

THE ROLE OF PERCEIVED HARM IN MORALIZING HEALTH

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ABSTRACT

Amelia Louise Goranson: The role of perceived harm in moralizing health
(Under the direction of Kurt Gray)

People moralize health conditions and behaviors. Plentiful examples—both historical and current—support this notion, but little empirical work has examined moralization in this domain. Working from the Theory of Dyadic Morality, which emphasizes the key role of harm in our moral cognitions, I hypothesize that perceiving harm is key in moralizing health targets—where perceived harm is high, moralization will also be high; where perceived harm is low, moralization will also be low. Here, I present six studies to examine the role of harm in moralizing health conditions and associated behaviors. I test this by manipulating level of harm (Study 1), by comparing moralization across moral, health, and neutral targets (Study 2), by examining correlations between moralization and harms across a wider variety of health behaviors (Study 3), by manipulating responsibility and moral patient (Study 4), by examining whether harm is a predictor of moralization and moral judgment in COVID-19 related judgments (Study 5), and by examining expressed harm and moralization in statements about COVID-19 across US States (Study 6). Finding that perceiving harm contributes to moralizing within health-related targets would expand scientific understanding of how or when moralization occurs in health-related targets.

TABLE OF CONTENTS

LIST OF TABLES	vi
LIST OF FIGURES	vii
INTRODUCTION	1
Structure of morality & role of harm	2
Importance of morality	5
Moralization.....	7
Moralization and health.....	9
The current studies	11
EXPERIMENT 1: FICTIONAL DISEASE	12
Method.....	12
Participants and Design	12
Procedure and Materials	13
Results and Discussion	13
EXPERIMENT 2: MORALIZATION OF MORAL, HEALTH, AND NEUTRAL TARGETS .	16
Method.....	16
Participants and Design	16
Results and Discussion	18
EXPERIMENT 3: MORALIZATION ACROSS THE HEALTH SPECTRUM.....	27
Method.....	27

Participants and Design	27
Results and Discussion	28
EXPERIMENT 4: MANIPULATING SOURCE AND TARGET OF HARM.....	31
Method.....	31
Participants and Design	31
Results and Discussion	33
EXPERIMENT 5: MEDIATION	38
Method.....	38
Participants and Design	38
Results and Discussion	39
EXPERIMENT 6: EXPRESSED MORALIZATION AND HARM IN VIRUS.....	44
Method.....	44
Participants and Design	44
Results and Discussion	46
GENERAL DISCUSSION	50
Extensions to the current literature	50
Limitations.....	52
Future directions	54
APPENDIX A. HEALTH BEHAVIORS FROM FERRER ET AL. (2018) PAPER	58
APPENDIX B. DESCRIPTIVE STATISTICS FOR STUDY 4.....	60
REFERENCES	63

LIST OF TABLES

<i>Table 1.</i> Correlations between severity and moralization ratings across health conditions.....	29
<i>Table 2.</i> Two-way ANOVA results from Study 4.....	35
<i>Table 3.</i> Factor Analysis results for COVID-19 mediation study showing a 3-factor solution	40
<i>Table 4.</i> Distribution of statements made by governors during the week of March 13 th	45
<i>Table 5.</i> Correlations between governor statement coding and Google Trends data	47
<i>Table 6.</i> Descriptive statistics for Study 4.....	60

LIST OF FIGURES

<i>Figure 1.</i> Ratings of moralization of mild and severe disease from Study 1	14
<i>Figure 2.</i> Ratings of harm across targets.....	19
<i>Figure 3.</i> Ratings across targets on intuition.....	20
<i>Figure 4.</i> Ratings across targets of moralization	21
<i>Figure 5.</i> Ratings across targets on using force to regulate	22
<i>Figure 6.</i> Ratings of government regulation across targets.....	23
<i>Figure 7.</i> Ratings across targets of cultural relativism (action).....	24
<i>Figure 8.</i> Ratings across targets of cultural relativism (rule).....	25
<i>Figure 9.</i> Study 4 results	36
<i>Figure 10.</i> Mediation model for Study 5 testing moralization as a mediator.....	42

INTRODUCTION

Adding his opinion to the hotly debated marijuana legalization bill in New Jersey in 2018, Newark pastor Jethrow James wrote to fellow New Jerseyans, “I am concerned about what will happen to children who mistakenly believe that marijuana is safe and harmless because it's legal. What will happen to a 10-year-old whose older friend gives him a THC-infused gummy bear or cookie? And where will young adults look for jobs after smoking legal marijuana and failing an employee drug test?” (James, 2018). On the other side of the debate, Colorado representative Johnathan Singer touted that Colorado’s marijuana legalization would be “stamping out a black market that doesn’t care whether they sell to kids” (Oldham, 2019). While on opposite sides of this debate, it is clear that both of these men share a feeling of moral obligation to protect a vulnerable group—children—from a perceived potential health threat—marijuana use.

People invoke morality when speaking about health frequently in day to day life. These moralizations have applied to a diverse set of targets—from dietary choices to sexual habits—and have evolved over time, as public and private opinions shift on topics like abortion (Gallup, 2020) or smoking (Cummings & Proctor, 2014). A wide variety of health preferences and behaviors are transported into the moral realm on a daily basis. For example, individuals hotly debate whether or not we should vaccinate our children (Lyons, 2014), the importance or immorality of condom use (Sarkar, 2008), or the moral righteousness of HIV/AIDS treatment (Brock & Wikler, 2009). Today, most would agree that smoking cigarettes around children is immoral, though this topic was debated in past decades (Bell et al., 2009). While the content of

each of these arguments may seem vastly different on the surface, I argue that debates over the (im)morality of health and disease are tied together by a common thread: the perception that harm is occurring to a vulnerable entity. While the exact form of perceived harm may vary—from harms done to vulnerable populations like children, to harm via severity of a particular disease, to potential future harm through disease contagion—perceiving harm seems key in converting a health issue a moral issue. I will explore whether it is, in fact, these perceptions that harm is occurring that drive us to feel that this issue lies squarely within the moral realm. While changing moralizations certainly occur commonly, and have myriad social and personal implications, academic research on this topic is still quite new and limited in scope. In this dissertation, I will examine extant literature on morality and moralization, and will present six studies examining the role of perceived harm in moralizing health. My central hypothesis is that perceiving harm is a key precursor to moralization. When harm is perceived, morality is invoked. When harm is not perceived, it is difficult to see (im)morality occurring.

Structure of morality & role of harm

While there are a number of proposed models of the structure of morality (e.g., Moral Foundations Theory; Haidt, 2012), in this project, I will work from the Theory of Dyadic Morality (TDM; Gray & Wegner, 2011; Schein & Gray, 2018). The Theory of Dyadic Morality proposes that morality is a two-entity process, involving a *moral agent*, the doer of the (im)moral act, and a *moral patient*, receiver of the act. Importantly, TDM argues that there need not be a physical agent or patient in order for something to be considered moral or immoral. Even the perceived presence of the other half of the moral dyad is enough to put an act solidly into the moral sphere (K. Gray et al., 2014). For example, some would say that burning the American flag is an immoral behavior. This, however, is not typically because they perceive the flag as

particularly sensitive to feeling pain as it burns, but instead because they perceive a moral patient elsewhere – as harm to our patriotism or American values, for example. In this case, while there is not a clear physical moral patient, the mere perception that harm is being done is enough to make this judgment a moral one.

Not only does the Theory of Dyadic Morality argue that morality requires perception of a moral agent and a moral patient, but it also argues for a harm-based model of moral judgment. Essentially, TDM argues that when an act is seen as immoral, it is *because* we see this act as harmful. While we might talk or think about the disgusting or disloyal parts of the act, the heart of our judgments of morality and immorality are based on the perceived level of harm enacted by a moral agent on a moral patient (K. Gray & Schein, 2016; Schein & Gray, in press, 2015, 2018). In keeping consistent with this theoretical framework, I define *harm* as involving two perceived minds that are causally connected such that there is a moral agent causing harm to a vulnerable patient. This moral agent need not be another person; past work demonstrates that we see agency in many targets, including animals (H. M. Gray et al., 2007), supernatural beings (K. Gray & Wegner, 2010), robots (Bigman et al., 2019), and even in illnesses like cancer (e.g., when cancer is framed as the moral agent in battle metaphors; Ellis, Blanke, & Roach, 2015). Importantly, the more prototypical this harm is—or the more it matches our template of what “harm” should look like—the more we are likely to judge this act through a moral lens (K. Gray, 2017; Schein & Gray, 2018). Following from this theory, then, perceived harm could be multifaceted. “Harm” in the context of health could be seen in multifaceted ways: in a disease itself, in behaviors that contribute to disease spread, or in a person who possesses a health condition. While the target of perceived harm may be diverse, these perceptions should be tied by the central definition that

harm requires perceiving an agentic mind—an agent—causing a vulnerable patient to suffer. Where no agentic mind is perceived, harm will not be perceived.

In examining perceived harm in this way, this work may help unify topics such as perceived severity, perceived susceptibility (also discussed as probability or risk), or motivation to engage in protective health behaviors. For example, re-conceptualizing past work on perceived susceptibility into perceived harms may shed light on why individuals do not seem to think of health risk in a linear manner, with increasing risk tracking onto increasing susceptibility judgments. Rather, past research demonstrates that individuals are much more sensitive to changes in perceived risk at low levels—5% vs. 20% risk of being affected by an illness, for example. Conversely, they are much less likely to distinguish between the same level of difference (15%) at higher levels—between 65% and 85%, for example (Weinstein, 2000). It is possible that, at high levels of risk probability, perceptions of harm are always activated, meaning that these judgments are always include consideration of (im)morality. At lower levels, it is possible that harm is only activated after a certain threshold; for example, perhaps I do not think 5% risk is bad, but as soon as risk passes 15%, I consider it a valid source of harm potential harm, and consider moral elements when making health judgments. Further examining perceptions of harm could allow for a unified template in understanding judgments about health and wellness – where harm is perceived, perhaps severity, susceptibility, and motivation to protect one’s health are similarly activated.

Next, I will turn my attention to *why* morality may be an especially valuable lens through which to understand individuals’ ideas about health conditions and behaviors. Plentiful research supports the notion that our moral beliefs are especially important and central to our value systems and identities (Aquino & Reed, 2002; Strohmingner & Nichols, 2014), making them an

important lens through which we process most information in our social environments, including that surrounding health.

Importance of morality

Our moral perceptions and judgments are powerful. Moral codes guide our thoughts, judgments, behaviors, and even our cultures (Douglas, 1983; Hutcheson, 1726; D. A. Pizarro & Tannenbaum, 2011; Stets & Carter, 2011). Our moral beliefs are internalized, and viewed as significantly more central to the self than other types of attitudes (Skitka et al., 2005) or identities (Aquino & Reed, 2002; Strohminger & Nichols, 2014). These beliefs are so central and steadfast that individuals tend to objectify their moral beliefs (Goodwin & Darley, 2008, 2012), taking them out of the realm of subjectivity or opinion and instead viewing them as universal facts (Skitka et al., 2005). Viewing moral beliefs in this black and white, factual manner can lead us to experience strong, negative feelings of dissonance when our own behavior is inconsistent with our moral beliefs (Stets & Carter, 2011) and to feel baffled or outraged when we encounter those who think differently than we do (Skitka et al., 2005). Our moral convictions motivate not only our own behavior, but are so strong that they also motivate us to create moralization-consistent behavior change in others (Skitka, 2010; Skitka & Bauman, 2008).

The strength of our moral convictions also means that they are less likely to be changed or broken under pressure or by temptation (McCauley et al., 1998). Take, for example, two different types of vegetarians: one who abstains from meat because of moral reasons (e.g. unethical treatment of animals in factory farms, a “moral vegetarian”) and one who abstains from meat because he or she believes that eating meat is not healthy (e.g. their body will feel or function better when abstaining from meat, a “health vegetarian”). Moral vegetarians, whose meat-eating status is tied to their moral code, are more likely to find meat disgusting and are less

likely to feel tempted by smell or sight of meat compared to health vegetarians, whose meat-eating status is not a value tied to their moral code but is instead a preference (Rozin, Markwith, & Stoess, 1997).

This process of internalizing moral values—especially those related to immorality—occurs frequently over time, and commonly spreads from individual beliefs, to larger social institutions such as government policies (Rozin & Singh, 1999). For example, when individuals believe that it is morally right to protect children from preventable disease through vaccination, they may translate these personal values into political action by writing to government officials, creating impetus for law surrounding vaccination. This process of internalizing moral values and spreading them through larger social intuitions has been proposed as one of the central routes to acquiring a culture (Deci & Ryan, 1985).

Early work by Richard Shweder and colleagues argued that the world operates under three main moral codes: autonomy, community, and divinity. While each of these codes may be relevant to our lives, Shweder, Much, Mahapatra, & Park (1997) argued that the dominant moral code in the West is autonomy, which places harm to others as the central requirement for moral judgments. Within the American system, Shweder and colleagues argued, we moralize individual activities where we see these activities causing harm to others. For example, though the idea of smoking a cigarette may be disgusting to an individual person, under the code of autonomy, this would not be a sufficient requirement for thinking that smoking is immoral. Indeed, research finds that, though many individuals do find smoking disgusting, this is not the reason they cite for believing that smoking is immoral (Rozin, 1999a). Instead, they speak to the harmful effects of smoking on other individuals (e.g., secondhand smoke) as their primary reason for believing that smoking is morally wrong, indicating endorsement of this “autonomy” principle.

Supporting this idea of a harm-based Western moral code, other research demonstrates a negativity bias in our moral cognitive machinery. Individuals are more sensitive to the potential influence of immoral forces in their lives than moral forces (Baumeister et al., 2001; Paul Rozin & Royzman, 2001). Some have gone so far as to propose that the most effective way to enforce social norms is to link them to morally-relevant negative emotions like disgust (Rozin & Fallon, 1987). This suggests that our moral minds seem to be especially tuned to potentials for harm in our environment, whether that harm is a negative social consequence, physical harm, or harm to our group.

Taken together, the literature suggests that our moral convictions go beyond traditional attitudes in that they are seen as more central, more objective, and more centered on harm to others. This supports the harm-based model of dyadic morality (K. Gray & Wegner, 2011a; Schein & Gray, 2018) and my hypothesis that perceptions of harm may be central to the way we think about morality in health. While work on the importance and centrality of morality is plentiful, work on moralization is still limited. Next, I discuss the current state of literature on moralization, and define moralization for this thesis.

Moralization

As the literature on moralization has grown, it is clear that definitions and measures of moralization remain diverse. While work on moralization has primarily occurred since the late 1990's, this concept does pop up earlier in the century, most notably from John Dewey and Lawrence Kohlberg. Dewey's early efforts to define a scientific framework for studying morality was based around the idea that understanding how norms and goals were formed in the past could inform the way that things were placed into the moral sphere at present (Dewey, 1902; Dewey & Tufts, 1932). A few decades later, as part of his cognitive-developmental theory

Kohlberg used the term “moralization” to describe a person’s progress through the stages of moral reasoning in his cognitive-development model (Kohlberg, 1976). Most work, however, has occurred since the late 1990’s. I will focus on this later work to inform my current understandings.

After noticing that the moral status of a target activity—vegetarianism in this case—changed over time in his own work, Paul Rozin and colleagues (1997) decided that this change was potentially meaningful, and merited further scientific inquiry. Rozin’s early work focused on the idea that moralization occurs when preferences—which previously did not have moral value—are converted into values, and thus imbued with morality (Rozin, 1999a; Rozin et al., 1997). Later work added that the object, action, or idea that is moralized then takes on additional, unique properties beyond those of a typical attitude; namely, we tend to experience our moral convictions as facts or universal truth, rather than simple preferences or tendencies (Skitka, 2010; Skitka et al., 2005; Tetlock et al., 2000). Further work adds that moralization can be malleable, with Pinker (2008) arguing that moralization is a “mind-set that makes us deem actions immoral (“killing is wrong”), rather than merely disagreeable (“I hate Brussels sprouts”), unfashionable (“bell-bottoms are out”), or imprudent (“don’t scratch mosquito bites”).” These varying definitions, while broad, all point to moralization as a change from preference to value that causes us to view the target of moralization in a black and white manner – either the object is now morally virtuous or villainous, with little in between.

Early research begins to circle around a definition of moralization but leaves some questions unanswered. Though Rozin and colleagues argued that they were studying the *process* of moralization, their studies often used correlational or cross-sectional study design (see, for example, Rozin, 1999; Rozin et al., 1997; Rozin & Singh, 1999), making it difficult to draw

conclusions about moralization as a longitudinal process. One recent study by Feinberg, Kovacheff, Teper, & Inbar's (2019) does focus on the longitudinal process of moralization—of eating meat, in this case. Feinberg & colleagues (2019) find that, while there are many factors that contribute to moralization, in their studies, the two strongest predictors of moralization were: experiencing moral emotions (e.g., guilt) in response to learning and thinking about the issue of meat consumption, and “moral piggybacking,” or connecting the issue of meat eating to one’s extant moral principles. In other words, Feinberg et al.’s (2019) participants moralized when they connected meat eating to a moral patient being harmed, and when they were better able to connect meat eating to other core values they held.

While definitions of moralization in the literature are varied, for the purposes of this project, I will define *moralization* as individuals perceiving a target to be part of the moral domain – as “being a moral issue” for them. Targets have the potential for moralization when there is a perceived agentic force causing harm to a perceived vulnerable patient. This dissertation adds to the current literature on moralization in its exploration of harm in the process of moralizing a target. While past work has examined a variety of potential contributors—including disgust (Paul Rozin et al., 1997), harm (Feinberg et al., 2019), and family influences (Rozin, 1999)—and finds promising initial evidence that harm is a good predictor, this thesis will more closely examine the role of perceived harm. Thus far, I have discussed the dyadic structure of morality, the importance of morality, and past definitions of moralization. Now, I will shift my attention to current work on moralization and health.

Moralization and health

It is easy to think of examples—both current and historical—of individuals moralizing health. In fact, some argue that moralization is particularly likely to occur within the domain of

health as a result of the “deep and pervasive link between health and moral status” (Rozin, 1999, p. 218) which spans both cultures (Kleinman & Kleinman, 1997) and time (Thomas, 1997). History is rife with examples of the strong relation between health and moralizing, as behaviors and objects that were considered to be harmful to one’s health were also promoted as immoral (Gusfield, 1984; Levenstein, 2003; Whorton, 2014). In the 1800’s, for example, Dr. Adam Clarke put forth vehement claims in his guide to human health that “neither the plague, nor war, nor small-pox, nor similar diseases, have produced results so disastrous to humanity as the pernicious habit of onanism” (i.e. masturbation; quoted in Kellogg, 1890, p. 233). Clarke’s arguments are clearly based on perceptions of harm. Clarke thought this behavior was so harmful, in fact, that he compared it to the most destructive diseases and human acts that were present in the 1800’s. While topics of moralization in health may have shifted over time, today impassioned debates rage about the morality of smoking, drinking, vaccinating, sexual activity, and many other health-related behaviors. I propose that health-related targets are moralized when harm is perceived as occurring; or stated differently, when one perceives that an agentic entity is causing a vulnerable entity to suffer. This definition means that the target of health-related moralization could be quite diverse—from biological (e.g., disease, virus) to behavior (e.g., washing hands), to a person (e.g., someone with AIDS). This definition would predict that moralization occurs when we can find an agentic mind to assign blame to. For example, if one perceives cancer as an evil force invading a patient’s body, perhaps they will moralize cancer; if they perceive cancer simply as rapidly dividing abnormal cells without a mind, they will not moralize cancer.

It seems, as definitions would predict, that moralizations of health-related conditions and behaviors go beyond one’s health-related attitudes and are transmitted into value systems in our

social groups (Rozin & Singh, 1999). Further supporting this health-moralization link is work showing that individual concern with getting infections is highly correlated with aversion to immorality (Rozin, Markwith, & McCauley, 1994), and work showing that we are more likely to moralize out-group members' illnesses than in-group members' illnesses (Nemeroff, 1995). In my dissertation, I will expand the small literature on moralization of health conditions and behaviors by investigating the role of perceived harms.

The current studies

Here, I present six studies designed to test the idea that perceived harm and moralization of health conditions and health-related behaviors are linked. In Study 1, I examine how manipulating level of harm impacts moralization. In Study 2, I examine moralization across moral, health, and neutral targets. In Study 3, I examine the relationship between moralization and harm across a variety of health conditions using a secondary dataset. In Study 4, I manipulate the moral agent (corporation, individual) and patient (adult, child) and discuss how moralization changes across these targets. In Study 5, I test a mediation model with harm predicting endorsement of moral punishment, mediated by moralization. In Study 6, I turn to archival data—governors' press releases about COVID-19—to examine moralization in health within a more applied domain. Taken together, these studies provide partial, preliminary evidence for the important role of perceived harm in moralizing health.

EXPERIMENT 1: FICTIONAL DISEASE

In a pilot study, I examined the initial relationship between harm and moralizing by manipulating perceived harmfulness of a fictional disease. While morality is often invoked in discourse about disease, I hypothesize that these moral reactions will be especially strong when the disease is described as more harmful. If I find that moralization increases when a disease is described as more harmful, this will be promising initial support of my hypothesis. In this study, I hypothesized that when harm is greater (the disease is described as more harmful), it will be more moralized. My dependent variables were adapted from a seminal moralization paper from Rozin & Singh (1999), which examined moralization of smoking behaviors. Here, I apply them to this fictional disease.

Method

Participants and Design

An a priori power analysis using G*Power 3.3 indicated that a sample of 100 participants would be sufficient based on 80% power to detect effects and a medium effect size. Participants were collected via Amazon's Mechanical Turk (mTurk) platform, which has been shown to provide results comparable on reliability and quality to traditional data collection methods (Buhrmester et al., 2011). The pilot sample includes 101 mTurk workers (46 male, 55 female, $M_{age} = 35.97$, $SD = 11.91$). Participants were located in the United States, and had to have a pass rate of at least 95% on prior mTurk HITs in order to participate in this study.

Procedure and Materials

After consenting, participants read a short description of the disease *madobactococcus*, which was described as either a severe or mild disease in this between-subjects manipulation.

The descriptions read as follows:

Mild (low harm): “A new disease caused by the *Madobactococcus* virus is a mild respiratory infection that mainly affects the nose and throat. Its symptoms are mild: a runny nose, sore throat, and slight fatigue. With over the counter medicine, most people get over the infection within a week.”

Severe (high harm): “A new disease caused by the *Madobactococcus* virus is a serious respiratory infection that mainly affects the nose and throat. Its symptoms are serious: a runny nose, sore and swollen throat, and severe fatigue. With treatment from a doctor, most people get over the virus in 2-3 weeks. If no treatment is sought, the virus can result in hospitalization or death.”

Next, participants rate the disease on moralization items (adapted from Rozin & Singh (1999)) measuring morality (perceived harm of disease, perceived (im)morality of disease), contagion (not washing hands which contributes to spread of illness, actively contributing to spread of illness should be illegal, would be bothered to be in the same room as someone with the disease, disease is unhealthy), and liking (would be okay with starting a new friendship with someone with the disease). Items were rated on 1 – 4 Likert scales, with lower scores indicating low levels of condemnation and higher scores indicating higher levels of condemnation.

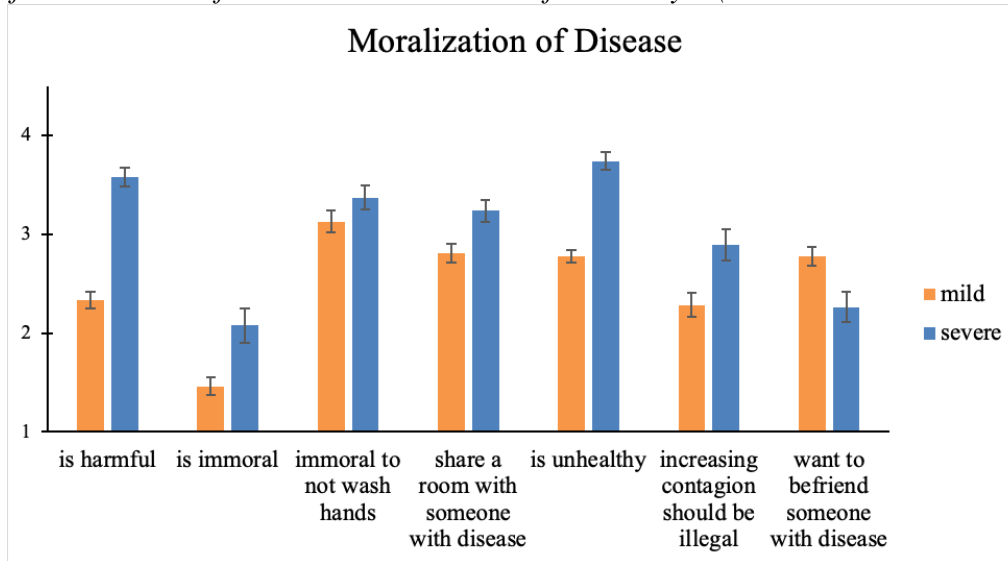
Results and Discussion

I used an independent samples *t*-test to examine moralization of the disease when harmfulness is manipulated (mild, severe). This *t*-test revealed differing perceptions of the mild versus severe

diseases on : perceived harm ($t(99) = -1.40, p < .005, 95\% \text{ CI } [-1.51, -0.98]$), immoral ($t(99) = -3.47, p = .001, 95\% \text{ CI } [-0.97, -0.27]$), immorality of increasing likelihood of contagion by not washing hands ($t(99) = -1.40, p = .16, 95\% \text{ CI } [-0.58, 0.10]$), making active spread of disease illegal ($t(99) = -3.03, p = .003, 95\% \text{ CI } [-1.01, -0.21]$), being bothered by being in the same room as someone with the disease ($t(99) = -2.80, p = .006, 95\% \text{ CI } [-0.72, -0.12]$), perceiving the disease as unhealthy ($t(99) = -8.74, p < .001, 95\% \text{ CI } [-1.18, -0.74]$), and wanting to start a new friendship with someone who currently has the disease ($t(99) = 3.11, p = .002, 95\% \text{ CI } [0.19, 0.84]$). See Figure 1.

Figure 1.

Ratings of moralization of mild and severe disease from Study 1 (error bars indicate SE).



In Study 1, I find some initial evidence for the basic relationship between harm and moralization. This lends preliminary support to the idea that the more an individual perceives a disease as harmful, the more that they will moralize in related judgments (that disease, behaviors associated with it, or individuals who have it). Finding that higher perceptions of harm are related to higher levels of moralization might help explain a myriad of social phenomena and provides many avenues for future research. For example, will political or religious beliefs affect

how or where individuals moralize? It certainly seems that ideology influences the narratives different groups create surrounding their moralizations, but there is little empirical work on this to date. Understanding how these belief-related individual difference traits impact moralizations is out of the scope of this dissertation, but will be an important direction for future work on moralization to further explore. Study 1 provides promising initial evidence that perceiving higher levels of harm is related to moralization, but many questions remain. In Study 2, I expand my targets beyond the disease used here, and examine moralization across multiple targets that are explicitly moral, health-related, or neutral.

EXPERIMENT 2: MORALIZATION OF MORAL, HEALTH, AND NEUTRAL TARGETS

In Study 2, I expand my examination of perceived harm and moralization to include moral, health, and neutral targets. I predict that, for the moral items (murder, child abuse, and embezzlement), participants endorse all as harmful and moralized (or, as a moral issue). The health items (tobacco, obesity, HIV, and opioids), should show a similar pattern of participants endorsing the harm and morality items. That is, if they are seen as moralized, they should also be seen as harmful. Finally, I would not expect the neutral targets (reading the newspaper, online dating) to be seen as harmful or moralized. In Study 2, I include a number of items from past work on morality, included to measure harm and moralization directly, but also to test some associated relationships. In line with arguments that moral beliefs are objectified (e.g., Skitka et al., 2005), behaviors and beliefs that are moralized should also be seen as intuitively “just wrong,” regardless of the culture or authority of the individual doing them. Study 2 will provide initial support for the hypothesis that health items that are frequently moralized should show the same patterns as items that are explicitly moral in nature.

Method

Participants and Design

Participants. An a priori power analysis using G*Power 3.1.9.2 (Faul, 2014) based on a medium effect size ($f = 0.25$) and 80% power to detect effects indicated that the sample size should be 252 participants. We collected a sample of 252 participants (157 male, 93 female, 2 unreported, $M_{age} = 34.29$, $SD = 10.26$) using Amazon’s Mechanical Turk. All participants were located in the United States, and had a pass rate of at least 95% on prior mTurk HITs. After

removing participants who did not pass attention checks, the final sample includes 243 participants (153 male, 90 female, $M_{age} = 34.42$, $SD = 10.29$).

Procedure. This survey was administered through Qualtrics. After consenting to participate, participants read a brief set of directions describing the task. Then, all participants rated the three moral targets (murder, child abuse, embezzlement), four health targets (tobacco, obesity, HIV, opioids) and two neutral targets (reading the newspaper, online dating) on each of the following dependent measures¹ on Likert Scales of 1 (strong disagree) to 7 (strong agree), with the exception both culture items which were on a 1 (agree that this is okay) – 3 (do not agree that this is okay) scale, in keeping with past work (Nucci et al., 1983). Items were presented in randomized order:

Harm: “Please indicate how much you think each of the following are harmful”

Intuition (Haidt, 2001): “When I think about this, I ‘just know’ it is wrong.”

Moralization: “I feel that this is a moral issue for me”

Regulation (Gostin, 1997): “Please indicate how much you think the government should regulate each of the following”

“Please indicate how much you think it is okay to use force to stop someone from doing each of the following”

Cultural relativism (Nucci et al., 1983): “Suppose there is another country in which there is no rule against each of the following. Is it okay to do each of the following?”

“Suppose there is a country in which there is no rule against each of the following. Is it alright not to have a rule against each of the following?”

¹ With citations, when adapted from previous work.

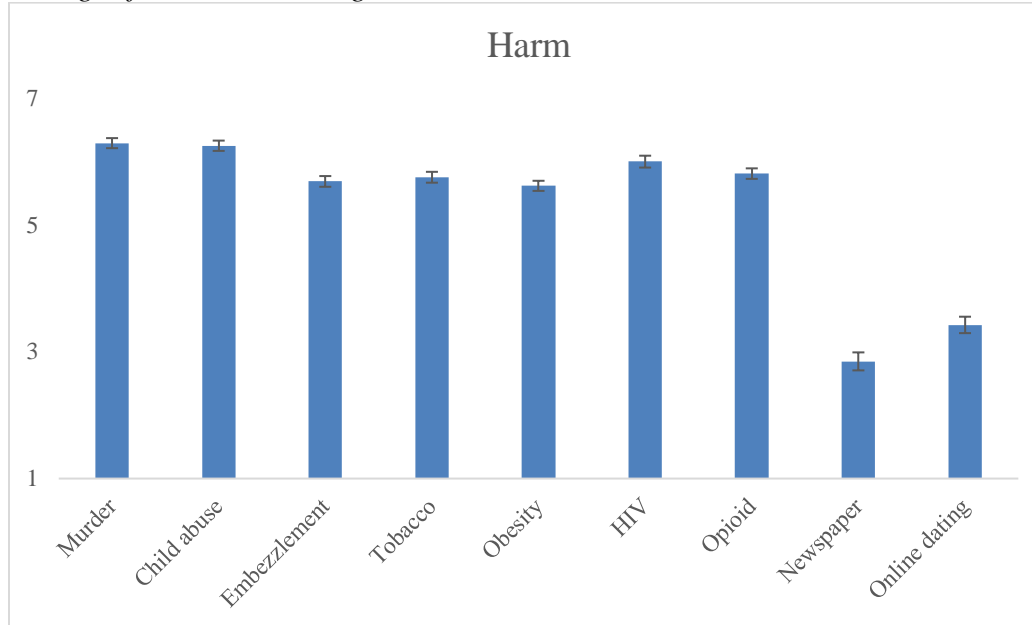
Results and Discussion

To compare ratings of moral, health-related, and neutral targets on each DV, I ran within-subjects ANOVAs. I will report results for each measure below.

Harm. A repeated measures ANOVA revealed that perceived harmfulness differed across the moral, health, and neutral targets in this sample, $F(2.47, 597.19) = 191.60, p < .001, \eta_p^2 = 0.44$. See Figure 2. Post hoc tests revealed that murder ($M = 6.30, SD = 1.24$) and child abuse ($M = 6.26, SD = 1.27$) were seen as significantly more harmful than the other targets ($ps < .001$). Embezzlement ($M = 5.70, SD = 1.32$) was seen as significantly less harmful than murder and child abuse, but non-significantly different than the four health targets ($ps > .10$). All of the health items—tobacco ($M = 5.76, SD = 1.34$), obesity ($M = 5.63, SD = 1.25$), HIV ($M = 6.01, SD = 1.46$), and opioids ($M = 5.82, SD = 1.30$)—were rated as non-significantly different from embezzlement and from one another, with the exception of obesity and HIV, which were seen as significantly different on harm. All health targets were seen as significantly less harmful than murder or child abuse, and more harmful than both neutral targets. Reading the newspaper ($M = 2.85, SD = 2.21$) and online dating ($M = 3.42, SD = 2.03$) were seen as significantly less harmful than all other targets ($ps < .001$).

Figure 2.

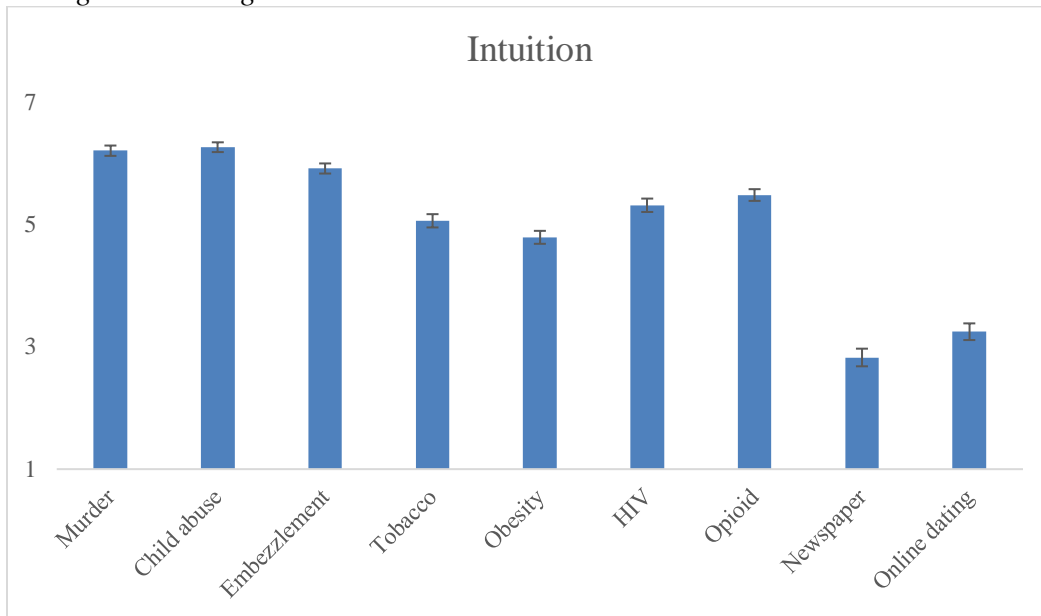
Ratings of harm across targets.



Intuition. Next, I examined differing perceptions of moral intuition that each target was “just wrong.” A repeated measures ANOVA revealed that perceived intuitive wrongness differed across the targets in this sample, $F(3.31, 803.92) = 155.33, p < .001, \eta_p^2 = 0.39$. See Figure 3. Post hoc tests revealed that murder ($M = 6.21, SD = 1.32$) and child abuse ($M = 6.27, SD = 1.25$) were seen as significantly more intuitively wrong than the other targets ($ps < .001$). Embezzlement ($M = 5.92, SD = 1.29$) was seen as significantly less intuitively wrong than murder and child abuse, but significantly more intuitively wrong than the four health targets ($ps < .01$). Tobacco ($M = 5.06, SD = 1.70$) was rated as significantly less intuitively wrong than all 3 moral items ($ps < .001$) as well as opioids ($M = 5.45, SD = 1.50$). Differences between tobacco ratings and ratings of obesity and HIV were non-significantly different ($ps > .10$). Obesity ($M = 4.80, SD = 1.66$) was rated as significantly less harmful than all moral items, as well as HIV and opioids ($ps < .001$). It was rated non-significantly different from tobacco ($p = 0.37$). HIV ($M = 5.32, SD = 1.71$) and opioids ($M = 5.49, SD = 1.50$) were non-significantly different from one

another, but were rated as less intuitively wrong than the moral items, and more wrong than the neutral targets. Reading the newspaper ($M = 2.82, SD = 2.26$) and online dating ($M = 3.25, SD = 2.13$) were seen as significantly less intuitively wrong than all other targets ($ps < .01$).

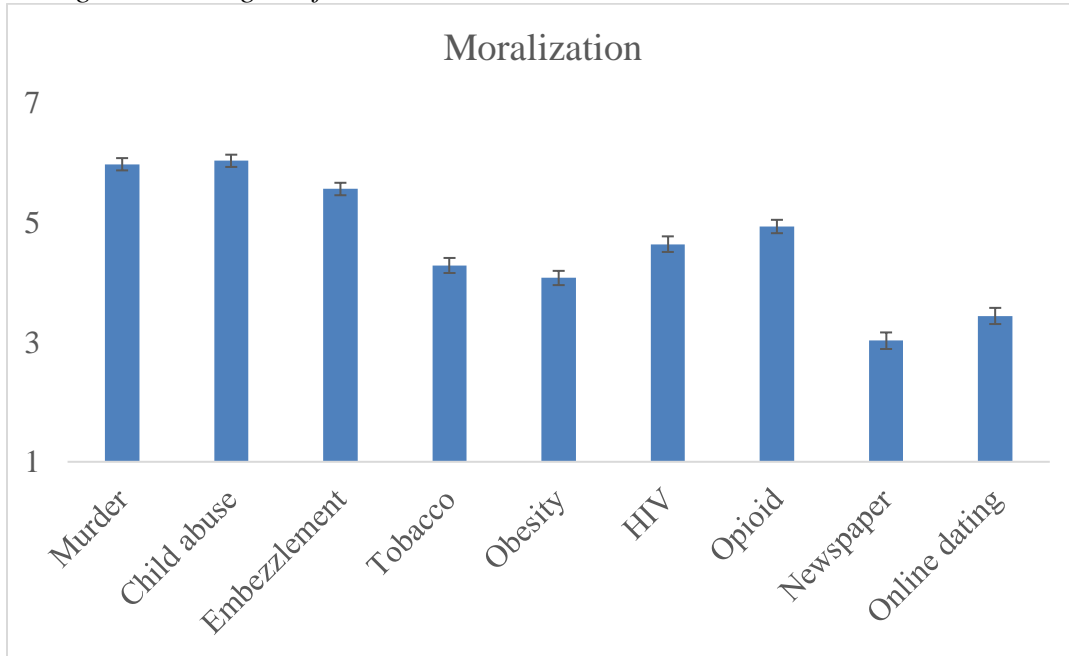
Figure 3.
Ratings across targets on intuition.



Moral issue. A within-subjects ANOVA revealed that moralization differed across the targets in this sample, $F(3.94, 958.62) = 106.01, p < .001, \eta_p^2 = 0.30$. Please see Figure 4. Post hoc tests revealed similar patterns to the previous two items: murder ($M = 5.97, SD = 1.60$) and child abuse ($M = 6.03, SD = 1.60$) were seen as non-significantly different and were most moralized ($ps < .001$). Embezzlement was next most moralized, significantly less than murder ($p = .004$) or child abuse ($p < .001$), but significantly more than all health and neutral targets ($ps > .001$). Opioids ($M = 4.93, SD = 1.74$) were most moralized among the health targets; this was not rated significantly differently than HIV ($M = 4.64, SD = 2.04, p = 0.47$), but was rated as significantly more moralized than tobacco or obesity ($ps < .001$). Moralization of tobacco ($M = 4.28, SD = 1.97$) did not differ significantly from obesity ($p = 1.00$) or HIV ($p = 0.43$). Finally,

reading the newspaper ($M = 3.02$, $SD = 2.16$) and online dating ($M = 3.43$, $SD = 2.11$) were least moralized, significantly less so than all other targets.

Figure 4.
Ratings across targets of moralization.

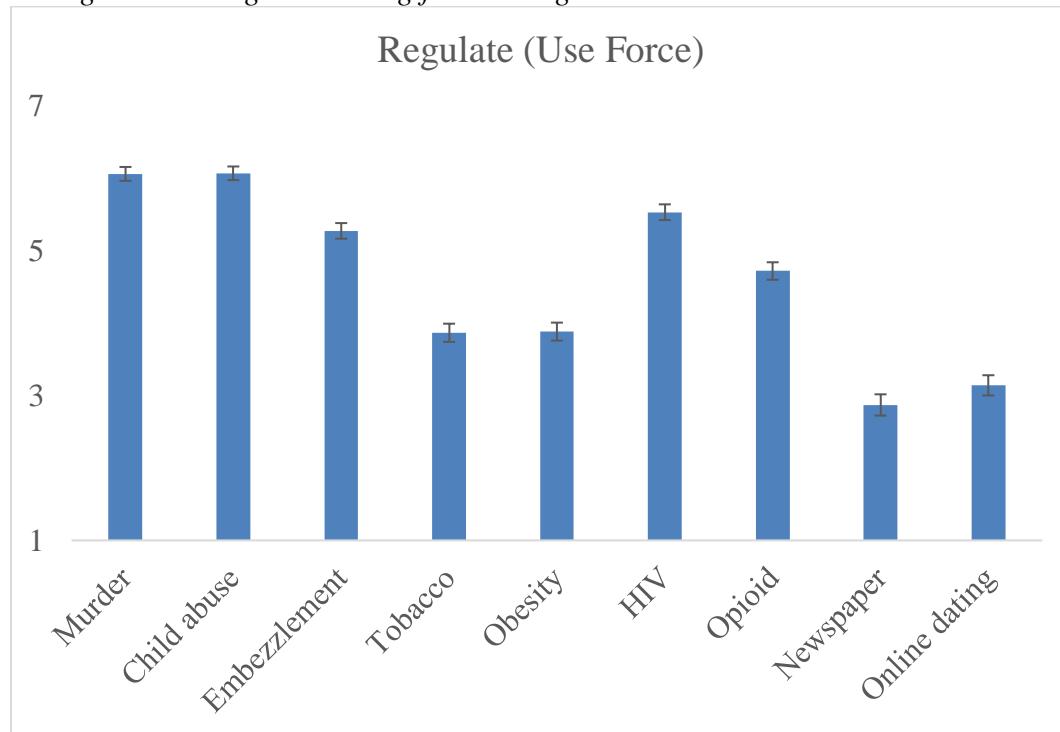


Regulation (use force). A within-subjects ANOVA revealed that endorsement of using force to regulate differed across the targets in this sample, $F(2.87, 696.57) = 132.42$, $p < .001$, $\eta_p^2 = 0.35$. See Figure 5. Mirroring previous findings, post hoc tests revealed non-significantly different ratings of murder ($M = 6.05$, $SD = 1.50$) and child abuse ($M = 6.07$, $SD = 1.47$, $p = 1.00$), which were most highly rated. Embezzlement ($M = 5.27$, $SD = 1.69$) was rated as significantly lower on “use force” than murder and child abuse ($ps < .001$), and higher than nearly all other items ($ps < .001$) with the exception of HIV ($M = 5.52$, $SD = 1.70$), which was not rated significantly differently from embezzlement ($p = 1.00$). HIV was rated as significantly higher on “use force” than all other health targets ($ps < .001$). Opioids ($M = 4.72$, $SD = 1.88$) were next highest rated, and were rated as significantly higher ($ps < .001$) than tobacco ($M = 3.86$, $SD = 1.96$) or obesity ($M = 3.88$, $SD = 1.94$), which did not differ from one another ($p =$

1.00). Finally, the neutral items reading the newspaper ($M = 2.87$, $SD = 2.29$) and online dating ($M = 3.13$, $SD = 2.19$) were significantly lower on use force than all other targets ($ps < .001$), and were not significantly different than either other ($p = 0.13$).

Figure 5.

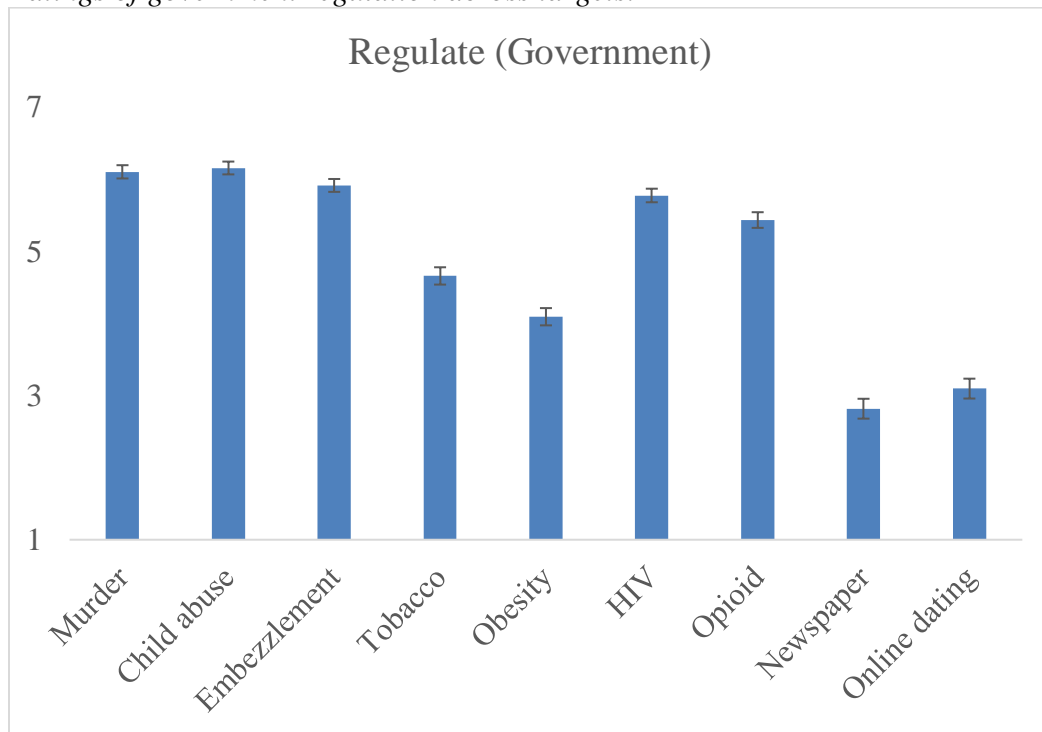
Ratings across targets on using force to regulate.



Regulation (government). A within-subjects ANOVA revealed that endorsement of using force to regulate differed across the targets in this sample, $F(2.93, 710.26) = 163.94$, $p < .001$, $\eta_p^2 = 0.40$. See Figure 6. Post hoc tests revealed that the moral targets—murder ($M = 6.09$, $SD = 1.43$), child abuse ($M = 6.15$, $SD = 1.38$), and embezzlement ($M = 5.91$, $SD = 1.39$)—were rated highest, and were non-significantly different from one another on government regulation endorsement ($ps > .10$). Moral items were rated significantly higher than other targets (all $ps < .001$), with the exception of a non-significant difference between embezzlement and HIV ($M = 5.77$, $SD = 1.46$) ratings ($p = 1.00$). Nearly all health targets—tobacco ($M = 4.66$, $SD = 1.87$), obesity ($M = 4.09$, $SD = 1.87$), opioids ($M = 5.43$, $SD = 1.69$), and HIV—were rated as

significantly different from one another, and all other targets ($ps < .001$). The only exception was HIV, as discussed above. Finally, the neutral targets reading the newspaper ($M = 2.81, SD = 2.15$) and online dating ($M = 3.09, SD = 2.15$) were rated as lowest on endorsement for government regulation and were non-significantly different from one another (though marginal, $p = 0.53$).

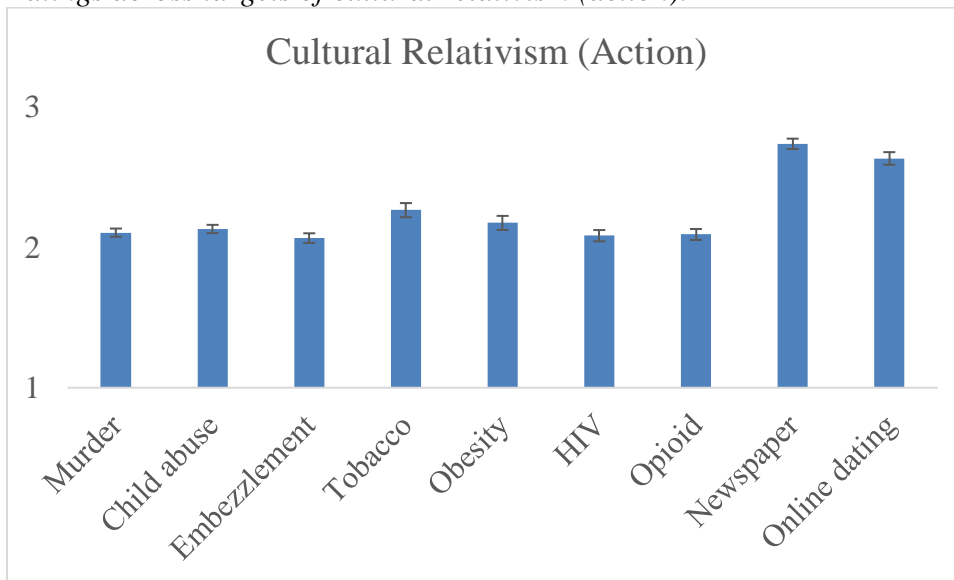
Figure 6.
Ratings of government regulation across targets.



Cultural Relativism (Action). A within-subjects ANOVA revealed that ratings of the cultural relativism (action) item differed significantly across the targets in this sample, $F(6.37, 1466.55) = 47.49, p < .001, \eta_p^2 = 0.17$. See Figure 7. Post hoc tests revealed that the moral targets—murder ($M = 2.10, SD = 0.44$), child abuse ($M = 2.12, SD = 0.45$), and embezzlement ($M = 2.06, SD = 0.51$)—were not rated significantly differently from one another ($ps > .05$), nor were they rated differently than the health targets—tobacco ($M = 2.26, SD = 0.76$), obesity ($M = 2.17, SD = 0.76$), opioids ($M = 2.09, SD = 0.76$), or HIV ($M = 2.08, SD = 0.61$, all $ps > .05$).

Across the board, participants are not endorsing acceptability of these targets even if they are culturally acceptable. Further, these post hoc tests reveal that reading the newspaper ($M = 2.74$, $SD = 0.56$) and online dating ($M = 2.63$, $SD = 0.68$) are seen as significantly more acceptable to do than all other targets rated ($ps < .001$), and are non-significantly different from one another ($p = 1.00$).

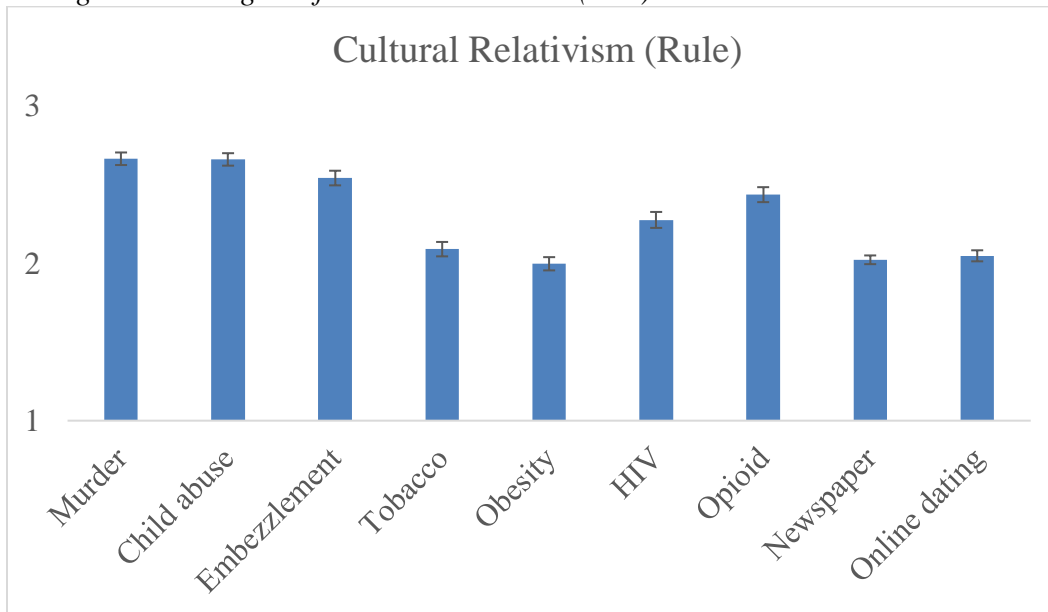
Figure 7.
Ratings across targets of cultural relativism (action).



Cultural Relativism (Rule). A within-subjects ANOVA revealed that ratings of the cultural relativism (rule) item differed significantly across the targets in this sample, $F(6.34, 1496.36) = 53.71$, $p < .001$, $\eta_p^2 = 0.19$. See Figure 8. Post hoc tests revealed that the moral targets—murder ($M = 2.66$, $SD = 0.61$), child abuse ($M = 2.66$, $SD = 0.60$), and embezzlement ($M = 2.54$, $SD = 0.72$)—were rated highest (most wrong not to have a rule regulating them) and were non-significantly different from one another ($ps > .10$) and significantly worse than all other targets ($ps < .01$). The health targets break into two general groups, with HIV ($M = 2.27$, $SD = 0.78$) and opioids ($M = 2.43$, $SD = 0.73$) rated as next most wrong to not regulate and non-significantly different from one another ($p = 0.32$). Tobacco ($M = 2.08$, $SD = 0.70$) and obesity

($M = 2.00$, $SD = 0.65$) were rated as significantly less in wrong to skip regulating in this culture than the previous health and moral items, and were not rated significantly differently than reading the newspaper ($M = 2.02$, $SD = 0.42$) or online dating ($M = 2.04$, $SD = 0.54$, $ps = 1.00$).

Figure 8.
Ratings across targets of cultural relativism (rule).



This study provides initial, partial support for my hypothesis that moralization occurs where we perceive harm. Moral targets were rated as highest in harmfulness, moral intuitions that they were “just wrong” and moralization; these targets were followed by health targets (HIV and opioids, then tobacco and obesity), and finally neutral targets. In the future, with a larger sample in order to have adequate statistical power, it will be useful to use multilevel modelling to analyze these data so that we can model error across ratings as well as within individuals. Further, I only examined a small number of health-related targets in this study. I find variability in the perceived harmfulness and moralization of these targets, but it is possible that different relationships would emerge upon examination of a wider variety of health conditions or behaviors. This study shows a preliminary pattern that some health targets are judged differently

than others – in this case, HIV and opioids were at times judged more severely than tobacco or obesity.

Future work could examine perceived agency in each health target in order to get a better understanding of harm as a mechanism; if some health targets or conditions are perceived as less agentic than others, they should also be less moralized. Perhaps this could be one factor contributing to the differences in ratings across the health targets in this study: if, for example, more agency is perceived in HIV than obesity, it would follow that HIV should be more moralized. For example, past work suggests that some types of cancer—cervical and lung cancer—may be seen as more immoral than other types of cancer because of the health behaviors that are sometimes associated with the onset (e.g., smoking or promiscuous sex; Dyer, 2010).

Future work might also consider the effect of base rates on these results. Perhaps perceptions of high or low base rates of health conditions could influence the health-moralization relationship. Since moral judgments tend to follow perceived norm violations (Pizarro & Tannenbaum, 2011), it is possible that health targets that are judged as more unusual (or less common) are more likely to be moralized. Adding this additional piece of information—whether a health target is perceived as normative—might help further elucidate the relationship between perceiving harm and moralization of health targets. Future work could incorporate both true population base rates and participant-perceived base rates. Perhaps conditions that are perceived as very common, such as obesity, are still perceived as harmful, but are not perceived as being as immoral as less common (but still harmful) conditions. Examining a wider variety of targets will be beneficial to gain a fuller understanding of the relationship between health and moralization. I begin to address this in my next study. In Study 3, I used a secondary data set with a wide variety of health-related items to examine the relationship between perceived harm and moralization.

EXPERIMENT 3: MORALIZATION ACROSS THE HEALTH SPECTRUM

This study used set of secondary data from Ferrer et al. (2018) to examine harm perceptions across a variety of health conditions. In Ferrer and colleagues' paper, the authors examine perceived health threats in terms of: medical severity ("how serious would these conditions be in physical/medical terms (e.g., symptoms, pain, treatment, hospitalization)?") and psychosocial severity ("how serious would these conditions be in personal terms (e.g., your feelings about yourself, your relationships with others)?"). Here, the definitions of severity will be used as a proxy for harm perceptions. Both harm perceptions and severity as defined in these items tap into the concept of "seriousness" or intensity of physical or psychological pain.

In order to examine moralization alongside the perceived harmfulness measures in Ferrer et al.'s (2018), I collected an additional set of data in which participants will rate moralization of the same health conditions used in Ferrer and colleagues' paper. I predicted a positive correlation between harm and moralization ratings across these health targets.

Method

Participants and Design

Participants. An a priori power analysis using G*Power (Faul, 2014) based on a small-medium effect size with 80% power to detect effects indicates that my final sample should include 150 participants. I collected a sample of 150 mTurk workers (86 male, 63 female, 1 non-binary, $M_{age} = 33.79$, $SD = 10.34$) who were located in the United States and had a 95% pass rate on past mTurk HITs. After screening out one participant who failed to pass attention checks, my

final sample included 149 participants (85 male, 63 female, 1 non-binary, $M_{age} = 33.84$, $SD = 10.36$).

Procedure. Severity (harm) measures will be secondary data analysis from the Ferrer et al. (2018) dataset ($N = 94$). In this paper, participants rated medical and psychosocial severity of 32 conditions on a 0 (innocuous, no harm at all) to 10 (extremely devastating) Likert scale. These diseases show a spread of medical severity ratings from quite low (post-nasal drip, $M = 1.08$, $SD = 1.44$) to severe (serious heart attack, $M = 9.40$, $SD = 1.47$); as well as psychosocial severity ratings from nosebleed ($M = 1.16$, $SD = 1.79$) to cocaine addiction ($M = 8.42$, $SD = 2.36$). See Appendix A for a list of all health conditions with descriptive statistics from the Ferrer et al. (2018) data. This spread in severity ratings will allow me to build on my results from Study 2 and test a wider range of this effect, examining moralization of health conditions considered to be relatively harmless to those considered very harmful.

The sample of mTurk workers collected to examine moralization rated the same health conditions on one of two questions:

Adults wording: “how morally bad would a person be if their actions caused each of the following [health conditions] to become more common in adults in society?”

Children wording: “how morally bad would a person be if their actions caused each of the following [health conditions] to become more common in the children in society?”

These ratings were completed on a Likert scale from 1(very morally good) to 5(very morally bad). The latter item—focused on harm to children—was included to allow for more power to detect moralization, as children are clear, prototypical moral patients in need of protection from harm (Buldain et al., 1982; K. Gray & Wegner, 2009; Hamlin, 2012).

Results and Discussion

In order to examine the relationship between moralizing and severity ratings, I calculated average ratings for each health condition on all four variables: medical severity ($M = 5.53$, $SD = 2.36$), psychosocial severity ($M = 4.22$, $SD = 2.13$), moralizing (adults, $M = 3.92$, $SD = 0.23$), and moralizing (children, $M = 3.82$, $SD = 0.22$). I examined the correlations between these averages, which are presented in Table 1. All correlations were significant ($ps < .001$), and were positive: higher severity ratings in Ferrer et al.'s (2018) study were associated with higher moralization ratings in my sample.

Table 1.
Correlations between severity and moralization ratings across health conditions.

	Moralized (Adult)	Moralized (Child)	Medical Severity	Psychosocial Severity
Moralized (Adult)	1			
Moralized (Child)	.905**	1		
Medical Severity	.895**	.824**	1	
Psychosocial Severity	.898**	.815**	.922**	1

Note. ** indicates $p < .01$.

This study revealed that there is a positive relation between perceived harmfulness and moralization. A strength of this study is that it contains a large spectrum of health threats, ranging from quite innocuous (e.g., runny nose, static shock, nosebleed) to quite harmful (e.g., serious heart attack, cancer, cocaine addiction). I found evidence of strong, positive correlations between ratings of harm (via medial and psychosocial severity) and moralization (to both adults

and children)—even in separate samples of participants, and relatively low power given that the unit of analysis was health condition. Interestingly, there were no substantive differences between participants’ ratings of moralization for adults and children. This finding is somewhat unexpected and inconsistent with my hypothesis that more prototypical harms (e.g., to children) should activate moralizations strongly. Despite including a wide variety of health conditions, perhaps this link between health broadly speaking and morality is so clear to my participants that it does not matter as much who the target is—participants just think it is wrong that any human could be harmed.

Additionally, the wording of the moralization question indicated active involvement in spreading the disease, which could be perceived as particularly insidious. It would be useful to replicate this work using inaction instead of action as the mechanism for disease spread. If, for example, skipping washing hands or failing to cover coughs is the true culprit of disease spread, would this be moralized similarly to actively working to spread that disease? Perhaps I would see greater differences in moralization when the health of children (vs. adults) is compromised in this less direct example. In my next study, I will continue to examine potential effects of who is harmed, and who does the harm.

EXPERIMENT 4: MANIPULATING SOURCE AND TARGET OF HARM

In Study 4, I investigate the role of the source of potential harm. Specifically, I will manipulate who I frame as the moral agent—or the entity responsible for harm—and moral patient—the entity in need of protection. Will moralizing change when a corporation is framed as the responsible party rather than a person? Rozin (1999) proposed that one consequence of moralization is that large social institutions may be judged similarly to individuals, and may begin behaving in moralization-consistent ways. Corporations are large social institutions, and little work has examined how individuals will moralize actions taken by corporations that contribute to negative health consequences. In response to feedback at my dissertation proposal, I will examine obesity as my target health behavior, and will manipulate who is framed as responsible (corporations or individuals) and who is harmed most (adults or children), with inspiration from Harris et al.'s (2009) on food marketing to children. Therefore, this study has a 2(responsible agent: corporation, individual) x 2(vulnerable patient: adult, child) design. I hypothesize that participants will be more likely to moralize when harm is done by more powerful agents (corporations) and is done to more vulnerable moral patients (children). Children are prototypical moral patients (H. M. Gray et al., 2007; K. Gray et al., 2012): vulnerable, not always able to control their own outcomes, and in need of protection from those who are more powerful.

Method

Participants and Design

Participants. An a priori power analysis using G*Power (Faul, 2014) based on a medium effect size ($f = .20$) and 80% power to detect effects suggests that 199 participants will provide sufficient power to detect effects. I recruited 200 participants through mTurk (115 male, 85 female, $M_{age} = 36.80$, $SD = 11.38$). After screening out participants who failed attention checks, I was left with 178 participants (101 male, 77 female, $M_{age} = 37.07$, $SD = 11.41$).

Procedure. After consenting to participate, all participants read the following: “Obesity is one of the top health issues facing Americans today, with nearly 40% of Americans qualify as obese according to recent studies. Obesity-related illnesses, such as heart disease and stroke, can have serious impacts on individuals’ health and are some of the leading causes of death in the United States.”

Then participants were randomly assigned to read one of the following conditions:

Corporation as agent conditions: “Experts on this topic argue that *corporations* are largely to be held responsible for this obesity epidemic in America. Despite marketing campaigns aimed at branding companies’ products as healthy or natural, food corporations continue to produce highly processed foods with unhealthy ingredients. Further research suggests that [*children/adults*] are the ones most negatively affected by corporations’ actions, as they are heavily swayed by these marketing campaigns.

Individual as agent conditions: “Experts on this topic argue that *individual people* are largely to be held responsible for this obesity epidemic in America. Despite having access to products that are healthy or natural, individuals continue to consume highly processed foods with unhealthy ingredients. Further research suggests that [*children/adults*] are the ones most affected by individuals’ actions, as their health is most heavily impacted by the foods they eat.”

After reading one of these four paragraphs, participants then rated the following measures on 1 (strongly disagree) – 5 (strongly agree) Likert scales. Items were presented in randomized order. Please note that the “blame” and “harm” items served as manipulation checks:

Blame: Food corporations deserve blame for the high prevalence of obesity.

Individual people deserve blame for the high prevalence of obesity.

Harm: Adults are harmed by obesity.

Children are harmed by obesity.

Moralize: This is a moral issue for me.

Regulation: The government should implement regulations to decrease obesity.

Immorality perceptions: How immoral is marketing highly processed foods?

How immoral is eating highly processed foods?

Results and Discussion

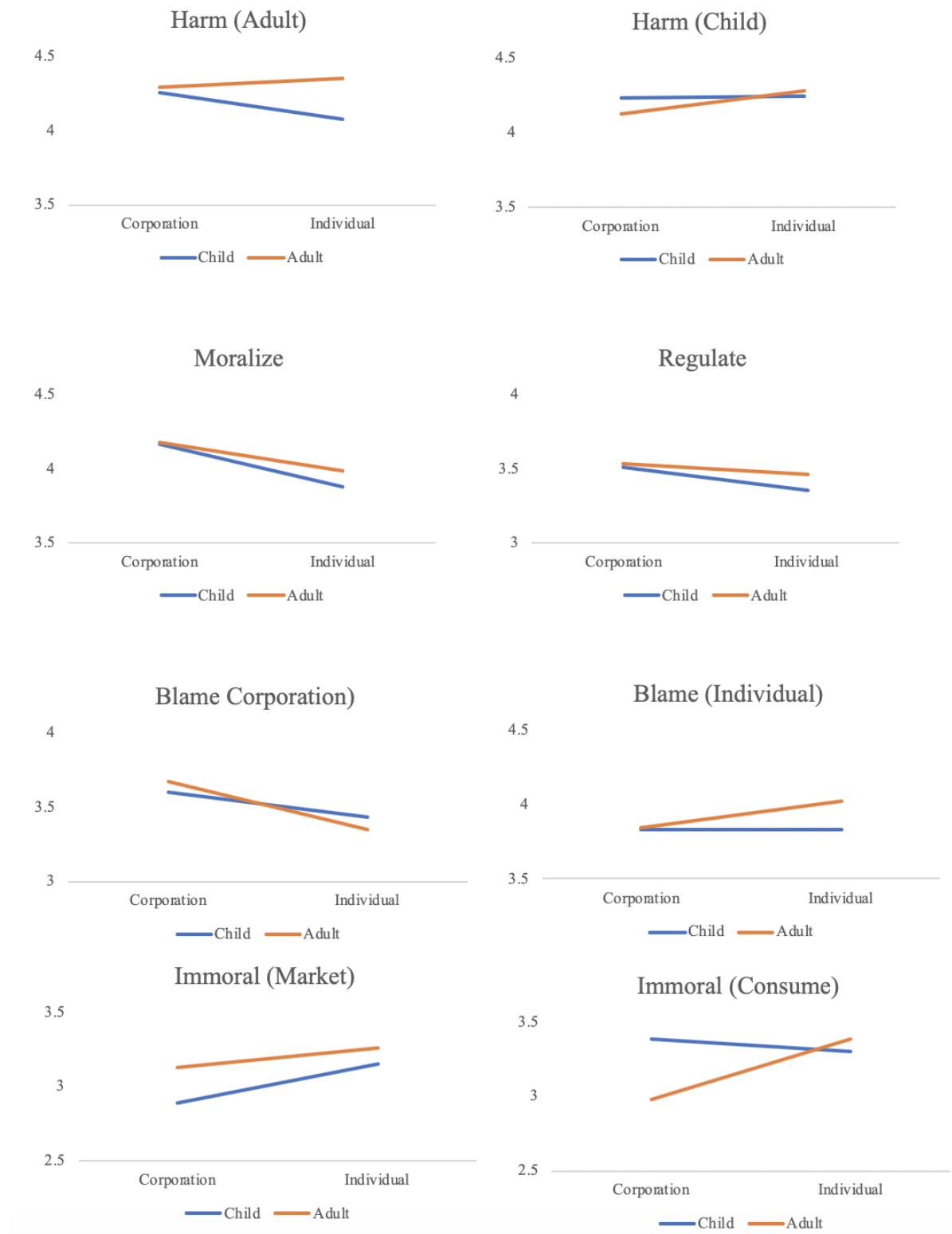
In order to examine the effect of manipulating moral agent (corporation, individual) and patient (child, adult), I ran a 2x2 ANOVA. All interactions were non-significant ($ps > .05$), and all but one main effect was non-significant ($ps > .05$). This ANOVA did reveal a significant main effect of moral agent framing on participants moralizing ($F(1, 174) = 4.19, p = 0.04, \text{partial } \eta^2 = 0.02$). Counter to hypotheses, participants in the individual-as-agent condition who read that adults were more affected were more likely to say that obesity was a moral issue for them ($M = 3.98, SD = 0.83$) than those who read that children were more affected ($M = 3.88, SD = 0.91$). See Table 2 and Figure 9. All descriptives are in Appendix B.

Table 2.
Two-way ANOVA results from Study 4.

		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
Agent	Blame corporation	2.66	1	2.66	2.32	0.13	0.01
	Blame individual	0.33	1	0.33	0.36	0.55	0.00
	Moralize	2.71	1	2.71	4.19	0.04	0.02
	Regulate	0.62	1	0.62	0.57	0.45	0.00
	Harm (Adult)	0.16	1	0.16	0.20	0.65	0.00
	Harm (Child)	0.30	1	0.30	0.42	0.52	0.00
	Immoral (Market)	1.63	1	1.63	1.64	0.20	0.01
	Immoral (Consume)	1.21	1	1.21	1.53	0.22	0.01
Patient	Blame corporation	0.00	1	0.00	0.00	0.98	0.00
	Blame individual	0.50	1	0.50	0.55	0.46	0.00
	Moralize	0.14	1	0.14	0.21	0.65	0.00
	Regulate	0.19	1	0.19	0.17	0.68	0.00
	Harm (Adult)	1.04	1	1.04	1.30	0.26	0.01
	Harm (Child)	0.05	1	0.05	0.07	0.79	0.00
	Immoral (Market)	1.36	1	1.36	1.36	0.24	0.01
	Immoral (Consume)	1.09	1	1.09	1.38	0.24	0.01
Agent * Patient	Blame corporation	0.24	1	0.24	0.21	0.65	0.00
	Blame individual	0.37	1	0.37	0.41	0.52	0.00
	Moralize	0.10	1	0.10	0.16	0.69	0.00

	Regulate	0.08	1	0.08	0.07	0.79	0.00
	Harm (Adult)	0.63	1	0.63	0.79	0.37	0.00
	Harm (Child)	0.20	1	0.20	0.27	0.60	0.00
	Immoral (Market)	0.18	1	0.18	0.18	0.67	0.00
	Immoral (Consume)	2.73	1	2.73	3.46	0.06	0.02
Error	Blame corporation	199.53	174	1.15			
	Blame individual	157.30	174	0.90			
	Moralize	112.57	174	0.65			
	Regulate	189.46	174	1.09			
	Harm (Adult)	139.39	174	0.80			
	Harm (Child)	126.45	174	0.73			
	Immoral (Market)	173.64	174	1.00			
	Immoral (Consume)	137.44	174	0.79			

Figure 9.
Study 4 Results.



Overall, Study 4 replicates the findings from Study 3 that moralizations do not tend to change significantly when children versus adults are framed as the moral patient—at least not in these two tests. Since these null effects include the blame and harm variables, my manipulation failed to impact the way participants interpreted the information provided. Here, I find only one significant difference – in the opposite direction of my hypothesis—which could be due to alpha error. The overall pattern of null findings for moral patiency and largely null findings for manipulations of moral agency suggest that my manipulation failed, and my participants are not differentiating significantly between who is doing the harm, or who is being harmed. Again, this does not support my hypothesis that more prototypical harms will more easily and strongly activate moralizations.

It is possible that participants are seeing harmfulness across the board; nearly all mean ratings on the dependent variables included here are above the scale midpoint of 3. Perhaps there is a ceiling effect contributing to these null findings, or perhaps this example was difficult for participants to relate to. While some corporations are easily seen as evil—tobacco companies, for example—maybe it was difficult for participants to think of food corporations as agentic. While past work (e.g., Rozin, 1999a) clearly argues—and finds support—for the fact that moralizations will be reflected in both individual and institutional levels, my work does not replicate this finding. Future work should consider new manipulations to effectively change perceptions of responsibility, blame, and harmfulness, and should continue to examine whether and how moralizations are translated from individual to social or institutional levels.

EXPERIMENT 5: MEDIATION

In Study 5, I examine moralization in a more applied context: that of the novel coronavirus, COVID-19. Here, I test a mediational model designed to examine whether perceiving harm is a predictor of moralizing and making moral judgments. I hypothesize, in line with the Theory of Dyadic Morality, that perceiving harm should be a necessary first step in moralizing and supporting moral punishment, and that moralizing will mediate the relationship between harm perceptions and punishment endorsement. I predict that these variables will be positively related to one another; high perceptions of harm will predict higher levels of moralization which, in turn, will lead to endorsement of punishment. In response to my findings from the previous two studies, I do not manipulate the power of the doer or receiver of harm.

Method

Participants and Procedure

Participants. An a priori power analysis using David Kenny's (2016) MedPower application indicated that a sample size of 250 participants would allow for sufficient power (80%) to detect effects based on a medium effect size. I collected 250 participants using Amazon's Mechanical Turk (150 male, 99 female, 1 non-binary, $M_{age} = 36.58$, $SD = 12.09$). After screening out participants who failed attention checks, my final sample includes 228 participants (134 male, 93 female, 1 non-binary, $M_{age} = 36.51$, $SD = 11.93$).

Procedure. After consenting to participate in this study, participants read a short description of recent events related to COVID-19: "After this outbreak of coronavirus, there has been recent news coverage of beaches in Miami, Florida. This news coverage shows crowded

beaches, mostly made up of young people there to celebrate spring break. These individuals are spending time in close proximity with one another eating, drinking, and enjoying the sun - despite CDC recommendations not to gather in large groups.”

Participants then rated a number of items related to the following on 1(low) – 5 (high) Likert scales:

Moral punishment endorsement: “how much do you blame these beachgoers for their actions?”, “how much do you think these beachgoers deserve to be penalized?”, “how much do you think these beachgoers deserve to be fined for their actions?”, and “how much do you think these beachgoers should be chastised for their actions?”

These moral condemnation items are modeled off items used to measure moral blame in past research (see, for example, K. Gray & Wegner, 2011b; or D. Pizarro et al., 2003).

Harm: “coronavirus is harmful,” “coronavirus is a real threat,” “coronavirus is likely to kill people if they catch it,” “coronavirus is likely to send people to the hospital if they catch it,” and “coronavirus is likely to send people to the emergency room if they catch it”

Moralization: “coronavirus is a moral issue for me,” “it is morally wrong to skip hand washing during the coronavirus outbreak,” “it is morally wrong to cough without covering your mouth during the coronavirus outbreak,” and “it is morally wrong to not practice social distancing (staying >6 feet away from other people) during the coronavirus outbreak”

The behavior-related items were chosen based on Center for Disease Control and Prevention’s advice for slowing the spread of COVID-19 (CDC, 2020); wording for these questions was modeled off of past work such as Mooijman & Dijk (2015).

Results and Discussion

To examine whether I could combine each set of question into index variables consistent with the three categories of questions, I examined Cronbach's alphas. The alpha level for harm ($\alpha = 0.79$), moralization ($\alpha = 0.78$), and punishment endorsement ($\alpha = 0.89$), were all sufficient. Thus, I will examine these items as index variables. Further, a confirmatory factor analysis shows that these measures have a three-factor solution: punishment endorsement, harm, and moralization. See Table 3.

Table 3.
Factor Analysis results for COVID-19 mediation study showing a 3-factor solution.

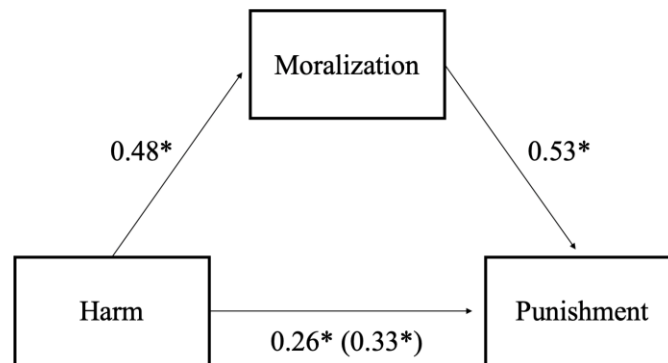
		Component		
		1	2	3
Punishment	Beachgoers blame for actions	0.79	0.00	0.22
	Beachgoers deserve to be penalized	0.86	0.14	0.16
	Beachgoers should be fined	0.85	0.17	0.03
	Beachgoers should be chastised	0.86	0.04	0.21
Harm	COVID-19 is a real threat	0.21	0.45	0.35
	COVID-19 is harmful	0.19	0.36	0.24
	COVID-19 is likely to kill	-0.02	0.86	0.09
	COVID-19 is likely to hospitalize	0.16	0.86	0.10
	COVID-19 is likely to send to ER	0.18	0.86	0.10
Moral	COVID-19 is a moral issue	0.20	0.40	0.43

Morally wrong to skip			
handwashing	0.16	0.12	0.85
Morally wrong not to cover			
cough	0.10	0.07	0.88
Morally wrong not to socially			
distance	0.40	0.11	0.71

Finally, I ran a mediation model using the PROCESS macro (Hayes, 2012) Model 4, with harm as my predictor variable, moralization as my mediator variable, and punishment endorsement as my outcome variable. The path from harm to moralization was positive and statistically significant ($b = 0.48, SE = 0.07, p < .001$). Those participants perceiving more harm also more highly endorsed the moralization items. The path from moralization to punishment endorsement was also positive and statistically significant ($b = 0.53, SE = 0.08, p < .001$). The direct effect from harm perceptions to punishment endorsement was significant and positive ($b = 0.33, SE = 0.09, p = 0.005$), supporting my hypothesis that there is a mediated relationship. Finally, there was a positive, significant indirect effect of harm on punishment endorsement via my mediator, moralization ($b = 0.26, SE = 0.06$ (bootstrap SE), $p < 0.05$). Please see Figure 10.

Figure 10.

Mediation model for Study 5 testing moralization as a mediator.



Discussion

In Study 5, I test a mediational model examining whether harm is a predictor of moralizing, and endorsement of moral punishment items. I find that support for my hypothesis that harm is a positive predictor of moralization and punishment, and that moralization is a significant mediator. This study contributes to our understanding of the connection between harm and, and supports the claims put forth by the Theory of Dyadic Morality, which emphasizes that perceiving harm is a necessary precursor to making a moral judgment. Study 5 uses a more applied—and timely—example, that of the novel coronavirus COVID-19.

However, this study has a number of limitations as well. One drawback of this study is that it uses a cross-sectional design, which does not allow me to make conclusions about moralization as a process through time. Additionally, I did not include measures of potential confounding or influencing factors. Perhaps, for example, some participants just thought that the beachgoers were stupid or uninformed, and consequently did not make a negative moral judgment about them. While reversing the mediation model with punishment endorsement as X ($b = 0.34, SE = 0.04, p < .001$), moralization as M ($b = 0.30, SE = 0.05, p < .001$), and harm

perception as $Y(b = 0.12, SE = 0.04, p = .002)$ shows that this is not a stronger predictive pathway, there are many questions left open for future work. Future work should include examinations of potential confounds, such as perceptions of ignorance or stupidity. It is possible that moralization only occurs when you perceive individuals as insidious agents—as failing to exert their self-control to stop them from doing a behavior they know will not be beneficial for the greater community.

In my next study, I will continue to examine this applied target, COVID-19, and will turn my attention to moralization on a more macro level: that of state government. As Rozin (1999a) argued, moralizations should rise from individual beliefs to institutional beliefs. While I did not find support for this in Study 4, perhaps I will use a more applied example. It is clear that many social institutions—from companies to government organizations—are responding to COVID-19 and discussing their responses with their consumers and constituents. In Study 6, I will examine moralization on this group-level.

EXPERIMENT 6: EXPRESSED MORALIZATION AND HARM IN VIRUS

Finally, I turn my attention to a set of archival data on COVID-19. In Study 6, I examine harm and moralization word use in governor's statements to their state's residents about COVID-19, including information about topics like state preparedness, resources, closures, and healthcare facilities. These statements will allow me to examine level of harm and moralization word use across states and—for some states—over about a month of time. This data collection is ongoing, thanks to dedication from a number of research assistants. If we find that harm and moralization words tend to be positively related in governor statements about this health pandemic, this would provide further support for my hypothesis that perceived harm is positively linked to moralization of health. The COVID-19 pandemic allows me a unique opportunity to use a current, serious health condition that most individuals in the US are familiar with to examine this hypothesis. Please note that, since this data is based on an event that is so recent, I will present only preliminary analyses here, and will describe planned future analyses.

Method

Participants and Procedure

Data collection procedure. After a brief training, research assistants collected all COVID-19-related statements released as “press releases” by each of the 50 US governors. These statements were gathered from each state's government website section labeled “news,” “newsroom,” or similar. Research assistants searched through all press releases issued that pertained to “COVID-19” or “coronavirus.” They recorded both the press release text and the date each release was issued in a spreadsheet. For the purposes of this dissertation, I will present

data only from the first week that COVID-19 was declared a national emergency in the US: March 13, 2020 through March 19, 2020. I chose this week to examine for a couple of reasons. By mid-March, all governors had released at least one statement regarding COVID-19, and many began releasing statements more regularly after this point in time (which was not the case for every state prior to the president declaring a national state of emergency). Governors from all 50 US states released statements throughout this time, with an average of 2.98 statements per week ($SD = 1.88$, range: 1-7). See

Table 4.

Table 4.
Distribution of statements made by governor's during the week of March 13th.

Number of Statements	Frequency	Percent
1	14	28
2	11	22
3	8	16
4	6	12
5	4	8
6	4	8
7	3	6

Data coding procedure. After gathering all press releases from governors across the 50 US states, two hypothesis-blind research assistants coded each statement on two dimensions: “How much is the governor talking about harm?” and “How much is the governor talking about behaviors associated with COVID-19 as a moral issue?” from 1(none at all) – 5(very much)

Likert scales. For example, this statement from Colorado governor Jared Polis was rated as a 5 on expressed harm: “We understand the gravity of this public health order, and the disruption it will cause, but we are weighing this disruption against the need to save lives. Based on the experience of other countries, the state of Washington, and modeling data, the sooner we begin social distancing measures on a large enough scale, the more quickly we can slow transmission of the virus, which translates into less people requiring hospitalization at the same time and more lives saved.” This statement, also from Governor Polis, was rated as a 5 on moralization: “We all have a responsibility to protect the most vulnerable among us from contracting COVID-19. It starts with staying isolated even if your symptoms are mild. We are all in this together, and we all have people we love who are particularly vulnerable — our parents, our grandparents, our aunts and uncles.” After a short training period in which research assistants and I came to mutual understanding of what we consider to be expressing harm and moralization, the research assistants independently coded all statements made in the week of March 13-19 ($N = 149$). With only a small portion of the full data coded (just one week), I will examine mean levels of expressed harm and moralization during this week; future expansions on this work (when all available data are coded) will have denser datasets, and will not examine weeks in aggregate.

Google Trends data. As an exploratory analysis, I also examine Google Trends search patterns by state in the same period specified: March 13-March 19. I gathered data from the following search terms: “coronavirus” (topic), “coronavirus death,” and “coronavirus N95 mask.” Please note that using the topic function for “coronavirus” means that related search terms, such as “COVID-19,” are included in the data. The other search terms I used did not have a “topic” option, and thus represent searches only for those specific terms.

Results and Discussion

Inter-rater reliability was assessed using interclass correlations (ICC). Coders showed sufficient inter-rater reliability on both harm (ICC = .91, $p < .001$, 95% CI [0.83, 0.95]) and moralization (ICC = .92, $p < .001$, 95% CI [0.86, 0.96]) ratings.

Next, I examined correlations between the governor-coded language and Google searches. The unit of analysis was state ($N = 50$). Ratings of governor-expressed harm and moralization were positively correlated in ($r = 0.62$, $p < .001$). The only other variable that significantly correlated with governor-expressed harm was searches for N95 masks ($r = 0.32$, $p = 0.03$).

Finally, I examined whether expressed harm was a predictor of expressed moralization using a linear regression. I found that, at least for this week of data, expressed harm was a significant, positive predictor of expressed moralization ($F(1, 49) = 29.86$, $p < .001$, $R^2 = 0.37$).

Table 5.
Correlations between governor statement coding and Google Trends data.

	Expressed Harm	Expressed Moralization	Coronavirus	Coronavirus deaths	Coronavirus N95 Mask
Expressed Harm	1				
Expressed Moralization	.62**	1			
Coronavirus	0.13	0.17	1		
Coronavirus deaths	-0.1	-0.01	.45**	1	

Coronavirus					
	.32*	0.25	0.25	-0.01	1
N95 Mask					

Note. * indicates correlation is significant at the $p < .05$ level, ** indicates correlation is significant at the $p < .001$ level.

In Study 6, trained research assistant coders' ratings of governor-expressed harm were significantly, positively related to ratings of their expressed moralization in statements on the topic of COVID-19, and to Google searches for protective N95 masks with state as the unit of analysis. While only a preliminary examination of this data, these findings are promising for future use for this data. In the future, I plan to have RAs gather and code all data available to date on governor press releases about COVID-19. In addition to the currently coded variables, I plan to have RAs code for harm of the COVID-19 virus itself, and for moralization of actions taken to protect individuals (e.g. hand washing) and larger institutions (e.g. providing financial help to small businesses). Further, in future work, I plan to have separate coders for each variable (e.g., a set of coders for only harm, a separate set for only moralization, etc). This will help ensure that there are no confounding temporal effects of coders examining both harm and moralization variables.

In addition to these added coding variables, I hope to more closely examine patterns in the data once I have a richer dataset. I am particularly curious to examine trends by state over time and across states using multi-level modelling (with state as the grouping variable). This will allow me to examine expressive trajectories over time and across states or regions of the US; perhaps, for example, I will see much steeper slopes for harm expressiveness in states or regions of the country with higher death rates or population densities. I plan to add in data about death rates (e.g. total deaths or deaths per capita in each state) to this dataset so that I can examine how

frequency or intensity of governor-expressed harm and moralization change as the death toll rises.

In future work, I will also be able to examine Google Trends search terms over time and across states. In the future, I also hope to examine any potential confounding effects of both urgency and level of alarm, which could covary with perceptions of harm severity or proximity of harm. While I will be able to examine this with coding of this COVID-19 data, I also plan to experimentally manipulate urgency and alarm expressed to see whether these affect the way that harm and moralization are perceived. One additional follow-up that I believe will add nuance to our understanding of this phenomenon is using time series analysis to examine how these concepts might temporally relate to one another. For example, perhaps we will see a pattern such that searches for coronavirus deaths or symptoms spike in the days following state government releases. There are many exciting future directions I can envision with these data.

It is clear that COVID-19 is a health crisis evoking many psychological responses. Over the past few weeks, individuals have expressed empathy for those going through this process, experienced mental health consequences from uncertainty and social distancing (Oosterhoff, n.d.), and even committed hate crimes against those from groups they perceive to be responsible for this COVID-19 pandemic. Examining moralization and harm perceptions in the context of COVID-19 is an open area of work, and one that could help inform approaches for health communications or preparedness for future health crises.

GENERAL DISCUSSION

In 6 studies, I find partial support for my hypothesis that perceiving harm is key to moralizing in health-related targets. In Study 1, I find that individuals are more likely to moralize a disease when it is framed as being quite severe (versus mild). In Study 2, I find that individuals treat some health-related conditions (HIV and opioids) similarly to moral violations like murder or child abuse. In Study 3, I find a positive correlation between ratings of both medical and psychosocial severity of health conditions and moralizing of those conditions in both adults and children. Counter to my hypotheses, I did not find significant differences in strength of moralizing between adults and children. In Study 4, I examined the relationship between moral agent (corporation, individual) doing harm and moral patient (child, adult) receiving harm in the context of obesity. I found largely null results; my participants did not significantly differentiate between larger (corporation) and smaller (individual) moral agents, or between more (children) and less (adults) vulnerable moral patients. In Study 5, I further test the role of harm using a cross-sectional design, and show that, consistent with TDM, perceiving harm is a significant predictor of both moralizing and endorsing moral punishment. In Study 6, I examine archival data—statements made by governors about the novel coronavirus COVID-19—to further explore the link between expressed harm and moralization during this health crisis. I plan to follow up on these promising preliminary results by examining how expressions of harm and moralization change over time, and how levels of expressed harm might predict future moralizing.

Extensions to the current literature. Overall, in my dissertation, I do find general support for the theoretical perspective of dyadic morality (K. Gray et al., 2012; Schein & Gray,

2018)—my studies show that perceiving harm is an important contributor to moralizing health targets. This contributes not only to the theory of dyadic morality specifically, but also to the literature on moralization more broadly. In combination with the recent Feinberg et al. (2019) paper on moralizing meat consumption, this dissertation provides one of the few replications of a mechanism in this small moralization literature, this time with harm. Since the current literature on moralization does not show much consensus—or even replication—regarding mechanisms or predictors of moralization, even a small degree of agreement among recent researchers is a step in a promising direction.

While I do not find support for high levels of moralization in larger institutions (as claimed in Rozin, 1999a) in Study 4, I will be able to further test these claims in my follow-ups on Study 6 using local government as my social institution. Perhaps moralization of larger institutions occurs most strongly for specific rather than general industries (e.g., my governor's response vs. the federal government's response, or Frito Lay vs. food and beverage companies). Though I did not find this effect in Study 4, recent work on differing perceptions of CEOs (individuals) versus the corporations they represent lends support to the idea that corporations may be judged differently than individuals, even if the individual in question directly represents the corporation (Tang et al., 2020; Tang & Gray, 2018). This facet of moralization warrants more investigation in my own work, as well as future work by other teams.

Study 6 will also extend the current literature on moralization as a process. Though early definitions of moralization implied that it is a process, few papers to date have examined changes in moralization over time, which I will be able to contribute to with extensions of Study 6. The recent paper by Feinberg et al. (2019) is one of a very small number to examine the change from preference to value over time (in this case, over a number of weeks). I hope to extend this work

in my follow-up data collection and analysis for Study 6. Using the rapidly-evolving COVID-19 crisis provides me with a unique opportunity to examine moralization from the first time it is formally spoken of in each US state through the height and, hopefully, elimination of this virus as a major health threat. Using COVID-19 will (unfortunately) likely provide me with the opportunity to collect multiple months' worth of data, as states struggle to contain and deal with the aftereffects of COVID-19. With these data, I will have a dense and longitudinal dataset that will allow me to examine trends throughout time in expressed harm and moralization of this virus and behaviors associated with virus containment. I hope that these data will provide me and others with the opportunity to examine moralization as a process.

Limitations. One limitation with this work as it stands that I hope to address in the coming months is the fact that the studies I have at present do not allow much of a window into moralization as a process. While much of the seminal work on moralization implies that moralization is a process (Rozin, 1999; Rozin et al., 1997; Rozin & Singh, 1999), these early studies used correlational and cross-sectional designs. Very few studies to date have properly tested moralization as a longitudinal process. I hope to address this limitation with my follow-up analyses to Study 6, which will contribute to this small literature and strengthen the claims of this dissertation as well.

Another limitation of this dissertation is lack of extensively validated moralization measurement tools. While I did use items or short scales from past work when possible, no one has developed a well-validated scale for measuring moralization to date. While this is certainly an open area of research for the future, the lack of a validated moralization scale meant that I had to use measures adapted from past work. While I did find conceptual replication across studies, it would strengthen future work to have a validated, reliable scale to measure this construct.

Perhaps the lack of agreement on an exact definition of moralization across the literature contributes to this lack of consensus on measurement. For example, while early work spoke of moralization as a process, the measures proposed by this early work measured moralization as an issue (“cigarette smoking is immoral” Rozin & Singh, 1999), not as a transition over time (e.g. “I did not used to think cigarette smoking was immoral, but now I do.”). This mis-match between definitions and measures is not only a limitation of this work, but of the larger body of work on moralization as a whole.

Additionally, in this dissertation, I have used a fairly limited set of health-related targets. While Study 3 includes over 30 health conditions, my other studies use only a small handful. In the future, it would be useful to test a wider variety of health-related targets. This will allow for more specificity when reporting on the relationship between moralization and health. For example, perhaps individuals judge biological health threats—such as viruses or autoimmune disorders—differently than they do health behaviors—exercising or washing hands, for example. While my findings suggest that individuals are moralizing across health threats—from more biological to more behavior-based—similarly, more work on this will be helpful in further elucidating any potential differences in moralizing across health targets.

Finally, this work could be strengthened by further examination of potential confounds or contributing variables. In these studies, I have not examined potential confounding effects of alarm on harm perceptions. It is possible that alarm and harm are perceived in similar ways, or that the effect of expressing alarm is more powerful than expressing harm of a health-related target. Similarly, expressed or perceived urgency may similarly act as a confound. Perhaps when a target is framed as needing urgent attention, this automatically leads to moralization, or serves as a precursor to harm perceptions. I could follow up on this work by using a similar paradigm to

Study 1, where I manipulate not only harmfulness, but also urgency. Urgency could be operationalized in a variety of ways: rapidity of community spread, total number of people infected, or escalation rate of symptoms. Future work should examine which of these urgency factors may contribute to the way that harm is perceived, and subsequently how a health target is moralized. There are many possibilities that are left unexamined in the present work. This limitation should be addressed in future work in order to understand the role of perceived harm in moralizing.

Future directions. While these studies have deepened my understanding of how harm may be involved in moralizing health, there are many future directions it would be useful to explore. In the near future, I plan to follow up this work in a number of ways in addition to those described in relation to Study 6. One future avenue I plan to further examine is using implicit measures, such as the AMP (Payne et al., 2005). Here, I could test whether participants report similar implicit and explicit moralizations of health-related issues, such as those from Study 2. This would be particularly interesting to examine in topics whose moralizations have changed throughout time—especially those that have gone from positive to negative moralizations like smoking. Perhaps participants will explicitly reject smoking as immoral, but implicitly view it as morally-neutral or even good. Such divergence in implicit versus explicit measures could identify which health conditions or issues are truly moralized and which are not. Using implicit procedures would also allow us to actively ask participants *not* to moralize topics such as HIV and compare explicit versus implicit response patterns. If the link between perceiving harm and moralizing is truly deep, perhaps participants would not be able to help moralizing implicitly, despite being told not to do so explicitly.

In addition, I hope to run another study examining the relationship between perceiving agency and moralization. While I did not find effects of stronger vs. weaker moral agents in the studies presented here, I had a failed manipulation in Study 4, which leaves this as an open question for future work. I plan to re-design this study on obesity to incorporate elements discussed here that could contribute to the relationship between perceived harm and moralization. In this new study, I will focus on manipulating the moral agent responsible for harms. Participants will read that there are standards set by the American Academy of Pediatrics on sweetener usage in production of processed foods. They will then read about either a company or person choosing to include these harmful sweeteners in children's foods despite having the option to use a healthier choice. Then, my participants will rate items similar to those in Study 4. I expect to find that stronger moral agents, corporations, should be more moralized as they have greater potential to cause harm.

Since the literature on moralization is still in its infancy, there is much more we still do not know. In the future, I would be excited to further examine individual differences in moralizing. Are there "moralizing" vs. "non-moralizing" types of individuals? And if so, what might predict these individual differences? Feinberg et al.'s (2019) findings on moralizing meat consumption provide early evidence that there may be important individual differences contributing to moralizing (e.g., centrality of one's moral identity). Better understanding how individual factors such as age, political views, or religious views contribute to moralizing will not only allow for us to create more accurate models of moralizing, but will also allow future work to create better-informed interventions for health-promotion like vaccination or handwashing. For example, if I were to find that individuals who identify as liberal tend to moralize behaviors about vaccination, but those who identify as conservative tend to moralize

people who vaccinate more, vaccination interventions could be tailored to individuals based on their political ideology in order to have higher impact.

One key task in extending this work will be examining further key predictors and mediators that contribute to moralizing entities or behaviors. Past work theorizes that moralization could be influenced by religious or spiritual values. For example, those who abide by Protestantism may be especially likely to moralize health threats more directly related to bodily harm, since they believe that the body is a gift from God that should be kept as pure as possible (Thomas, 1997). Other belief systems could also influence our tendency to moralize. For example, perhaps magical thinking (Nemeroff & Rozin, 2000) or morally vitalistic thinking—or viewing good and evil as real, agentic forces in the world (Bastian et al., 2015, 2019)—would predict moralization. Though beliefs in magic or spirits are declining (Legare & Gelman, 2008; Nemeroff & Rozin, 2000), it seems that moral outrage and moralization are increasing (Crockett, 2017). Perhaps a doctrine of perceived harms has begun to fill the void left by religious or spiritual doctrine in moralizing behaviors.

Finally, this work and past work share an overwhelming focus on the negative aspects of moralization, focused on where and why we perceive immorality in something that used to be a mere preference. While this is certainly a logical place to start the investigation of moralization—given our general negativity bias (Baumeister et al., 2001; Paul Rozin & Royzman, 2001) and the strong evolutionary advantage of attending to things that could lead to sickness or death (Gluckman et al., 2011; Williams & Nesse, 1991)—a full understanding of moralization should include both ends of the moral spectrum. Future work might broaden out examinations of moralization to include examinations of when and why perceptions transform from morally neutral to morally virtuous (e.g., eating healthy, carpooling, etc).

Moralization—especially of health-related topics—is a topic of clear relevance in today’s society, where the morality of many health behaviors is a common subject of conversation in the news, on social media, and in our social circles. Learning more about the way that we moralize health could help us understand disagreements between individuals on opposite sides of these debates, and could help scientists and policy makers better design health interventions or health promotion campaigns. If, as Rozin (1999) argues, moralization tends to become regulated not only by individuals in our social groups, but also by our larger institutions, it will only become more important to understand the process by which we moralize disease and health behaviors, as they continue to take center stage in policy debates. COVID-19 provides a clear and current example of the way that harm is constantly spoken about in the context of COVID-19—whether that is the harm of the virus itself, harm to particularly vulnerable groups, or harm through community spread. Understanding the psychological mechanisms, such as perceiving harm, that contribute to moralization during times of health threat will continue to be critical as we navigate through times of health threat in the coming days, months, and years.

APPENDIX A: HEALTH BEHAVIORS FROM FERRER ET AL. (2018) PAPER

	Medical	Psychosocial
	Severity M	Severity M
Medical Condition	(SD)	(SD)
Sleep walking	3.13(2.14)	2.56(1.55)
Allergy to bananas	3.21(2.45)	1.63(2.41)
Nosebleed	2.35(1.92)	1.16(1.79)
Head lice	3.13(2.25)	3.7(2.82)
Appendicitis	7.9(2.45)	4.41(3.12)
Black eye	2.96(2.13)	2.46(2.82)
Persistent ear ringing	4.68(2.4)	3.43(2.76)
Dislocated finger	5.12(2.44)	2.34(2.56)
Choking in a restaurant	5.89(2.94)	4.29(2.93)
Addicted to cocaine	8.63(2.63)	8.42(2.36)
Syphilis	7.84(2.29)	7.36(2.69)
Gain 15+ pounds in weight	4.13(2.57)	4.18(2.79)
Dependent on tranquilizers	7.1(2.82)	7.17(2.7)
Pneumonia	7.5(2.24)	4.85(3.04)
Cancer from pneumonia	10.05(1.65)	8.14(2.52)
Concussion	6.95(2.23)	4.43(2.97)
Tooth needs to be pulled	5.25(2.5)	3.24(2.89)
Conjunctivitis	4.44(2.24)	3.27(2.6)
Hemorrhoids	4.71(2.08)	3.41(2.55)

Strep throat infection	4.92(2.11)	3.04(2.67)
Rash from poison ivy	3.26(2.19)	1.76(2.01)
Athlete's foot	2.74(1.57)	2.08(2.22)
Postnasal drip (runny nose)	2.08(1.44)	1.61(2.25)
Shock from static	2.43(2.47)	1.25(2.42)
High blood pressure	6.59(2.37)	4.8(2.83)
Slipped or ruptured disk	7.9(2.25)	5.73(2.62)
Ulcer	6.25(2.31)	4.06(2.67)
Serious heart attack	10.4(1.47)	8.23(2.46)
Gum disease	5.75(2.27)	4.22(2.81)
Cataracts	6.56(2.35)	4.89(2.77)
Skin cancer	9.59(1.61)	7.68(2.51)
Arthritis	6.56(2.38)	5.19(2.61)

APPENDIX B: DESCRIPTIVE STATISTICS FOR STUDY 4

Table 6.

Descriptive statistics for Study 4.

	Agent	Patient	<i>M</i>	<i>SD</i>
Blame (Corporation)	Corporation	child	3.60	1.01
		adult	3.67	1.04
		Total	3.63	1.02
	Individual	child	3.43	1.03
		adult	3.35	1.18
		Total	3.38	1.11
Blame (individual)	Corporation	child	3.83	0.94
		adult	3.84	1.00
		Total	3.84	0.96
	Individual	child	3.83	1.03
		adult	4.02	0.83
		Total	3.93	0.93
Moralize	Corporation	child	4.17	0.79
		adult	4.18	0.68
		Total	4.17	0.74
	Individual	child	3.88	0.91
		adult	3.98	0.83
		Total	3.93	0.86
Regulate	Corporation	child	3.51	1.10
		adult	3.53	1.12

		Total	3.52	1.10
	Individual	child	3.35	0.95
		adult	3.46	0.98
		Total	3.41	0.96
Harm (Adult)	Corporation	child	4.26	1.05
		adult	4.29	0.84
		Total	4.27	0.95
	Individual	child	4.08	0.83
		adult	4.35	0.82
		Total	4.22	0.83
harm (Child)	Corporation	child	4.23	0.79
		adult	4.13	1.04
		Total	4.18	0.91
	Individual	child	4.25	0.87
		adult	4.28	0.69
		Total	4.27	0.77
Immoral (Market)	Corporation	child	2.89	1.07
		adult	3.13	0.89
		Total	3.01	0.99
	Individual	child	3.15	1.05
		adult	3.26	0.98
		Total	3.21	1.01
Immoral (Consume)	Corporation	child	3.38	0.85

	adult	2.98	0.89
	Total	3.18	0.89
Individual	child	3.30	0.82
	adult	3.39	0.98
	Total	3.35	0.90

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