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**Hate the Sin, Blame the Sinner: The Effects of Language on Attitudes
Toward Substance Use Disorders**

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Dedication

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Abstract

Hate the Sin, Blame the Sinner: The Effects of Language on Attitudes Toward Substance Use Disorders

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The reported study aims to explain the role syntactic choices, such as noun form, can have on the perceived persuasiveness of arguments related to opioid use disorders. In addition to these syntactical choices, the author was also interested in how semantic differences, such as argument frames, can influence persuasiveness. Participants (N=764) were exposed to one of eight op-ed style essays using different argument frames (*health crisis vs. moral crisis*), different noun forms referred to as actor nouns (*addicts*) and activity nouns (*addiction*), and different diagnostic labels (*addiction vs. abuse*). This study found that argument frames and nominal form can influence audience perceptions of agency and responsibility in people living with opioid use disorders. These differing perceptions of agency appeared to influence the persuasiveness of essays prescribing differing degrees of punishments for individuals' living with substance use disorders.

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Chapter 1: Introduction

Speakers and writers convey different beliefs and attitudes through the subtle linguistic choices they make, and thus elicit different schemas and behaviors from audiences. These choices can be best understood through the linguistic concepts of semantics and syntax. Semantics refers to the meaning words convey to audiences and syntax refers to the order or form in which words are combined to make phrases or sentences. While distinct, semantics and syntax are irrevocably interconnected since syntactical choices can, and do, influence semantic meanings in profound ways (O’Keefe, 2003; O’Keefe, 1997). For example, researchers have found evidence that the syntactic choice of using rhetorical questions (*Wouldn't whatever educational value the exams have for graduate students also benefit undergraduates?*) instead of declarative statements (*Thus, whatever educational value the exams have for graduate students would also benefit undergraduates*) can have an impact on the perceived persuasiveness of nearly identical arguments (Petty et al., 1981). Others have found that non-human agents elicit higher levels of fear than human agents when assigned linguistic agency in health messages (Dragojevic et al., 2014). Subtle manipulations in wording have been shown to influence perceptions and attitudes toward a variety of health topics such as diabetes (Glowacki et al., 2016), HPV (Dragojevic et al., 2014), and H1N1 (McGlone et al., 2013). Persuasiveness can be operationalized differently depending on factors like context, audience, and message features. In this study, persuasiveness was operationalized as the likelihood audiences believe, agree with, or support certain messages. This operationalization of persuasiveness

manifests through measures related to audiences' perceptions of fairness, bias, accuracy, and agreement with health messages that present a particular argumentative position with the implicit and explicit goal of convincing audiences' their argumentative position is correct. The role language plays on persuasiveness within health messages has been explored by a variety of scholars in many different contexts. This study contributes to this body of literature by examining the ways argument frames, nominalized noun forms, and diagnostic labels impact conceptualizations of agency and responsibility within health messages related to opioid use disorders.

RISE OF THE OPIOID EPIDEMIC

It is difficult to have consumed any amount of mainstream media over the last few years without seeing mention of the opioid crisis (Corporation for Public Broadcasting [CPB], 2019). In 2011, the CDC called the rising deaths related to prescription painkillers and illicit opioids a health "epidemic" (Centers for Disease Control and Prevention [CDC], 2011), and it's only gotten worse since then. Opioids constitute a class of analgesic pain medications ranging from prescription drugs, like oxycodone and hydrocodone, to illicit opioids, like heroin and fentanyl. Purdue Pharmaceuticals manufactured and advertised one specific opioid brand called *OxyContin*, and when it hit the market in the early 1990's it was advertised as a non-addictive way to treat pain, jumping from 48 million dollars of profit in 1996 to over one billion dollars in 2000 (Van Zee, 2009). Despite this commercial success, *OxyContin* and other synthetic opioids have since been shown to be highly habit-forming if used for prolonged periods (Kosten & George, 2002; Kolodny et al., 2015).

In fact, opioid use disorders have become the second most common illicit substance use disorder in the United States, with 18 million diagnoses in 2017 (McCance-Katz, 2018), and likely tens of thousands more who lack the access to adequate health care required to obtain a diagnosis or treatment (Macy, 2020). Opioid related overdoses have more than quadrupled over the last 20 years, with less than 10,000 overdoses in 1999, and over 45,000 in 2018 (National Institute on Drug Abuse [NIDA], 2020). The total number of opioid related deaths between 1999 and 2018 is estimated to be almost half a million people (NIDA, 2020), which is more than the number of American soldiers who died during World War II (National WWII Museum, n.d.). The rises in opioid use, opioid related overdoses, and increased media attention to the opioid epidemic compared to past drug epidemics (Netherland & Hansen, 2016) make this specific substance use disorder worth further examination. Opioid use disorders are preventable and treatable, and yet both federal and state governments have failed to stem the rising tide of opioid use disorders and overdoses. This study explored how syntactic choices affect messages about opioid use disorders to hopefully provide insight into how public health officials and politicians could rhetorically combat the opioid epidemic unfolding in the United States.

Chapter 2: Message Design Features

NOMINALIZATION

The small, seemingly inconsequential choices communicators make when crafting their sentences can have a significant impact on how audiences react to their arguments (O’Keefe, 2003; O’Keefe, 1997). One of the choices speakers and writers make pertains to what linguists refer to as “nominalization” (Wierzbicka, 1986; Chomsky, 1970). Nominalization is the process by which a word that is not a noun becomes one (Billig, 2008). Theoretically, every part of speech can be nominalized, whether a verb (*a terrorist attack*), adjective (*the brunette down the hall*), adverb (*The Power of Now*), or preposition (*he hurt his behind*) (McGlone & Glowacki, 2018). While these examples demonstrate the ways in which nominalization occurs without changes to the words themselves, various suffixes (-ion, -ism, etc.) can also be used to nominalize various parts of speech (mostly verbs and adjectives) into different types of nouns. The two types relevant for my purposes are activity nouns and actor nouns.

Actor nouns, as their name suggests, denote an actor who has some degree of agency (banker, immigrant, terrorist). Activity nouns, however, implicitly diminish agency by obscuring the individual *doing* the action, often by adding affixes (banking, immigration, terrorism). This feature of language can be very useful, but nominalizing actors into activities can also be used to confuse or manipulate audiences (Sword, 2012; McGlone & Giles, 2011; Billig, 2008). Overuse of activity nouns can obfuscate the actors engaging in the activity, which can prove useful for avoiding or dispersing blame. Sword described these clarity-reducing activity nouns as “zombie nouns” because they

“cannibalize active verbs, suck the lifeblood from adjectives, and substitute abstract entities for human beings” (Sword, 2012, p 1). She opens her article with a sentence stylistically familiar to most academics: *“The proliferation of nominalizations in a discursive formation may be an indication of a tendency toward pomposity and abstraction.”* (Sword, 2012, p1) This sentence has seven different “zombie nouns” nominalized from verbs or adjectives. When six of these nouns (the word nominalization ironically must remain nominalized) are shifted back into verb or adjective form, the sentence suddenly becomes much clearer and readable: *“Writers who overload their sentences with nominalizations tend to sound pompous and abstract.”* (Sword, 2012, p1).

While activity nouns can obscure message meaning, actor nouns can turn discrete behaviors into identities. Wierzbicka (1986) argues nouns which elicit schemas related to agentic actors make observers more likely to conceptualize behaviors as essential attributes of those actors. Research by Walton and Banaji (2004) found further support for this notion of actor noun essentialism. Participants were presented with phrases like *Billy is a chocolate eater* and *Billy eats a lot of chocolate*. Afterwards, participants rated *Billy the chocolate eater* as having a stronger and more stable affinity for chocolate than *Billy who eats lots of chocolate*. The schemas related to this agentic advantage from actor nouns still exist when combined with other modifiers or adjectives. When presented with the sentence *Mark is an artistic athlete*, participants rated him as more likely to spend time working out than creating art. The inversion was also true, when presented with the sentence *Mark is an athletic artist*, participants rated him as more likely to spend time creating artistic works than athletic training (Carnaghi et al., 2008). In both instances, the noun form was

perceived as more stable and relevant to identity than the accompanying adjective form. Not only do actor nouns impact schematization of identity and agency in others, they can also change our own behaviors in demonstrable ways. Work by Bryan and colleagues illustrates the role that personal-identity phrasing affects attitudes toward voting. By distinguishing between “voting” (an action) and “voter” (an actor), they found individuals were more likely to express interest in registering to vote when they conceptualized themselves as “voters” rather than participating in the act of “voting.” (Bryan et al., 2011).

McGlone and Glowacki (2018) conducted an experiment to further test the influence of actor and activity nouns on attitudes. Their focus was on two pairs of actor and activity nouns (*cosmetic surgeons/cosmetic surgery & immigrants/immigration*). They found that essays with a complimentary argument frame using actor nouns (*cosmetic surgeons bring comfort to people with deep insecurities about their bodies; immigrants strengthen and diversify the nation’s workforce*) were more persuasive than complimentary essays using activity nouns (*cosmetic surgery brings comfort to people with deep insecurities about their bodies; immigration strengthens and diversifies the nation’s workforce*).

They also found that the opposite was true. When using a critical argument frame, essays using actor nouns (*cosmetic surgeons promote unrealistic standards for physical appearance; immigrants drive down wages and depletes limited resources*) were less persuasive than those that used activity nouns (*cosmetic surgery promotes unrealistic standards for physical appearance; immigration drives down wages and depletes limited resources*).

This finding is consistent with Sears' (1983) notion of a "person positivity" bias, in which attitude objects (nouns) conjure up different agentic schemas on a spectrum from inhuman to human. These human qualities affect our perception of those nouns. On one end of the spectrum, there are individual human beings (Lebron James, your mother), on the other end, there are inhuman objects (trees or rocks), and in the middle, there are aggregates of individuals (basketball players, parents). More human-like nouns imply higher degrees of agency. The more agency attitude objects conjure up, the less likely people are to form a negative appraisal of those attitude objects (Sears, 1983).

We all, as human beings, tend to have a positive bias toward other human actors whom we can understand have motivations and drives similar to our own. This bias can affect how well criticisms of other individuals are received, since people don't generally respond positively to derision or derogation of others, even when audiences agree with the criticism or blame being levied (Mae & Carlston, 2005). This bias is partially why critical frames using actors were rated as less persuasive and complimentary frames using actors were rated as more persuasive in McGlone and Glowacki's (2018) study. This study explored this effect in a slightly different way. Rather than framing the nominalized nouns as complimentary or critical, this study used two different argument frames that are both critical of opioid use disorders. These two frames differ in the degree of agency and responsibility they ascribe to opioid users, while also emphasizing different mechanisms of causality and solvency.

ARGUMENT FRAMES OF SUBSTANCE USE DISORDERS

Historically, the explanations of substance use disorders have essentially adopted one of two distinct perspectives. The first, which I call the “moral crisis frame”, is oriented around the view that substance use disorders are a *moral* failure of users who are selfishly *choosing* to use drugs despite the negative consequences for themselves and those around them. This frame has existed in the United States for over a century but was first codified into law with the passage of the Harrison Narcotics Act of 1914, which criminalized the possession and sale of opium and cocaine. (Brecher, 1972). In 1917, this law was interpreted as a prohibition and then used to criminalize doctors’ prescription of these narcotics to those with substance use disorders, which was not viewed as a disease, but as a reflection of moral bankruptcy and selfishness of users (Brecher, 1972). The moral crisis frame emphasizes the irresponsibility of users while leveraging the criminal justice system against those unwilling to make the choice to abstain from taking drugs (Frank & Nagel, 2017).

This moral crisis framework had a political resurgence in 1971, when President Richard Nixon declared a “War on Drugs”, increasing the size and scope of federal agencies tasked with narcotics control and encouraging congress to enact punitive legislative punishments like mandatory sentencing for nonviolent drug offenses (Lopez, 2016). In the 1980’s, President Ronald Reagan picked up where Nixon left off, passing the 1986 Anti-Drug Abuse Act, which contributed to the dramatic increase in the rate of criminalization and incarceration of nonviolent narcotics users. In 1980, roughly 40,000 people were incarcerated for drug offenses. By 2017, that number was 450,000 (The

Sentencing Project, 2018), with an additional 1.2 million on parole for drug related offenses (Pearl, 2018). Various police departments and county courts still implicitly and explicitly employ the moral crisis frame (Macy 2020). Fundamentally, the use of police and prisons as the mechanism of solvency highlights one underlying assumption of this frame: the agency of narcotics users and the differing degrees of punishment that agency confers. The moral crisis frame presumes moral responsibility for narcotics use, and thus justifies using state sanctioned force to punish those who choose to use narcotics. This assumption of agency and responsibility is one of the main ways it differs from the alternative argument frame.

The alternative, which I call the “health crisis frame”, is instead oriented around the view that substance use disorders are a *medical* condition or disease rather than behavior alone. This model argues that it is instead a combination of behavior, genetics, and environmental factors that contribute to substance use disorders (Voklkow et al., 2016). The notion of addiction as a disease originated with the creation of Alcoholics Anonymous in the mid 1930’s. Dr. William Duncan Silkworth wrote in *AA Big Book* that alcoholism was a disease caused by an allergy to alcohol (Smith, 2011). One of the earliest published articles to articulate the disease model of addiction was written by Dr. E.M. Jellinek, founder of the Yale Center of Alcohol Studies. In 1946, he proposed what he called the “phases of alcohol addiction” (Jellinek, 1952). After interviewing over one thousand members of the recently popular Alcoholics Anonymous, he argued that the psychotropic and physiological effects of long-term alcohol consumption altered the brains of alcoholics and reduced their capacity to abstain from drinking (Jellinek, 1952, 1960).

Starting in 1954, this model became commonplace amongst psychiatrists due to the creation of the New York Medical Society, whose founding principle was that addiction was a disease to be treated, not a moral affliction to be punished (Smith, 2011). The disease model of addiction is the theoretical basis of the health crisis frame. This frame emphasizes the suffering of those with substance use disorders and their lack of agency to end the cycle of dependence without medical intervention (Frank & Nagel, 2017). In 2016, the surgeon general emphasized the need for state and federal governments to adopt the disease model of addiction related to the health crisis frame. He even explicitly criticized moral arguments about addiction, emphasizing blame as “ineffective” and “cruel” (Murthy, 2017). The primary difference between the moral crisis and health crisis frames are the varying degrees to which they assign agency and responsibility, as well as the degree of punishment they deem appropriate to levy against those who suffer from substance use disorders.

DIAGNOSTIC LABELS

In addition to nominal form and argumentative frame, this study also explored the potential role diagnostic labels play in conceptualizations of substance use disorders. In 2013, the most recent update to the Diagnostic and Statistical Manual (DSM-5) replaced the diagnostic terms “substance abuse disorder” and “substance dependence disorder” with “substance use disorder” (American Psychiatric Association [APA], 2020). This change reflects an attempt to simplify the diagnostic criteria for what many people colloquially referred to as “drug addiction” (Robinson & Adinoff, 2016). Prior to the DSM-5, “substance abuse” was categorized as a mild form of addiction, and “substance

dependence” was seen as a more severe form of addiction (Robinson & Adinoff, 2016; O’Brien, 2011). Throughout DSM revisions over the past 60 years, various rhetorical distinctions have been made to clarify the complicated diagnostic and clinical differences between labels like *addiction*, *abuse*, *use*, and *dependence*. (O’Brien, 2011).

The various diagnostic labels used in past iterations of the DSM each refer to a distinct set of behaviors associated with the consumption of narcotics. For example, substance *abuse* refers to the inappropriate consumption of drugs or alcohol (i.e. taking more than the recommended dosage or consuming drugs from a prescription that is not your own), while substance *dependence* refers to the neurological and psychological changes that occur when individuals consume narcotics over long periods of time (i.e. obsession with obtaining narcotics & withdrawals during abstinence). *Addiction* refers more broadly to common negative behavioral outputs related to long term dependence or abuse (i.e. stealing from family members to purchase narcotics, the inability to maintain a job, or difficulty maintaining meaningful interpersonal relationships) and is rarely used in a formal clinical setting (Jeurgens & Hampton, 2019; Robinson & Adinoff, 2016; O’Brien 2011). The label of “addiction” has been omitted from the last four editions of the DSM because it was considered a non-clinical term attached with stigma and no diagnostic advantage compared to other less stigmatized words (Rosenthal & Faris, 2019).

AGENCY, RESPONSIBILITY, AND PUNISHMENT

So far, I have focused on the ways in which noun forms and argumentative frames can affect audiences’ conceptualizations of agency. Perceptions of agency can also affect

an audience's conceptualizations of responsibility and punishment. If a human is viewed as having agency and engages in a harm-inducing behavior, they are perceived as responsible for the consequences of that behavior (Morse, 1992). If they are perceived as having an inability to modify or control their behavior, the perception of responsibility is diminished (Fincham & Jaspers, 1980). The degree to which individuals are responsible for negative behaviors is directly related to what degree of punishment audiences consider appropriate (Weiner, 1986, 1993).

Weiner (1993) asked participants to decide how much to reward or punish a hypothetical student on a failed exam. Each description of the hypothetical student differed in levels of effort and ability (Weiner, 1986). Students perceived as having low ability were punished less than others described as having high ability. Students with low effort were also punished more regardless of ability level. Weiner laid out a framework that can explain how these different constructs are related to audience perceptions of punishment. This model explains the various factors that affect perceptions of responsibility and punishment.

When failure occurs, those who are perceived as failing due to lack of effort are punished more than those who are perceived as failing due to lack of ability (Weiner, 1993). He then extends this model to include whether or not the alleged cause of the failure was within the students' control (*didn't study for test* vs. *couldn't study for test*). When failure was seen as controllable audiences responded with anger and punished the student, but when the failure was seen as outside of their control audiences responded with sympathy and did not punish them (Weiner, 1993). The perceptions of student's agency defined as the ability to engage in a desired action (passing the test) directly impacted emotional

response to the student and the relative punishment delivered. It is this relationship that underpins the constructs of crisis frames and nominal noun forms within the present study.

CURRENT STUDY AND HYPOTHESES

In past studies, the argument frames of critical and complimentary were used (McGlone & Glowacki, 2018). The topic of substance use disorders is ill-suited for this positive/negative binary. Both essays were critical of substance use disorders, and neither argued there were positive outcomes related to those disorders. The argument frames differed in the ways in which they assigned responsibility to users, as well as advocating different degrees of punishment. In line with Weiner's (1993) model, I expected the health crisis frames de-emphasis of agency to decrease perceptions of responsibility and make the prescription of treatment over punishment more persuasive. I also expected the advocacy of punishment in the moral crisis frame could be seen as derogatory if audiences don't agree with the moral crisis frames agentic arguments, and thus reduce persuasiveness (Mae & Carlston, 2005). For these reasons, I propose the following hypothesis:

H1 - Essays that frame the opioid epidemic as a health crisis will be perceived as more persuasive than essays that frame it as a moral crisis.

When the argument frames are complementary and critical, as in McGlone and Glowacki's (2018) study, the agentic factors that moderate persuasiveness are derived entirely from the nominal form used. I wanted to explore whether this effect would be influenced by argument frames that are also making agentic claims. I expect the effects of agentic descriptions within moral crisis frames would compound with the agentic features

of actor nouns. This double agentic interaction would increase perceptions of responsibility, and therefore agreement with the punishment advocated in the moral crisis frame in line with Weiner's (1993) model.

I also expect the opposite to be true. The reduced agentic features of activity nouns would compound with the de-emphasis of agency used in the health crisis frame. This would in turn decrease perceptions of responsibility, and therefore elicit sympathy and agreement that treatment is the appropriate response. These arguments are represented in my second hypotheses:

H2a - Essays that use a moral crisis frame and actor nouns will be perceived as more persuasive than essays that use a moral crisis frame and activity nouns.

H2b - Essays that use a health crisis frame and activity nouns will be perceived as more persuasive than essays that use a health crisis frame and actor nouns.

Due to the stigma commonly associated with the labels *addict* and *addiction* (Rosenthal & Faris, 2017), and the clinical associations of *abuse* and *abusers* (O'Brien, 2011), I wanted to test whether or not different diagnostic labels impacted laypersons perceptions of health messages about substance use disorders related to Weiner's model (Weiner et al., 1988). In addition to the argument frames and nominal noun forms, this study used two distinct labels for noun pairs (*addiction/addicts* and *abuser/abuses*) to measure any potential differences these diagnostic labels had on the persuasiveness of the essays. Thus, I propose my final hypotheses:

H3a - Essays that use the moral crisis frame and the diagnostic labels of *addiction* or *addicts* will be perceived as more persuasive than essays that use a moral crisis frame and the diagnostic labels of *abuse* or *abusers*.

H3b - Essays that use the health crisis frame and the diagnostic labels of *abusers* or *abuse* will be perceived as more persuasive than essays that use a health crisis frame and diagnostic labels of *addicts* or *addiction*.

Chapter 3: Method

PARTICIPANTS

Participants were 800 people recruited through a posting on an online crowdsourcing labor market called *Mechanical Turk* (www.mturk.com), one of *Amazon.com* web services hosted through their website. *Mechanical Turk* users can complete various online tasks for monetary compensation. Participants were compensated \$0.35 for their completion of my experiment. Participants had two requirements they had to fulfill in order to gain access to my experimental materials: First, they must have a registered *Amazon.com* account and be located within the United States, since my materials presume an American audience. They must also have completed at least 100 previous tasks with a 95% completion rate. These conditions were chosen as a matter of best practices in conducting online research. Peer et al. (2014) found that these “high reputation users” were more likely to follow directions and complete survey’s correctly.

STIMULUS MATERIALS

The stimuli I created were short editorial style essays written in the fashion of op-eds frequently published in various mainstream media publications, with no author or discerning source information. Initially, two essays were written using activity nouns (*addiction*), with one essay using the moral crisis frame and the other using a health crisis frame. These disparate argument frames were characterized by different causal explanations of substance use disorders (*involuntary medical condition vs. voluntary immoral behavior*), different mechanisms of solvency/harm reduction (*therapy provided*

by *medical professionals vs. punishment delivered by family members & criminal justice system*), and different emphasis' of personal responsibility (*incapability of abstaining vs. choosing to not abstain*).

These two essays were then duplicated and edited to instead use actor nouns (*addicts*). Through this editing process, I attempted to keep each new essay as close to verbatim to the original essay as possible, though frequently verb conjugation and word order were also changed to ensure tense agreement (*opioid addicts are a moral failure of society vs. opioid addiction is a moral failure of society*). These four essays were approximately the same length, and each referred to the topic eight times. The essays using the health crisis frame were, on average, 183 words long, and essays using a moral crisis frame were, on average, 191 words long. Their Flesch-Kincaid readability scores were calculated as well, with the moral crisis average score of 39.2 and a health crisis average score of 41.6 (out of 100). This makes the reading level of these essays comparable to that of a 12th grade textbook (Kincaid et al., 1981).

These four essays were then duplicated. In the new essays, I replaced each instance of the word “addict” with “abuser”, and each instance of “addiction” with “abuse”. These additional four essays were identical to the first four, except the diagnostic labels were switched. These eight essays then made up the eight different experimental conditions to which each participant would be randomly assigned. Sentence examples for each of the basic essay forms are presented in Table 1. Full examples of two essays can be found in the Appendix.

Table 1. Example excerpts from stimulus used during data collection.

Crisis Frame	Diagnostic Label	Actor Noun	Activity Noun
Moral	Addiction*	<p>Opioid <i>addicts</i> suffer from a lack of willpower.</p> <p>Opioid <i>addicts</i> are a moral failure of society that can only be dealt with by punishment from police and family members.</p> <p>Only those who are weak fall victim to becoming an opioid <i>addict</i>.</p>	<p>Opioid <i>addiction</i> is a lack of willpower.</p> <p>Opioid <i>addiction</i> is a moral failure of society that can only be dealt with by punishment from police and family members.</p> <p>Only those who are weak can fall victim to opioid <i>addiction</i>.</p>
	Abuse*	<p>Opioid <i>abusers</i> suffer from a lack of willpower.</p> <p>Opioid <i>abusers</i> are a moral failure of society that can only be dealt with by punishment from police and family members.</p> <p>Only those who are weak fall victim to becoming an opioid <i>abuser</i>.</p>	<p>Opioid <i>abuse</i> is a lack of willpower.</p> <p>Opioid <i>abuse</i> is a moral failure of society that can only be dealt with by punishment from police and family members.</p> <p>Only those who are weak can fall victim to opioid <i>abuse</i>.</p>
Health	Addiction*	<p>Opioid <i>addicts</i> suffer from a disease.</p> <p>Opioid <i>addicts</i> are a public health crisis that can only be dealt with by assistance from doctors and therapists.</p> <p>Anyone could fall victim to becoming an opioid <i>addict</i>.</p>	<p>Opioid <i>addiction</i> is a disease.</p> <p>Opioid <i>addiction</i> is a public health crisis that can only be dealt with by assistance from doctors and therapists.</p> <p>Anyone can fall victim to opioid <i>addiction</i>.</p>
	Abuse*	<p>Opioid <i>abusers</i> suffer from a disease.</p> <p>Opioid <i>abusers</i> are a public health crisis that can only be dealt with by assistance from doctors and therapists.</p> <p>Anyone could fall victim to becoming an opioid <i>abuser</i>.</p>	<p>Opioid <i>abuse</i> is a disease.</p> <p>Opioid <i>abuse</i> is a public health crisis that can only be dealt with by assistance from doctors and therapists.</p> <p>Anyone can fall victim to opioid <i>abuse</i>.</p>

DEPENDENT MEASURES

The dependent measures were collected as part of a questionnaire, which was presented to participants immediately following their completion of reading one of the eight randomly assigned essay stimulus conditions. The questionnaire contained five items that were all related to the construct of persuasiveness. These items were each a single sentence with a five-point, Likert-type scale ranging from a 1 (strongly disagree) to a 5 (strongly agree). These statements were as follows: *I agree with the author of the essay. I found the essay to be an accurate description of the issue. I thought the essay made a persuasive case. I viewed the essay as offering a fair assessment of the issue. The essay was unbiased.* These items were adapted from McGlone and Glowacki's 2014 study in which they used nearly identical items to operationalize persuasiveness. Following the dependent measures questionnaire, participants completed seven demographic questions (biological sex, age, race/ethnicity, political affiliation, parental status, and marital status). Participants were also asked two questions related to their personal and interpersonal experience with opioid dependence. These questions were: *Have you ever personally dealt with opioid dependence?* and *Has a close friend or family member ever personally dealt with opioid dependence?*

EXPERIMENTAL DESIGN AND PROCEDURES

Participants were given access to the Qualtrics hosted experimental survey via a posting on *Mechanical Turk* searching for participants in a study entitled *The Effects of Language on Attitudes Toward Substance Use Disorders*. After providing informed consent, they were then randomly assigned one of the eight experimental conditions

defined by a 2 x 2 x 2 experimental design with crisis frame (moral or health), nominal form (actor or activity), and diagnostic label (addict/addiction or abuse/abusers) as between-participant factors. They had 60 seconds to read the condition essay before being automatically taken to the next part of the survey. They could not choose to advance until they had been on the essay stimulus page for at least 30 seconds. They were not able to refer back to the essay at any point after moving onto the first set of questionnaire items. After completing the dependent measures questionnaire, the demographic questionnaire, and the personal/interpersonal experience questions, participants were shown a randomly generated 4-digit number which they were required to enter into a text box. This was used as a cross reference for payment through *Mechanical Turk*, and to add difficulty for non-human bots trying to participate in the survey. They were then shown a final screen thanking them for their participation and providing contact information to the author of the study if they had any further questions.

Chapter 4: Results

Of the 800 participants who completed the survey, 91 reported that they had personally dealt with opioid dependence, and 289 reported that a close friend or family member had dealt with this problem. A preliminary between-participants factorial ANOVA indicated no significant differences between these groups and other participants who did not report direct or family involvement with opioid dependence, $p_s > .15$ in both cases. Due to the lack of main effects for these conditions (nor interactions with the manipulated variables) and considering over half of the respondents had either personal or interpersonal experience with opioid dependence, their data were included in the subsequent analysis. However, data was discarded from 36 participants who failed to complete the survey or finished it in a time frame considered too short to take it seriously. Subsequent analyses were based on the remaining 764 respondents. On average, these respondents spent 48 seconds reading the assigned essays and spent on average 5 minutes and 44 seconds completing the entire task (reading the prompt, responding to the essay questionnaire, and completing the demographic survey).

Participants ranged in age from 18 to 78, with a mean age of 36.3 years old ($SD = 11.95$). The majority reported their gender identity as male (57%). Participants were free to select as many racial or ethnic identities as they thought were applicable, and the percentages were as follows: White (74.8%), African American (7.2%), Hispanic/Latinx (6.4%), Asian (13.8%), Native American (2.3%), and Other (1.6%). The political affiliations of each participant were also recorded, with 46% identifying as Democrats, 25% as Republican, 26% as Independents, and 1.8% as some other political affiliation.

33% of participants identified themselves as a parent to someone under the age of 18. 42% reported being married, 32.7% never married, 17.5% in a long term committed relationship but not married, 6.5% divorced or separated, and 1.2% identified themselves as a widow/widower.

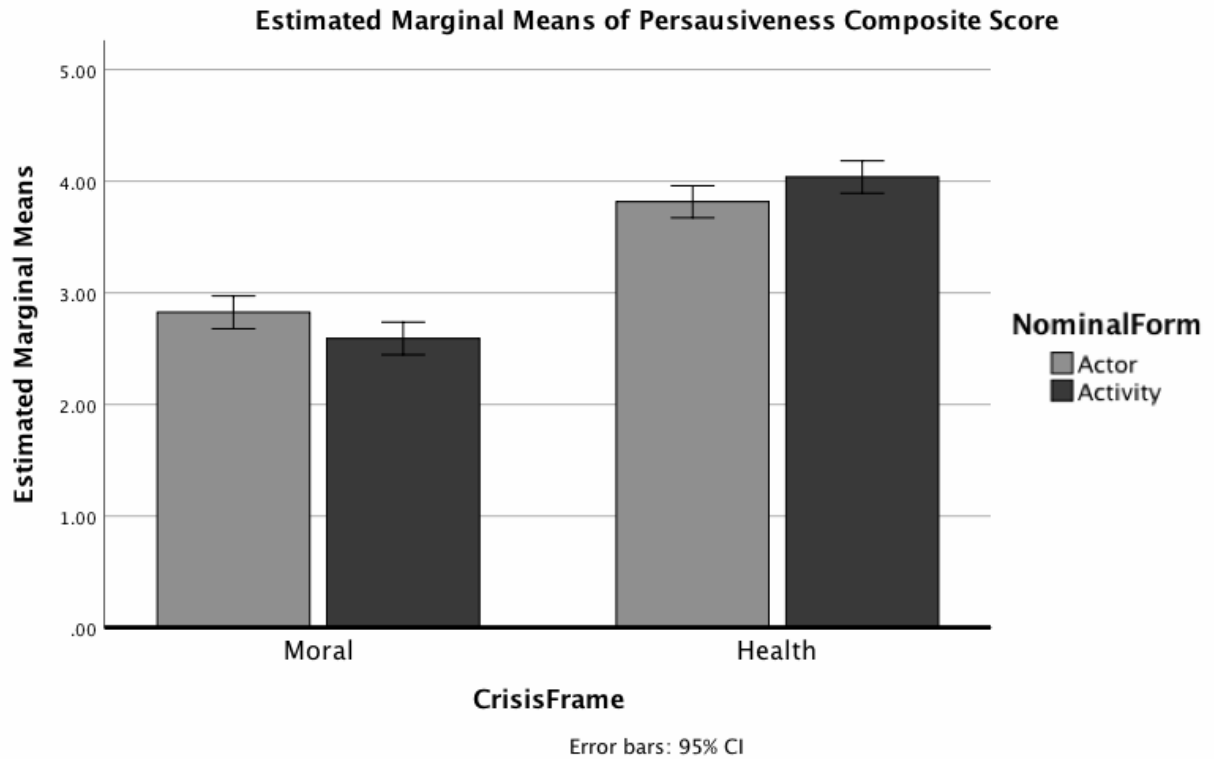
MAIN EFFECTS RELATED TO HYPOTHESES

The 5 questionnaire items used to measure persuasiveness were treated as a scale ($\alpha = .94$) and averaged into an index for analysis. A 2 (crisis frame) x 2 (diagnostic label) x 2 (nominal form) between-participants factorial ANOVA was conducted on the persuasiveness scores. This analysis revealed a main effect of crisis frame, $F(1, 755) = 270.4, p < .001$, Cohen's $d = .71$. Participants who read essays describing the issue as a health crisis perceived the essays as more persuasive ($M = 3.92, SD = 0.71$) than those who read with the moral crisis frame ($M = 2.70, SD = 1.26$), supporting H1. However, main effects were not observed for diagnostic label (addiction/addicts vs. abuse/abusers), nor for nominal form (addiction/abuse vs. addicts/abusers), $p_s > .200$ in both cases. The lack of main effects for these variables fails to support the hypothesis that there would be significant differences in persuasiveness scores based on nominal form and diagnostic label.

INTERACTION EFFECTS RELATED TO HYPOTHESES

The main effect of crisis frame was moderated by a significant crisis frame x nominal form interaction, $F(1, 755) = 9.43, p = .002, d = .28$.

Figure 1: Estimated marginal means of Persuasiveness Index by Crisis Frame and Nominal Form.



Essays with a moral crisis frame were rated as more persuasive when they employed actor nouns ($M = 2.82, SD = 1.24$) than activity nouns ($M = 2.59, SD = 1.27$). Just the opposite was observed for essays with a health crisis frame. Those with actor nouns were reliably rated as less persuasive ($M = 3.81, SD = 0.71$) than those with activity nouns ($M = 4.03, SD = 0.74$). This crossover interaction effect is illustrated in Figure 1. As predicted, respondents were more persuaded by moral crisis arguments if they were directed at actors (*opioid addicts suffer from a lack of willpower; only those who are weak fall victim to becoming an opioid addict*), rather than activities. However, they were more

persuaded by health crisis arguments if they were directed at activities (*opioid addiction is a disease; anyone can fall victim to opioid addiction*), rather than actors.

UNEXPECTED EFFECTS

No hypotheses were proposed regarding the demographic variables recorded, but several significant main effects of these variables and interactions with the manipulated variables were observed. A significant main effect of political affiliation was observed, $F(1,707) = 7.163, p = .008$. A Tukey HSD post-hoc test indicated that Republicans ($M = 3.57, SD = 0.93$) rated the essays overall as more persuasive than Democrats ($M = 3.24, SD = 1.27$) or Independents ($M = 3.22, SD = 1.22$), whose ratings did not reliably differ. This main effect was moderated by a crisis frame x political affiliation interaction, $F(1, 707) = 5.353, p = .02, d = .20$. A Tukey post-hoc test indicated that Republicans rated the essays framed in terms of a moral crisis as more persuasive ($M = 3.21, SD = 1.01$) than Democrats ($M = 2.51, SD = 1.31$) or Independents ($M = 2.57, SD = 1.27$), who did not significantly differ. However, there were no reliable differences in persuasiveness ratings for the essays framed in terms of health crisis between Republicans ($M = 3.97, SD = .694$), Democrats ($M = 3.92, SD = .683$), and Independents ($M = 3.84, SD = .779$).

There was also a significant main effect for parental status, $F(1, 747) = 12.33, p = .0005, d = .37$. Participants who reported being primary caregivers to a person under the age of 18 overall rated the essays as more persuasive ($M = 3.53, SD = 1.05$) than those who were not ($M = 3.22, SD = 1.24$). This main effect was moderated by a significant crisis frame x parental status interaction, $F(1, 747) = 4.488, p = .034, d = .11$. Parents rated the

moral crisis framed essays as more persuasive ($M = 3.00$, $SD = 1.19$) than did non-parents ($M = 2.57$, $SD = 1.27$).

Chapter 5: Discussion

THEORETICAL IMPLICATIONS

This study's primary goals were to understand how argument frames, nominalized nouns, and diagnostics labels within a message affect its persuasiveness. These goals were characterized by three hypotheses. The first hypothesis was supported by the results; the health crisis frame was perceived as significantly more persuasive than moral crisis frames across every condition and demographic variable. The second hypothesis was twofold, and both parts were moderately supported by the results; actor nouns were slightly more persuasive within editorials that used a moral crisis frame, while activity nouns were slightly more persuasive within editorials that used a health crisis frame. The final hypothesis was also twofold, but the results did not support either part; different diagnostic labels did not appear to exert a main effect on persuasiveness or in interaction with demographic variables.

These findings provide a few key insights. First, the use of moral arguments to control others' behaviors has a long history in human affairs (Churchland, 2012; de Waal, 2006). The use of morality can be best explained by the constructs known as cognitive and social blame. Cognitive blame is the private side of ascribing blame to an individual, and social blame is the public side of expressing that blame to another person. (Malle, et al., 2014). This relationship is generally framed unidirectionally, with social blame representing cognitive blame (Zaibert, 2005). Malle et al. explain that social blame requires three things to be effective at changing social behavior and being viewed as justified in the minds of observers: blame must be guided by widely shared norms intended to regulate

behavior for the good of the community, it must articulate the existence of agency in the person being blamed, and it must provide a warrant or an explanation of why blame is deserved (2014). This model offers insight into the support of the first two hypotheses.

The moral crisis frame certainly fulfills all the criteria of effective social blame. It explicitly relies on the social norm that drug abuse is bad for individuals and communities, emphasizes the agency of those who abuse narcotics, and argues their failure to stop using drugs creates harm for the people around them. The role of agency in attributions of blame are not unique to substance abuse disorders. A variety of illnesses are perceived by the public as being a result of an agentic individual's choices and are thus more deserving of blame. People diagnosed with lung cancer are assumed to be frequent smokers (Eldridge, 2020), which makes ascribing social blame easier, even when it is unfounded. This is illustrated in how individuals choose to donate their money to cancer research (Kamath et al., 2019). In 2019, a survey of Non-Profit Organizations donations to various cancers found that lung cancer made up only 1.5% of NPO funding, less than breast cancer, leukemia, or lymphoma, despite lung cancer killing *twice* as many people each year as those three cancers *combined* (American Cancer Society, 2019).

This blaming isn't restricted to just cigarette smoking. HIV patients deal with social blame and stigma surrounding cultural notions that HIV patients are sexually promiscuous or intravenous drug users (Dupree, 2015). Friends, family, and media can often frame type 2 diabetes as being *caused* by poor diet and lack of exercise, emphasizing the agency of those who have type 2 diabetes and ascribing undue blame, while excluding the other genetic and environmental conditions that cause diabetes that are not agentic (Browne et

al., 2013). I suspect the health crisis frame was more persuasive because it didn't use blame oriented arguments, which aren't as persuasive if the attribution of social blame is ineffective. Diseases like Parkinson's or leukemia automatically use the health crisis frame, since no reasonable person would argue people have agency to prevent or not contract those diseases. The health crisis frame is likely more persuasive than the moral crisis frame because the moral crisis frame emphasizes the agency and thus responsibility of those with substance use disorders. If the audience disagrees with the premise that individuals have the agency and ability to intentionally stop using narcotics, then the assignment of social blame and recommendation for punishment will not be effective (Monroe et al., 2014). This can even backfire rhetorically, if the agent fails to effectively assign social blame the prescription of punishment may look bigoted or derogatory, which reduces persuasiveness (Mae & Carlston, 2005).

Relatedly, the advantage of actor nouns in the moral crisis frame and of activity nouns in the health crisis frame show how argument frame and noun form may interact in the attribution of blame. While past research has shown that actor nouns are less persuasive than activity nouns for negative or critical argument frames (McGlone & Glowacki, 2018), this study found that actor nouns actually boosted the persuasiveness of the moral crisis frame. This is likely because of the agentic qualities imbued within actor nouns. The agentic features of actor nouns increase perceptions of agency to stop an undesirable behavior, and thus attribution of social blame is more effective. The reduction of agency within the health crisis frame, compounded with the agentic reduction in activity nouns, elicited feelings of empathy instead of blame. Since the argument frames are already

emphasizing differing levels of agency in those with substance use disorders, it appears that the essentialism of the moral crisis reifies this agency, and thus the notion of choice, making this interaction between the moral crisis frame and actor nouns more effective persuasively. The health crisis frame benefits from the abstraction of the activity nouns, which reifies the idea of addiction/abuse as a non-human entity independent from human actors. In this way, the confluence of agentic features in the nominal forms and crisis frames provided slight persuasive utility in each direction of agency.

The American Psychiatric Association has rightfully paid heed to the linguistic impact diagnostic labels can have on patients and medical practitioners (O'Brien, 2011). I expected the stigma around the diagnostic labels of *addiction* and *addict* (Rosenthal & Faris, 2017) would make them less persuasive compared to more clinical sounding labels of *abuse* and *abusers* (O'Brien, 2011) in the health crisis frame. These stigmatized diagnostic labels of *addiction* and *addicts* were expected to be seen as more derogatory which would reduce their efficacy in an argument frame that ascribes less agency or responsibility to opioid users. Such an effect was not observed in this study, suggesting that lay people likely imbue these diagnostic labels with notably less meaning than clinicians, or fail to realize that these rhetorical distinctions correlate with diagnostically distinct disorders.

There were two effects I did not expect to find at the outset. The first is the differences in perceived persuasiveness of certain messages between Republicans, Democrats, and Independents. While Democrats, Republicans, and Independents all found the health crisis frame equally persuasive, Republicans alone found moral crisis frame

more persuasive than Democrats or Independents. This finding is in line with previous research on the moderating effects of political affiliation on perceptions of public policy related to substance use disorders. Recent studies have shown that Democrats support access to therapy and construction of local clinics for treatment more than Republicans (De Benedictis-Kessner & Hankinson, 2019). The political differences related to moral and health frames can manifest in even starker ways. There is evidence to suggest that doctors of different political affiliations provide different types of treatment to patients when the medical issue in question has also been branded a political or moral issue such as abortion or marijuana use (Hersh & Goldenburg, 2016). It is likely that at least part of this political difference in attitude is related to historical partisanship of moral crisis frames. Nixon and Reagan, both Republican presidents, explicitly used a moral crisis frame. I suspect this difference in persuasiveness may be partially related to the historical residue of partisan positioning when discussing substance use disorders.

The second unexpected effect was that parents found the moral crisis frame more persuasive than non-parents. This suggests that being the primary caregiver for a child has some impact on the efficacy of moral crisis frames. I was surprised by this result. This finding may be attributable to parents being more sensitive to perceived danger of addiction and addicts to their children than non-parents. This is in line with evolutionary evidence that parents cognitively adapt in ways that make them sensitive to potential threats to their offspring (Hahn-Holbrook et al., 2011). In order to protect their children from external threats, parents may be more likely to be persuaded by messages that ascribe blame for negative outcomes in their community they find to be threatening or dangerous.

PRACTICAL IMPLICATIONS

These findings have practical implications for journalists, academics, and elected officials. First, the impact of small linguistic choices can be significant, and consequently journalists and pundits should make syntactical choices that effectively line up with their argument frames. More attention must be paid to the ways in which nominalization can obscure public health messaging. Using activity derived nouns can provide a moderate advantage within the health crisis frame, but using too many of these “zombie nouns” may detract from the ultimate goals of the messaging (Sword, 2012). These activity nouns are almost all polysyllabic, which negatively impacts the readability of essays and articles read by the general public and diminishes their ability to effectively persuade audiences. The essentialism of actor nouns also complicates this balance. In the same way the noun form “athlete” connotes stronger and more stable notions of behaviors than the adjective “athletic” (Carnaghi et al., 2008), “Dan is an opioid addict” likely connotes stronger and more stable notions of substance dependence than “Dan has an opioid addiction” (even to Dan himself). Thus, the use of actor nouns to refer to substance use disorders should ideally be avoided whenever possible within academic writing and journalism.

Second, mainstream media organizations and Republican politicians have treated the opioid crisis differently than any other major drug epidemic, which may have affected the results. Urban areas tend to skew Democratic, but rural and suburban areas tend to skew Republican. The vast majority of opioid use disorders are occurring in rural and suburban areas (Peters et al., 2019), unlike past drug epidemics that have primarily affected urban areas (Palamar et al., 2015). After an analysis of 100 popular press articles from 2001-

2011, half of which were about heroin use and half about prescription opioids, Netherland and Hansen (2016) found a consistent pattern of frames criminalizing black and Latino heroin users in urban areas, but a sympathetic frame of white rural and suburban opioid users. Thus, what has been a successful strategy for Republican politicians to ascribe blame in the past may risk stigmatizing the very voters they rely on to remain in office. Past research has found that stigma associated with addiction can reduce patients' likelihood to seek out medical attention (Bresnahan et al., 2013). Accordingly, Republican political leaders might consider shifting away from the moral frame of substance use disorders to not kill their constituencies.

LIMITATIONS AND FUTURE RESEARCH

There are four main limitations of this study. First, it used a convenience sample from a pool of participants that were predominantly white men who identify as Democrats. This demographic is not representative of the U.S. population and so cannot be reliably extrapolated to the diversity of attitudes in this population. Second, all of the essays articulate a single message (opioid dependence). Testing other examples of health-related messages with these argument frames could have increased the reliability of the observed argument frame and nominal form effects. I also only presented the stimulus through one medium of communication, a block of written text. It is unclear whether audio or video of different individuals reading this text might have produced different results. Third, I used an obviously contrived context for participants to engage with the stimuli. Since persuasion is always context dependent, it is unclear whether the results would have changed

appreciably had the stimulus essays appeared in a more natural context, such as a web page with advertisements or a news logo (Dillard & Solomon, 2006). Finally, I chose a topic that is widespread within the media and, considering over half of the respondents reported intimate interaction with opioid dependence in some form, these preexisting opinions and experiences could have affected the results. Ideally, this would have been controlled for by choosing a topic in which audiences feel more ambivalence toward or hold no strong opinion of at all.

Despite these limitations, there are various ways future research could constructively extend these findings. First, as mentioned previously, the majority of people in the U.S. who suffer from, and are treated for, opioid dependence are midwestern, white men. Not only is that demographic data numerically true, it has only been reified by unique mainstream displays of empathy in regard to coverage of the opioid epidemic compared to other drug epidemics (Netherland & Hansen, 2016). Future research should consider using the framework of this experiment with narcotics other than opioids. Crack cocaine, for example, has historically been conceptualized as a drug used predominantly by African Americans, and powdered cocaine has been conceptualized as being used primarily by white Americans (Palamar et al., 2016). This opinion is reflected in the disparate outcomes of people of color within the criminal justice system. African Americans are arrested at a higher rate (18:1) for crack cocaine usage compared to whites who used powdered cocaine, despite there being no differences in psychotropic effects or behavioral outputs between crack cocaine and powdered cocaine (Palamar et al., 2016). It is likely that notions of blame might be moderated by racial stereotypes within a sample population similar to the one I

used. Additionally, the distinction of prescription narcotics (oxycodone and hydrocodone) and illicit drugs (heroin and fentanyl) would likely have an impact on persuasiveness. Past research has suggested that illicit drug abuse is more morally charged than prescription drug abuse (Blendon & Young, 1998). Future research should consider recreating this study using different types of opioids to see if these effects change in a meaningful way.

Second, the evidence suggesting the ineffectiveness of the moral crisis frame due to the criteria needed for effective social blame is fertile ground for future research. Understanding how and why people find blame persuasive has important implications for message design, persuasion, and public health messaging. The threshold on agency and intentionality that must be reached to effectively blame others is still not entirely known, but finding out when and how messages can hit this threshold is certain to provide invaluable insight into persuasion as a field of study.

CONCLUSION

Strong persuasive arguments require attention to detail and an understanding of human psychology to maximize effectiveness. My hope is that by illuminating the ways in which nominal noun forms and argument frames interact to create different persuasive outcomes, this study contributes in a small way to reducing health stigmas around substance use disorders. The manner in which healthcare workers, elected officials, government officials, and policy writers choose to frame and discuss the U.S. opioid epidemic has important ramifications for our society. Although we may hate the sin, blaming the sinner puts at risk the lives of millions of people with substance use disorders.

Hopefully, the present study and related future research can promote health communication that encourages people to hate the sin, but also *help* the sinners.

Appendix – Essay Examples

Health Crisis Frame – Activity Noun – Addiction

There has been much debate in recent years about the impact opioid addiction has on American society. Some believe opioid addiction is a medical condition. They argue the only way to deal with this medical condition is through doctors, psychologists, and the healthcare system. Some of the worst consequences of opioid addiction are felt by friends and family members. Opioid addiction is a disease that can destroy relationships within families and erode social support systems. Opioid addiction makes people believe they need drugs to function. Opioid addiction often begins when people get their first prescription for legitimate reasons, but these drugs can be destructive to people without therapy and medical care. Most people suffering from opioid addiction say they want to stop taking the drugs, it can be nearly impossible to stop if they don't have access to the healthcare they need. Opioid addiction is a public health crisis, that can only be dealt with by assistance from doctors and therapists. Anyone can fall victim to opioid addiction. Until our country starts helping people understand and change their behaviors, more and more people will become victims of opioid addiction.

Moral Crisis Frame – Actor Noun – Addict

There has been much debate in recent years about the impact opioid addicts have on American society. Some believe opioid addicts are suffering from a moral failure of our society. They argue the only way to deal with this moral failure is through friends, family, and the criminal justice system. Some of the worst consequences of opioid addicts' behaviors are felt by friends and family members. Opioid addicts suffer from a lack of willpower that can destroy relationships within families and erode social support systems. Opioid addicts believe they need drugs to function. Opioid addicts often get their first prescription for legitimate reasons, but these drugs can be destructive to people without willpower and moral fortitude. Most opioid addicts say they want to stop taking the drugs, but still choose to continue taking the drugs. Opioid addicts are a moral failure of society that can only be dealt with by punishment from police and family members. Only those who are weak fall victim to becoming an opioid addict. Until our country starts punishing these people for their behaviors and choices, more and more people will become opioid addicts.

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