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The Impact of Anti-Opioid Print Messages on High-Sensation-Seeking Personalities and Behaviors: A Comparative Study of Public Service Announcements and Research

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Personalities and Behaviors: A Comparative Study of Public Service

Announcements and Research

Honors Thesis

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Abstract

The Impact of Anti-Opioid Print Messages on High-Sensation-Seeking

Personalities and Behaviors: A Comparative Study of Public Service

Announcements and Research

Dr. Jim Gleason, EKU Department of Communication

The rate of opioid overdose deaths has dramatically increased over the past

several years. Efforts to reach users to describe the negative consequences of

use appear to have little effect on users. This research seeks to understand how

mass media messages, specifically printed public service announcements

(PSAs), can reverse the upward trend of opioid use by targeting the attitudes and

motivations of high-sensation-seekers. The hypothesis suggests a positive

correlation between some advertisements and expressed intention to avoid trying

or using opioids. Samples included students at Eastern Kentucky University in

the Nursing, Psychology, and Sociology departments in addition to accredited,

professional psychologists. Both groups were given a survey asking about the

media effects of two public service announcement on opioid use Research data

analyzed, limitations, and future research are presented.

Keywords: Sensation-Seeking, Prescription Opioids, Behavior vs
Personality, Content Messaging, Thesis, Undergraduate Research

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Introduction

Addiction is a public health issue that society has been facing for hundreds of years. Yet, the rate at which individuals are becoming addicted or overdosing on opioids and similar drugs is at an all-time high.

According to a recent National Survey conducted by the Substance Abuse and Mental Health Administration, an estimated 130 people died daily from drug overdoses related to opioids in 2016. Another 11.4 million people (4.2% of the U.S. population) misused prescription opioids (U.S. Department of Health and Human Services, 2019).

Though several states have taken to the Courts to sue opioid makers such as Johnson & Johnson to pay the debt for enabling consumer addictions, efforts to try to control the crisis have only started to emerge. This raises the question of what can be done to halt or start to reduce the overwhelming scope of opioid addiction.

Opioids occur naturally in the opium poppy plant. While some are made directly from the plant, others are created in labs using the same chemical structure (NIDA, 2019).

According to the Centers for Disease Control and Prevention (CDC), an opioid can be all-natural, semisynthetic, or a synthetic (created in a lab); an opiate is a natural opioid such as heroin, morphine, or codeine (Centers for Disease Control and Prevention, 2019).

When discussing prescription opioids, some of the most common types are oxycodone (OxyContin or Percocet), morphine, codeine, and fentanyl. These drugs are prescribed mostly as pain killers, but can be used to treat conditions ranging from coughs to diarrhea. Due to their effectiveness in relieving pain, they can also produce a sensation of being "high." Heroin, an opiate, is not used in the United States to treat pain because of its powerful addictive ability (NIDA, 2019).

Opioids affect the body by binding to and activating receptors on cells located in an individual's central nervous system (CNS)—such as the brain and spinal cord. These, along with other organs, interact with the pain and pleasure centers of the body. Once attached to the receptor, the opioids block any pain signals the brain sends to the rest of the body and instead has the brain produce massive amounts of dopamine. The large amount of dopamine released in a small amount of time reinforces the user's act of taking the drug, which leads to the user wanting to repeat the experience (NIDA, 2019).

Understanding how opioids affect users is critical to controlling the opioid crisis. One way government and healthcare organizations are trying to do this is

by producing relevant, anti-drug media messages. Traditionally, print advertising is the most used medium for communicating with the public about ideas and products. These ads, which often target specific, affected groups or subsets, are found in magazines and local or national newspapers.

Though information has become more accessible and can be produced instantaneously with a simple Google search, print media is still used by news outlets to reach targeted audiences. University of Texas at Austin professor Iris Chyi explains how "the supposedly dying print edition of newspapers still outperforms the supposedly promising digital product by almost every standard, be it readership, engagement, advertising revenue, or paying intent," (Chyi, 2015). When compared to traditional newspapers, she likens online news to ramen noodles. Nourishing, perhaps, but inferior to having dinner at a nice restaurant.

She analyzed data collected by a Nielsen Media Research-owned firm (Scarborough) for the 51 largest US newspapers. She found the print editions of those newspapers reached 28 percent of the circulation areas; the digital version reached 10 percent (Rosenwald, 2016).

Similarly, Howie (2019) cites the growing use of print in Asian nations and lists five reasons why print still matters today: it's trustworthy, tactical, utilitarian, permanent, and swag (a bold, self-assurance).

Howie states print represents *trust*, even to Millennials, citing a 2018 Australian study that found 73% of respondents trusted traditional media, including print, as opposed to social media or word of mouth. This research

further revealed that Millennials still trust print over other sources such as social

media. Print is *tactical* because of its tangibility. People can physically hold,

scribble on, or even rip a printed newspaper, which makes print more appealing.

In addition, print is *utilitarian* due to its capability of combining several pieces of

information into a single format. A Temple University study found the permanence

of print materials outweighed digital materials, especially in the categories of

creating an emotional reaction and a drive to purchase a product or service

(Howie, 2019). Lastly, print carries a certain *swag* that elevates the authors or

publishers above the rest of the pack. Howie cites a 2017 INMA New York study

that examined online sales of print titles on Amazon. The study found the sale of

print items had risen by 15% year-to-year because the tangibility of a print book

holds people's attention. Print adds a sense of permanence to memory (Howie,

2019).

  Public service announcements (PSAs) are often used to inform or

persuade the target audience of the specific messages, such as through anti-

smoking or anti-drug campaigns. These messages often use intense, graphic,

and unusual designs to target those who have a significant need for adrenaline-

inducing, risky behavior, otherwise known as "high-sensation-seekers."

  This study examines the relationship between print messages, an

individual's intent to use prescription opioids, and sensation-seeking behaviors.

  Earlier studies by Palmgreen (2001), Donohew (1994), and others

examined the impact of PSA messages on high-sensation-seekers. These

personalities tend to participate in high-sensation-seeking behaviors such as

skydiving, unprotected sex, or drug or alcohol abuse. Those with the trait also tend to become bored with conversations easily or be seen as the "non-conforming" type of individual (Zuckerman, 1979). The behaviors of high-sensation-seeking personalities is in contrast with that of low-sensation-seeking individuals who tend to conform to society and participate in routine activities. It is important to understand the effect of PSA messages on the individual receiving the message. Often, the message leads to a reduction or reversal of the existing behavior; in this case, the reduction or reversal of the intent to use opioids.

This study explores the degree to which print anti-opioid messages influence attitudes and motivations of those who are low-sensation-seekers yet become opioid abusers. To date, little research has been conducted on this emerging area. Understanding how messages affect individuals based on both their personality traits and behaviors enables organizations to better sharpen their material for their target audience to consume their messages.

The distinction between personality and behavior is noteworthy. Personality is ingrained within the individual, while behavior can change and evolve through time. This distinction is important to this study and may lead to more effective messages relating to opioid use and recovery.

The following section presents a review of relevant literature that has served as the basis for the study.

Review of Literature

Studying the impact of messaging on individuals helps organizations to better strategize and create messages that will influence their target populations. In the case of prescription opioid users, it is critical to have messages that will leave a strong, negative impression to discourage an individual's continued drug abuse.

PSAs are items that are physically printed on an object such as a newspaper or a magazine. These messages target individuals through an understanding of their audiences' characteristics. One such characteristic is sensation-seeking. Sensation-seeking is split into two groups: high-sensation-seekers and low-sensation-seekers. High-sensation-seekers are those who tend to participate in risky behaviors. Zuckerman (1979) coined the term, defining it as a biologically based personality trait defined by the need for varied, novel and complex sensations and experiences, and the willingness to take physical and social risks.

Zuckerman divides these high-sensation-seekers into four categories (Figure 1):

Thrill and Adventure Seeking
• Engaging in socially acceptable physical and risky activities (often include speed or danger) • Provide unusual and novel experiences • Examples: mountain climbing, parachuting, and riding motorcycles

Experiences
• Seeking novel experiences through the mind and senses of nonconformity • Examples: art, music, travel, drugs, and unconventional friends

Disinhibition
• Engaging in experiences for excitement and variety through social stimulation • Examples: parties, drinking, and sexual variety

Boredom Susceptibility
• Lacking the tolerance for unexciting people or repetitious experiences at work

Figure 1: Zuckerman's Four Categories (1979)

Low-sensation-seekers are the opposite. These individuals tend to conform to society and not participate in risky behaviors. Sensation-seeking studies often neglect low-sensation-seekers in the research due to the focus on mitigating high-sensation-seekers' activities. While this study includes three of the four high-sensation-seeking types (thrill and adventure, experience, and disinhibition), it will also focus particularly on low-sensation-seekers.

This study makes a relevant distinction between what is defined as *personality* and *behavior*, a distinction not found in extant literature in this area. Personality reflects who an individual is at his or her core. Behavior reflects the actions that individuals take based on his or her personality (PRISM Brain Mapping, 2014). Personality is ingrained in the individual and does not change; behavior does.

Embracing this distinction, researchers can then define whether or not sensation-seeking is a personality or behavioral construct. The majority of the research in this area approaches sensation-seeking as a personality trait. Unlike other forms of addiction, prescription opioid addiction uncharacteristically affects individuals who are not high-sensation-seeking. Thus, this thesis argues for the addition of a behavior-based dimension to this definition. The study below examines the differentiation between high-and low-sensation-seeking campaigns to better understand the context of the PSAs in this study.

For perspective as to who a high-sensation-seeking anti-drug campaign is targeting, think back to the 1980s Partnership for Drug Free America "Brain on Drugs" campaign. The narrator shows the audience an egg, stating "This is your brain." He then cracks the egg into a frying pan, causing the egg to bubble and slowly crisp. As it fries, the narrator says, "This is your brain on drugs," (Diaz, 2016). The intended message is clear. This PSA was graphic, intense, and gripping to the audience. It is a PSA that gained the attention of both high-and low-sensation seekers and is still remembered today.

On the opposite end of the spectrum is former First Lady Nancy Reagan's "Just Say No" campaign, which seemingly targeted low-sensation seekers. This campaign technique emphasized logic rather than fear or danger. While the PSA is remembered, prior research suggests the PSA would affect low-sensation-seekers for more so than high-sensation-seekers.

Lilienfeld and Arkowitz (2014) describe how programs such as the Drug Abuse Resistance Education (D.A.R.E) program and Reagan's campaign are

ineffective and often cause negative impacts on those exposed to the programs.

D.A.R.E programs are implemented in schools to help prevent drug use,

membership in gangs, and discourage violent behavior. The authors cite how the

D.A.R.E program only allows interaction with children for a few months instead of

reinforcing education and positive behaviors over several years. The program

also is often led by an adult, who children see as authority figures. Lilienfeld and

Arkowitz suggest that by having programs that are not centered on peer-to-peer

interaction, as in saying "no" to a child's friend offering him or her drugs, the

program misses opportunities to train students to say no to the individuals who

would be offering them substances (Lilienfeld & Arkowitz, 2014).

Similarly, understanding how campaigns influence behavior through

individualized content messaging factors is the focus of Wang's (2015) study of

how PSAs are evaluated and how those advertisements correlate with three

separate elements. Those elements were: sensation-seeking (how involved the

visual and auditory stimuli were), endogenous influences (conducted by the brain

to process messages), and exogenous influences (the influence of the messages

themselves).

Wang's study was designed to test how viewers reacted to antidrug PSAs

in terms of attention and emotion. The results suggested the message-sensation

impact of a PSA is mediated by the differing emotional intensities (visual and

auditory) of PSAs. Importantly, increasing the visual-auditory activated

tendencies, specifically arousal, in high-sensation-seekers had the opposite

effect on low-sensation-seekers (Wang et al., 2015).

Wang's study used the Dynamic Motivation Activation (DMA) model to help separate the endogenous influences from the exogenous influences. The DMA approach can code the emotional responses of participants viewing the PSAs in a second-by-second fashion.

The study found support for two hypotheses. First, high-sensation-seekers would be more likely to display approach tendencies, while low-sensation-seekers will be more likely to show avoidance tendencies. Second, psychophysiological systems could be defined in two sets of feedback effects that are contingent upon the participants' responses to the sensation value of messages using the DMA model. The source's primary findings suggest that if the video and audio impacts of a PSA are increased, high-sensation-seekers might take on an approach tendency, while low-sensation-seekers might take on an avoidance tendency. Nevertheless, the response of both groups is moderated by the amount of arousing content in the PSA (Wang et al., 2015).

DePaulo et al. (1987) used similar elements to conduct his own study on marketing and addiction. The study analyzes how people in the six various stages of addiction may have differing reactions on drug-related marketing strategies using alcohol and heroin as variables.

While individuals in different stages of addiction can be affected by one PSA, the majority of those affected will be the target population of that PSA. For instance, the authors use a hypothetical advertisement against using drug paraphernalia, such as syringes or crack pipes. Those items could illicit a trigger response in viewers and could cause them to relapse. Alternatively, those who

are transitioning to addictive use already understand the risks associated with using drug paraphernalia, to which the advertisement has little to no effect on those individuals (DePaulo, Rubin, & Milner, 1987).

In conjunction with DePaulo et al.'s findings, many argue the importance of marketing PSAs towards the negative consequences of drug abuse behavior rather than telling individuals to "just say no." A social experiment by Fishbein et al. (2002) examines this concept by the relative perceived effectiveness of 30 anti-drug PSAs and assessed the extent to which judgments of effectiveness are related to judgments of realism, amount learned, and positive and negative emotional responses.

The researchers studied the reactions of an ethnic-and gender-diverse group of middle and high school students to six antidrug PSAs. The investigators used middle and high school students from 10 urban and rural schools across four states that were coeducational and all male/female institutions. The researchers also used a variety of PSAs ranging from those about heroin to explaining how to handle situations involving drugs on peers using drugs. The teachers at the institutions distributed the materials to the students.

The responses to the 30 PSA's varied considerably. Sixteen were rated as substantially more effective, and six as substantially less effective than the control program (Fishbein et al., 2002). Being underfunded and limitedly researched, the effect is PSAs may have neutral or negative effects on viewers. The outcome of the effect is failing to communicate the intended message by the organization presenting the material.

Responses also suggest the content of the messages is not being portrayed effectively. The effectiveness of the messages depends on the desired behavioral outcome and the target population. Advertisement creators must determine the extent to which the behavior is influenced, and then identify critical beliefs before developing a PSA. For example, messages tend to regurgitate generalized facts such as "smoking is harmful to health." The majority of the population already understands this fact, but continues to participate in the negative behavior. As an alternative, researchers could only test the intent to which the students themselves or their peers expressed intent to try or use substances, not if an actual behavior was changed due to seeing the PSAs (Fishbein et al., 2002).

Several other relevant studies examine how content in messages is passed from the message to the individual.

The Activation Model of Information Exposure (Donohew et al., 1988)

Donohew's study on sensation-seeking demonstrates how differentiating between the attentive needs of low-sensation-seekers and high-sensation-seekers can better impact each sensation-seeking group—specifically with healthcare communication campaigns such as anti-drug PSAs. The researchers conducted a pre-test by collecting and analyzing 100 PSA videos. Once the researchers identified key characteristics, they created five PSAs to be shown in five different television spots at different times of the day. Data was collected by

having viewers call into a hotline to find out more information about "exciting

alternatives to drug use," (Donohew, Palmgreen, & Lorch, 1994).

   The study found that PSAs geared toward high-sensation-seekers were

more effective to the high-sensation-seeker population, but had a neutral effect

on low-sensation-seekers. These PSAs were more complex, unusual, physically

arousing, and intense with auditory and visual elements. On the other hand,

PSAs geared toward low-sensation-seekers were more effective on low-

sensation-seekers, but had little to no effect on high-sensation-seekers

(Donohew, Palmgreen, & Lorch, 1994).

   Their research also argues how PSAs should be targeting drug users who

are either high-or low-sensation-seekers and non-user high-sensation-seekers.

This reflects the goal of the PSA: to stop the use of the substance and to prevent

those who are at most risk to start using addictive substances (Donohew,

Palmgreen, & Lorch, 1994).

   The authors use Donohew's Activation Model of Information Exposure

(AMIE; Figure 2) to establish the pathway by which individuals do or do not

receive communication-based on the arousal level of the content (Donohew,

Finn, & Christ, 1988). This is imperative to understand because the research is

centered on the level of effects for high-sensation-seekers versus low-sensation-

seekers.
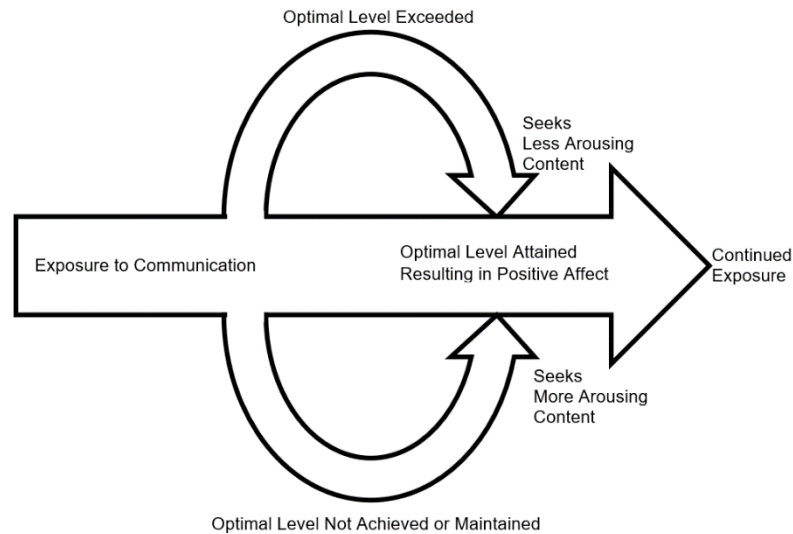
Figure 2: Donohew's Activation Model of Information Exposure (Donohew, Finn & Christ, 1988)

Zuckerman's (1979) Personality Scale for Sensation-Seekers is used to define the four dimensions of sensation seekers to which the dimensions can be applied to their study: thrill and adventure, experience, disinhibition, and boredom susceptibility.

However, the authors do not address the impact PSAs have on low-sensation-seekers. Though the primary targets for anti-drug advertisements are those who are both low- and high-sensation-seeker users and high-sensation-seeker non-users, the current study below also examines low-sensation-seeking non-users, and why those values need to be met due to the shifting dynamic of low-sensation-seeking personalities exhibiting high-sensation-seeking behaviors due to prescription opioid use.

The next model differs from the AMIE by using four principles to design the PSA to prevent the exhibited behavior.

The SENTAR Method (Palmgreen et al., 2001)

By applying the principles for creating PSAs in the previous study, both Palmgreen and Donohew developed the SENTAR (sensation-seeking targeting) method, a prevention approach for PSAs (Palmgreen et al., 2001). The four principles are:

- Using the variable of sensation seeking to target individuals

- Using research with targeted individuals

- Designing messages specifically for high-sensation value

- Placing messages in the same time frame as other high-sensation value content such as a high-sensation valued television program.

Palmgreen later conducted a study on television PSAs and adolescent marijuana use to determine the effectiveness of targeting high-sensation-seeking adolescents in grades 7 through 10 to reduce their marijuana usage when using the SENTAR method. The study examined three campaigns featuring televised PSAs in two similar communities, Lexington, KY, and Knoxville, TN. The authors used the Brief Sensation Seeking Scale (Hoyle, et al., 2002) as a reliability measure to survey participants. The scale is based on eight statements to which participants gauge their responses on a five-point Likert scale and was tested in a prior study The authors defined sensation-seeking as "a personality trait in which individuals crave a stimulus that is novel, unusual, graphic, and complex," (Palmgreen et al., 2001).

The source's primary outcomes suggested a decline in marijuana use in high-sensation-seekers over the 30 days of running the campaign in both

communities, while the campaign had little to no impact on low-sensation-seekers. The authors argue their research helps to solidify the wisdom of focused media campaigns affecting behaviors due to the resulting reduction in usage via all three campaigns in both communities (Palmgreen et al., 2001).

The researcher was conducted again six years later, this time examining how high and low-sensation-seeking adolescents reacted to *The Marijuana Initiative*, a campaign by the Office of National Drug Control Policy's (ONDCP) National Youth Anti-Drug Media Campaign, in Lexington, KY, and Knoxville, TN. They hypothesized that the campaign would decrease the upward trend of marijuana use in high-sensation-seeking adolescents for the given time period of 30 days by using both television and radio public service announcements (Palmgreen et al., 2007).

The primary conclusions suggest *The Marijuana Initiative* had a positive effect on usage by high-sensation-seeking adolescents, while having little to no effect on low-sensation-seeking individuals. However, the negative illustrations of marijuana use seemed to present the primary responsibility for the positive effects on the high-sensation-seeking youth (Palmgreen et al., 2007). This study reinforces earlier positive studies of high-sensation-seekers reducing usage or positively reacting to messages targeted to them.

Opioid User Behavior Study (Leeman et al., 2016)

Leeman's study supports the personality and behavior distinctions by examining the differing behaviors among cocaine-only, opioid-only, and

cocaine/opioid co-users based on sociodemographic, other substance uses, psychiatric conditions, and other medical circumstances/events. The study focused on co-users as opposed to other studies that focused on a longitudinal study of substance use and/or medical or psychiatric diagnoses.

Little information had been discovered about correlates of behavior of cocaine and opioid co-users. The overall hypothesis detailed how co-users would have a higher probability of exhibiting patterns of sociodemographic information suggesting those co-users have a greater risk of negative sociodemographic outcomes—such as a reduced chance of being married or have less education than others (Leeman et al., 2016).

The study found opioid users tend to have more overnight hospital stays in connection with serious injuries compared to the rest of the general population. While not explicitly measured, this increase appears consistent with the personality trait of high-sensation-seeking, which looks to find high adrenaline, risky activities to arouse and emotionally fuel those who have the trait. Also, the study found opioid-only users were less likely to have anti-social personality disorder, in addition to having a greater chance of being married (Leeman et al., 2016). This idea uncovers low-sensation-seekers as another profile of opioid users not usually thought of when currently speaking of opioid addiction.

Media Meta-Analysis Study (Snyder et al., 2004)

Snyder's research attempts to find the average impact of different types of mediated health communications campaign topics based on the different types of

behavior. The meta-analysis was conducted by analyzing thousands of abstracts and over 300 publications. The selection criteria was based on four aspects: being published in English in a refereed journal or edited in a scholarly or professional book; must have used at least one type of community-oriented mass media on which to report about the health campaign; the campaign must have been conducted in the United States to account for cultural differences; and a detailed explanation of the studies' measures on the effectiveness of the campaign on, at least, one behavior category advocated within the campaign.

The study examined the average effectiveness of the different health campaign topics analyzed, and descriptions of the best way to operationalize the baseline behavior rate of viewers compared to the campaign effectiveness (Snyder et al., 2004). Some of the topics include smoking, seatbelts, sex practices, and dental hygiene.

The first hypothesis suggested campaigns advocating for viewers to start a new behavior would have greater effects than campaigns targeting the inhibition of undesirable behavior. Therefore, campaigns promoting a new behavior would have more reach than those promoting viewers to end a certain undesirable behavior.

The second hypothesis suggests that those campaigns which are directed at addictive behavior would result in smaller effect sizes than campaigns targeting non-addictive topics (Snyder, et al., 2004).

The researchers used Diffusion Theory (Rogers, 1983) to discuss how certain campaigns would be adopted into the viewer's behavioral patterns as

opposed to how other campaigns would not. The theory explains how a certain

percentage of a population that opts to "adopt a new behavior will follow a

predictable pattern over time." Rogers data create a bell curve with a small

number of adopters at the start and end of the curve, and a large number of

adopters in the center of the curve (Rogers, 1983).

The source's primary findings were certain topics, such as the seat-belt

and crime prevention campaigns, had a huge impact on the effectiveness of a

campaign. In addition, campaigns that promoted viewers to start a new behavior

were more successful than those campaigns that advocated for the prevention or

cessation of existing behaviors. The source's findings also suggest campaigns

targeting addictive behaviors had less of an impact than campaigns targeting

non-addictive behaviors (Snyder, et al., 2004).

Current Anti-Opioid Advertising Campaigns

In June 2018, *The Truth Initiative* launched two PSAs on opioid

prevention. *The Truth Initiative* is a public health organization that, historically,

has committed itself to eliminate tobacco use in teens and young adults. Since

the rise of the opioid crisis, the organization has partnered with the Office of

National Drug Control Policy (ONDCP) and the Ad Council to develop a new

campaign targeting the prevention of initial opioid use called *The Truth About

Opioids* (Truth Initiative, 2018).

The campaign consists of a suite of videos portraying the lengths to which

two individuals will go to receive more prescription opioids. Each of the PSAs

closes with the statement, "Opioid dependence can happen after just five days."

These PSAs are meant to target high-sensation-seekers by depicting graphic,

intense, and stimulating visuals to portray real-life situations to the target

audience.

One PSA is of a woman driving her car while explaining how she was

prescribed Vicodin, a type of prescription opioid, after her knee surgery. As she

speaks, the audience watches her stop her vehicle in front of a set of dumpsters,

unbuckle her seatbelt, and proceed to accelerate and ram her car into the

dumpsters. A black screen appears with the words "Amy P. from Columbus

wrecked her car to get more prescription opioids," (Truthorange, 2018).

Another PSA shows a young man digging through a toolbox explaining

how he tried OxyContin at a party. He proceeds to pick up a hammer and turn to

his workbench, hovering the hammer over his left hand. He thrusts the hammer

down on his hand, wailing in pain as the screen cuts to black (Truthorange,

2018).

In the context of the present opioid addiction crisis, this thesis suggests a

new, more relevant communication model. The Behavior Outcomes of Low-

Sensation-Seekers (BOLSS) Model, developed by the author, focuses on the

behaviors of low-sensation-seekers, an important departure from prior research.

The Behavioral Outcomes of Low-Sensation-Seekers Model (BOLSS)

Previous related communication models described the pathways by which

messages are presented to individuals, including examples such as Donohew's

Activation model (Donohew, Finn, & Christ, 1988). The relevance of this model is found within how individuals are exposed to media messages based on the level of arousal, one of the components of sensation-seeking. However, the research in which the model was used was limited by the ages of the subjects being studied for drug addiction. Donohew et al.'s study focused on those who called into a hotline of which were mostly below the age of 45 and were high-sensation-seekers. Little research was conducted on how addiction, particularly to prescription opioids, affects members of an the older generation who are more likely to be low-sensation-seekers.
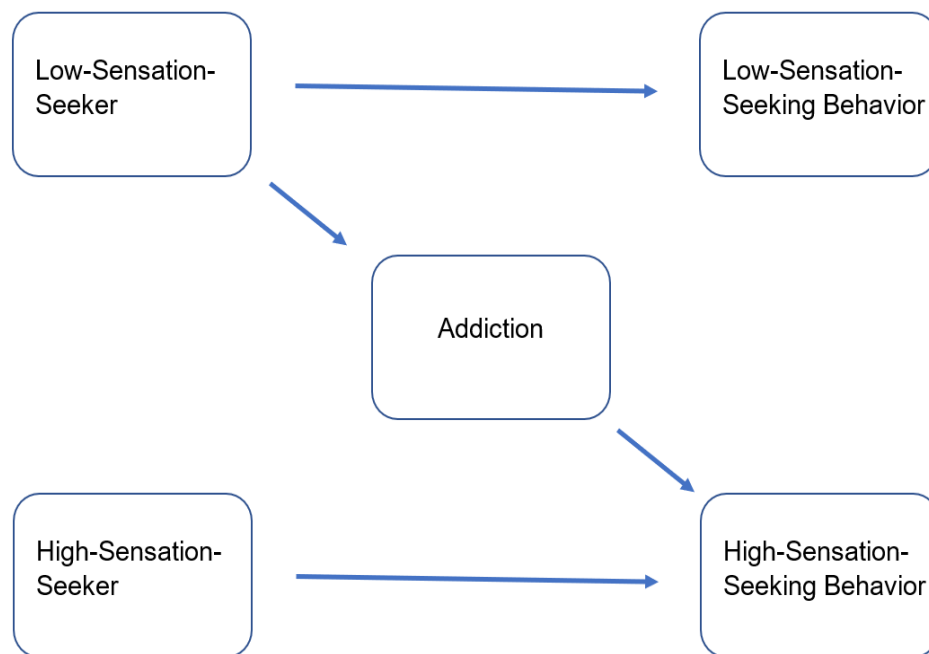
Figure 3 The Behavior Outcomes of Low-Sensation-Seekers model (BOLSS)

The Behavioral Outcomes of Low-Sensation-Seekers Model expands on these previous models. This BOLSS model describes how high-sensation-seekers, independent of addiction, will exhibit high-sensation-seeking behaviors.

Similarly, low-sensation-seekers usually exhibit low-sensation-seeking behaviors. However, when a low-sensation-seeker becomes addicted, in this case to prescription opioids, the low-sensation-seeker begins exhibiting high-sensation-seeking behaviors because of the addictive power of those drugs to influence their behavior in uncharacteristic ways. One might think of this change as the "Nana recalibration," in which one's sweet grandmother unintentionally becomes addicted to opioids.

Due to the changing behavior of low-sensation-seekers due to addiction, this study frames sensation-seeking as both a behavioral as well as a personality construct. As described below, this study hypothesizes that PSAs aimed at high-sensation-seeking behaviors will have similar impacts on low-sensation-seeking individuals when they are exhibiting high-sensation-seeking behaviors.

Methodology

Prior research has established that individuals exhibiting high-sensation-seeking behaviors respond more positively to high-sensation-seeking PSAs than low-sensation-seeking PSAs (Palmgreen et al., 2007). Prior studies have not examined similar effects on low-sensation-seeking individuals addicted to opioids. This study tests the following hypothesis:

H1: The impact of anti-opioid PSAs varies based on the personalities, experiences, and behaviors of the individual viewer.

The hypothesis is further broken down into four sub-hypotheses:

H1a: High-sensation-seeking messages will be more effective than low-sensation-seeking messages when viewed by high-sensation-seeking individuals.

H1b: Low-sensation-seeking messages will be more effective than high-sensation-seeking messages when viewed by low-sensation-seeking individuals exhibiting low-sensation-seeking behaviors.

H1c: Low-sensation-seeking messages also will be more effective than high-sensation-seeking messages when viewed by low-sensation-seeking individuals exhibiting high-sensation-seeking behaviors.

Research Questions

To test this hypothesis, this study poses the following research question:

RQ1: To what degree do anti-opioid messages have an impact on attitudes and motivations of individuals across a variety of personalities and behaviors?

The research methods described below examine the question through four related sub-questions:

RQ1a: To what degree do high-sensation-seeking messages affect individuals exhibiting high-sensation-seeking behaviors?

RQ1b: To what degree do high-sensation-seeking messages affect

individuals exhibiting low-sensation-seeking behaviors?

RQ1c: To what degree do low-sensation-seeking messages affect

individuals exhibiting high-sensation-seeking behaviors?

RQ1d: To what degree do low-sensation-seeking messages affect

individuals exhibiting low-sensation-seeking behaviors?

The following section discusses the research methods for the study and

how the research questions were tested.

Description of Methods

The purpose of this study is to examine the degree to which high-

sensation-seeking PSAs will have similar impacts on both high-sensation-

seeking individuals and low-sensation-seeking individuals when the latter exhibit

high-sensation-seeking behaviors due to the influences of opioid addiction. A

survey was constructed and distributed to select populations at Eastern Kentucky

University to test this hypothesis.

Sample Populations

It should be noted that the ideal sample population for this thesis project

would be those who are or have been addicted to opioids. However, the

researcher did not have direct access to this population because of the level of

interaction and anonymity required to reach these populations within the scope of the study.

Therefore, the study operationalized the impacts on this population through the perceptions of college students enrolled in Nursing, Psychology, or Sociology programs at Eastern Kentucky University. Students were drawn from these majors because of the educational relevance to the study. Students in these disciplines would be expected to have a greater breadth of knowledge and understanding of the mindset of the population being studied than students enrolled in other departments.

Students in the three specified departments at Eastern Kentucky University—Nursing (11.43%), Psychology (77.14%) and Sociology (8.57%)—were the main sample (n=34). All students in the three departments were eligible to participate, so long as the individual is 18 or older and can read the English language.

Nineteen completed surveys were analyzed. Of those who responded, 21.05% identified as male, 73.68% as female, and 5.26% as non-binary. Diversity included white or Caucasian (94.74%) and Black or African American (5.26%). The majority of respondents were between the ages of 18-24 (89.47%), with 5.26% responding between the ages of 45-54 and another 5.26% responding between the ages of 55-64. As for class rank, the survey received respondents from each level: freshman (10.53%), sophomore (31.58%), junior (21.05%) and senior (31.58%).

Instrument Design

The survey (Appendix 1) was aimed at identifying respondents' perceptions of how each of the four personas would react to both a high-sensation-seeking PSA and a low-sensation-seeking PSA.

PSA Targeted Personas

Respondents were asked to project how four fictitious, stereotypical personas would respond and react to each PSA, two of which were based on Zuckerman's (1979) four categories of high-sensation-seekers. The personas were nicknamed Mary Catherine, Richard, Eddie, and Georgia and are described below.

Mary Catherine. Mary Catherine's persona was developed to mirror the stereotypical low-sensation-seeker. Zuckerman (1979) suggests these individuals enjoy routines and conform to societal norms. Her fictious biography reads:

Mary Catherine is a 21-year-old female who enjoys volunteering at animal shelters on weekends. She can often be found reading her Bible or shopping with her friends. She attends mass every Sunday and does not enjoy trying new activities or visiting new places. She has a set routine and does not like it when she has to deviate from her routine. The only time Mary Catherine drinks is during communion, even when her friends encourage her to during social events.

Richard. Richard's persona illustrates Zuckerman's thrill and adventure-seeking personality. This personality was chosen to gauge how respondents would project how Richard would feel about the PSAs, considering he participates in high-sensation-seeking activities, but those activities are not drug-related. Richard's fictious biography reads:

Richard is a 35-year-old male who enjoys adrenaline-filled activities. He has gone skydiving several times and only vacations in areas where paragliding and hang gliding are available. One of his dreams is to go on a cage dive with Great White Sharks in the horn of Africa. He often drives ten to fifteen miles over the speed limit. He has lots of friends, but rarely associates with them in groups because he grows tired of their conversations and stories.

Eddie. Eddie was created to be the stereotypical high-sensation-seeker illustrating an example of Zuckerman's disinhibition personality. He is a high-sensation-seeker at his core who exhibits dangerous high-sensation-seeking behaviors. His fictious biography within the survey reads:

Eddie is a 25-year-old male who is has been addicted to heroin for three years. He practices unprotected sex with his girlfriends, Shimmer, Marcella, and Ember. You can often find him behind a dumpster drinking tequila or whiskey past the point of drunkenness. He has started taking a liking to snorting cocaine at his friend Bam's house while watching intense

and graphic television shows. He often listens to aggressive, disturbing

bands.

Georgia. Key to this study is Georgia, the low-sensation-seeker who,

unintentionally, became addicted to opioids and is now exhibiting high-sensation-

seeking behaviors. Georgia's biography reads:

Georgia is a 76-year-old female who had surgery on her left knee. Her

doctor prescribed her a large dose of OxyContin, a type of opiate. Georgia

mostly stays at home, tending to her husband of 51 years and their dog,

Snickerdoodle. She teaches a children's Sunday school class at the local

church and often cooks dinner on Sunday night for when her children and

grandchildren come to visit. Recently, Georgia has been acting

suspiciously and several of the couple's more expensive items have

disappeared. Her husband suspects Georgia has become addicted to

OxyContin, noting her strange, young friend who visits her once a week.

Georgia's new and uncharacteristic high-sensation-seeking behavior

following addiction is the fundamental variable in this study.

Survey Structure

The survey was divided into two sections and four subunits within each

section for each of the personas. The first section focused on the anticipated

reactions of the four personas to the high-sensation-seeking targeted PSA,

whereas the second section similarly focused on the anticipated reactions to the low-sensation-seeking targeted PSA.

Both PSAs were created by the researcher. The high-sensation-seeking PSA (Figure 4; Appendix 2) was a concept aimed at the overdoses at the lethal needle. The low-sensation-seeking PSA (Figure 5; Appendix 3) was a concept mirroring an alcoholic anonymous' PSA from Ogilvy advertising agency in Auckland, New Zealand (Ads of the World, 2016). Instead of gap shaped as a liquor bottle dividing a man and his family, the image was edited to make a pill-bottle shaped gap.

Figure 4: High-Sensation-Seeking PSA
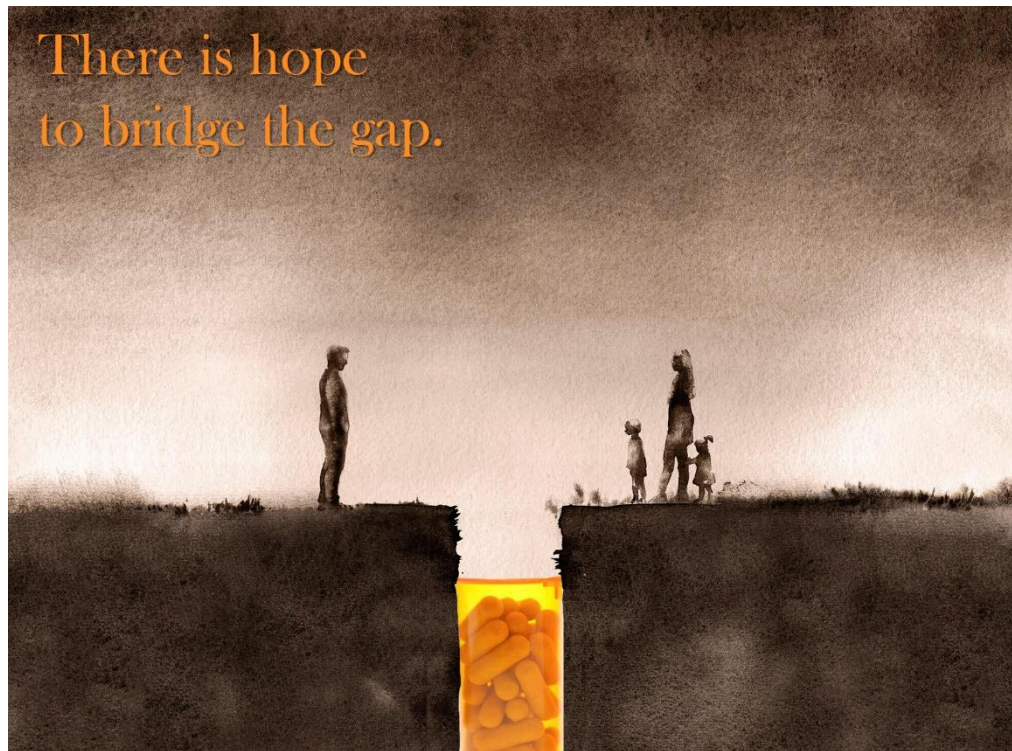
Figure 5: Low-Sensation-Seeking PSA

Procedure

The survey asked respondents how they predicted the four personas would react to both a high-sensation-seeking targeted PSA and a low-sensation-seeking targeted PSA.

Student respondents were recruited by an email invitation from the department offices of the selected departments (Nursing, Psychology, and Sociology). The offices distributed the recruitment email twice during the survey collection period. The survey was open for participants for three weeks. The collected data were analyzed using SPSS statistics analysis software.

Pilot Test of Study Instrument

To gauge the ease of access and navigation for future participants, five individuals (three females and two males) participated in a limited pilot test of the survey. The response revealed no issues, with two respondents citing the smooth handling of the survey.

Measurement Scale

The study instrument was developed by the author and is a composite of two previously used research scales. The Perceived Message Sensation Value (PSMV) scale was developed by Everett and Palmgreen (Everett, 1993; Everett and Palmgreen, 1995) to classify anticocaine television PSAs based on high or low PSMV. A revised scale was later tested (Rubin et al., 2009; Stephenson & Palmgreen, 2001; Palmgreen and Stephenson, 2002).

Similarly, Grant (2014) later modified the original PSMV scale to test message values in print messages.

The subjects examined two variables: a high-sensation-seeking PSA and a low-sensation-seeking PSA. The study asked subjects to anticipate the perceptions of each of the four personas (Mary Catherine, Richard, Eddie, and Georgia) in each of the two conditions, measuring both their *Reaction* (perception) and their *Impact* (determent).

Cronbach's coefficient alpha (Morgan, Reichert, & Harrison, 2002) was calculated for two separate sets of scales, one measuring the anticipated *Reaction* of four personas each viewing both a high-sensation-seeking and low-sensation-seeking PSA, and the other measuring the anticipated *Impact* of the four personas.

Reaction is operationalized in this study as the degree to which an individual emotionally or physically responds to a stimulus. In this case, the stimuli are the high-and low-sensation-seeking PSAs.

The reliability of the new composite *Reaction* scale for the high-sensation-seeking PSAs was as follows for each of the four personas:

- For Mary Catherine (Low-sensation-seeking non-addict) − (M = 2.40, SD = 5.48) Cronbach's coefficient alpha of .37.
- For Richard (High-sensation-seeking non-addict) − (M = 3.01, SD = 5.58) Cronbach's coefficient alpha of .43.
- For Eddie (High-Sensation-Seeking addict) − (M = 2.79, SD = 5.62) Cronbach's coefficient alpha of .46.

- For Georgia (Low-Sensation-Seeking addict) − (M = 2.54, SD = 5.49) Cronbach's coefficient alpha of .56.

Similarly, the reliability of the composite *Reaction* scale for the low-sensation-seeking PSAs was as follows for each of the four personas:

- For Mary Catherine (Low-sensation-seeking non-addict) − (M = 2.59, SD = 6.29) Cronbach's coefficient alpha of .63.

- For Richard (High-sensation-seeking non-addict) − (M = 3.12, SD = 4.71) Cronbach's coefficient alpha of .22.

- For Eddie (High-sensation-seeking addict) − (M = 3.12, SD = 6.53) Cronbach's coefficient alpha of .58.

- For Georgia (Low-sensation-seeking addict) − (M = 2.49, SD = 4.94) Cronbach's coefficient alpha of .54.

In this study, *Impact* is operationalized as the degree to which a stimulus affects an individual or experience some impact. Again, the stimuli are the high- and low-sensation-seeking PSAs.

The reliability of the new composite *Impact* scale for the high-sensation-seeking PSAs was as follows for each of the four personas:

- For Mary Catherine (Low-sensation-seeking non-addict) − (M = 1.93, SD = 3.98) Cronbach's coefficient alpha of .82.

- For Richard (High-sensation-seeking non-addict) − (M = 3.37, SD = 4.56) Cronbach's coefficient alpha of .84.

- For Eddie (High-sensation-seeking addict) − (M = 3.27, SD = 4.79) Cronbach's coefficient alpha of .86.

- For Georgia (Low-sensation-seeking addict) − (M = 2.56, SD = 4.69) Cronbach's coefficient alpha of .92.

Similarly, the reliability of the composite *Impact* scale for the low-sensation-seeking PSAs was as follows for each of the four personas:

- For Mary Catherine (Low-sensation-seeking non-addict) − (M = 2.03, SD = 3.85) Cronbach's coefficient alpha of .88.

- For Richard (High-sensation-seeking non-addict) − (M = 3.15, SD = 5.67) Cronbach's coefficient alpha of .95.

- For Eddie (High-sensation-seeking addict) − (M = 3.68, SD = 5.45) Cronbach's coefficient alpha of .93.

- For Georgia (Low-sensation-seeking addict) − (M = 2.25, SD = 3.59) Cronbach's coefficient alpha of .89.

The *Reaction* scale, although based on a previous scale, could not be found to be reliable. However, the sample for the study was too small to make a clear distinction.

On the other hand, the *Impact* scale results were strong enough to demonstrate a high level of reliability across all four personas.

Results

Each persona was measured for two conditions for reactions to a high-sensation-seeking PSA and a low-sensation-seeking PSA.

Persona 1: Mary Catherine

Mary Catherine was described as a traditional low-sensation-seeker who conforms to the normalcies of society and exhibits daily routine behaviors.

The combined mean of the *Reaction* scale for the high-sensation-seeking PSA was 2.396 (Table 1). Subjects anticipated that Mary Catherine was likely to find the PSA graphic and intense and unlikely to be aroused.

Table 1: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	25	2.0800	1.57903
Level of Excitement	25	3.7200	1.45831
Upset or Happy	25	1.6400	1.18603
Mind Blown	25	1.7200	1.10000
Scared or Calm	25	1.8400	1.49108
Forgetfulness	25	1.9600	1.33791
Arousal	25	3.3600	1.77670
Extremity	25	1.7600	1.47986
Graphicness	25	1.5200	1.32665
Intensity	25	4.3600	1.28712

For the high-sensation-seeking PSA, the combined mean of the *Impact* scale was 2.032 (Table 2), and 80% of the subjects strongly agreed or agreed that the PSA would make her less likely to use opioids. Another 72% of respondents strongly agreed or agreed that the PSA would convince her not to use opioids.

Table 2: Descriptive Statistics for Subject Perception of Response

	N	Mean	Std. Deviation
This advertisement would get her attention.	25	1.5600	0.71181
This PSA would make her less likely to use opioids.	25	1.8400	1.10604
She would remember this PSA.	25	1.6000	0.81650
This PSA would make people her age less likely to use opioids.	25	2.7200	1.36991
This PSA would help convince her to not use opioids.	25	1.9600	1.05987

Mary Catherine's combined mean of the *Reaction* scale for the low-sensation-seeking PSA was 2.598 (Table 3). Subjects anticipated that Mary Catherine was likely to find the PSA to be stimulating and unlikely to be bored by the PSA.

Table 3: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	19	1.9474	1.47097
Level of Excitement	19	3.4737	1.02026
Upset or Happy	19	1.9474	1.12909
Mind Blown	19	2.0000	0.94281
Scared or Calm	19	2.2632	1.40800
Forgetfulness	19	2.2105	1.27275
Arousal	19	2.9474	1.31122
Extremity	19	2.7368	1.32674
Graphicness	19	3.0526	1.61499
Intensity	19	3.3158	1.41628

For the low-sensation-seeking PSA, the combined mean of the *Impact* scale was 2.032 (Table 4), and 79% of the subjects strongly agreed or agreed that the PSA would make her less likely to use opioids. Another 74% strongly agreed or agreed that the PSA would convince her not to use opioids.

Table 4: Descriptive Statistics for Subject Perception of Response

	N	Mean	Std. Deviation
This advertisement would get her attention.	19	1.6842	0.74927
This PSA would make her less likely to use opioids.	19	1.8421	0.89834
She would remember this PSA.	19	1.9474	0.77986
This PSA would make people her age less likely to use opioids.	19	2.6842	1.20428
This PSA would help convince her to not use opioids.	19	2.0000	1.00000

Persona 2: Richard

Richard was described as a non-drug using high-sensation-seeker who exhibits behaviors such as hang gliding or cage diving with sharks.

The combined mean of the *Reaction* scale for the high-sensation-seeking PSA was 3.012 (Table 5). Subjects anticipated that Richard was likely to find the PSA boring and not intense and unlikely to remember the PSA.

Table 5: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	25	3.1200	1.66633
Level of Excitement	25	2.4000	1.52753
Upset or Happy	25	2.9200	0.95394
Mind Blown	25	3.4000	1.47196
Scared or Calm	25	3.3600	1.25433
Forgetfulness	25	3.5200	1.29486
Arousal	25	2.2000	1.32288
Extremity	25	3.5200	1.44684
Graphicness	25	3.2800	1.36991
Intensity	25	2.4000	1.35401

For the high-sensation-seeking PSA, the combined mean of the *Impact*

scale was 3.368 (Table 6), and only 36% felt the PSA would be an effective

deterrent of opioid use.

Table 6: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get his attention.	25	3.0400	1.27410
This PSA would make him less likely to use opioids.	25	3.5600	1.15758
He would remember this PSA.	25	3.0800	1.22202
This PSA would make people his age less likely to use opioids.	25	3.4800	1.08474
This PSA would help convince him to not use opioids.	25	3.6800	1.06927

Richard's combined mean of the *Reaction* scale for the low-sensation-

seeking PSA was 3.120 (Table 7). Subjects anticipated that Richard was likely to

find the PSA not arousing and unlikely to find the PSA to be extreme or graphic.

Table 7: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	20	3.7000	1.65752
Level of Excitement	20	2.3000	1.62546
Upset or Happy	20	2.9000	0.71818
Mind Blown	20	3.4000	1.31389
Scared or Calm	20	3.3500	1.22582
Forgetfulness	20	3.6000	1.39170
Arousal	20	2.1500	1.26803
Extremity	20	3.8000	1.28145
Graphicness	20	3.8000	1.28145
Intensity	20	2.2000	1.32188

For the low-sensation-seeking PSA, the combined mean of the *Impact* scale was 3.147 (Table 8), and only 26% felt it would be an effective deterrent to opioid use.

Table 8: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get his attention.	19	3.1579	1.30227
This PSA would make him less likely to use opioids.	19	3.3158	1.29326
He would remember this PSA.	19	3.0526	1.31122
This PSA would make people his age less likely to use opioids.	19	2.9474	1.12909
This PSA would help convince him to not use opioids.	19	3.2632	1.19453

Persona 3: Eddie

Eddie was described as a traditional high-sensation-seeker, an individual who was a drug addict and alcoholic, practiced risky sex and listened to aggressive music.

The combined mean of the *Reaction* scale for the high-sensation-seeking PSA was 2.787 (Table 9). Subjects anticipated that Eddie was likely to find the PSA upsetting and unlikely to have his "mind blown." This finding suggests the PSA would not be an effective deterrent for drug use on traditional high-sensation-seekers.

Table 9: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	31	2.5484	1.54572
Level of Excitement	31	2.8387	1.34404
Upset or Happy	31	2.0645	1.09348
Mind Blown	31	3.8065	1.10813
Scared or Calm	31	2.8710	1.25809
Forgetfulness	31	3.1613	1.41649
Arousal	31	2.8065	1.57944
Extremity	31	2.3871	1.49839
Graphicness	31	2.2581	1.36547
Intensity	31	3.1290	1.33521

For the high-sensation-seeking PSA, the combined mean of the *Impact* scale was 3.273 (Table 10), and 16% of respondents felt the PSA would be an effective deterrent to opioids use. This result suggests this PSA would not be effective in reducing or reversing his drug use.

Table 10: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get his attention.	30	2.6667	1.32179
This PSA would make him less likely to use opioids.	30	3.8667	1.9578
He would remember this PSA.	30	2.9333	1.28475
This PSA would make people his age less likely to use opioids.	30	3.1000	1.18467
This PSA would help convince him to not use opioids.	30	3.8000	0.99655

Eddie's combined mean of the *Reaction* scale for the low-sensation-seeking PSA was 3.119 (Table 11). Participants anticipated that Eddie was likely to find the PSA boring and unlikely to be stimulated by the PSA.

Table 11: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	21	3.6667	1.8274
Level of Excitement	21	1.8571	1.31475
Upset or Happy	21	2.4762	0.81358
Mind Blown	21	3.9048	1.44585
Scared or Calm	21	3.6190	1.39557
Forgetfulness	21	3.9048	1.57812
Arousal	21	1.6667	1.06458
Extremity	21	4.0476	1.59613
Graphicness	21	3.9524	1.56449
Intensity	21	2.0952	1.41084

For the low-sensation-seeking PSA, the combined mean of the *Impact* scale was 3.676 (Table 12), and 14% of the subjects felt the PSA would be an effective deterrent to opioid use. This finding suggests Eddie's behavior would not change due to PSA.

Table 12: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get his attention.	21	3.5238	1.36452
This PSA would make him less likely to use opioids.	21	4.0476	1.28360
He would remember this PSA.	21	3.4762	1.24976
This PSA would make people his age less likely to use opioids.	21	3.3810	1.16087
This PSA would help convince him to not use opioids.	21	3.9524	1.07127

Persona 4: Georgia

Georgia was described as a traditional low-sensation-seeker who accidentally became addicted to prescription opioids.

The combined mean of the *Reaction* scale for the high-sensation-seeking

PSA was 2.544 (Table 13). Subjects anticipated that Georgia was likely to find

the PSA upsetting and graphic and unlikely to find the PSA exciting.

Table 13: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	27	2.0370	1.15962
Level of Excitement	27	3.4444	1.05003
Upset or Happy	27	1.6296	0.96668
Mind Blown	27	2.3333	1.17670
Scared or Calm	27	2.0741	1.10683
Forgetfulness	27	2.5926	1.42125
Arousal	27	3.3333	1.27098
Extremity	27	2.3704	1.41824
Graphicness	27	1.9630	1.42725
Intensity	27	3.6667	1.14354

For the high-sensation-seeking PSA, the combined mean of the *Impact*

scale was 2.556 (Table 14), and 41% of the subjects felt the PSA would be an

effective deterrent to opioid use.

Table 14: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get her attention.	27	2.0741	1.03500
This PSA would make her less likely to use opioids.	27	2.8148	1.11068
She would remember this PSA.	27	2.2222	0.97402
This PSA would make people her age less likely to use opioids.	27	2.7037	1.23459
This PSA would help convince her to not use opioids.	27	2.9630	1.05544

Georgia's combined mean of the *Reaction* scale for the low-sensation-seeking PSA was 2.486 (Table 15). Subjects anticipated that she was likely to find the PSA upsetting and unlikely to find the PSA graphic.

Table 15: Descriptive Statistics for Subject Perception of Reaction

	N	Mean	Std. Deviation
Stimulating	21	1.6667	0.91287
Level of Excitement	21	3.4286	1.02817
Upset or Happy	21	1.5714	0.74642
Mind Blown	21	1.9524	0.80475
Scared or Calm	21	1.9524	1.11697
Forgetfulness	21	2.1905	0.98077
Arousal	21	3.1429	1.35225
Extremity	21	2.4286	1.24786
Graphicness	21	3.0952	1.48003
Intensity	21	3.4286	1.28730

For the low-sensation-seeking PSA, the combined mean of the *Impact* scale was 2.248 (Table 16), and 52% of the subjects felt the PSA would be an effective deterrent to opioid use.

Table 16: Descriptive Statistics for Subject Perception of Impact

	N	Mean	Std. Deviation
This advertisement would get her attention.	21	2.0000	0.77460
This PSA would make her less likely to use opioids.	21	2.4762	0.92839
She would remember this PSA.	21	2.0476	0.80475
This PSA would make people her age less likely to use opioids.	21	2.3810	0.97346
This PSA would help convince her to not use opioids.	21	2.3333	0.79582

Analysis and Interpretation of Data

The purpose of this study is to examine the degree to which high-sensation-seeking PSAs will yield similar impacts when viewed by high-sensation-seeking and low-sensation-seeking individuals who were under the behavioral influences of opioid addiction.

Mary Catherine would be projected to experience a positive reaction and deep impact for both PSAs. On the other hand, the research revealed the two high-sensation-seeking personas, Richard and Eddie, would be projected to experience a negative reaction and a minimal impact for both PSAs. These findings support hypotheses 1a, 1b, and 1c.

Georgia, the accidental opioid addict, was projected to find both PSAs to be compelling, but find the high-sensation-seeking PSA to be substantially more graphic than the low-sensation-seeking PSA. Also, the respondents' projections suggest the low-sensation-seeking PSA would have more of an impact on the Georgia persona than the high-sensation-seeking PSA.

The following sections will describe the interpretations of the collected data for the four personas.

Persona 1: Mary Catherine

The results suggest that Mary Catherine would be projected to be affected by both the high-and low-sensation-seeking PSAs. She would find the high-sensation-seeking PSA to be more extreme, intense, and graphic than the low-sensation-seeking PSA. Her reactions to the high-sensation-seeking PSA were

projected to have a profound impact on her, which indicates that she would remember the PSA, which would convince her to not use opioids.

In the case of the low-sensation-seeking PSA, respondents projected that Georgia would still find the message upsetting, but the degree of intensity, graphicness, and extremity would be substantially reduced. This PSA would have a strong impact on Mary Catherine as well, but to a slightly less degree than the high-sensation-seeking PSA. The results suggest she would remember the PSA and be unlikely to use opioids because of its message. This supports hypotheses 1a and 1b.

Persona 2: Richard

The results suggest Richard would react neutrally to both PSAs. He would find the high-sensation-seeking PSA to be boring and not intense, but would find it somewhat graphic and stimulating as well. The PSA was likely to gain his attention, and he would remember the PSA, but would probably fail to change his high-sensation-seeking behavior.

As for the low-sensation-seeking PSA, Richard would react neutrally, but to a lesser degree than the high-sensation-seeking PSA. It was perceived that he would not find the PSA arousing and probably not to find it to be extreme or graphic. This perception is consistent with prior research on the lack of impact of low-sensation-seeking messages on high-sensation-seekers.

However, the overall neutrality of the participants' projects is a novel finding. This could be due to the description of Richard's high-sensation-seeking

behaviors are not drug-related. Instead, his behaviors require individuals to be physically fit and alert to avoid potentially dangerous or fatal situations. As described in the BOLSS Model, though, Richard will continue to exhibit high-sensation-seeking behaviors regardless of addiction because high-sensation-seekers tend to exhibit high-sensation-seeking behaviors. Therefore, the results support hypotheses 1a and 1b.

Persona 3: Eddie

The respondents' projection of Eddie's somewhat neutral reaction to the high-sensation-seeking PSA suggests it would have little effect on his current or future use of opioids. The respondents anticipated that he would find the PSA to be upsetting, extreme and graphic, which may cause the PSA to grab his attention and be more memorable. Yet, the results also suggest the message would not be strong enough to impact his opioid use.

The respondents' projections suggest Eddie would find the low-sensation-seeking PSA to be not extreme, graphic, or intense, and he would consider the PSA to be boring. As such, the responses suggest the PSA would neither maintain his attention, be memorable, nor convince him to not use opioids.

These responses align with prior research on high-sensation-seeking individuals and high-and low-sensation-seeking PSAs. Traditionally, the high-sensation-seeker will be impacted by the high-sensation-seeking PSA, but will have little to no impact with the low-sensation-seeking PSA. Therefore, the results support hypotheses 1a and 1b.

Persona 4: Georgia

Overall, the respondents' projections suggest that Georgia would find both PSAs to be compelling but find the high-sensation-seeking PSA to be substantially more graphic than the low-sensation-seeking PSA. She would also find the high-sensation-seeking PSA to be slightly more upsetting. She would remember both PSAs, but the low-sensation-seeking PSA would have more effect on her.

The overall neutrality of the data could be due to the description of her being addicted to opioids. As described in the BOLSS Model, low-sensation-seekers, when addicted to a substance, are anticipated to exhibit high-sensation-seeking behaviors. Prior to her addiction, Georgia is a stereotypical low-sensation-seeker; however, since she is exhibiting high-sensation-seeking behaviors because of her drug use, she was expected to find the high-sensation-seeking PSA more graphic and more upsetting.

Therefore, the projected reactions and impacts reinforces the framing of sensation-seeking as both a behavioral and personality-based construct. Due to Georgia's addiction, her traditional low-sensation-seeking behaviors are altered to satisfy her high-sensation-seeking activity of prescription drug abuse.

These findings align with previous research on low-sensation-seeking individuals. High-sensation-seeking messages have a high probability of impacting low-sensation-seeking individuals because the messages are crafted to penetrate the destructive behaviors of high-sensation-seekers, which are often scary, graphic, and intense. The findings suggest that low-sensation-seekers may

become overwhelmed by the high-sensation-seeking PSA due to the deliberately invasive nature of the message.

As described by the BOLSS Model, low-sensation-seekers tend to exhibit low-sensation-seeking behaviors unless a radicalizing factor, such as addiction, alters those behaviors to satisfy the new high-sensation-seeking behavior. Therefore, the results support hypothesis 1c.

Limitations

One limitation of this study was the need to depend on the subjective interpretations and opinions of the respondents rather than directly surveying actual subjects. Due to the unknown probability of students correctly projecting how the personas would act, the actual data is subjective. Unfortunately, direct access to a population of subjects with first-hand experience with opioid addiction was beyond the scope of this study.

Another limitation was the low number of subjects participating in the research. More respondents' projections of the personas will produce more crucial data to better pinpoint how PSAs should be targeting those personas. While there was no outside motivator to participate, such as extra credit for classes, a study on participation and survey research by Saleh and Bista (2017) found lack of respondents could be due to several other factors, including not knowing the researcher personally, the topic of the research not being related to the interest of the participants, and the length of the survey. Each of these factors could have contributed to low participation.

One possible limitation was the presentation of the PSAs used for the research instrument. Both PSAs were created by the researcher, who is admittedly not a professional designer. The low-sensation-seeking PSA was modeled after an alcoholic anonymous PSA from a firm in Auckland, New Zealand. The PSA messages themselves were presented to participants as part of the survey, certainly different from how on would typically encounter a PSA. It is unclear to what degree, if any, this affected the results.

Future Research

Further research should be conducted on the effects of messages on the emerging audience of low-sensation-seekers who are exhibiting high-sensation-seeking behaviors. Such research can assist organizations in better targeting anti-opioid campaigns and messages to control the opioid epidemic and reduce overdoses across the nation.

The sample population for the study could also be modified to include actual individuals who present low- and high-sensation-seeking behaviors, specifically those who are or who once were opioid addicts. This sample population would allow for direct results from individuals who have prior experiences with opioids instead of using individuals familiar with the subject to make second-hand projections about other individuals who could exhibit the situational behavior.

Another recommendation would be to include licensed mental health professionals in the study to add more reliability. Licensed professionals often

have more insights as to how the created personas would react to and be impacted by the PSAs because they have potentially dealt with those similar individuals in their career.

Finally, future research on this topic should be conducted using more PSAs. Having a variety of messages targeting the different levels of sensation-seekers and their activities can generate more data to better target campaigns for more individuals.

Conclusion

The present study set out to examine the nature of opioid addiction and the motivating factors that drive users.

Examination of extant research in the context of today's news suggest limitations in the operationalization of personality from previous research. This study challenges the idea of drug addiction of solely being driven by personality and other mitigating variables.

The Behavioral Outcomes of Low Sensation-Seekers Model (BOLSS) expanded the conceptualization of drug abuse behavior. The model notes that high-sensation-seeking individuals will exhibit high-sensation-seeking behaviors, regardless of mitigating variables. However, the model also expands on prior research to suggest a low-sensation-seeking individual who becomes addicted will exhibit high-sensation-seeking behaviors. Research from this study supports this reframing.

The study's *Reaction* scale, although based on prior reliable scales, was found to be unreliable; however, this may have been due to the small sample size. One the other hand, the impact scale was found to be reliable. The results were strong enough to demonstrate a high level of reliable across all four personas.

The study was a success, and the data strongly supported the stated hypotheses.

The results of the study reveal how the Mary Catherine and Richard personas were expected to react and be impacted similarly to findings described in previous research.

This study examined how the Eddie persona was expected to react and be impacted by the PSAs because of his drug addiction. The responses revealed Eddie would be perceived to react and respond as prior research had described. He was projected to dismiss the low-sensation-seeking PSA and have a stronger reaction to the high-sensation-seeking PSA.

The important contribution of this study is how Georgia, the low-sensation-seeker who begins to exhibit high-sensation-seeking behaviors due to drug addiction, was projected to react and be impacted by both PSAs.

Overall, the respondents' projections expected that Georgia woud find both PSAs to be compelling, but find the high-sensation-seeking PSA to be substantially more graphic of the two. She would remember both PSAs, but the low-sensation-seeking PSA would have more effect on her.

As described in the BOLSS Model, low-sensation-seekers, when addicted to a substance, are anticipated to exhibit high-sensation-seeking behaviors. Georgia, a stereotypical low-sensation-seeker, began exhibiting high-sensation-seeking behaviors because of her drug use. Consistent with her behavior, she was expected to find the high-sensation-seeking PSA more graphic and more upsetting. Yet, the low-sensation-seeking PSA was suspected to be the most effective approach. Therefore, a focus on high-sensation-seeking behavior may mask the equally relevant impact of personality in addressing low-sensation-seekers.

For future research, high-sensation-seeking PSAs may not be the best communication tool for addressing low-sensation-seeking individuals, despite their behavior. To most effectively reach the emerging group of low-sensation-seekers who are exhibiting high-sensation-seeking behaviors, organizations should create PSAs that have shock value, but also a logical message. Therefore, a hybrid high- and low-sensation-seeking message should be developed and researched to meet the needs of the emerging population of low-sensation-seekers exhibiting high-sensation-seeking behaviors.

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Appendix

Appendix 1: Research Instrument

Artifact 1: Public Service Announcements and Sensation Seeking Survey

PART A: FAMILY VACATION

Instructions: Please examine the following print PSA carefully. On the next page, you will be asked a series of questions about your perceptions on how certain personalities would react towards the PSA (See Appendix 2 for PSA).

Once you are finished examining the PSA, please click the "Next" button.

Instructions: Please read the statement below.

Eddie is a 25-year-old male who is has been addicted to heroin for three
years. He practices unprotected sex with his girlfriends, Shimmer,
Marcella, and Ember. You can often find him behind a dumpster drinking
tequila or whiskey past the point of drunkenness. He has started taking a
liking to snorting cocaine at his friend Bam's house while watching intense
and graphic television shows. He often listens to aggressive, disturbing
bands.

For each descriptor, please indicate the extent to which you perceive the person
would best react to the PSA while examining the message.

1. Stimulation
   o Stimulating
   o [blank]
   o Neutral
   o [blank]
   o Not Stimulating

2. Level of Excitement
   o Boring
   o [blank]
   o Neutral
   o [blank]
   o Exciting

3. Upset or Happy
   o Upset
   o [blank]
   o Neutral
   o [blank]
   o Happy

4. Mind Blown
   o Blew My Mind
   o [blank]

- Neutral
- [blank]
- Didn't Blow My Mind

5. Scared or Calm
   - Scared
   - [blank]
   - Neutral
   - [blank]
   - Calm

6. Forgetful
   - Unforgettable
   - [blank]
   - Neutral
   - [blank]
   - Forgettable

7. Arousal
   - Not Arousing
   - [blank]
   - Neutral
   - [blank]
   - Arousing

8. Extremity
   - Extreme
   - [blank]
   - Neutral
   - [blank]
   - Not Extreme

9. Graphicness
   - Graphic
   - [blank]
   - Neutral
   - [blank]
   - Not Graphic

10. Intensity
    - Not Intense
    - [blank]
    - Neutral
    - [blank]
    - Intense

Instructions: Select the statement that best fits Eddie's response to the PSA.

1. This advertisement would get his attention.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

2. This PSA would make him less likely to use opioids.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

3. He would remember this PSA.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

4. This PSA would make people his age less likely to use opioids.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

5. This PSA would help convince him not to use opioids.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

Instructions: Please read the statement below.

Georgia is a 76 year-old female who had surgery on her left knee. Her doctor prescribed her a large dose of OxyContin, a type of opiate. Georgia mostly stays at home, tending to her husband of 51 years and their dog, Snickerdoodle. She teaches a children's Sunday School class at the local church and often cooks dinner on Sunday night for when her children and grandchildren come to visit. Recently, Georgia has been acting suspiciously and several of the couple's more expensive items have disappeared. Her husband suspects Georgia has become addicted to OxyContin, noting her strange, young friend who visits her once a week.

For each descriptor, please indicate the extent to which you perceive the person would best react to the PSA while examining the message.

1. Stimulation
   o Stimulating
   o [blank]
   o Neutral
   o [blank]
   o Not Stimulating

2. Level of Excitement
   o Boring
   o [blank]
   o Neutral
   o [blank]
   o Exciting

3. Upset or Happy
   o Upset
   o [blank]
   o Neutral
   o [blank]
   o Happy

4. Mind Blown
   - o Blew My Mind
   - o [blank]
   - o Neutral
   - o [blank]
   - o Didn't Blow My Mind

5. Scared or Calm
   - o Scared
   - o [blank]
   - o Neutral
   - o [blank]
   - o Calm

6. Forgetful
   - o Unforgettable
   - o [blank]
   - o Neutral
   - o [blank]
   - o Forgettable

7. Arousal
   - o Not Arousing
   - o [blank]
   - o Neutral
   - o [blank]
   - o Arousing

8. Extremity
   - o Extreme
   - o [blank]
   - o Neutral
   - o [blank]
   - o Not Extreme

9. Graphicness
   - o Graphic
   - o [blank]
   - o Neutral
   - o [blank]
   - o Not Graphic

10. Intensity
   - o Not Intense
   - o [blank]

- o Neutral
- o [blank]
- o Intense

Instructions: Select the statement that best fits Georgia's response to the PSA.

1. This advertisement would get his attention.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

2. This PSA would make him less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

3. He would remember this PSA.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

4. This PSA would make people his age less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

5. This PSA would help convince him not to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

Instructions: Please read the statement below.

Richard is a 35-year-old male who enjoys adrenaline-filled activities. He

has gone skydiving several times and only vacations in areas where

paragliding and hang gliding are available. One of his dreams is to go on a

cage dive with Great White Sharks in the horn of Africa. He often drives

ten to fifteen miles over the speed limit. He has lots of friends but rarely

associates with them in groups because he grows tired of their

conversations and stories.

For each descriptor, please indicate the extent to which you perceive the person

would best react to the PSA while examining the message.

1. Stimulation
    o Stimulating
    o [blank]
    o Neutral
    o [blank]
    o Not Stimulating

2. Level of Excitement
    o Boring
    o [blank]
    o Neutral
    o [blank]
    o Exciting

3. Upset or Happy
    o Upset
    o [blank]
    o Neutral
    o [blank]
    o Happy

4. Mind Blown
    o Blew My Mind
    o [blank]

- Neutral
- [blank]
- Didn't Blow My Mind

5. Scared or Calm
   - Scared
   - [blank]
   - Neutral
   - [blank]
   - Calm

6. Forgetful
   - Unforgettable
   - [blank]
   - Neutral
   - [blank]
   - Forgettable

7. Arousal
   - Not Arousing
   - [blank]
   - Neutral
   - [blank]
   - Arousing

8. Extremity
   - Extreme
   - [blank]
   - Neutral
   - [blank]
   - Not Extreme

9. Graphicness
   - Graphic
   - [blank]
   - Neutral
   - [blank]
   - Not Graphic

10. Intensity
    - Not Intense
    - [blank]
    - Neutral
    - [blank]
    - Intense

Instructions: Select the statement that best fits Richard's response to the PSA.

1. This advertisement would get his attention.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

2. This PSA would make him less likely to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

3. He would remember this PSA.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

4. This PSA would make people his age less likely to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

5. This PSA would help convince him not to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

Instructions: Please read the statement below.

Mary Catherine is a 21-year-old female who enjoys volunteering at animal shelters on weekends. She can often be found reading her Bible or shopping with her friends. She attends mass every Sunday and does not enjoy trying new activities or visiting new places. She has a set routine and does not like it when she has to deviate from her routine. The only time Mary Catherine drinks is during communion, even when her friends encourage her to during social events.

For each descriptor, please indicate the extent to which you perceive the person would best react to the PSA while examining the message.

1. Stimulation
   o Stimulating
   o [blank]
   o Neutral
   o [blank]
   o Not Stimulating

2. Level of Excitement
   o Boring
   o [blank]
   o Neutral
   o [blank]
   o Exciting

3. Upset or Happy
   o Upset
   o [blank]
   o Neutral
   o [blank]
   o Happy

4. Mind Blown
   o Blew My Mind
   o [blank]

- o Neutral
- o [blank]
- o Didn't Blow My Mind

5. Scared or Calm
   - o Scared
   - o [blank]
   - o Neutral
   - o [blank]
   - o Calm

6. Forgetful
   - o Unforgettable
   - o [blank]
   - o Neutral
   - o [blank]
   - o Forgettable

7. Arousal
   - o Not Arousing
   - o [blank]
   - o Neutral
   - o [blank]
   - o Arousing

8. Extremity
   - o Extreme
   - o [blank]
   - o Neutral
   - o [blank]
   - o Not Extreme

9. Graphicness
   - o Graphic
   - o [blank]
   - o Neutral
   - o [blank]
   - o Not Graphic

10. Intensity
    - o Not Intense
    - o [blank]
    - o Neutral
    - o [blank]
    - o Intense

Instructions: Select the statement that best fits May Catherine's response to the

PSA.

1. This advertisement would get his attention.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

2. This PSA would make him less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

3. He would remember this PSA.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

4. This PSA would make people his age less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

5. This PSA would help convince him not to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

PART B: BRIDGING THE GAP

Instructions: Please examine the following print PSA carefully. On the next page, you will be asked a series of questions about your perceptions on how certain personalities would react towards the PSA (See Appendix 2 for PSA).

Once you are finished examining the PSA, please click the "Next" button.

Instructions: Please read the statement below.

Eddie is a 25-year-old male who is has been addicted to heroin for three years. He practices unprotected sex with his girlfriends, Shimmer, Marcella, and Ember. You can often find him behind a dumpster drinking tequila or whiskey past the point of drunkenness. He has started taking a liking to snorting cocaine at his friend Bam's house while watching intense and graphic television shows. He often listens to aggressive, disturbing bands.

For each descriptor, please indicate the extent to which you perceive the person would best react to the PSA while examining the message.

11. Stimulation
   o Stimulating
   o [blank]
   o Neutral
   o [blank]
   o Not Stimulating

12. Level of Excitement
   o Boring
   o [blank]
   o Neutral
   o [blank]
   o Exciting

13. Upset or Happy
   o Upset
   o [blank]
   o Neutral
   o [blank]
   o Happy

14. Mind Blown
   o Blew My Mind
   o [blank]

- o Neutral
- o [blank]
- o Didn't Blow My Mind

15. Scared or Calm
- o Scared
- o [blank]
- o Neutral
- o [blank]
- o Calm

16. Forgetful
- o Unforgettable
- o [blank]
- o Neutral
- o [blank]
- o Forgettable

17. Arousal
- o Not Arousing
- o [blank]
- o Neutral
- o [blank]
- o Arousing

18. Extremity
- o Extreme
- o [blank]
- o Neutral
- o [blank]
- o Not Extreme

19. Graphicness
- o Graphic
- o [blank]
- o Neutral
- o [blank]
- o Not Graphic

20. Intensity
- o Not Intense
- o [blank]
- o Neutral
- o [blank]
- o Intense

Instructions: Select the statement that best fits Eddie's response to the PSA.

6. This advertisement would get his attention.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

7. This PSA would make him less likely to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

8. He would remember this PSA.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

9. This PSA would make people his age less likely to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

10. This PSA would help convince him not to use opioids.
   o Strongly Agree
   o Agree
   o Neutral
   o Disagree
   o Strongly Disagree

Instructions: Please read the statement below.

Georgia is a 76 year-old female who had surgery on her left knee. Her

doctor prescribed her a large dose of OxyContin, a type of opiate. Georgia

mostly stays at home, tending to her husband of 51 years and their dog,

Snickerdoodle. She teaches a children's Sunday School class at the local

church and often cooks dinner on Sunday night for when her children and

grandchildren come to visit. Recently, Georgia has been acting

suspiciously and several of the couple's more expensive items have

disappeared. Her husband suspects Georgia has become addicted to

OxyContin, noting her strange, young friend who visits her once a week.

For each descriptor, please indicate the extent to which you perceive the person

would best react to the PSA while examining the message.

11. Stimulation
    o Stimulating
    o [blank]
    o Neutral
    o [blank]
    o Not Stimulating

12. Level of Excitement
    o Boring
    o [blank]
    o Neutral
    o [blank]
    o Exciting

13. Upset or Happy
    o Upset
    o [blank]
    o Neutral
    o [blank]
    o Happy

14. Mind Blown
    - o Blew My Mind
    - o [blank]
    - o Neutral
    - o [blank]
    - o Didn't Blow My Mind

15. Scared or Calm
    - o Scared
    - o [blank]
    - o Neutral
    - o [blank]
    - o Calm

16. Forgetful
    - o Unforgettable
    - o [blank]
    - o Neutral
    - o [blank]
    - o Forgettable

17. Arousal
    - o Not Arousing
    - o [blank]
    - o Neutral
    - o [blank]
    - o Arousing

18. Extremity
    - o Extreme
    - o [blank]
    - o Neutral
    - o [blank]
    - o Not Extreme

19. Graphicness
    - o Graphic
    - o [blank]
    - o Neutral
    - o [blank]
    - o Not Graphic

20. Intensity
    - o Not Intense
    - o [blank]

- o   Neutral
- o   [blank]
- o   Intense

Instructions: Select the statement that best fits Georgia's response to the PSA.

6. This advertisement would get his attention.
- o   Strongly Agree
- o   Agree
- o   Neutral
- o   Disagree
- o   Strongly Disagree

7. This PSA would make him less likely to use opioids.
- o   Strongly Agree
- o   Agree
- o   Neutral
- o   Disagree
- o   Strongly Disagree

8. He would remember this PSA.
- o   Strongly Agree
- o   Agree
- o   Neutral
- o   Disagree
- o   Strongly Disagree

9. This PSA would make people his age less likely to use opioids.
- o   Strongly Agree
- o   Agree
- o   Neutral
- o   Disagree
- o   Strongly Disagree

10. This PSA would help convince him not to use opioids.
- o   Strongly Agree
- o   Agree
- o   Neutral
- o   Disagree
- o   Strongly Disagree

Instructions: Please read the statement below.

Richard is a 35-year-old male who enjoys adrenaline-filled activities. He
has gone skydiving several times and only vacations in areas where
paragliding and hang gliding are available. One of his dreams is to go on a
cage dive with Great White Sharks in the horn of Africa. He often drives
ten to fifteen miles over the speed limit. He has lots of friends but rarely
associates with them in groups because he grows tired of their
conversations and stories.

For each descriptor, please indicate the extent to which you perceive the person
would best react to the PSA while examining the message.

11. Stimulation
    o Stimulating
    o [blank]
    o Neutral
    o [blank]
    o Not Stimulating

12. Level of Excitement
    o Boring
    o [blank]
    o Neutral
    o [blank]
    o Exciting

13. Upset or Happy
    o Upset
    o [blank]
    o Neutral
    o [blank]
    o Happy

14. Mind Blown
    o Blew My Mind
    o [blank]

- Neutral
- [blank]
- Didn't Blow My Mind

15. Scared or Calm
- Scared
- [blank]
- Neutral
- [blank]
- Calm

16. Forgetful
- Unforgettable
- [blank]
- Neutral
- [blank]
- Forgettable

17. Arousal
- Not Arousing
- [blank]
- Neutral
- [blank]
- Arousing

18. Extremity
- Extreme
- [blank]
- Neutral
- [blank]
- Not Extreme

19. Graphicness
- Graphic
- [blank]
- Neutral
- [blank]
- Not Graphic

20. Intensity
- Not Intense
- [blank]
- Neutral
- [blank]
- Intense

Instructions: Select the statement that best fits Richard's response to the PSA.

6. This advertisement would get his attention.
    o   Strongly Agree
    o   Agree
    o   Neutral
    o   Disagree
    o   Strongly Disagree

7. This PSA would make him less likely to use opioids.
    o   Strongly Agree
    o   Agree
    o   Neutral
    o   Disagree
    o   Strongly Disagree

8. He would remember this PSA.
    o   Strongly Agree
    o   Agree
    o   Neutral
    o   Disagree
    o   Strongly Disagree

9. This PSA would make people his age less likely to use opioids.
    o   Strongly Agree
    o   Agree
    o   Neutral
    o   Disagree
    o   Strongly Disagree

10. This PSA would help convince him not to use opioids.
    o   Strongly Agree
    o   Agree
    o   Neutral
    o   Disagree
    o   Strongly Disagree

Instructions: Please read the statement below.

Mary Catherine is a 21-year-old female who enjoys volunteering at animal shelters on weekends. She can often be found reading her Bible or shopping with her friends. She attends mass every Sunday and does not enjoy trying new activities or visiting new places. She has a set routine and does not like it when she has to deviate from her routine. The only time Mary Catherine drinks is during communion, even when her friends encourage her to during social events.

For each descriptor, please indicate the extent to which you perceive the person would best react to the PSA while examining the message.

11. Stimulation
   o Stimulating
   o [blank]
   o Neutral
   o [blank]
   o Not Stimulating

12. Level of Excitement
   o Boring
   o [blank]
   o Neutral
   o [blank]
   o Exciting

13. Upset or Happy
   o Upset
   o [blank]
   o Neutral
   o [blank]
   o Happy

14. Mind Blown
   o Blew My Mind
   o [blank]

- o Neutral
- o [blank]
- o Didn't Blow My Mind

15. Scared or Calm
- o Scared
- o [blank]
- o Neutral
- o [blank]
- o Calm

16. Forgetful
- o Unforgettable
- o [blank]
- o Neutral
- o [blank]
- o Forgettable

17. Arousal
- o Not Arousing
- o [blank]
- o Neutral
- o [blank]
- o Arousing

18. Extremity
- o Extreme
- o [blank]
- o Neutral
- o [blank]
- o Not Extreme

19. Graphicness
- o Graphic
- o [blank]
- o Neutral
- o [blank]
- o Not Graphic

20. Intensity
- o Not Intense
- o [blank]
- o Neutral
- o [blank]
- o Intense

Instructions: Select the statement that best fits May Catherine's response to the

PSA.

6. This advertisement would get his attention.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

7. This PSA would make him less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

8. He would remember this PSA.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

9. This PSA would make people his age less likely to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

10. This PSA would help convince him not to use opioids.
   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

PART C: DEMOGRAPHIC INFORMATION

Instructions: Please select the response that best describes you. Remember, your answers are confidential and are anonymous.

1. What gender do you most identify?
    o Male
    o Female
    o Other: (please specify) _____

2. What is your age range?
    o 18-24
    o 25-34
    o 35-44
    o 45-54
    o 55-64
    o 65+

3. What is your class rank (by year on campus?)
    o Freshman
    o Sophomore
    o Junior
    o Senior
    o Not Applicable

4. What is your race?
    o White or Caucasian
    o Black or African American
    o Hispanic or Latino
    o Asian or Asian American
    o American Indian or Alaska Native
    o Native Hawaiian or other Pacific Islander
    o Another race: (please specify) _____

Appendix 2: High-Sensation-Seeking PSA

Appendix 3: Low-Sensation-Seeking PSA