    1.5982
Int_1        .0582      .2511      .2316     .8170     -.4356     .5519
Int_2       -.5499      .2374    -2.3168     .0210    -1.0166    -.0832
Int_3       -.3341      .2377    -1.4056     .1607     -.8014     .1332
PE           .3147      .0747     4.2135     .0000      .1678     .4615
PI_avg       .0302      .0973      .3102     .7566     -.1611     .2214
PU           .1166      .0346     3.3660     .0008      .0485     .1847

Product terms key:
```

```
 Int_1   :      X1      x      NT_avg
 Int_2   :      X2      x      NT_avg
 Int_3   :      X3      x      NT_avg

Test(s) of highest order unconditional interaction(s):
      R2-chng         F       df1       df2         p
X*W     .0124    2.9525    3.0000   386.0000     .0325
----------
   Focal predict: IV       (X)
         Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
NT_avg    4.4231

      Effect        se         t         p      LLCI      ULCI
X1    -.0312     .2953    -.1058    .9158    -.6118     .5493
X2    -.8821     .2749   -3.2085    .0014   -1.4227    -.3416
X3    -.6175     .2957   -2.0882    .0374   -1.1989    -.0361

Test of equality of conditional means
         F       df1       df2         p
    5.4687    3.0000   386.0000     .0011

Estimated conditional means being compared:
         IV    EI_avg
    1.0000    3.8263
    2.0000    3.7951
    3.0000    2.9442
    4.0000    3.2088
----------
Moderator value(s):
NT_avg    5.2462

      Effect        se         t         p      LLCI      ULCI
X1     .0166     .1914     .0869    .9308    -.3596     .3929
X2   -1.3348     .1968   -6.7812    .0000   -1.7218    -.9478
X3    -.8925     .1918   -4.6523    .0000   -1.2697    -.5153

Test of equality of conditional means
         F       df1       df2         p
   23.8482    3.0000   386.0000     .0000

Estimated conditional means being compared:
         IV    EI_avg
    1.0000    4.8529
    2.0000    4.8696
    3.0000    3.5182
    4.0000    3.9604
----------
Moderator value(s):
NT_avg    6.0693

      Effect        se         t         p      LLCI      ULCI
X1     .0645     .2674     .2412    .8095    -.4613     .5903
X2   -1.7874     .2797   -6.3899    .0000   -2.3374   -1.2374
X3   -1.1675     .2504   -4.6621    .0000   -1.6599    -.6751

Test of equality of conditional means
         F       df1       df2         p
   20.7435    3.0000   386.0000     .0000

Estimated conditional means being compared:
         IV    EI_avg
    1.0000    5.8795
    2.0000    5.9440
    3.0000    4.0921
    4.0000    4.7120

**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
         R       R-sq        MSE          F       df1       df2         p
     .7193     .5174     1.8752    37.5294   11.0000   385.0000     .0000

Model
             coeff         se          t         p       LLCI      ULCI
constant    -.7977     1.0661    -.7482    .4548    -2.8938    1.2984
X1          -.1333     1.3853    -.0962    .9234    -2.8570    2.5904
X2          -.0462     1.2927    -.0358    .9715    -2.5878    2.4954
X3          -.3044     1.3270    -.2294    .8187    -2.9134    2.3047
EI_avg       .7280     .0522    13.9403    .0000     .6254     .8307
NT_avg       .0286     .1944     .1472     .8831    -.3536     .4108
```

Int_1	.0776	.2577	.3010	.7635	-.4291	.5843
Int_2	.0945	.2452	.3852	.7003	-.3877	.5767
Int_3	.0615	.2445	.2515	.8016	-.4193	.5423
PE	.1924	.0784	2.4553	.0145	.0383	.3465
PI_avg	.0160	.0998	.1599	.8731	-.1803	.2122
PU	.0590	.0361	1.6361	.1026	-.0119	.1299

Product terms key:

Int_1	:	X1	x	NT_avg
Int_2	:	X2	x	NT_avg
Int_3	:	X3	x	NT_avg

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0002	.0540	3.0000	385.0000	.9835

Focal predict: IV (X)
Mod var: NT_avg (W)

Conditional effects of the focal predictor at values of the moderator(s):
(These are also the relative conditional direct effects of X on Y)

Moderator value(s):
NT_avg 4.4231

	Effect	se	t	p	LLCI	ULCI
X1	.2098	.3030	.6926	.4890	-.3859	.8055
X2	.3716	.2858	1.3001	.1944	-.1904	.9336
X3	-.0324	.3051	-.1060	.9156	-.6323	.5676

Test of equality of conditional means

F	df1	df2	p
.9890	3.0000	385.0000	.3979

Estimated conditional means being compared:

IV	DV
1.0000	3.1671
2.0000	3.3770
3.0000	3.5387
4.0000	3.1348

Moderator value(s):
NT_avg 5.2462

	Effect	se	t	p	LLCI	ULCI
X1	.2737	.1963	1.3940	.1641	-.1123	.6597
X2	.4494	.2137	2.1032	.0361	.0293	.8694
X3	.0183	.2023	.0903	.9281	-.3795	.4160

Test of equality of conditional means

F	df1	df2	p
2.2241	3.0000	385.0000	.0849

Estimated conditional means being compared:

IV	DV
1.0000	3.1907
2.0000	3.4644
3.0000	3.6400
4.0000	3.2089

Moderator value(s):
NT_avg 6.0693

	Effect	se	t	p	LLCI	ULCI
X1	.3376	.2744	1.2302	.2194	-.2020	.8771
X2	.5271	.3018	1.7465	.0815	-.0663	1.1205
X3	.0689	.2641	.2608	.7944	-.4504	.5881

Test of equality of conditional means

F	df1	df2	p
1.4072	3.0000	385.0000	.2403

Estimated conditional means being compared:

IV	DV
1.0000	3.2142
2.0000	3.5518
3.0000	3.7413
4.0000	3.2831

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Relative conditional direct effects of X on Y

	NT_avg	Effect	se	t	p	LLCI	ULCI
X1	4.4231	.2098	.3030	.6926	.4890	-.3859	.8055
X1	5.2462	.2737	.1963	1.3940	.1641	-.1123	.6597
X1	6.0693	.3376	.2744	1.2302	.2194	-.2020	.8771

```
X2    4.4231    .3716    .2858   1.3001    .1944   -.1904    .9336
X2    5.2462    .4494    .2137   2.1032    .0361    .0293    .8694
X2    6.0693    .5271    .3018   1.7465    .0815   -.0663   1.1205
X3    4.4231   -.0324    .3051   -.1060    .9156   -.6323    .5676
X3    5.2462    .0183    .2023    .0903    .9281   -.3795    .4160
X3    6.0693    .0689    .2641    .2608    .7944   -.4504    .5881

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
 IV         ->   EI_avg     ->   DV

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X1    4.4231   -.0227    .2112    -.4253     .4002
X1    5.2462    .0121    .1198    -.2157     .2531
X1    6.0693    .0470    .1585    -.2676     .3542

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg     .0423     .1740    -.2968     .3834

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X2    4.4231   -.6422    .2074    -1.0478    -.2253
X2    5.2462   -.9718    .1632    -1.3076    -.6700
X2    6.0693  -1.3013    .2335    -1.8002    -.8784

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.4004     .1806    -.7766    -.0682

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X3    4.4231   -.4496    .2228    -.9012    -.0165
X3    5.2462   -.6498    .1449    -.9419    -.3735
X3    6.0693   -.8500    .2105   -1.2810    -.4555

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.2432     .1958    -.6280     .1466

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

W values in conditional tables are the mean and +/- SD from the mean.

------ END MATRIX -----

Model 8 – high-intensity sadness as a focal
IV: 1 = high-intensity sadness appeal, 2 = joy appeal, 3 = fear appeal, 4 = low-intensity sadness appeal
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 8
    Y  : DV
    X  : IV_high_
    M  : EI_avg
    W  : NT_avg

Sample
Size:  397

Coding of categorical X variable for analysis:
 IV_high_      X1      X2      X3
    1.000    .000    .000    .000
    2.000   1.000    .000    .000
    3.000    .000   1.000    .000
    4.000    .000    .000   1.000

**************************************************************************
OUTCOME VARIABLE:
 EI_avg

Model Summary
         R       R-sq        MSE          F        df1        df2          p
     .6369      .4057     1.9376    37.9282     7.0000   389.0000      .0000

Model
```

```
            coeff       se         t         p      LLCI      ULCI
constant   -2.4022     .9690    -2.4789     .0136   -4.3074    -.4970
X1          1.1609    1.3090     .8869     .3757   -1.4126    3.7344
X2          -.0491    1.3953    -.0352     .9720   -2.7923    2.6941
X3         2.0847    1.2799    1.6288     .1042    -.4317    4.6012
NT_avg      1.3793     .1836    7.5144     .0000    1.0184    1.7402
Int_1       -.3786     .2455   -1.5418     .1239    -.8613     .1042
Int_2        .0115     .2596     .0442     .9648    -.4990     .5220
Int_3       -.6536     .2464   -2.6524     .0083   -1.1382    -.1691

Product terms key:
 Int_1   :       X1      x       NT_avg
 Int_2   :       X2      x       NT_avg
 Int_3   :       X3      x       NT_avg

Test(s) of highest order unconditional interaction(s):
      R2-chng         F       df1       df2         p
X*W      .0158    3.4574    3.0000  389.0000     .0166
----------
   Focal predict: IV_high_ (X)
         Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
NT_avg    4.4231

      Effect        se         t         p      LLCI      ULCI
X1    -.5136     .2866   -1.7919     .0739   -1.0771     .0499
X2     .0017     .3058     .0055     .9957    -.5995     .6028
X3    -.8064     .2653   -3.0398     .0025   -1.3280    -.2848

Test of equality of conditional means
         F       df1       df2         p
    4.3030    3.0000  389.0000     .0053

Estimated conditional means being compared:
  IV_high_     EI_avg
    1.0000     3.6986
    2.0000     3.1850
    3.0000     3.7002
    4.0000     2.8922
----------
Moderator value(s):
NT_avg    5.2462

      Effect        se         t         p      LLCI      ULCI
X1    -.8252     .1973   -4.1815     .0000   -1.2132    -.4372
X2     .0111     .1993     .0558     .9556    -.3807     .4029
X3   -1.3444     .2021   -6.6519     .0000   -1.7418    -.9471

Test of equality of conditional means
         F       df1       df2         p
   21.4190    3.0000  389.0000     .0000

Estimated conditional means being compared:
  IV_high_     EI_avg
    1.0000     4.8339
    2.0000     4.0087
    3.0000     4.8450
    4.0000     3.4895
----------
Moderator value(s):
NT_avg    6.0693

      Effect        se         t         p      LLCI      ULCI
X1    -1.1368     .2783   -4.0851     .0001   -1.6839    -.5897
X2     .0206     .2780     .0740     .9411    -.5260     .5672
X3   -1.8824     .3060   -6.1523     .0000   -2.4840   -1.2809

Test of equality of conditional means
         F       df1       df2         p
   20.0220    3.0000  389.0000     .0000

Estimated conditional means being compared:
  IV_high_     EI_avg
    1.0000     5.9692
    2.0000     4.8324
    3.0000     5.9898
    4.0000     4.0868

**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
```

```
      R      R-sq       MSE         F       df1       df2         p
  .7103     .5045    1.9105   49.3810    8.0000   388.0000     .0000

Model
             coeff         se         t         p       LLCI       ULCI
constant    -.3106     .9698    -.3203    .7489   -2.2174    1.5961
X1          -.2839    1.3011    -.2182    .8274   -2.8420    2.2742
X2          -.0849    1.3855    -.0613    .9512   -2.8089    2.6391
X3           .0978    1.2753     .0767    .9389   -2.4096    2.6052
EI_avg       .7776     .0503   15.4452    .0000    .6786     .8766
NT_avg       .0692     .1950     .3549    .7229   -.3143     .4527
Int_1        .0216     .2446     .0885    .9295   -.4592     .5025
Int_2       -.0335     .2578    -.1298    .8968   -.5404     .4734
Int_3        .0287     .2469     .1161    .9077   -.4568     .5141

Product terms key:
 Int_1    :       X1      x       NT_avg
 Int_2    :       X2      x       NT_avg
 Int_3    :       X3      x       NT_avg

Test(s) of highest order unconditional interaction(s):
      R2-chng         F       df1       df2         p
X*W      .0001     .0250    3.0000   388.0000     .9946
----------
   Focal predict: IV_high_ (X)
         Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):
(These are also the relative conditional direct effects of X on Y)

Moderator value(s):
NT_avg    4.4231

      Effect         se         t         p       LLCI       ULCI
X1    -.1882     .2858    -.6584    .5107    -.7500     .3737
X2    -.2330     .3036    -.7674    .4433    -.8299     .3639
X3     .2246     .2665     .8425    .4000    -.2995     .7486

Test of equality of conditional means
         F       df1       df2         p
    1.1992    3.0000   388.0000     .3098

Estimated conditional means being compared:
  IV_high_         DV
    1.0000    3.3630
    2.0000    3.1748
    3.0000    3.1300
    4.0000    3.5875
----------
Moderator value(s):
NT_avg    5.2462

      Effect         se         t         p       LLCI       ULCI
X1    -.1703     .2003    -.8503    .3957    -.5642     .2235
X2    -.2606     .1979   -1.3167    .1887    -.6496     .1285
X3     .2482     .2118    1.1716    .2421    -.1683     .6646

Test of equality of conditional means
         F       df1       df2         p
    2.2911    3.0000   388.0000     .0778

Estimated conditional means being compared:
  IV_high_         DV
    1.0000    3.4200
    2.0000    3.2496
    3.0000    3.1594
    4.0000    3.6681
----------
Moderator value(s):
NT_avg    6.0693

      Effect         se         t         p       LLCI       ULCI
X1    -.1525     .2822    -.5405    .5892    -.7073     .4023
X2    -.2881     .2761   -1.0436    .2973    -.8309     .2547
X3     .2717     .3183     .8538    .3937    -.3540     .8975

Test of equality of conditional means
         F       df1       df2         p
    1.2835    3.0000   388.0000     .2797

Estimated conditional means being compared:
  IV_high_         DV
    1.0000    3.4769
    2.0000    3.3244
    3.0000    3.1888
    4.0000    3.7487
```

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Relative conditional direct effects of X on Y

	NT_avg	Effect	se	t	p	LLCI	ULCI
X1	4.4231	-.1882	.2858	-.6584	.5107	-.7500	.3737
X1	5.2462	-.1703	.2003	-.8503	.3957	-.5642	.2235
X1	6.0693	-.1525	.2822	-.5405	.5892	-.7073	.4023
X2	4.4231	-.2330	.3036	-.7674	.4433	-.8299	.3639
X2	5.2462	-.2606	.1979	-1.3167	.1887	-.6496	.1285
X2	6.0693	-.2881	.2761	-1.0436	.2973	-.8309	.2547
X3	4.4231	.2246	.2665	.8425	.4000	-.2995	.7486
X3	5.2462	.2482	.2118	1.1716	.2421	-.1683	.6646
X3	6.0693	.2717	.3183	.8538	.3937	-.3540	.8975

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
IV_high_ -> EI_avg -> DV

	NT_avg	Effect	BootSE	BootLLCI	BootULCI
X1	4.4231	-.3994	.2408	-.8926	.0589
X1	5.2462	-.6417	.1616	-.9635	-.3392
X1	6.0693	-.8840	.2575	-1.3963	-.3873

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
NT_avg	-.2944	.2306	-.7527	.1627

	NT_avg	Effect	BootSE	BootLLCI	BootULCI
X2	4.4231	.0013	.2355	-.4690	.4596
X2	5.2462	.0086	.1300	-.2464	.2574
X2	6.0693	.0160	.1767	-.3294	.3643

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
NT_avg	.0089	.1976	-.3810	.3986

	NT_avg	Effect	BootSE	BootLLCI	BootULCI
X3	4.4231	-.6271	.2250	-1.0773	-.1851
X3	5.2462	-1.0454	.1813	-1.4095	-.7011
X3	6.0693	-1.4638	.2802	-2.0378	-.9364

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
NT_avg	-.5083	.2163	-.9511	-.0971

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
10000

W values in conditional tables are the mean and +/- SD from the mean.

WARNING: Variables names longer than eight characters can produce incorrect output
when some variables in the data file have the same first eight characters. Shorter
variable names are recommended. By using this output, you are accepting all risk
and consequences of interpreting or reporting results that may be incorrect.

------ END MATRIX -----

Model 8 with covariates - high-intensity sadness as a focal
IV: 1 = high-intensity sadness appeal, 2 = joy appeal, 3 = fear appeal, 4 = low-intensity sadness appeal
Run MATRIX procedure:

********** PROCESS Procedure for SPSS Version 4.2 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 8
Y : DV
X : IV_high_
M : EI_avg
W : NT_avg

Covariates:
PE PI_avg PU

Sample
Size: 397

Coding of categorical X variable for analysis:

IV_high_	X1	X2	X3
1.000	.000	.000	.000
2.000	1.000	.000	.000
3.000	.000	1.000	.000
4.000	.000	.000	1.000

****

OUTCOME VARIABLE:
EI_avg

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6767	.4579	1.7810	32.6037	10.0000	386.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-3.2457	.9681	-3.3527	.0009	-5.1491	-1.3423
X1	1.1487	1.2743	.9015	.3679	-1.3567	3.6541
X2	.2885	1.3500	.2137	.8309	-2.3658	2.9428
X3	1.8388	1.2340	1.4901	.1370	-.5874	4.2650
NT_avg	1.3054	.1821	7.1680	.0000	.9473	1.6635
Int_1	-.3923	.2388	-1.6426	.1013	-.8618	.0773
Int_2	-.0582	.2511	-.2316	.8170	-.5519	.4356
Int_3	-.6081	.2374	-2.5611	.0108	-1.0749	-.1413
PE	.3147	.0747	4.2135	.0000	.1678	.4615
PI_avg	.0302	.0973	.3102	.7566	-.1611	.2214
PU	.1166	.0346	3.3660	.0008	.0485	.1847

Product terms key:

Int_1	:	X1	x	NT_avg
Int_2	:	X2	x	NT_avg
Int_3	:	X3	x	NT_avg

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0124	2.9525	3.0000	386.0000	.0325

Focal predict: IV_high_ (X)
Mod var: NT_avg (W)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):
NT_avg 4.4231

	Effect	se	t	p	LLCI	ULCI
X1	-.5863	.2786	-2.1047	.0360	-1.1339	-.0386
X2	.0312	.2953	.1058	.9158	-.5493	.6118
X3	-.8509	.2562	-3.3208	.0010	-1.3546	-.3471

Test of equality of conditional means

F	df1	df2	p
5.4687	3.0000	386.0000	.0011

Estimated conditional means being compared:

IV_high_	EI_avg
1.0000	3.7951
2.0000	3.2088
3.0000	3.8263
4.0000	2.9442

Moderator value(s):
NT_avg 5.2462

	Effect	se	t	p	LLCI	ULCI
X1	-.9091	.1900	-4.7842	.0000	-1.2828	-.5355
X2	-.0166	.1914	-.0869	.9308	-.3929	.3596
X3	-1.3514	.1948	-6.9388	.0000	-1.7343	-.9685

Test of equality of conditional means

F	df1	df2	p
23.8482	3.0000	386.0000	.0000

Estimated conditional means being compared:

IV_high_	EI_avg
1.0000	4.8696
2.0000	3.9604
3.0000	4.8529
4.0000	3.5182

Moderator value(s):
NT_avg 6.0693

	Effect	se	t	p	LLCI	ULCI

```
X1    -1.2320     .2681    -4.5946     .0000    -1.7592     -.7048
X2     -.0645     .2674     -.2412     .8095     -.5903     .4613
X3    -1.8519     .2943    -6.2930     .0000    -2.4305    -1.2733

Test of equality of conditional means
         F       df1       df2         p
   20.7435    3.0000   386.0000     .0000

Estimated conditional means being compared:
  IV_high_     EI_avg
    1.0000     5.9440
    2.0000     4.7120
    3.0000     5.8795
    4.0000     4.0921

**************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
         R       R-sq        MSE          F       df1        df2          p
     .7193      .5174     1.8752    37.5294    11.0000   385.0000      .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     -.9310     1.0077     -.9239     .3561    -2.9123     1.0503
X1           -.1710     1.3089     -.1307     .8961    -2.7445     2.4024
X2            .1333     1.3853     .0962      .9234    -2.5904     2.8570
X3            .0871     1.2698     .0686      .9454    -2.4096     2.5838
EI_avg        .7280      .0522    13.9403     .0000     .6254      .8307
NT_avg        .1062      .1989     .5338      .5938     -.2849     .4973
Int_1        -.0161      .2459     -.0654     .9479     -.4995     .4674
Int_2        -.0776      .2577     -.3010     .7635     -.5843     .4291
Int_3         .0169      .2457     .0687      .9452     -.4662     .5000
PE            .1924      .0784    2.4553     .0145      .0383     .3465
PI_avg        .0160      .0998     .1599      .8731     -.1803     .2122
PU            .0590      .0361    1.6361     .1026     -.0119     .1299

Product terms key:
 Int_1   :       X1       x       NT_avg
 Int_2   :       X2       x       NT_avg
 Int_3   :       X3       x       NT_avg

Test(s) of highest order unconditional interaction(s):
       R2-chng          F       df1        df2          p
X*W      .0002      .0540     3.0000   385.0000      .9835
----------
    Focal predict: IV_high_ (X)
          Mod var: NT_avg   (W)

Conditional effects of the focal predictor at values of the moderator(s):
(These are also the relative conditional direct effects of X on Y)

Moderator value(s):
NT_avg     4.4231

      Effect         se          t          p       LLCI       ULCI
X1    -.2422      .2875     -.8425     .4000     -.8074     .3230
X2    -.2098      .3030     -.6926     .4890     -.8055     .3859
X3     .1618      .2666      .6067     .5444     -.3625     .6860

Test of equality of conditional means
         F       df1       df2         p
     .9890    3.0000   385.0000     .3979

Estimated conditional means being compared:
  IV_high_         DV
    1.0000     3.3770
    2.0000     3.1348
    3.0000     3.1671
    4.0000     3.5387
----------
Moderator value(s):
NT_avg     5.2462

      Effect         se          t          p       LLCI       ULCI
X1    -.2554      .2007     -1.2728     .2038     -.6500     .1391
X2    -.2737      .1963     -1.3940     .1641     -.6597     .1123
X3     .1757      .2119      .8288      .4077     -.2410     .5924

Test of equality of conditional means
         F       df1       df2         p
    2.2241    3.0000   385.0000     .0849

Estimated conditional means being compared:
  IV_high_         DV
```

```
    1.0000    3.4644
    2.0000    3.2089
    3.0000    3.1907
    4.0000    3.6400
----------
Moderator value(s):
NT_avg    6.0693

      Effect        se         t         p      LLCI      ULCI
X1    -.2687     .2826    -.9509     .3423    -.8242     .2869
X2    -.3376     .2744   -1.2302     .2194    -.8771     .2020
X3     .1896     .3171     .5978     .5503    -.4338     .8130

Test of equality of conditional means
         F       df1       df2         p
    1.4072    3.0000  385.0000     .2403

Estimated conditional means being compared:
  IV_high_        DV
    1.0000    3.5518
    2.0000    3.2831
    3.0000    3.2142
    4.0000    3.7413


****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ****************

Relative conditional direct effects of X on Y
      NT_avg    Effect        se         t         p      LLCI      ULCI
X1    4.4231    -.2422     .2875    -.8425     .4000    -.8074     .3230
X1    5.2462    -.2554     .2007   -1.2728     .2038    -.6500     .1391
X1    6.0693    -.2687     .2826    -.9509     .3423    -.8242     .2869
X2    4.4231    -.2098     .3030    -.6926     .4890    -.8055     .3859
X2    5.2462    -.2737     .1963   -1.3940     .1641    -.6597     .1123
X2    6.0693    -.3376     .2744   -1.2302     .2194    -.8771     .2020
X3    4.4231     .1618     .2666     .6067     .5444    -.3625     .6860
X3    5.2462     .1757     .2119     .8288     .4077    -.2410     .5924
X3    6.0693     .1896     .3171     .5978     .5503    -.4338     .8130

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
 IV_high_    ->    EI_avg     ->    DV

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X1    4.4231    -.4268     .2105    -.8517    -.0263
X1    5.2462    -.6619     .1457    -.9620    -.3814
X1    6.0693    -.8970     .2388   -1.3709    -.4353

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.2856     .2085    -.6967     .1230

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X2    4.4231     .0227     .2100    -.3920     .4293
X2    5.2462    -.0121     .1200    -.2502     .2181
X2    6.0693    -.0470     .1576    -.3514     .2651

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.0423     .1721    -.3867     .2933

      NT_avg    Effect    BootSE   BootLLCI   BootULCI
X3    4.4231    -.6195     .1936   -1.0061    -.2408
X3    5.2462    -.9839     .1657   -1.3228    -.6715
X3    6.0693   -1.3483     .2597   -1.8819    -.8641

     Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
NT_avg    -.4427     .1922    -.8437    -.0826

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

W values in conditional tables are the mean and +/- SD from the mean.

WARNING: Variables names longer than eight characters can produce incorrect output
when some variables in the data file have the same first eight characters. Shorter
variable names are recommended. By using this output, you are accepting all risk
and consequences of interpreting or reporting results that may be incorrect.
------ END MATRIX -----
```