

ESSAYS ON STIGMA AND MORALITY IN HEALTH PERSUASION

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Abstract

Essays on Stigma and Morality in health Persuasion

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As my doctoral dissertation, I report theoretical development and hypotheses testing in two essays that delve into the psychology of stigma in health messaging and consumption. Across two essays, I examine the nature of stigma and its implications to aspects of self, and I present strategies to enhance the effectiveness of health messaging despite the stigma.

In essay 1, titled “Tainted by Stigma: Interplay of Stigma and Morality in Health Persuasion”, I posit that health behaviors (e.g., getting a vaccination, screening for cervical cancer) can become tainted by the stigma associated with health risk factors (e.g., having multiple sexual partners, being overweight) and this undermines the effectiveness of messages aimed at promoting the health behaviors. Specifically, I show that associations with stigma threaten the moral self, and therefore, the presence of stigmatized risk factor in a health message undermines health persuasion for consumers with high (vs. low) moral identity. Five studies demonstrate that when a risk factor in a health message is (not) loaded with stigma, consumers with a high (low) moral identity are defensive about their susceptibility to the health issue. This,

in turn, undermines the effectiveness of health messages and reduces participants' likelihood of engaging in health behaviors. Increasing the salience of an innocuous risk factor and self-affirmation mitigate the effect of stigma and improve health outcomes. These findings highlight the importance of considering stigma in health messages, even when the health issue is not stigmatized, and how moral identity can have downstream consequences in the health domain.

In essay 2, titled "Accentuating Stigma: Leveraging Variations in Moral Beliefs to Enhance Mental Health Persuasion", I demonstrate that accentuating some dimensions of mental health stigma, rather than not addressing the stigma at all enhances the moral acceptability of seeking help and the effectiveness of mental health messaging. Based on past clinical research, I delineate two dimensions of mental health stigma: perceptions about individuals affected with mental health issues as 'not normal' (norm-deviating) and as likely to hurt others (harm-causing). Across four experiments, I show that accentuating norm-deviating (vs. harm-causing vs. no stigma) aspects of mental health stigma might enhance the persuasiveness of mental health appeals and that this effect is moderated by whether individuals hold rights- or duty-based moral beliefs. When the norm-deviating (vs. control vs. harm-causing) aspect of stigma about mental health issues is made salient, individuals with rights (vs. duty)-based moral beliefs are not deterred by the stigma to seek healthcare, because according to their beliefs, being different from the norm is not a moral violation. However, when the harm-causing (vs. control vs. norm-deviating) aspect of stigma is made salient, individuals holding both rights-based and duty-based beliefs are less likely to seek help because causing harm to others is a moral violation according to both belief systems. These findings present a moral conceptualization of mental health stigma and suggest that explicitly addressing stigma in messages might have a positive impact on consumers' likelihood of seeking healthcare.

TABLE OF CONTENTS

OVERVIEW OF THE TWO ESSAYS	3
ESSAY 1: TAINTED BY STIGMA: INTERPLAY OF STIGMA AND MORALITY IN HEALTH PERSUASION	8
Theoretical Development	11
Study 1: Weight Stigma and the Morality of Cervical Cancer Screening.....	19
Study 2: Stigma of Smoking, Lung Cancer Screening, and Defensive Processing.....	26
Study 3: Health Messages and Stigma of Sexual Transmission.....	32
Study 4: Self-Affirmation attenuates the Stigma of Sexual Transmission.....	36
Study 5: Intervention: Making an Innocuous Risk Factor Salient.....	41
ESSAY 2: ACCENTUATING STIGMA: LEVERAGING VARIATIONS IN MORAL BELIEFS TO ENHANCE MENTAL HEALTH PERSUASION	45
Theoretical Development and Pilot Studies	49
Study 1: Campus Counselling Card Pickup as Response to Accentuating Stigma	56
Study 2: Increased Engagement with Interactive Webpage on Depression Support.....	61
Study 3: Enhanced Risk Recognition and Seeking Mental Health Counselling.....	70
Study 4: Moral Acceptability and Increased Mental Health Information Seeking.....	80
GENERAL DISCUSSION, LIMITATIONS & FUTURE DIRECTIONS	84
REFERENCES	92
APPENDICES	100

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ESSAY 1

TAINED BY STIGMA:

THE INTERPLAY OF STIGMA AND MORALITY IN HEALTH PERSUASION

Public health messages are designed to help consumers by providing information about health conditions, sources of risk, and advocated health behaviors. For many health concerns, some risk factors could be stigmatized behaviors. Yet, we understand little about when and why the presence of stigmatized risk factors influences consumers' engagement in a prescribed health behavior. We seek to expand the understanding of stigma by examining the process by which stigma associated with health risk factors (e.g., having multiple sexual partners, being overweight) systematically influences the effectiveness of messages advocating health behaviors that are not stigmatized *per se* (such as testing for cervical cancer).

Stigma is the marking of an entity (such as an individual, a group, a behavior, etc.) as undesirably different or deviant in a given social context (Crocker, Major, and Steele 1998; Goffman 1963; Major and O'Brien 2005). We argue that, through a mechanism of stigma-by-association, the stigma attached to risk factors in a message "taints" the advocated health behavior. Our theory purports that if a message contains a stigmatized risk factor (e.g., being overweight), this will negatively taint the health behavior (e.g., screening for cervical cancer) advocated in the message. We further propose that the taint of stigma alters the morality associated with health behavior.

Morality is a framework of reference used to define boundaries of what is moral ("good"/"right") and immoral ("bad"/"wrong"; Kohlberg and Hersh 1977). We suggest that although stigma is a *social* marking of an entity, it could shape the *moral* meanings associated with that entity. We theorize that perceptions of deviance surrounding a stigmatized behavior lead to inferences of the behavior as being less moral, because individuals use cues of social conformity as a source of moral information (Frey 2000; May and Pauli 2002; Reynolds 2006). In the context of health messaging, this phenomenon manifests as the stigma of the risk factor

undermining the moral favorability of advocated health behaviors. This conceptualization enables us to identify a moderator of the effect of stigma: a salient moral self-schema. We draw on the construct of moral identity (i.e., the extent to which being moral is important to an individual's self-schema; Aquino and Reed 2002) to identify how and when consumers might respond differentially to stigmatized risk factors in health messages.

We postulate that, for individuals with high (vs. low) moral identity, negative moral associations of a stigmatized risk factor undermine the perceived moral favorability of health behaviors. This compromising of the positive moral associations of health threatens those who desire to uphold a high moral identity. Thus, when a stigmatized risk factor is salient, high (vs. low) moral identity individuals engage in defensive processing which undermines message effectiveness. We utilize the self-affirmation paradigm to test whether stigma is threatening to moral identity, revealing that the interaction between stigma and moral identity is attenuated when another aspect of the participants' self is affirmed. Finally, we present a messaging intervention that allows stigmatized risk factors to be included in a message without tainting the advocated health behavior.

This research integrates the literatures of stigma and moral identity to offer important insights into health persuasion. First, we contribute to the stigma literature by demonstrating that stigma associated with an action brings morality into consideration. Past research predominantly examines stigma through a social lens: either as others' (i.e., observers') judgment of stigmatized associations (Puhl and Latner 2007) or stigmatized persons' impression management in the presence of others (Sinha 2016). In contrast, we consider stigma through a moral lens, showing that stigma undermines the inherent moral associations of actions through perceptions of deviance. This conceptualization enables us to identify moral identity as a moderator of the

effect of stigma. Second, we contribute to the health messaging literature by demonstrating that stigma can act as a source of threat when processing health information. While past literature focuses on defensiveness against health messaging as a response to health threats (e.g., smokers' defensiveness against health risks in anti-smoking messages), we document that a health message can be processed defensively in response to the stigmatization of a given risk factor. Third, our research speaks to the links between morality and health in that we theorize and find that when stigma is not salient, a moral self-schema increases engagement in advocated health behaviors. We show that the motivation to enact versus protect a moral self-schema manifests in the health domain, demonstrating moral identity's expanded sphere of influence in domains beyond those of a moral, ethical, and prosocial nature. Finally, this research carries implications for marketing practice by offering a messaging intervention that curtails the negative influence of stigmatized risk factors in health messages.

THEORETICAL DEVELOPMENT

Stigma in Health Messaging

Stigma is defined as a sign that distinguishes someone as deviant or valued less than a "normal" person (Goffman 1963) in that social context. Stigma can be attached to entities or behaviors as an indication of an undesirable departure (i.e., deviance) from a desirable social standard or norm (Archer 1985; Major and O'Brien 2005). Past research recognizes stigmatization of individuals based on their identification (e.g., sexual orientation; Herek 2004), gender (Brown and Pinel 2003), appearance (e.g., body shape; Crocker et al. 1993; Puhl and Latner 2007), group membership (e.g., race; Brown and Lee 2005), and more.

Stigma is also associated with health conditions, including leprosy, HIV/AIDS, and mental illness (Corrigan 2004; Crandall 1991). Most stigma research in health focuses on individuals' responses to and management of conditions that are stigmatized. Past research studies how the stigma of having HIV/AIDS or mental health conditions shapes individuals' healthcare support-seeking (Perlick 2001), experienced discrimination (Crandall and Moriarty 1995; Feldman and Crandall 2007), and sense of well-being (Major et al. 2014; Markowitz 1998; Miller and Downey 1999). However, health conditions and behaviors that are not themselves stigmatized (e.g., cervical cancer, getting tested for cancer) could have risk factors that are stigmatized (e.g., having multiple sexual partners). Little research has examined how stigma associated with specific risk factors could influence non-stigmatized conditions and health behaviors. We propose that the presence of a stigmatized risk factor taints the associated health behavior. We examine the meanings carried by this taint, and study the process by which it shapes health persuasion.

Stigmatized risk factors taint advocated health behavior. Past research on stigma suggests a phenomenon of stigma-by-association, whereby stigma could transfer among entities by simple or coincidental connections (e.g., Argo and Main 2008; Goffman 1963; Halter 2008; Hebl and Mannix 2003; Pryor, Reeder, and Monroe 2012). Drawing on this work, we posit that the presence of stigmatized risk factors may, by association, taint health messages. The result of this tainting is that the otherwise non-stigmatized advocated health behavior takes on connotations of being deviant or stigmatized. We suggest that the tainting of the health behaviors with stigma shapes the meanings associated with engaging in that behavior.

Nature of the meanings carried by stigma. Past research documents that stigmatized groups or individuals are associated with a variety of unfavorable meanings or characteristics.

Stigma has been shown to carry various negative meanings—for example, a stigmatized entity is perceived as being from a lower social status (Link and Phelan 2001), being more harmful (Link et al. 1987), being incompetent or less valuable (Struening et al. 2001), lacking in self-discipline (Puhl and Heuer 2009), etc. The discussions of these associations can be tracked to the defining characteristic of stigma as deviance from a desirable standard. Goffman (1963) articulates that stigmatized persons “possess undesired differentness from normative expectations.” This view stems from the functionalist perspective that stigma performs the social role of punishing undesirable conduct by marking an entity that deviates from normative expectations (Becker and Arnold 1986; Stiles and Kaplan 1996). We use this insight about deviance to integrate the literature on stigma with that of morality and health.

Stigma and Advocated Health Behaviors Carry Moral Meanings

Morality is defined as a meaning system of principles that determine what is good or bad conduct for an individual and/or society (Kohlberg and Hersh 1977). The development of individuals’ intuition and awareness about which behaviors are considered moral is shaped by several factors (e.g., potential consequences of the behavior, intention of the behavior), and the one pertinent to stigma is social prescription. Although socially prescribed norms are conceptually independent of morality,¹ past research hints that people use social prescription to decode what is moral or “good” (Frey 2000; May and Pauli 2002; Reynolds 2006).

As we theorize, stigmatized risk factors taint the health behavior with connotations of deviance. We propose that if social prescriptions are used to inform the morality of a behavior, deviance such as stigma might carry unfavorable moral associations. If so, then the presence of

¹ Prescriptive norms may have little moral consequence (e.g., personal grooming), and actions that violate moral considerations could be normative (e.g., bribery; Martin, Johnson, and Cullen 2009, Olken and Pande 2012).

stigmatized risk factor(s) in a health message should endow the advocated health behavior with undesirable moral meanings and make it less “moral” to pursue. For example, if a stigmatized risk factor is present in a health message (e.g., being overweight), the now tainted advocated health behavior (e.g., getting tested for cervical cancer) takes on meanings of (im)morality associated with stigma. It is important to note here that while we suggest that stigma could shape moral meanings, morality and stigma are conceptually independent.²

Morality, even in the absence of stigma, can be associated with health behaviors. We argue that complying with an advocated health behavior could have perceived moral virtue. This notion is supported across literatures. From a sociological perspective, Conrad (1994) details healthiness as a moral discourse in the society, noting that “health and health-promotion behaviors are frequently depicted as the good while disease and putatively disease-producing behaviors are seen as bad” (p. 388). Leichter (1997), similarly, suggests that a status of healthiness is a symbol of a virtuous life. This stance recognizes the moral value of individuals’ health behaviors in service of public health. Research on self-control and inter-temporal tradeoffs (e.g., Chernev and Gal 2010; Mishra and Mishra 2011; Wertenbroch 1998) conceptualizes choosing healthy food as “virtuous” (having a positive outcome in the long run) and unhealthy food as “vice” (offering short-term pleasure and little nutritive value). From a developmental perspective, Hardy et al. (2013) show that a more (vs. less) mature moral identity is correlated with college students’ mental well-being. This suggests that a well-developed sense of one’s own morality is associated with health-promoting actions. Although many links between morality and health have been discussed (e.g., Brandt and Rozin 2013), specific frameworks and causal connections remain to be established. We draw on these suggestions to propose that the

² Individuals who adhere to a virtuous code of conduct could be stigmatized (e.g., non-drinking students on college campuses; Herman-Kinney and Kinney 2013).

advocated health behaviors take on favorable moral associations—which are more salient for those with high moral identity.

The Interplay of Moral Identity and Stigmatized Risk Factors in Health Message Effectiveness

Moral identity is a self-conception organized around moral values such that morality is central to one's identity (Aquino and Reed 2002; Blasi 2004). A salient moral identity makes moral concepts more accessible (Aquino et al. 2009), emphasize moral values, encourage moral decisions (Aquino and Reed 2002; Winterich et al. 2013; Winterich, Mittal, and Aquino 2013), and increase sensitivity to morality-relevant information (Forehand et al. 2002).

Having high or salient moral identity increases the emphasis on moral considerations. For those with a high moral identity, the favorable moral associations of health behaviors should be more salient—resulting in higher compliance with the health message. Holding actual health risk and susceptibility constant, we suggest that individuals' moral identity should drive health-message effectiveness. However, when a stigmatized risk factor is present in a health message, the unfavorable moral associations carried by stigma undermines the morality of the health behavior³. This, in turn, poses a threat to the moral identity and reduces the likelihood of engaging in an otherwise morally favorable and advocated health behavior. For individuals with low moral identity, the morality of an action is not central to their sense of self (Aquino and Reed 2002), making them less sensitive to moral associations. In our context, those with low moral identity should not be sensitive to the moral aspects of the advocated health behavior.

Similarly, the presence of stigmatized risk factors should not influence their perceptions of the

³ We use the terms presence (vs. absence) and high (vs. low) salience of stigmatized risk factors interchangeably. We do not anticipate theoretical differences based on whether stigma is manipulated by its presence (e.g., presenting a stigmatized risk factor in the message) or its salience (e.g., risk factor stigma made salient before message).

health behavior. Hence, we predict that individuals of low moral identity are indifferent to the salience of stigma in their responses to health messages.

H1a: For individuals with a high moral identity, the high (vs. low) salience of stigmatized risk factors in a health message will lead to lower likelihood of engaging in the advocated health behavior.

H1b: For individuals with a low moral identity, the high (vs. low) salience of stigmatized risk factors in a health message will not lead to differential likelihood of engaging in the advocated health behavior.

Stigma as a Threat to the Moral Self and Its Implications for Health Message Processing

Defensive processing. The motivation to protect a favorable self-view is well-established (Sherman and Cohen 2006; Taylor and Brown 1988). Accordingly, for those with high moral identity, the desire to maintain a favorable sense of moral self can occur in the presence of actual threat (e.g., telling a lie; Mulder and Aquino 2013) or anticipated threat (Effron 2014). We propose that the unfavorable moral associations accompanying stigma could serve as an anticipated threat to the moral self, triggering a desire to protect or defend the moral self for those with a high moral identity. Hence, the salience of a stigmatized risk factor could lead to defensive processing of the message and its advocated behavior as a means of protecting the self. When presented with a message in which stigma is not salient, we should not observe defensive processing from high moral identity individuals because healthy behavior is identity-consistent rather than threatening. Meanwhile, individuals with low moral identity are not threatened by implications of engagement in stigmatized behaviors and are not likely to defensively process health messages. More formally,

H2a: For individuals with a high moral identity, the high (vs. low) salience of stigmatized risk factors in a health message will increase the likelihood of defensive processing of the health message.

H2b: For individuals with a low moral identity, the high (vs. low) salience of stigmatized risk factors in a health message will not affect the processing of the health message.

In the current research, we present a context in which health messages are threatening not because of health risk information (which is held constant), but because of the stigma associated with the risk factors. The literature on stigma suggests that people respond to the threat posed by stigma by distancing themselves from the stigma (Albrecht, Walker, and Levy 1982). Swim et al. (1999) demonstrated that in the presence of members of a stigmatized group (e.g., lesbians vs. heterosexuals), individuals distanced themselves from stigmatized group members expressing dissimilar beliefs. Along the same lines, we expect that defensive processing of a stigma-laden health message by high moral identity individuals will manifest in distancing themselves from the health behavior or domain. We integrate this distancing expectation with the research on health persuasion to specify how defensive processing (Block and Williams 2002; Keller and Block 1996; Liberman and Chaiken 1992) could manifest under stigma in lower self-relevance and lower risk estimates for the self (Brown and Locker 2009; Harris and Napper 2005; Stuteville 1970). Hence, we predict that when high morality individuals are exposed to a stigma-laden health message, they are less likely to perceive themselves as susceptible to the health issue and see the health behavior as less self-relevant. In addition, if high moral identity individuals are keen to defend against the moral taint presented by stigma, they would be quicker in deciding that they need not follow the advocated health behavior in a stigmatized message. Faster distancing would be consistent with past finding that individuals are quicker in making decisions that support a desired self-view (Markus and Kunda 1986).

Threat and self-affirmation. We argue that stigma poses a threat to one's moral identity. We can test this theorizing by using self-affirmation to attenuate the effect of stigma for those with high moral identity. Self-affirmation theory (Sherman and Cohen 2006) states that people can protectively respond to threats to one aspect of self by affirming another aspect. If the

presence of stigma is indeed threatening to individuals of high (vs. low) moral identity, affirming another aspect of their self should buffer them against the threat of stigma and attenuate the effect of stigma. This attenuation by self-affirmation would be evidence of a threat-based process. For low moral identity individuals, affirming the self should make no difference.

Intervention. We argued earlier that the association of the health message with a stigmatized risk factor taints the advocated health behavior. If the association of the health behavior with the stigmatized risk factor could be weakened, then our effect may be attenuated. For example, if an innocuous risk factor were more salient than a stigmatized risk factor, the advocated health behavior would be *less* associated with the stigmatized risk factor. This line of reasoning is supported in the extant literature on stigma, which shows that weaker associations between a stigmatized person and a companion reduce the transfer of stigma-by-association (e.g., Argo and Main 2008; Pryor, Reeder, and Monroe 2012). Applying this insight to our context, we propose that, even in the presence of a stigmatized risk factor, the disproportionate salience of an innocuous risk factor would weaken the association of the stigmatized risk factor with the advocated health behavior. We develop this proposition as a messaging intervention that can be used in marketing communications about health issues that involve a stigmatized risk factor.

Overview of Studies

Five studies test our theorizing using different types of stigmatized risk factors (e.g., smoking, sexual transmission, being overweight) and operationalizations of stigma (varying risk factors across messages, associating stigma with a risk factor outside of the message, stigma-laden language to describe the same risk factors). We included a variety of outcome measures of actual behaviors (using an online health tool, signing up for emails) and behavioral intentions (to vaccinate, to screen for cancer) to test for external validity and generalizability.

STUDY 1: WEIGHT STIGMA AND MORALITY OF DISEASE SCREENING

This study was designed to test whether the salience of a stigmatized risk factor undermines health-message effectiveness among those with high moral identity (H1a), but not among those with low moral identity (H1b). We also explore the underlying process wherein stigma reduces the perceived morality of the advocated behaviors for those with high moral identity. We operationalized stigma by manipulating one of the risk factors of contracting a fictitious disease as either being overweight/obese (*high stigma*) or not using hand sanitizers (*low stigma*; adapting methodology from Young, Nussbaum, and Monin 2007).

Methods and Procedure

This study was run across two time periods. The study design was a 2 (Stigma Salience: low vs. high stigma) \times 2 (Moral Identity: high vs. low; continuous⁴) mixed design where moral identity was measured at time 1, and message type was manipulated between subjects at time 2 (for an overview of the procedures for each of the five studies reported here, see Table 1).

Participants were recruited from Amazon's Mechanical Turk in exchange for monetary compensation for two seemingly unrelated studies. At time 1, 549 participants completed a set of premeasures. The main experiment conducted at time 2 contained the health message with a

⁴ We use Aquino and Reed's (2002) scale to measure trait moral identity in Studies 1, 3, and 4. This measure composed of two subscales: internalization (i.e., self-importance of morality) and symbolization (i.e., conveying the moral self to others). Since our theorizing relates to the importance of seeing the self as a moral person, we used the internalization subscale as the predictor. The direction and significance of the results in all studies did not change when the full scale was used. When only the symbolization subscale was used, the effects were not significant. These results are available upon request. To facilitate the manifestation of internalized moral identity, we used relatively private health behavior contexts in our studies.

stigma manipulation and dependent measures. The returning 466 participants ($M_{\text{age}} = 37.50$ years, 236 females) were our final sample.

Premeasure. Participants were recruited with a cover story of “Consumer Lifestyle Survey.” Following demographic questions (e.g., age, gender), participants completed the following trait measures in random order: moral identity scale (Aquino and Reed 2002; appendix A), conscientiousness and agreeableness subscales of the Big Five Inventory (BFI; John and Srivastava 1999), and the short-form self-monitoring scale (Lennox and Wolfe 1984; appendix A). The moral identity internalization subscale was intended to be used as a predictor variable, and the other measures were to control for explanations such as the tendency to behave in a socially desirable and conscientious manner. To control for actual health risk in the main study, participants were asked questions about actual risk behaviors used in the main study: frequency of hand sanitizer use, their height, and body weight which were used to calculate BMI. Finally, they completed the Stunkard Figure-Rating Scale (Stunkard, Sørensen, and Schulsinger 1983) to measure body image (see appendix A).

Main experiment. Participants who had completed the premeasure study (time 1) were recruited for a “Health Advertisement” study five days after the premeasure study and the data collection lasted five days. They were randomly assigned to see one of two versions of the health message (*high stigma* or *low stigma*). The message described risk factors that could lead to a fictional condition called “Turner’s Disease” and advocated the health behavior of testing for this disease (see appendix B). The two risk factors were: 1) being of age 18–65 years and 2) not using hand sanitizer regularly (*low-stigma condition*) OR being overweight or obese (*high-stigma condition*). These two behaviors were pretested as differing significantly on perception of stigma (see appendix C). All other message content was constant across conditions.

Outcome: Behavioral intentions. We measured the effectiveness of health messages by asking participants their intentions to pursue the advocated health behavior using three statements: “How likely are you to talk to your doctor about Turner’s Disease screening?” (1 = “very unlikely,” 10 = “highly likely”), “How interested are you in knowing more about screening for Turner’s Disease?” (1 = “not interested at all,” 10 = “highly interested”), and “How likely are you to look up information on screening for Turner’s Disease?” (1 = “extremely unlikely,” 10 = “extremely likely”). These measures were combined into a behavioral intentions index ($\alpha = .90$).

Process: Moral associations of disease screening. On the next page, participants reported their perception of the morality of the advocated health behavior. They indicated their agreement with the following statements: “Someone who would be screened with Turner’s Disease is...” (1 = “a moral person,” 10 = “an immoral person”), “Someone who would test for Turner’s Disease is...” (1 = “a good person,” 10 = “a bad person”), “Getting screened for Turner’s Disease is...” (1 = “moral,” 10 = “immoral”), and “Getting screened for Turner’s Disease is something a...” (1 = “good person would do,” 10 = “bad person would do”). All four items were reverse coded and averaged to create a morality associations index ($\alpha = .86$).

Other measures. Next, participants were asked three items pertaining to experienced fear in response to the health message and two items about the social desirability of screening for Turner’s Disease. These constructs were measured to determine if they were potential other mechanisms driving the effect. However, they were found to not vary significantly as an interaction of stigma and moral identity (see appendix C) and will not be discussed further. Next, a stigma manipulation check was conducted (see appendix C). Finally, participants were debriefed about the fictitious nature of the stimuli and the purpose of the study.

Results and Discussion

An index of moral identity was created for each participant by averaging the internalization subscale items ($\alpha = .82$) such that higher scores indicate higher moral identity. All the tests reported below were conducted using following covariates: agreeableness, conscientiousness, self-monitoring, age, hand sanitizer use, BMI, and body image.

Outcome variables: Screening intentions and email sign-up. The data were subjected to a test of moderation using a bootstrapping procedure (Hayes 2013; PROCESS model 1; 10,000 bootstrap samples) including all covariates with message type as the independent variable, moral identity score as a moderator, and behavioral intentions index as the dependent variable. Results revealed a significant model ($F(10, 455) = 8.08, p < .001$), showing a marginal effect of message type ($b = 2.89, t(455) = 1.77; p = .07$) such that, overall, behavioral intentions declined when the message was loaded with stigma. The model also showed a main effect of moral identity ($b = 0.45, t(455) = 2.24; p = .03$) such that individuals with higher (vs. lower) moral identity indicated greater behavioral intentions. There was a significant negative interaction of message type with moral identity ($b = -.57, t(455) = -2.07; p = .04$) such that high moral identity participants indicated lower likelihood to get more information about Turner's Disease after seeing the high (vs. low) stigma message, but low moral identity individuals did not differ across messages (conditional effect for +1SD moral identity: $b = -1.03, p = .009$; -1SD moral identity: $b = .12, p > .70$; see Table 2 for calculated means and statistics). Johnson-Neyman point of transition for this sample was found to be at 6.08 on a scale of 7, including 48.71% of this sample (see appendix C for a plot). The covariates of agreeableness ($b = .45; p < .001$), age ($b = .04; p = .002$), self-monitoring ($b = .37; p = .003$), and hand sanitizer use ($b = .37; p < .001$) had a significant main effect. Body image ($b = .22; p > .10$), conscientiousness ($b = .21; p > .15$), and BMI ($b = .01; p >$

.80) did not have a significant effect on intentions. The direction and significance of the interaction remained the same without covariates.

Morality of health behaviors. The data were subjected to a test of moderation (Hayes 2013; PROCESS model 1; 10,000 bootstraps) including all covariates with message type as the independent variable, moral identity score as a moderator, and moral associations index as the dependent variable. We found a significant model ($F(10, 455) = 2.72, p = .003$) showing a main effect of message type ($b = .90, t(455) = 2.08; p = .04$) such that moral associations of the health behavior decreased under high (vs. low) stigma. There was a main effect of moral identity ($b = 0.28, t(455) = 4.01; p < .001$) such that higher moral identity led to stronger moral associations. There was a significant negative interaction of message type with moral identity ($b = -.26, t(455) = -2.62; p = .009$) such that high moral identity decreased moral associations of screening for the disease under the high (vs. low) stigma message, but low moral identity individuals did not vary by message (conditional effect for +1SD moral identity: $b = -.53, p = .005$; -1SD moral identity: $b = .17, p > .35$). Johnson-Neyman point of transition for this sample was found to be at 4.60 on a scale of 7, including a region of significance of 37.12% of this sample (see appendix C for a plot). None of the covariates had a significant effect on moral associations. The direction and significance of the interaction held when the analyses was run without covariates.

Table 2. Outcome measures, moral associations and defensive processing after high (vs. low) stigma messages, calculated at -1SD and +1SD of trait moral identity.

Measures	Low Stigma Message		High Stigma Message		Statistics for Stigma X MI Interaction
	Low MI (-1 SD)	High MI (+1SD)	Low MI (-1 SD)	High MI (+1SD)	
Study 1 - Body Weight Stigma (n = 466)					
Intentions DV: Screening Intentions (10-pt scale)	5.49 ^a	6.40 ^b	5.61 ^a	5.36 ^a	b = -.57, p = .039
Process: Moral Associations (10-pt scale)	5.75 ^a	6.51 ^b	5.92 ^a	5.98 ^a	b = -.28, p = .009
Study 3 - Sexual Transmission Stigma (n = 210)					
Intentions DV: Vaccine Intentions (10-pt scale)	6.52 ^a	8.29 ^b	6.93 ^a	6.20 ^a	b = -1.27, p = .003
Behavioral DV: E-mail Signup (yes = 1, no = 0)	0.50 ^a	0.75 ^b	0.53 ^a	0.42 ^a	b = -.79, p = .010
Defensive Processing: Perceived Relevance (10-pt)	6.31 ^a	8.03 ^b	6.42 ^a	5.40 ^c	b = -1.36, p = .001

Note. MI = Moral Identity. b is the unstandardized coefficient of the interaction term. Numbers with the same superscript in a row are statistically similar at $p < .05$.

Moderated mediation. We tested whether moral associations drove the interaction of moral identity and stigma on disease screening intentions (Hayes 2013; process model 8; 10,000 bootstraps). Results revealed a significant model ($F(8, 457) = 8.25, p < .001$) such that higher moral associations increased screening intentions ($b = .29, p = .005$). This moderated mediation was significant for participants with high (+1SD) moral identity ($b = -.79, 95\% \text{ CI}, -1.55 \text{ to } -.04$) but not for those with low (-1SD) moral identity ($b = -.14, 95\% \text{ CI}, -.89 \text{ to } .61$). The covariates of agreeableness ($b = .59; p < .001$), age ($b = .04; p = .002$), self-monitoring ($b = .40; p = .003$), and hand sanitizer use ($b = .33; p < .001$) had a significant main effect. Body image ($b = .21; p > .10$), conscientiousness ($b = -.01; p > .80$), and BMI ($b = .01; p > .80$) did not have a significant effect on the model.

Discussion. This study demonstrates several important effects. First, supporting H1a, the salience of stigma in a health message significantly decreased behavioral intentions for those with high moral identity. However, there was no difference between across stigma messages on

behavioral intentions for those with low moral identity (H1b). Second, this study provides evidence of the moral process by which stigma undermines effectiveness for those with high moral identity. Specifically, this study finds that perceptions of morality associated with the advocated health behavior drive consumers' engagement in the behavior independent of their actual health risk exposure, and that stigma affects health consumption by undermining the perceived morality of the health behavior. When the message featured a less stigmatized risk factor, high moral identity individuals indicated higher intentions of complying with the message because they perceived the advocated health behavior to be more moral. However, when the message indicated a stigmatized risky behavior, high moral identity individuals' moral associations with the advocated behavior decreased resulting in lowered health intentions.

Importantly, this study measured several potential alternative explanations for our hypothesized effects. We found that the results held when controlling and testing for various alternative constructs to moral identity (i.e., conscientiousness, agreeableness, self-monitoring), alternative processes (i.e., social desirability, fear), and for actual health risk (i.e., frequency of hand sanitizer use, BMI, perceived body image). Since we have ruled out the effect of these constructs, we will not discuss them further⁵. Having established that stigma undermines the moral favorability of the advocated health behavior, the following two studies test for the defensive processing that results from the stigma associated with the health message. In study 1, we manipulated stigma by changing one of the risk factors associated with the disease, raising the concern that the two behaviors (hand sanitizer and weight) may differ on unobserved

⁵ We replicated our results, most notably those for moral associations mediation, in an additional study of the same design using a different operationalization of weight stigma risk factor. Details and results are available in appendix D as Study 1B.

variables other than stigma, which might drive the observed effect. Study 2 addressed this concern and tested for the generalizability of our effects.

STUDY 2: SMOKING, LUNG CANCER SCREENING, AND DEFENSIVE PROCESSING

Study 2 had three main objectives. First, we wanted to conceptually replicate Study 1 and test H1a and H1b using the contexts of stigma of smoking and the health behavior of lung cancer screening. Second, we captured participants' actual engagement in health behavior as an outcome variable by utilizing the online Risk-based NLS Outcomes Tool (RNOT) developed by the National Institutes of Health – National Cancer Institute. We embedded RNOT (using HTML *iframe*) into the online study interface to observe participants' willingness to use the screening tool and their actual activity on the RNOT page as measures of message effectiveness. Third, we tested H2a and H2b by measuring defensive processing using risk estimates and response times.

Methods and Procedure

Three hundred and sixty-five undergraduate students ($M_{\text{age}} = 21.34$ years, 160 females) at a large North American university participated in this study for partial course credit. The study was a 2 (Stigma Salience: low vs. high) \times 2 (Identity: moral vs. neutral) between-subjects design. An premeasure study collecting participant's smoking behaviors (time 1) was followed by the main experiment later in the day (time 2).

At time 1, participants were asked about their actual smoking behaviors (see appendix E). Then, at time 2, each participant was randomly assigned to a moral (vs. neutral) identity condition as the first activity in the main experiment (time 2). Following Aquino et al. (2007; see appendix E), we presented this as a story-writing task in which participants wrote a brief story or

an anecdote about themselves using moral (vs. neutral) personality traits. Participants then completed a moral identity manipulation check (appendix G).

After the moral identity task, stigma was manipulated in a “newspaper article evaluation” task (procedure adapted from Sinha 2016; see appendix F). In the *low stigma salience* condition, participants saw an article detailing the history of coffee. In the *high stigma salience* condition, participants read an article about the stigma of being a smoker. Next, participants were told that an ostensible Student Health Panel Board was interested in feedback on a new ad about lung cancer screening. All participants in the study saw the same message briefly defining lung cancer and presenting a list of five risk factors, the first one of which was smoking (see appendix F). This procedure ensured that stigma of smoking was manipulated while holding the risk factors and message constant across all conditions.

Defensive processing: Risk estimates. We adapted measures from past work wherein defensive processing manifests as a denial that the self is susceptible (e.g., Brown and Locker 2009; Harris and Napper 2005). After viewing the health message, participants indicated their estimates of being at risk for lung cancer by answering two questions presented in randomized order, “How likely is it that you might get screened with lung cancer?” (1 = “extremely unlikely” to 10 = “extremely likely”) and “What is the likelihood that you might get lung cancer?” on a sliding scale (0 = “not possible” to 100 = “definitely”). The responses on the two items were standardized and combined to form an index of perceived risk ($\alpha = .96$). Following these items, we collected measures of defensive processing as message derogation although we did not expect any effects on this type of defensive processing. We found a null effect on message derogation (see appendix G “Nature of Defensive Processing” for items, results, and theoretical discussion of this finding in the context of defensive processing).

Outcome variable: Intentions to use RNOT. On the next page, participants were introduced to RNOT and offered an opportunity to use the tool. They were told: “As compliments of participating in this study, you are offered free use of the online Lung Cancer Risk Assessment Tool developed by the National Institutes of Health and National Cancer Institute on the following page. This is an online tool that informs you whether lung cancer screening is beneficial to you, based on some information that you are asked to enter. The researchers conducting this study cannot see your results or your information.” Participants then responded to the question, “How interested are you in using this tool?” (1 = “not interested at all” to 10 = “highly interested”) which served as a measure of health behavior intentions.

Defensive processing: Response time. The study software measured the time spent on the page with the RNOT intention question. The time participants took to make their decision acted as a second indicator of defensive processing. This measure is adapted from previous research indicating that people are faster to arrive at conclusions that support a desired self-view (Markus and Kunda 1986; Sanitioso, Kunda, and Fong 1990). Thus, shorter response time in combination with low health behaviors would indicate greater defensive processing.

Outcome variable: Activity on RNOT. All participants were then directed to the page with RNOT embedded in it (see appendix F). The study software measured their actual interaction with the tool in the form of number of clicks on the page. If a participant did not use RNOT, it was recorded as 0 clicks. The number of clicks on the RNOT page served as the behavioral dependent variable, such that a higher number indicates greater interaction with the tool. In accordance with Human Subjects regulations, we did not collect information entered by participants on the form or risk estimates generated by the tool. After the RNOT page,

participants completed the manipulation check for stigma ($\alpha = .92$; see appendix G). Finally, participants were debriefed and provided sources of help about smoking cessation.

Results and Discussion

Outcome variable: Interest in using and activity on RNOT. We conducted ANCOVA with usage intentions as the dependent variable, moral identity priming and stigma salience conditions as independent variables, and two smoker status premeasures (frequency and ever smoked) as covariates. Results indicated a significant model ($F(5,359) = 2.79, p = .017$), with a significant main effect of stigma salience ($F(1, 359) = 3.91, p = .049$), a marginal effect of smoker frequency ($F(1, 359) = 3.56, p = .06$; those who self-reported to be frequent smokers estimated marginally higher risk of lung cancer), and a significant interaction of stigma salience and moral identity ($F(1, 359) = 4.49, p = .03$). No other factor in the model showed a significant effect. Supporting H1a, when the stigma associated with smoking was salient, participants primed with moral identity were significantly less interested in using the screening tool ($M_{\text{mor-lowstig}} = 4.74, M_{\text{mor-highstig}} = 3.40, t(181) = 3.53, p < .001$). Supporting H1b, participants primed with neutral identity did not vary in their interest in using the screening tool across stigma high and low salience conditions ($M_{\text{neut-lowstig}} = 3.80, M_{\text{neut-highstig}} = 3.78, t(180) = .03, p > .90$). This pattern of results replicates the interaction documented in Study 1.

We ran an ANCOVA with number of clicks on the RNOT page as the dependent variable, moral identity priming and stigma salience conditions as independent variables, and smoker status premeasures as covariates. Results indicated a significant model ($F(5, 359) = 3.32, p = .006$), with a significant main effect of stigma salience ($F(1, 359) = 5.85, p = .016$), moral identity ($F(1, 359) = 5.29, p = .022$), smoker frequency ($F(1, 359) = 4.12, p = .043$), and a significant interaction of stigma salience and moral identity ($F(1, 359) = 4.49, p = .035$). No

other factor in the model showed a significant effect. Further probing of the interaction showed support for H2a, such that when the stigma associated with smoking was made salient, participants primed with moral identity engaged less on the screening tool page ($M_{\text{mor-lowstig}} = 3.79$, $M_{\text{mor-highstig}} = 3.09$, $t(181) = 2.45$, $p = .015$). Participants primed with neutral identity did not vary in the extent of their interaction with the screening tool page across high versus low stigma salience conditions, supporting H2b ($M_{\text{neut-lowstig}} = 3.08$, $M_{\text{neut-highstig}} = 2.96$, $t(180) = .39$, $p > .65$).

Defensive processing: Risk estimates and time taken to indicate RNOT use. We conducted ANCOVA with risk estimates index as the dependent variable, moral identity priming and stigma salience conditions as independent variables, and smoker status covariates. Results showed a significant model ($F(5, 359) = 6.75$, $p < .001$), with significant effect of smoker frequency status ($F(1, 359) = 22.78$, $p < .001$) and a significant interaction of stigma salience and moral identity ($F(1, 359) = 4.77$, $p = .030$). No other effects were significant. The results indicated that when stigma associated with smoking was made salient, participants primed with moral identity estimated significantly lower likelihood of lung cancer ($M_{\text{mor-lowstig}} = 3.75$, $M_{\text{mor-highstig}} = 3.06$, $t(181) = 2.40$, $p = .017$). Neutral identity participants' estimates of risk did not vary across conditions ($M_{\text{neut-lowstig}} = 3.50$, $M_{\text{neut-highstig}} = 3.72$, $t(180) = .73$, $p > .40$).

We conducted ANCOVA with time spent on making the decision to use RNOT (in seconds) as the dependent variable, moral identity priming and stigma salience conditions as independent variables, and smoker status covariates. Results showed a significant model ($F(5, 359) = 2.49$, $p = .031$), with a significant interaction of stigma salience and moral identity ($F(1, 359) = 4.71$, $p = .031$). No other factor in the model showed a significant effect. When stigma associated with smoking was made salient, participants primed with moral identity were faster in indicating their intentions to use the tool ($M_{\text{mor-lowstig}} = 11.08$, $M_{\text{mor-highstig}} = 9.34$, $t(181) = 2.39$, p

= .018). However, participants primed with neutral identity did not differ in the time across the stigma salience conditions ($M_{\text{neut-lowstig}} = 10.60$, $M_{\text{neut-highstig}} = 11.10$, $t(180) = .68$, $p > .45$).

Descriptive statistics and mean comparison results are summarized in Table 3.

Table 3. Means and std. deviations of outcome measures and defensive processing under high (vs. low) stigma salience, moderated by moral (vs. neutral) identity manipulation.

Measures	Low Stigma Salience (n=185)		High Stigma Salience (n=180)		Statistics for the 2 (Stigma) × 2 (MI) Interaction
	NI	MI	NI	MI	
Behavioral DV: Activity on lung cancer screening page (no. of clicks)	3.08 ^a (2.06)	3.79 ^b (1.98)	2.96 ^a (2.11)	3.09 ^a (1.87)	F(1, 359)=4.77; $p=.029$
Intentions DV: Interest in using lung cancer screening tool (10-pt scale)	3.80 ^a (2.68)	4.74 ^b (2.65)	3.79 ^a (2.56)	3.40 ^a (2.48)	F(1, 359)=4.49; $p=.034$
Defensive processing: Risk estimates (z-scores; lower estimates indicate defensive distancing of self)	0.07 ^a (1.02)	0.11 ^a (0.98)	0.09 ^a (0.99)	- 0.23 ^b (0.92)	F(1, 359)=4.71; $p=.031$
Defensive processing: Time spent on decision to use cancer screening tool (in seconds; less time indicates greater defensive distancing of self)	10.60 ^a (4.92)	11.08 ^a (5.15)	11.10 ^a (5.18)	9.34 ^b (4.60)	F(1, 359)=4.77; $p=.029$
Defensive processing: Message derogation (10-pt scale)	2.70 ^a (2.27)	2.68 ^a (2.14)	2.77 ^a (2.15)	2.53 ^a (2.33)	F(1, 359)=1.78; $p=.13$

Note. NI = Neutral Identity condition, MI = Moral Identity condition. Numbers with the same superscript in a row are statistically similar at $p < .05$.

Discussion. Study 2 replicates the interaction of stigma and moral identity in the context of smoking stigma (H1a and H1b). Further, we found evidence for defensive processing such that when stigma of smoking was made salient, participants with salient moral (vs. neutral) identity were likely to defend their moral self by lowered risk estimates and quicker decisions (H2a), ultimately lowering the likelihood of health engagement (see appendix G for moderated

mediation analysis). The current study design also rules out potential alternative explanations for the interaction of stigma and moral identity. First, stigma was manipulated independently of the message, and all participants saw the same health message with the same list of risk factors. Therefore, participants' differential responses across two stigma conditions are not attributable to differences across risk factors listed in the messages. We also controlled for actual health risk exposure through smoking status measures, indicating that the effect is found independent of risk factor exposure. Second, we primed moral identity by random assignment to ensure that the effect is not driven by correlates of trait moral identity.

STUDY 3: HEALTH MESSAGES AND STIGMA OF SEXUAL TRANSMISSION

We designed Study 3 to provide converging evidence for our effects using a different context of stigma and a different measure of defensive processing (e.g., perceived relevance of the health behavior). Using the same paradigm as Study 1, we manipulated stigma by featuring a risk factor for contracting a fictitious condition that was sexual (*high stigma*) or not (*low stigma*).

Methods and Procedure

Two hundred ten undergraduates ($M_{\text{age}} = 21.59$ years, 101 females) from a North American university participated in exchange for partial course credit. This study was a 2 (Stigma Salience: low vs. high) \times 2 (Moral Identity: high vs. low; continuous) mixed design where stigma was manipulated between subjects and moral identity was measured.

At the beginning of each lab session, participants responded to the moral identity scale by Aquino and Reed (internalization subscale $\alpha = .78$) as part of a larger "lifestyle survey." After a filler task and demographic questions, participants indicated their engagement in a list of 8

behaviors, out of which 2 were pertinent to the stigma manipulation and intended as covariates in the analysis. Participants were asked: “How frequently do you use hand sanitizers?” 1 = “not at all” to 10 = “very frequently,” and “Do you have a single, steady sexual partner?” 1 = “definitely no” to 10 = “definitely yes.” After this step, participants engaged in some unrelated studies for about a half an hour to an hour.

The main study was presented as a “Student Health” study. Participants were shown a message titled “Get vaccinated for HSV!” that briefly described potential factors that could lead to a Human Soro Virus (HSV) infection and the dangers of getting infected with HSV (see appendix H). Stigma was manipulated in the third risk factor listed on the message. The risk factors were: 1) being of age 16–45 years; 2) sharing food and beverages with others; and 3) not using hand sanitizer regularly (*low-stigma condition*) OR having multiple sexual partners (*high-stigma condition*). These two behaviors were pretested as differing significantly on perception of stigma (see appendix I). All other message content was constant across conditions.

Outcome variables: Intentions to vaccinate and email sign-ups. We measured the effectiveness of health messages through two behavioral intentions measures that were combined to form an intentions index ($r = .89$): “How likely are you to get a HSV vaccination?” (10-point scale, 1 = “very unlikely,” 10 = “highly likely”), and “How interested are you in getting a vaccination for HSV?” (10-point scale, 1 = “not interested at all,” 10 = “highly interested”). Participants were then asked whether they would like to receive more information about HSV and the vaccine (yes or no). They were presented with the option to sign up for emails (a common consumer-engagement method employed by health marketers). Choosing to receive further information was treated as a discrete measure of message effectiveness.

Defensive processing: Perceived relevance. The measure of perceived relevance of HSV was adapted from past health literature (Croyle and Sande 1988; Ditto, Jemmott, and Darley 1988). Participants completed three measures of perceived relevance that were averaged to form an index ($\alpha = .89$): “The vaccine for HSV is relevant to me,” “The disease HSV is relevant to me,” and “Vaccine for HSV is relevant for people like me” (10-point scale, 1 = “strongly disagree,” 10 = “strongly agree”). Lower relevance scores indicate greater defensive processing.

Next, manipulation checks for stigma measured agreement with: “People with HSV are likely to be stigmatized by others,” “Those with HSV face social stigma,” and “Individuals getting the HSV vaccine are likely to be stigmatized by others” (10-point scale, 1 = “strongly disagree,” 10 = “strongly agree”). The three items were averaged ($\alpha = .82$) into a stigma manipulation check. After measuring demographics, participants were debriefed and dismissed.

*Results and Discussion*⁶

Outcome variables: Vaccination intentions and email sign-up. The data were subjected to a test of moderation using a bootstrapping procedure (Hayes 2013; PROCESS model 1; 10,000 bootstraps) with message type as the independent variable, moral identity score as a moderator, and vaccination intentions index as the dependent variable. Results revealed a significant model ($F(3,206) = 5.57, p = .001$), showing a main effect of message type ($b = -.37, t(206) = -2.89; p = .004$) such that vaccination intentions lessened when the message was high (vs. low) stigma. There was also a main effect of moral identity ($b = 0.90, t(206) = 3.03; p = .003$) such that individuals with higher moral identity showed greater intentions to vaccinate. There was a significant negative interaction of message type with moral identity ($b = -1.27, t(206) = -3.32; p$

⁶ All the tests reported here were also conducted using premeasured covariates of hand sanitizer use frequency and having multiple sexual partners. Like Studies 1 and 2 results, the direction and significance of results hold when the analyses are run including covariates. These analyses are available upon request.

= .001) such that high moral identity participants indicated lower likelihood to get vaccinated for HSV after seeing the high (vs. low) stigma message, but low moral identity individuals did not differ across messages (conditional effect for +1SD moral identity: $b = -1.49, p = .006$; -1SD moral identity: $b = -.12, p > .40$). Johnson-Neyman point for this sample was found to be at 5.63 on 7, including 61.91% of this sample in the region of significance (see Table 2 for means).

We then subjected all data to a test of moderation through a binary logistic regression using a bootstrapping procedure (Hayes 2013; PROCESS model 1; 10,000 bootstraps), with message type as the independent variable, moral identity score as a moderator, and participants' choice of receiving emails (= 1) or not (= 0) as the dependent variable. Results revealed a significant model (Nagelkerke $R^2 = .076, p = .007$). The model showed a main effect of message type ($b = -.39, z(206) = -2.19; p = .028$) such that participants were less likely to sign up for emails when the message was loaded with stigma. There was also a main effect of moral identity ($b = 0.57, z(206) = 2.34; p = .019$) such that individuals with higher (vs. lower) moral identity were more likely to sign up for email communications regarding the vaccine. There was a significant negative interaction of message type with moral identity ($b = -.79, z(210) = -2.57; p = .01$) such that high moral identity participants were less likely to sign up for emails after seeing the high (vs. low) stigma message ($b = -1.43, p < .001$). However, low moral identity participants did not differ in likelihood of email signup across the two message types ($b = .12, p > .75$). The Johnson-Neyman point for this sample was found to be at 5.66 on the scale of 7, with 61.90% of this sample in the region of significance (for a plot, see appendix I).

Defensive processing: Perceived relevance. The data were subjected to a test of moderation using a bootstrapping procedure (Hayes 2013; PROCESS model 1; 10,000 bootstraps) where the dependent variable was perceived relevance, the independent variable was

the message type, and moral identity score was the moderator. Results revealed a significant model ($F(3,206) = 7.32, p < .001$). The model showed a main effect of message type ($b = 6.56, t(206) = 2.77; p = .006$), a main effect of moral identity ($b = 0.85, t(206) = 2.69; p = .008$), and a significant interaction of message type with moral identity ($b = -1.36, t(206) = -3.35; p = .001$). High moral identity participants significantly lowered their estimations of the HSV vaccine as being relevant to them after seeing the high (vs. low) stigma message (conditional effect for high moral identity (+1SD): $b = -1.49, p = .006$). In contrast, low moral identity participants' estimations of the relevance of the vaccine to them remained the same across the two message types (conditional effect for low moral identity (-1SD): $b = -.12, p > .90$). Johnson-Neyman point of transition for this sample was found to be at 5.39 on a scale of 7. The region of significance included about 68.09% of this sample (see appendix I for a plot).

Discussion. This study again demonstrates the interplay of stigmatized risk factors in a health message and moral identity in driving message effectiveness (H1a and H1b). After seeing the low stigma message, high moral identity participants saw the vaccine as highly relevant to them (8.03/10); however, after the high stigma message, they saw significantly lower levels of relevance (5.41/10; H2a). These results held when participants' premeasured engagement in the varying risk factors was controlled. Low moral identity participants did not differ in their indications of the relevance of the vaccine following the high (vs. low) stigma message (H2b). In Study 4, we test for converging evidence for the process of defensiveness of the moral self against a stigmatized risk factor by using the self-affirmation paradigm.

STUDY 4: SELF-AFFIRMATION ATTENUATES THE STIGMA OF SEXUAL TRANSMISSION

In this study, we apply self-affirmation theory (Sherman and Cohen 2006), which states that people respond to threats to one aspect of self by using resources from another aspect of self to affirm one's global self. Our reasoning is thus: If the presence of a stigmatized risk factor is threatening to individuals of high (vs. low) moral identity, affirming another aspect of their self should buffer them against this threat. As a result, we should see higher health behavior intentions among self-affirmed high moral identity individuals even when the stigma is salient. In contrast, for individuals with low moral identity, self-affirmation should not make a difference in terms of behavioral intentions since stigma is not self-threatening to them.

Methods and Procedure

An online panel of 470 adult female participants ($M_{\text{age}} = 39.82$ years), who were US residents was recruited. This study was a 2 (Affirmation: affirmed vs. neutral) \times 2 (Stigma Salience: low vs. high) \times 2 (Moral Identity: high vs. low; continuous) mixed design. As a cover story for the study, participants were told that they would be engaged in three unrelated tasks.

The first task was a self-affirmation procedure adapted from Sherman, Nelson, and Steele (2000), "Life Events Study" – described as focusing on the ease and ability of recalling positive life events. This task either positively affirmed (*affirmation condition*) or neutrally engaged (*neutral condition*) participants with respect to six characteristics outside the moral and health domains (e.g., aesthetic appreciation, spontaneity, etc.; see appendix J). Immediately following this activity, participants were asked, "How do you feel about yourself?" They responded on a nine-point scale of 1 = "poorly" to 9 = "extremely positively" as a manipulation check of the affirmation task (adapted from Sherman et al. 2000; see appendix K).

Next, participants were told that an ostensible Population Health Panel Board was interested in consumer feedback on a pamphlet about cervical cancer screening. Participants

were randomly assigned to see one of two versions of the health message that manipulated stigma (see appendix J). The messages started with the same generic information about cervical cancer and then presented three risk factors. The second risk factor was listed as either “*History of certain infections*. Some past infections (such as Chancroid, PID) increase the risk for cervical cancer” (*low stigma*) or “*History of sexually-transmitted infections*. Some past infections that are spread by sexual contact (such as Chancroid, PID) increase the risk for cervical cancer” (*high stigma*). All other information in the message was held constant across conditions.

Outcome variable: Behavioral intentions. After reading the cervical cancer message, participants were told that as part of this research the Federal Health Panel Board offers free cervical cancer screening and consultation to some randomly selected participants. They were then asked three questions: “Are you interested in being considered for a free cervical cancer screening at a local hospital at a time convenient for you?”, “Would you like to get the free screening at a local hospital?” (1 = “definitely no,” 10 = “definitely yes”), and “How likely are you to get tested if offered this service?” (1 = “highly unlikely,” 10 = “highly likely”).

Next, to confirm whether the reading task manipulated stigma as intended, participants were shown a table of four health issues in randomized order with the instruction, “In your opinion, please indicate how much stigma is associated in our society with the following health issues” (1 = “not at all stigmatized,” 10 = “highly stigmatized”). The diseases were: Common cold, Cervical cancer, Chancroid, and PID (see appendix K). Following a filler puzzle task, participants were given the moral identity scale by Aquino and Reed (2002), ostensibly as the third task of a “consumer lifestyle survey.” Then demographic information was collected. The participants were debriefed, and the study ended.

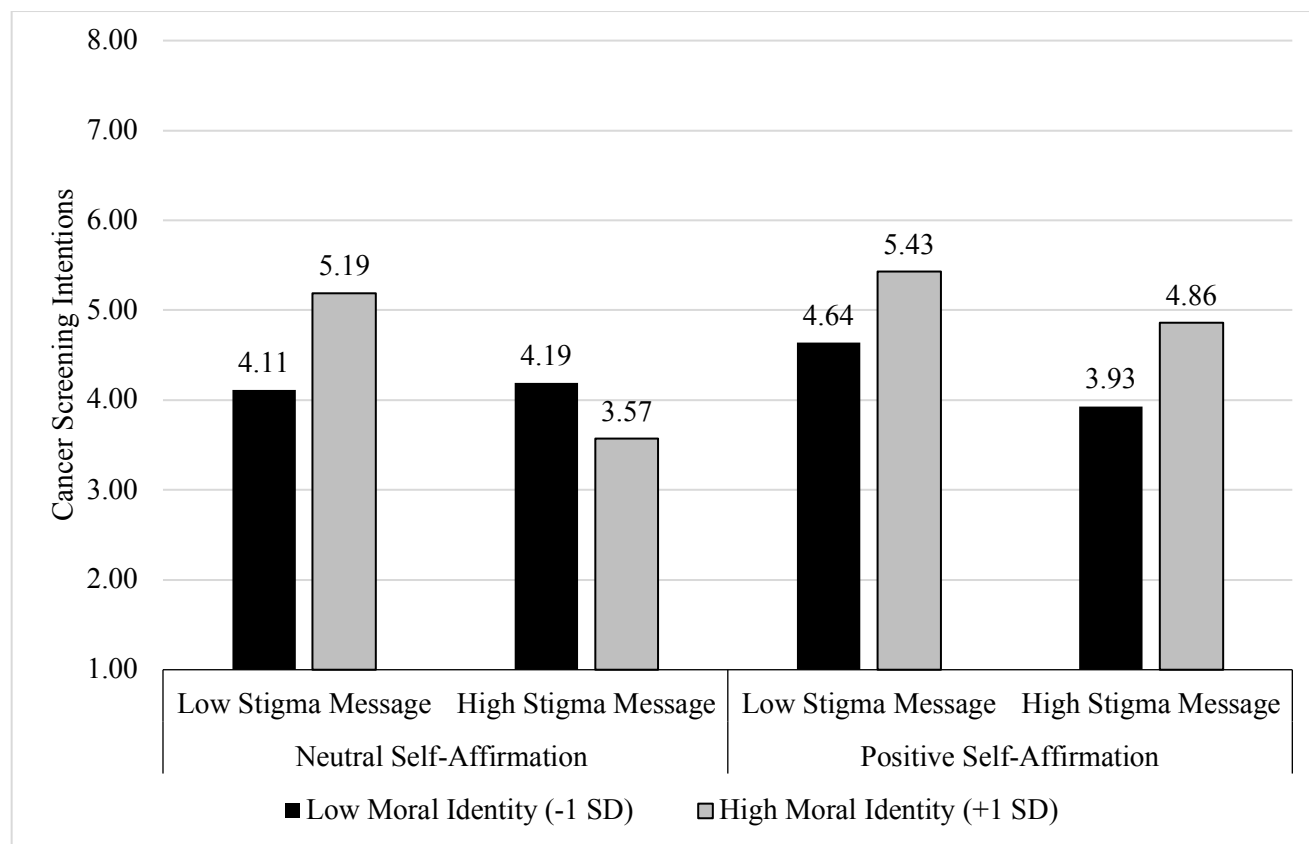
Results and Discussion

The affirmation and stigma manipulations were found to be successful (appendix K). Items on moral identity internalization were averaged ($\alpha = .71$) to form a moral identity score.

Outcome variable: Behavioral intentions. We ran a 3-way bootstrapped regression (Hayes 2013; PROCESS model 3, 5,000 bootstraps) with affirmation task (neutral = -1, affirmed = 1), message type (low stigma = -1, high stigma = 1), and moral identity score as independent variables and intentions of screening as the dependent variable. Analysis revealed a significant model ($F(7,462) = 2.53, p = .015$). We found a significant two-way interaction of message type and affirmation ($b = -3.19, t(462) = -2.98, p = .003$), a significant main effect of internalized moral identity ($b = -.39, t(462) = -2.24, p = .025$), and a significant three-way interaction ($b = .52, t(462) = 3.03, p = .003$). No other factors in the model were significant.

We probed the significant three-way interaction ($b = .52, t(462) = 2.24, p = .026$), and the pattern of results was as predicted (Figure 1). Among participants with low moral identity (-1 SD), there was no significant interaction of message type and affirmation ($b = -.45, p > .10$), indicating that their responses to stigma did not vary by self-affirmation task. However, among participants of high moral identity (+1 SD), there was a significant two-way interaction of message type and affirmation ($b = .48, p = .029$), indicating that positive self-affirmation influenced their response to the extent of stigma in the message. Further analysis of high moral identity participants showed that under the neutral-affirmation condition, their intentions to get tested for cervical cancer lowered under high (vs. low) stigma salience ($M_{\text{low stigma}} = 5.19, M_{\text{high stigma}} = 3.57; t(462) = -3.11, p = .002$), but when they were self-affirmed, their intentions to test did not decrease after seeing the high (vs. low) stigma salient message ($M_{\text{low stigma}} = 5.43, M_{\text{high stigma}} = 4.86; t(462) = -1.31, p > .15$; see Figure 1).

Figure 1. Positive self-affirmation enhances cervical cancer screening intentions among high (vs. low) moral identity participants after viewing the high stigma message.



Discussion. This study used self-affirmation to provide converging evidence that the presence of stigmatized risk factors undermines health persuasion by threatening participants' moral self-schema. When participants with high moral identity were offered the opportunity to self-affirm in a different domain, the salience of stigma in the message did not reduce their intentions to get tested. When high moral identity participants were not affirmed, we replicated results of previous studies wherein stigma reduced intentions.

*STUDY 5: MAKING AN INNOCUOUS RISK FACTOR SALIENT REDUCES THE NEGATIVE
EFFECTS OF STIGMA*

Studies 1 to 4 establish that the presence of stigmatized risk factors undermines the effectiveness of health messaging by threatening individuals' moral self-schema, leading to high (vs. low) moral identity individuals' lowered intentions towards the advocated health behavior. As a next step, we aimed to develop and test a messaging intervention that could be applied by health marketers when communicating about health issues that involve a stigmatized risk factor.

We reasoned that if an innocuous risk factor were more salient than a stigmatized risk factor, the advocated health behavior would be *less* loaded with stigma. This line of reasoning is supported in the extant literature on stigma, which shows that weaker associations between a stigmatized person and a companion reduce the transfer of stigma-by-association (e.g., Argo and Main 2008; Pryor, Reeder, and Monroe 2012). Applying this insight to our context, we propose that stronger salience of an innocuous risk factor—in comparison to a stigmatized risk factor—would weaken the association of the stigmatized risk factor and the advocated health behavior. We utilized the context of lung cancer used in Study 2 to test this intervention by manipulating the whether an innocuous factor (i.e., exposure to pollution) was made salient or not in a high stigma message (i.e., message featuring smoking).

Methods and Procedure

This was a two-way 2 (Message Type: stigma vs. intervention) \times 2 (Identity: moral vs. neutral) between-subjects design where both stigma and intervention messages were high stigma conditions. The study was conducted in two phases three to five days apart. At time 1, 500

participants were recruited using TurkPrime panels (Litman, Robinson, and Abberbock 2017). As an ostensible “Consumer Health Survey,” we measured participants’ smoking behavior using the same measures as Study 2. Three days later, we invited this pool of participants for the main study (time 2). Four hundred and two participants ($M_{\text{age}} = 37.64$ years, 214 females) returned to participate in time 2. All analyses were run on this final sample.

The first task at time 2 manipulated a salient moral (vs. neutral) identity, using the procedure from Study 2 (Aquino et al. 2007). Following the moral identity manipulation, participants were asked to answer five questions, as an ostensible opinion collection task. One of these questions made the stigma of smoking salient for all participants. They were asked to indicate their agreement with “Smoking is not socially acceptable anymore” on a scale of 1 = “do not agree” to 5 = “strongly agree.” This salience is required to mimic the high stigma salient condition from Study 2, which serves as the baseline condition (stigma message) in this study.

Next, participants were taken to a page containing instructions that a “Public Health Board” had developed an advertisement and required their feedback. They were randomly assigned to see either “Have you screened for lung cancer?” (stigma message; same as stimulus from Study 2) or “Have you been exposed to pollutants? Time to screen for lung cancer” (intervention message; see appendix L). The rest of the content on both messages was the same (including a stigmatized risk factor [i.e., smoking] and an innocuous factor [i.e., exposure to pollutants]). On the next page, three manipulation-check items were presented and found to work successfully (see appendix M).

Behavioral outcome: Choice of RNOT use. The primary dependent variable in this study was participants’ choice to use the RNOT tool (described in Study 2). After seeing the message, they were offered a choice to use (“yes”) or not use (“no”) the RNOT tool. They were told that

their choice would not affect their compensation. Those who chose “Yes” were taken to the RNOT embedded page, and those who chose “No” skipped the RNOT page and moved to the next step of the study. Next, all participants were asked stigma manipulation check questions (see appendix M for items), debriefed on the nature of the study, provided resources on lung cancer screening and smoking cessation, and the study ended.

Results and Discussion

Choice to use RNOT. We subjected the dependent variable of choice to use RNOT (= 1) or not (= 0) to a logistic regression with the identity and message-type conditions as independent variables and participants’ smoker status as covariate. Results showed a significant model (Nagelkerke $R^2 = .05$, $p = .02$), with a significant interaction of identity and message type ($b = 1.06$, $z(402) = 2.11$, $p = .035$). The main effects of identity ($b = -.29$, $p > .20$; $b = .36$, $p > .10$) and smoker status ($b = -.07$, $p > .30$) were not significant. Upon probing the interaction, we found that participants’ likelihood of choosing to use the RNOT tool was significantly higher after seeing the intervention message ($b = .76$, $z(402) = 2.19$, $p = .028$), among those primed with a moral identity ($b = .71$, $z(402) = 1.94$, $p = .05$), but not neutral identity ($b = -.35$, $z(402) = -1.01$, $p > .30$). The pattern and significance of these results were the same without the covariate. Table 4 summarizes these findings.

Table 4. Increasing the salience of an innocuous risk factor increases choice to use cancer screening tool.

Measures	Stigma Message		Intervention Message	
	Neutral Identity	Moral Identity	Neutral Identity	Moral Identity
DV: Cancer screening choice (probability estimates)	0.21 ^a	0.17 ^a	0.16 ^a	0.29 ^b
Stigma manipulation check (Means (SD); 10-point scale)	5.28 (2.64) ^a	5.39 (2.59) ^a	4.98 (2.61) ^b	4.54 (2.51) ^b

Note. Numbers with the same superscript in a row are statistically similar at $p < .05$. Description of stigma manipulation-check items can be found in appendix M.

Discussion. This study tested a proposed messaging intervention. All participants in this study saw stimuli for the same health behavior and were provided the same list of risk factors. The messages varied across conditions only as to whether an innocuous factor was made salient (*intervention message*) or not (*stigma message*). This messaging intervention increased moral (vs. neutral) identity participants' actual likelihood of using a lung cancer screening tool.⁷ This finding presents an actionable intervention for the negative effect of stigma on health persuasion and shows that this messaging works by reducing the stigma associated with the health behavior.

⁷ We replicated this design ($n = 399$) with one small change where the stigma message condition highlighted the stigmatized behavior in the message title. See Study 5B in appendix N.

ESSAY 2

ACCENTUATING STIGMA: LEVERAGING VARIATIONS IN MORAL BELIEFS TO
ENHANCE MENTAL HEALTH PERSUASION

Mental illnesses are common worldwide, yet data indicate that a majority of those affected do not receive appropriate healthcare. The World Health Organization (WHO) estimated that more than 300 million people across the world are affected by depression, and that fewer than 50% of those depressed received healthcare services and treatments (WHO Fact Sheet, 2017; this figure is lower than 10% in some countries). In the U.S., approximately 45 million adults were estimated to be living with any mental illness in 2016, of which, only 41% received some form of mental health services (National Institute of Mental Health Reports, 2016). Past research suggests that the social stigma associated with mental health conditions is a significant barrier to seeking mental healthcare services (e.g., Corrigan 2004, Park-Lee et al. 2017, Pietrzak et al. 2009, Van Brakel 2006). Participants in a field study of 67,500 interviews articulated many stigma-related reasons (e.g., worry that it might negatively affect how they are treated at workplace, concerns that neighbors may have a negative opinion of them, etc.) to not seeking out healthcare support (US National Survey on Drug Use and Health 2016; Park-Lee et al. 2017).

In the current research, we examine a moral process through which stigma undermines mental healthcare messaging and identify when such an influence can be attenuated. Stigma is the devaluing of an individual in a given social context as being ‘spoiled’ and having undesirable attributes (Goffman 1963). We theorize that stigma undermines mental health persuasion by devaluing moral characteristic of those seeking healthcare support, and that this effect can be attenuated by highlighting a dimension of the stigma that is morally acceptable. Specifically, we propose that, accentuating some dimensions of mental health stigma in health messaging - rather than not addressing stigma at all - has positive consequences on the persuasiveness of mental health appeals. Drawing from past work in mental health (Corrigan 2004; Clement et al. 2014),

we consider two important dimensions that contribute to the social stigma surrounding mental health problems: a) harm-causing dimension (perceptions that an individual experiencing mental health issues may be violent) and b) norm-deviating dimension (perceptions that an individual experiencing mental health issues is different than an average other). We show that accentuating the norm-deviating dimension of stigma (vs. harm-causing vs. no stigma) increases the effectiveness of mental health messaging when norm-deviance is not perceived as a moral violation. We test this moral process by utilizing the framework of rights-based (i.e., individual freedom is primarily moral) versus duty-based (i.e., following one's duty is primarily moral) belief systems (Dworkin 1978; Chiu et al. 1997).

We demonstrate that when the norm-deviating dimension of mental health stigma is made salient, individuals holding rights (vs. duty)-based moral beliefs are more likely to recognize their susceptibility to mental health issues, and seek mental healthcare support, because being different from the norm is not a moral violation in their conceptualization of morality. However, when the harm-causing dimension of mental health stigma is made salient, individuals holding both rights-based and duty-based beliefs are less likely to acknowledge their risk and to seek help since causing harm to others is a moral violation according to both belief systems. When stigma is not mentioned in a message at all, individuals holding both belief systems are less likely to seek healthcare support. We show that this is because a) the stigma of mental health is strong enough to be perceived even if not explicitly mentioned, and b) all dimensions of stigma are salient, and the stigma is a moral violation in both belief systems.

By integrating the literatures on mental health, morality, and stigma, this research presents two significant theoretical contributions to consumer behavior literature. First, we present a moral process through which mental health stigma undermines health message

effectiveness. Since Goffman's 1963 work on stigma, research on stigma has expanded and documented many socio-cultural processes such as prejudice, discrimination, stereotyping (e.g., Corrigan 2000, Corrigan 2004; Penn and Martin 1998). Many scholars of stigma have called for deeper understanding the moral aspects of stigmatization, which have been alluded to, but not studied in detail (e.g., Kleinman and Hall-Clifford 2009, Yang et al. 2007). Our research adds to the systematic study of the morality-based psychological mechanisms involved in processing of mental health stigma. Second, we delineate two dimensions of stigma and demonstrate that they have unique downstream consequences to consumers' processing of health messages. Although past work in social cognition (e.g., Corrigan 2004) and clinical psychology (e.g., Clement et al. 2014) has identified these two dimensions, this research has not predicted or tested the distinct outcomes of making each of the dimensions salient. Our research also presents a broader contribution to understanding the psychology of stigma by identifying that invoking stigma is not always bad; in fact, accentuating certain dimensions of stigma might reduce its negative consequences. Third, we demonstrate a process of moral defensiveness through which stigma reduces recognition of risk and reduces effectiveness of health messaging. Past work has suggested that association with stigma undermines health behaviors by lowering self-esteem (Crocker and Major 1989; Link et al. 2001) and a general sense of self's abilities (Corrigan, Watson, and Barr 2006; Crocker and Quinn 2000). We build on this body of research by showing an information processing pathway: stigma leads to underestimations of susceptibility to the stigmatized health issue, which subsequently reduces health behaviors. We also show that when the salient dimension of stigma is morally acceptable, recognition of risk is enhanced and improves message effectiveness.

In the following sections, we report six experiments that test our theorizing. Consistent with field survey data cited in the first paragraph, we find that seeking healthcare solutions to mental (vs. general) health concerns is loaded with stigma (pilot 1), so much so that mental health stigma is perceived even when it is not explicitly mentioned in mental health messaging (pilot 2). In four experiments involving health messages about clinical depression and anxiety, persuasion was enhanced when a health message accentuated the norm-deviating (vs. harm-causing vs. control) dimension of mental health stigma, but only among participants primed with rights (vs. duty)-based moral beliefs. In study 1, we observed that student participants were more likely to take cards containing information to seek mental health counselling on campus after viewing the norm-deviating (vs. harm-causing vs. control), when primed with rights (vs. duty) - based moral beliefs. Study 2 replicates this finding with an online behavioral tool using premeasured rights versus duty-based moral belief trait score as a predictor, while controlling for other related variables such as moral foundations and cultural self-construal. In studies 3 and 4, we replicate these findings and find evidence for the underlying psychological process: participants spent more time reading a message about clinical depression (study 3), and increased their risk recognition, leading to stronger intentions to seek healthcare (study 4). Following sections detail the conceptual development of the hypotheses.

THEORETICAL DEVELOPMENT

The American Psychiatric Association defines mental illnesses as “health conditions involving changes in thinking, emotion or behavior, or a combination of these.” Mental illnesses are associated with distress and/or problems functioning in social, work or family activities and

may vary widely in their extent of severity. Health messaging or advertising around mental health usually seeks to encourage consumers to seek professional healthcare services for these conditions. In the current research, we examine the psychological processes underlying mental health message effectiveness with a theoretical focus on stigma.

Stigma and the case for separate examination of mental health persuasion. Goffman (1963) defines being stigmatized as the recognition that someone is ‘spoiled’, undesirable, or somehow less valuable than an average person. Membership of a stigmatized group leads to disproportionately poor social and/or economic outcomes relative to the members of society at large (Crocker and Major 1989). Across many societies, mental health conditions such as depression, anxiety, PTSD, etc. are loaded with negative social meanings, leading to stigmatization of individuals experiencing mental health issues (Corrigan 2004; Eisenberg, Downs, Golberstein, and Zivin 2009; Gary 2005; Sartorius 2007; Wahl 1999).

Although mental health messaging falls under the broader category of health messaging, we assert that mental health messaging merits a separate examination due to stigma. We posit that a) mental versus general health issue invokes more stigma, and b) processing of any mental health messaging could invoke stigma, even when stigma is not explicitly mentioned in the messaging. We ran Pilot study 1 to test that the domain of mental health was loaded with more stigma than general health. We conducted an experiment among 149 US resident participants ($M_{\text{age}} = 34.39$ years; 82 females, 2 did not wish to identify gender; 22 reported to having received professional mental healthcare in the past 12 months). All participants were randomly assigned to a condition in a between-subjects (Question Type: Health vs. Mental Health) design. Based on their experimental condition, participants were presented a slightly different set of questions given to them as a “Health and Opinions Survey.” First, they were asked to indicate

their agreement with “Individuals with health issues are stigmatized.” (*health condition*) or “Individuals with mental health issues are stigmatized.” (*mental health condition*). Similarly, they were asked to indicate agreement with: “Individuals with (mental) health issues face social stigma.”, “Individuals with (mental) health issues are stigmatized because others think they are different from the normal.”, and “Individuals with (mental) health issues are stigmatized because others think they are violent.”. All four items were on a scale of 1 = strongly disagree and 7 = strongly agree. We conducted t-tests of each of these items and found them to vary significantly across conditions. When “mental” health was specified (vs. not), participants thought individuals with health issues faced more stigma ($M_{\text{mental-health}} = 5.77$, $M_{\text{Health}} = 4.95$; $t(147) = 3.29$, $p = .001$), that they were more stigmatized ($M_{\text{mental-health}} = 5.54$, $M_{\text{Health}} = 4.84$; $t(147) = 2.75$, $p = .007$), that they were perceived to be different than normal ($M_{\text{mental-health}} = 5.93$, $M_{\text{Health}} = 5.12$; $t(147) = 3.40$, $p = .001$), and that they were perceived to be more violent ($M_{\text{mental-health}} = 5.01$, $M_{\text{Health}} = 3.29$; $t(147) = 6.41$, $p < .001$). See Appendix O for further statistics.

We also ran Pilot study 2 to test that consumers might perceive associations of stigma even when mental health messaging does not explicitly mention stigma. We conducted an online experiment among 208 US resident participants ($M_{\text{age}} = 35.59$ years, 102 females; 27 reported to having received professional mental healthcare in the past 12 months), who were randomly assigned to see a message about depression and anxiety in a between-subjects one-way Health Message (Stigma vs. No Stigma) design. Participants saw a mental health message titled “Look out for Mental Health Symptoms,” the body of the message either mentioned “Mental health issues such as depression are often stigmatized. Throughout history people with mental health problems have been treated with stigma.” (*stigma condition*) or did not make any mention of stigma (*no stigma condition*). All other content in the messages was the same (see Appendix P

for stimuli); detailing symptoms and treatments for depression and anxiety. Following the message, all participants were asked to answer the four questions about stigma from Pilot 1. We conducted t-tests of each of these items and found them to not vary significantly across conditions. Whether stigma was mentioned or not, participants thought individuals with mental health issues faced stigma ($M_{\text{stigma}} = 5.83$, $M_{\text{no-stigma}} = 5.63$; $t(147) = 1.10$, $p = .27$), that they were more stigmatized ($M_{\text{stigma}} = 5.63$, $M_{\text{no-stigma}} = 5.57$; $t(147) = .31$, $p = .75$), that they were perceived to be different than normal ($M_{\text{stigma}} = 5.90$, $M_{\text{no-stigma}} = 5.63$; $t(147) = 1.60$, $p = .11$), and that they were perceived to be more violent ($M_{\text{stigma}} = 4.41$, $M_{\text{no-stigma}} = 4.38$; $t(147) = .18$, $p = .87$). See Appendix P for further descriptive statistics.

Data from both these pilot experiments indicate that mental health issues are more loaded with stigma than other, general health issues and that stigma is invoked in mental health messaging even in absence of explicit mentioning of stigma. There are two important implications of these findings to the health messaging literature. First, that mental health messaging should not be bucketed with other, general health messaging, but should be studied with a theoretical focus on stigma. Second, that marketers should try to actively address mental health stigma and find conditions under which this stigma can be undermined, since stigma is perceived – even when not invoked – when processing mental health messaging. In the following section, we will delve into the nature and dimensions of mental health stigma.

Dimensions of Mental Health Stigma: Harm-causing and Norm-deviance. Research on stigma around mental health (e.g., Arboleda-Florez & Sartorius 2008; Corrigan 2004; Feldman & Crandall 2007; Franklin 1988; Monahan and Steadman 1996; Phelan 2005; Rosenfield 1982; etc.) identifies two common (perceived) dimensions of mental illnesses that lead to their stigmatization. The first dimension, *Harm-causing*, refers to the beliefs that an individual with

might become violent and unpredictable and cause harm to other or self. Feldman and Crandall (2007) label this dimension as “dangerousness,” defined as the extent to which people believe that a person with mental illness poses a threat to them. Arboleda-Florez (2003, pg. 645) notes that “...few popular notions and misconceptions are so pervasive and stigmatizing as the belief that persons with mental illness are unpredictable and dangerous.” A second common dimension, *Norm-deviance*, refers to the beliefs that an individual with that health issue is different from what a “normal” person. Individuals with mental health problems have been historically considered ‘deviant’; Hayward and Bright (1997) suggest that a probable cause for this perception is that individuals suffering from mental illnesses do not fit into normal or anticipated patterns of social interactions and rules of conduct. Feldman and Crandall (2007) suggest that perceptions of rarity – the belief that mental illnesses are uncommon – is an important contributor to stigma and a key driver of this dimension. We suggest that these two dimensions of stigma may have differing implications on how mental health stigma is processed by consumers. Importantly, we theorize that consumers’ processing of the two dimensions may depend on their conception of morality, which subsequently drives their responses to stigmatized health issues. In the following sections, we will develop a case for a moral perspective of understanding how stigma is processed

‘Acceptability’ of Stigma and the Nature of Moral Beliefs. Morality is defined as a framework of acceptable code of conduct and what breaches of behavior are acceptable and not; simply put, a belief system of what is “good” versus “bad” (Kohlberg and Hersh 1977). Why is individuals’ moral belief system (i.e., their conceptualization of what is morally acceptable and not) relevant to their response to stigma? Goffman (1963) argued that stigmatization often devalues the morality or character of the victim as a means of reducing their status. Although

research has expanded significantly in exploration of socio-cultural process involved in stigma, many scholars of stigma have called for deeper understanding of the moral aspects of stigmatization (e.g., Kleinman and Hall-Clifford 2009, Yang et al. 2007). In this research, our premise - consistent with Goffman's detailing - is that mental health stigma undermines the moral characteristic of a sufferer, thereby devaluing those who receive mental healthcare. With this premise, we leverage the two dimensions of mental health stigma to find situations in which stigma might be morally acceptable. We suggest that variance in individuals' belief of what is 'moral' shapes variance in their responses to the two dimensions of mental health stigma.

To test that varying interpretations of the moral acceptability of stigma and its dimensions, we utilize a framework that has a pluralistic conceptualization of morality. Moral pluralism (sometimes referred to as ethical pluralism or value pluralism) is the view that there are different and valid moral values, even if they conflict with each other. There are many frameworks of moral pluralism in the extant literature on morality, values, and ethics, such as deontology (i.e., moral values are self-evident) /teleology (i.e., actions are judged on the goodness or badness of their consequences; Brady 1985; Brady and Wheeler 1996), utilitarianism/ formalism (Reynolds 2006; Schminke, Ambrose, and Noel 1997), moral foundations framework (with five moral foundations; Graham et al. 2013; Graham and Haidt 2010), etc. For the purpose of examining the moral processes underlying the specific context of mental health stigma (that is harm-causing and norm-deviant dimensions), we draw from a line of research that examines duty versus rights moral meaning systems. Dworkin (1978) identified that individuals could hold two main classes of moral beliefs in which either upholding duties within a given system is fundamental (*duty-based moral belief*) or upholding human rights is fundamental (*rights-based moral belief*). Following norms, laws and role expectations are at the

core of a duty-based conceptualization of morality. In contrast, protecting individuals' rights, providing equal opportunity and upholding fairness are at the core of a rights-based conceptualizations. Other research on this framework has suggested that endorsement of rights-based versus duty-based beliefs have associations with individuals' cultural self-construal (Miller 1994) and implicit theories of nature and social reality (Chiu et al. 1997; Hong et al. 2001).

Moral Acceptability of Stigma Dimensions and Mental Health Persuasion. We propose that the moral acceptability of the harm-causing versus norm-deviant dimensions of mental health stigma varies by the rights-based versus duty-based moral beliefs held by the individual. Specifically, we predict that when the norm-deviance dimension of mental health stigma is salient, individuals holding a duty-based belief view it as a relatively severe violation, since they perceive deviation from the established norms and expectations to be fundamentally immoral. Individuals holding a rights-based moral belief, however, believe that individual freedom as fundamental to morality, and are less likely to view the norm-deviation as fundamentally immoral. As a result, when the norm-deviating aspect is salient, those holding rights-based (vs. duty-based) beliefs are more likely to acknowledge their risk for mental health issues and seek help. In contrast, when the harm-causing dimension of mental health stigma is salient, individuals holding both types of moral beliefs will be less likely to acknowledge mental health concerns because causing harm to others violates both established norms and individual rights. When stigma is not mentioned in a mental health message (i.e., a control condition), then broad perceptions of stigma spanning across both dimensions are invoked as seen in Pilot 2. As a result, seeking mental health care is morally unacceptable in both belief systems. Stated formally, this reasoning leads to the hypotheses about mental health message effectiveness:

Hypothesis 1: Individuals holding rights-based (vs. duty-based) moral beliefs are more likely to be persuaded by messages that highlight norm-deviant (vs. harm-causing vs. control) dimension of mental health stigma.

Hypothesis 2: Individuals holding rights-based (vs. duty-based) moral beliefs are more likely to recognize their susceptibility to mental health issues after reading messages that highlight norm-deviant (vs. harm-causing vs. control) dimension of mental health stigma.

In the following sections, we will report the procedures and findings of four experiments designed to test these hypotheses with various operationalizations of the key variables.

STUDY 1: CAMPUS COUNSELING CARD PICKUP AS RESPONSE TO ACCENTUATING STIGMA

The objective of this study was to test H1 that salience of norm-deviating (vs. harm-causing vs. control) dimension of mental health stigma, when processed under rights (vs. duty)-based moral beliefs about self, enhances individuals' likelihood of seeking help for mental health issues. For this purpose, we set up a behavioral study in a laboratory where student participants were provided with an opportunity to pick up printed "help cards" for on-campus and off-campus mental health counselling services. We reasoned this to be an indicator of their intentions to seek support in response to the mental health message displayed to them.

Methods and Procedure

This study consisted of a premeasure survey, followed by the main study later in the day. 407 participants ($M_{\text{age}} = 21.23$ years, 167 females; 1 participant did not wish to identify gender and age) were recruited from an introductory marketing course in exchange for partial course credit. All participants were randomly assigned to one of the six conditions in a 2 Health Message (Norm-deviating vs. Harm-causing vs. Control) X 2 Moral Beliefs (Rights-based vs. Duty-based) design.

Premeasure. All participants were presented with an ostensible “Student Health Survey” that premeasured their demographics and history of mental healthcare. In this survey, they were presented an inventory of their health behaviors and habits including those of dental health, vaccinations, alcohol consumption, etc. Among these questions, we embedded two items about their current mental healthcare status: “In the past 12 months, have you received professional counseling or support for mental health issues?” and “In the past 12 months, have you received professional counseling or support for emotional issues?” with a choice of answering “Yes” or “No.” This measure was collected to be used as a potential covariate in the main study.

Moral Beliefs Manipulation. The main study consisted of two parts. In the first part, we manipulated the salience of moral beliefs as part of a “Memory Task.” Adapting procedure from the moral identity literature (e.g., Reed, Aquino and Levy 2007), rights-based versus duty-based moral beliefs were manipulated by providing participants with a varying definition of what was moral based on experimental condition and invoking a memory of themselves as having performed a moral act of that nature. Participants were first shown a paragraph that defined morality. In the rights-based (duty-based) condition, it said, “*What is Moral? Although people have many interpretations...philosophers agree on some basic principles. Being ‘moral’ is to*

protect individual rights and provide equal opportunity (to follow one's duties and adhere to basic social expectations).... The defining issue of morality is whether individual rights are fostered and protected (whether authority is respected, and lawbreakers are punished)." See Appendix Q for full text of the procedure. After reading this paragraph, participants were asked, *"For this task, please take a moment to think of times when you acted morally by upholding individual rights and freedom (following your duties and fulfilling social roles)."* Then, both conditions received the instructions: *"In the box provided below, please write briefly about one such memory—we are interested in how you, personally, acted morally based on the above definition of morality."* Below these instructions, a box was provided to write in. Participants could spend as much time as they liked on this task; when they indicated to have finished writing, they were taken to the next page. Since this was a behavioral study where the dependent variable of interest would occur after the study ends, we did not include a manipulation check in this study to avoid contaminating the procedure.

Health Message. On the next page, participants were presented the health advertisement. They were informed that the student counselling center on campus had developed some health advertisements, and since these advertisements were meant for consumers such as themselves, the department was interested in their feedback. Depending on the experimental condition, they saw one of three message types. In all versions, the first page of the message included some general introduction to clinical depression, how it might manifest in daily life and listed treatment options. The norm-deviant (harm-causing) version of the health message was titled *"People with mental health symptoms are still viewed as 'not normal' ('violent')."* The first three sentences of the messages were *"Mental health issues like depression are still stigmatized... this treatment may come from the misguided view that people with mental health problems may be*

'different' than normally functioning individuals ('violent' or likely to harm others). Following these lines, other information about depression was provided. The control version health message was titled "Look out for mental health symptoms" and did not include the lines about stigma. All other content on the three messages was held constant. See Appendix Q for full stimuli. Following the message, participants were asked to answer some questions about the message to keep up the cover story of the study. They were asked to indicate their agreement with the statements: "This message was easy to read" and "This message was "This message is easy to understand" (1 = strongly disagree to 5 = strongly agree), and "Did you find the ad to be relevant to you?" (1 = definitely not to 5 = definitely yes). Participants responses on these items and the time they spent reading each message did not vary across conditions. Results of these analyses can be found in the Appendix Q. Following this, they were asked to answer some demographic information and the study concluded. Since the main dependent variable of the study (described below) is a behavioral measure occurring at the end of the study before students left the lab, we chose to not use manipulation checks to avoid contamination of conditions. All subsequent studies use manipulation checks.

Dependent Variable: Picking Up Help Card. As last step of the study, participants were told that in case they were interested, they could take a useful 'help card,' which was presented as a useful instrument to conveniently carry necessary information if they felt like they needed professional mental healthcare support. These were pocket-sized 3.5"X2" cards, which contained information on accessing mental health help on campus or through NIMH. These cards were discretely placed at the back of each cubicle (see Appendix Q pictures of the card and its placement in the lab cubicles). After all the participants in a session left, a hypothesis-blind research assistant noted whether each participant took the card or not. This binary variable

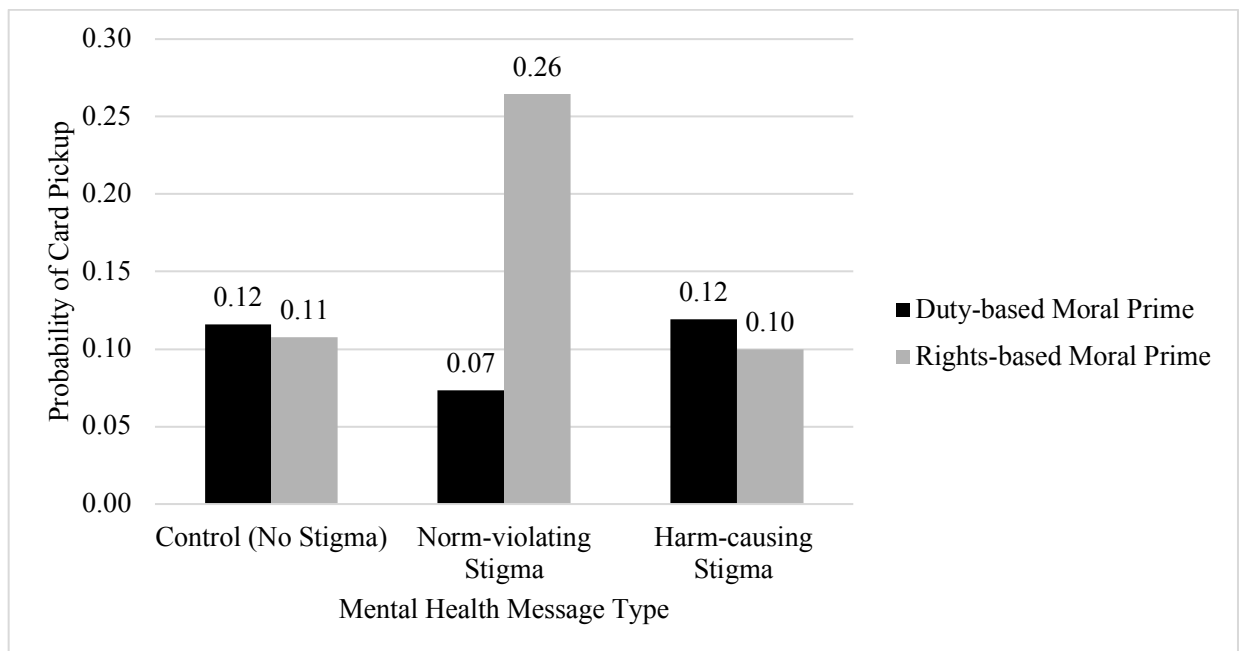
served as the behavioral outcome in the study. The online study data and dependent variable data were matched using unique laboratory IDs.

Results and Discussion

Results: Card Pick-up. We conducted a bootstrapped binomial logistic regression (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) by indicating card taking as the dependent variable (coded as took yes = 1, no = 0), moral beliefs (coded as rights-based = 1, duty-based = 0) and message type dummy 1 (D1; coded norm-violating = 1, control = 0, harm-causing = 0), and message type dummy 2 (D2; coded norm-violating = 0, control = 0, harm-causing = 1) and the interaction term of moral beliefs and message type variables as predictors. We found that the model was significant $\chi^2(5) = 12.09; p = .033$, Nagelkerke $R^2 = .054$). There no main effect of the moral prime ($b = -.08; p = .88$), no main effect of D1 ($b = -.50; p = .40$) and no main effect of D2 ($b = .03; p = .95$). Interestingly, there was a significant effect of the interaction of D1 and moral prime ($b = -1.59, p = .038$), while there was no effect of the interaction of D2 and moral prime ($b = -.12, p = .88$). The likelihood ratio test for the interaction terms was significant ($\chi^2(2) = 6.74; p = .034$), indicating that the interaction of message type dummies and moral prime together explained a significant variation in the dependent variable. We further probed the significant interaction by testing conditionals effects. When rights-based moral beliefs were made salient, those who saw the norm-deviating (vs. harm-causing vs. control) message were significantly more likely to pick up the card with information of sources to seek help with mental health concerns (D1 $b = 1.09; p = .024$; D2 $b = -.08, p = .88$). However, when duty-based moral beliefs were made salient, participants across message type conditions did not differ in their

probability of picking up the cards (D1 $b = -.50, p = .40$; D2 $b = .03, p = .95$). Overall, these results indicate that the norm-deviating message was more effective than the harm-causing and control (no stigma) messages, when read under a rights-based moral beliefs mindset. See figure 2 for a plot of the calculated probability of participants taking a card under each condition. Data were also analyzed including participants' current mental health counselling status as covariates in the model; the direction and significance of results remained the same. Results of covariate analysis, including logodds calculations are not included here, but can be provided upon request.

Figure 2. Probability of a participant picking up a mental health help instrument varied by message type moderated by moral beliefs.



Discussion. The pattern of results reported here indicates that accentuating the norm-deviating of mental health stigma increases the likelihood of seeking healthcare support, and that this is moderated by one's salient moral beliefs. Participants who were induced into the mindset of rights (vs. duty)-based beliefs systems were more likely to display behavioral change in

response to the norm-deviating message. Stigma arising out of being different – i.e., norm-deviant – is apparently acceptable to individuals if they think of moral acceptability in terms of individuals rights rather than duties. Thus, moral belief systems play a critical role in making some dimensions of stigma more ‘acceptable’ such that the individual seeks ways to address a stigmatized health issue. It is to be noted here that a message saying that the stigma surrounding mental health arises out of affected individuals being perceived as ‘different,’ is more effective than one not addressing the stigma. This finding is an effective demonstration of how dimensions of a stigma can be mobilized using a combination of selective addressing of stigma and activation of an appropriate mindset.

STUDY 2: INCREASED ENGAGEMENT WITH INTERACTIVE WEBPAGE ON DEPRESSION SUPPORT

Study 1 establishes the participants’ differential responses to mental health messaging when different dimensions of stigma was made salient and when primed with rights-based versus duty-based moral beliefs. There were two main objectives to study 2. One was to replicate the test of H1 from study 1 using chronic accessibility of participants’ duty-based versus rights-based moral beliefs. Although priming the type of moral beliefs enhances internal validity, capturing individuals’ chronic moral belief types allows the generalization of the findings to personality traits. For this purpose, we ran a premeasure phase 10 days before the main experiment in which we measured participants’ endorsement of rights-based and duty-based

moral beliefs. Additionally, we also premeasured related variables such as moral foundations (Graham et al. 2013) and cultural self-construal (i.e., independent or interdependent self; Markus and Kitayama 1991, Miller 1994) to account for the effect of these variables. Second was to test H1 using a different behavioral measure. For this purpose, we designed an online study in which we embedded an interactive website on depression support and measured participants' engagement on that page. We reasoned that one behavioral manifestation of individuals' interest in seeking help would be how much time they engaged with a webpage that provided them with information and support.

Methods and Procedure

This study was run in two separate steps: a premeasure step and the main experiment. The study design was a 2 Health Message (Norm-deviant vs. Harm-causing vs. Control) X 2 Moral Beliefs (Rights-based vs. Duty-based; continuous) mixed design where moral beliefs and relevant covariates were premeasured at time 1, and message type was manipulated between subjects 10 days later at time 2 as the main experiment.

Premeasure. 800 adult US residents ($M_{\text{age}} = 37.40$ years, 419 females, 3 did not wish to identify gender) were recruited from Amazon's Mechanical Turk pool to participate in this step for monetary compensation. Participants answered a battery of questions presented with the cover story of "Lifestyle & Opinions Survey." Following demographic questions (e.g., age, gender), and history of mental health healthcare, participants completed measures of moral beliefs systems (adapted from Chiu et al. 1997; see Appendix R), Moral Foundations Questionnaire (MFQ30; Graham, Haidt, and Nosek 2008), and Cultural self-construal (Singelis

1994) scales in random order. The moral beliefs scale, which consisted of four items each measuring their endorsement of rights-based and duty-based moral beliefs, respectively. The instructions read “There are eight statements listed below. Following each statement, please indicate how unacceptable is it for you. This is only a collection of personal opinions, so there are no right or wrong answers.” Chiu et al. (1997) suggest that individuals’ indication of what is morally unacceptable is more diagnostic of their beliefs than indications of what is acceptable. Accordingly, this scale contains four items each that respectively measure rights-based beliefs (e.g., “People do not respect one another's individuality.”) and duty-based beliefs (e.g., “People do not act according to what is expected of their roles.”) anchored at 1 = “Very acceptable” and 10 = “Highly acceptable.” The scale items were found to collapse into two distinct factors, with acceptable reliabilities (rights-based scale $\alpha = .83$; duty-based scale $\alpha = .76$). We measured moral foundations as an alternative framework that captures pluralistic moral beliefs. The MFQ30 is a well-established scale that consists of a total of 30 items that measure participants’ endorsement of five moral foundations: harm/care ($\alpha = .76$), fairness/reciprocity ($\alpha = .68$), in-group/loyalty ($\alpha = .69$), authority/respect ($\alpha = .67$), and purity/sanctity ($\alpha = .79$). The Self-Construal Scale measures participants’ dominant cultural self-construal. Fifteen items each measured their extent of independent self-construal (e.g., “I feel it is important for me to act as an independent person”; independent scale $\alpha = .71$) or an interdependent self-construal (e.g., “Even when I strongly disagree with group members, I avoid an argument.”; interdependent scale $\alpha = .69$).

Main Experiment. The second phase was the main study with a returning final sample of 672 ($M_{\text{age}} = 38.92$ years, 326 females) participants. First, participants were presented one of three messages that manipulated norm-violating or harm-causing or control message type of stigma

(same cover story and stimuli as study 1). All message content was same across the conditions except those pertaining to stigma. Participants were told that they could spend as much time reading the message as they liked.

Outcome Variable: Engagement with Interactive Depression Support Webpage. After indicating that they had read the health message, all participants were taken to a page with an embedded interactive online tool about depression. Participants were told that this free interactive tool was presented to them as compliments of participating in the study, and that they could spend as much time as they liked on this page. This webpage, called “Depression Information & Support” is developed by Mental Health America and provides interactive tiles with information and answers to commonly asked questions on clinical depression (<https://screening.mentalhealthamerica.net/depression>). This page shows many tiles (squares that can be clicked) labelled with questions such as “What causes depression?”, “What are the best apps for depression?”, “Is depression curable?”, etc. When a viewer clicks on each tile, they are taken to another webpage that addresses that specific question. We embedded this page on our survey page using *iframe* HTML code, such that the participants don’t have to leave our study software to engage with this page (see Appendix R for a screenshot). This embedding also allows us to observe how long each participant spends engaging with this tool, which served as the primary behavioral dependent variable in this study. Participants were also told that their choice of time spent on this page would not affect their compensation for participating in the study. Per Human Subjects Division’s recommendation, we did not collect the information that participants sought.

Other Measures: Emotions, Perceived Relevance, and Manipulation Checks. After participant indicated that they were finished with the page, we measured state emotions and

perceived relevance of the message in random order. For emotions measure, participants answered the Positive and Negative Affect Schedule (PANAS; Watson, Clark, and Tellegen 1988) questionnaire. This is a self-report scale that measures state affect grouped into positive affect (e.g., excited, proud; positive scale $\alpha = .87$) and negative affect (e.g., hostile, scared; negative scale $\alpha = .88$). We used this scale to test if our demonstrated effect was driven by change in participants' emotions in response to the message type condition. We measured if the different message types changed perceptions of relevance by asking them three questions on a different page: "Was the ad about depression relevant to you?", "Does the ad about depression apply to you?", and "Was the ad about depression useful for you?" on a scale of 1 = Definitely not to 10 = Definitely yes. These three items were found to be highly correlated combined to form an index of message relevance ($\alpha = .89$). Next, as manipulation checks for the message type, participants were asked four questions: "Individuals with mental health issues are stigmatized because others think they are different.", "The ad suggests that people with depression are stigmatized because others think they are not "normal".", "According to the health ad, people with depression are stigmatized because others think they could become violent.", and "Individuals with mental health issues are stigmatized because others think they could hurt others." (1 = "Strongly disagree" to 10 = "Strongly agree"). The first two items were combined to form an index of norm-deviant stigma perceptions ($\alpha = .93$), and the last two items were combined to form an index of harm-causing stigma ($\alpha = .95$). See appendix for the descriptive statistics on all the measures in this study. Next, participants were debriefed on the nature of the study, provided resources to seek help for mental health concerns, and the study ended.

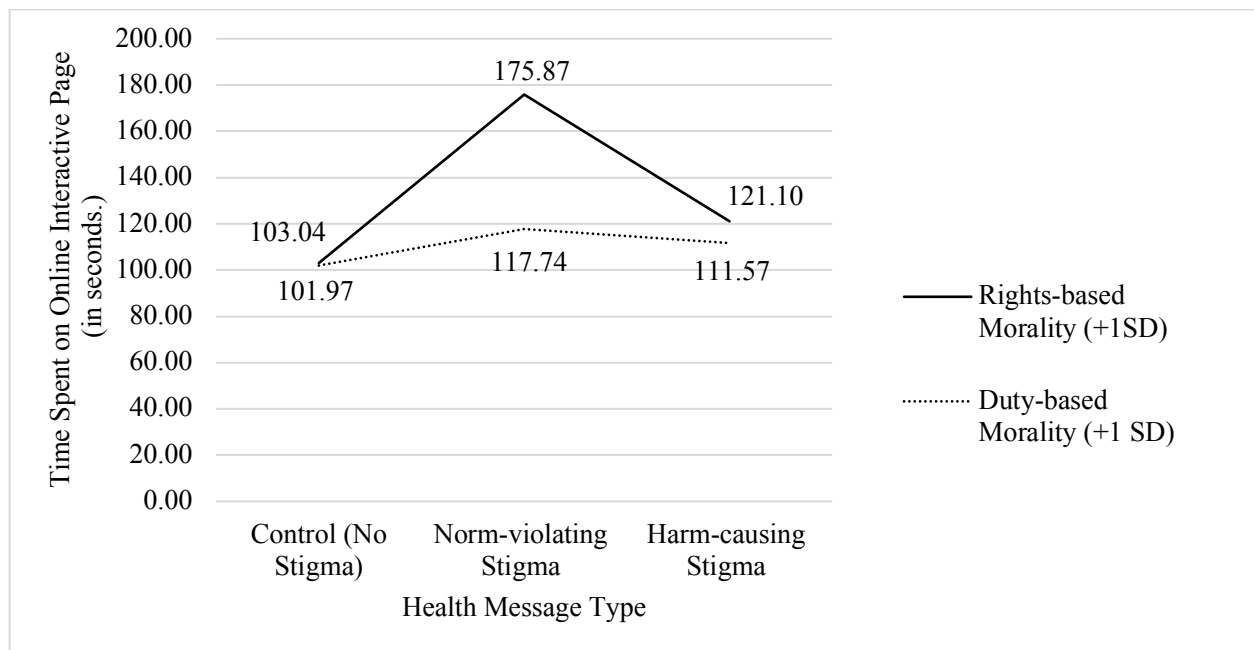
Results and Discussion

Results: Manipulation Checks. The stigma manipulation checks worked as expected. Results of these analyses are reported in Appendix R.

Results: Engagement with Interactive Depression Support Webpage. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using the rights-based score as the predictor in one model and duty-based score as a predictor in the second model. In the first model, we indicated time (in seconds) spent by participants on the campus counselling page as the dependent variable, premeasured rights-based beliefs score as a predictor, message type as the second predictor (coded into two dummy variables; D1: coded norm-violating = 1, control = 0, harm-causing = 0; D2 : coded norm-violating = 0, control = 0, harm-causing = 1), and the interaction terms of moral beliefs and message type dummies as predictors. We did not include any covariates in this first model. We found that the model was significant ($R^2 = .02$; $F(5,666) = 2.40$, $p = .036$). We found non-significant main effect of rights-based moral beliefs ($b = -7.26$; $p = .27$), a significant main effect of D1 ($b = -78.26$; $p = .02$), and non-significant main effect of D2 ($b = -11.60$; $p = .73$). There was a significant interaction effect of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .017$; $F(2,666) = 5.62$, $p = .004$). Further probing of this interaction revealed that the conditional effect of the rights-based moral beliefs was significant only for the norm-deviating message ($b = 18.70$; $p = .004$), and not significant for the harm-causing message ($b = -7.26$; $p = .27$) or the control message ($b = -8.52$; $p = .17$) conditions. The estimated means for time spent on the interactive tool for those at +1SD of rights-based moral belief score are plotted in Figure 2 for visualization. We ran a second model with premeasured duty-based moral belief score as predictor (instead of the rights-based moral belief score) and all other predictors were the same.

We found that the model was not significant ($R^2 = .011$; $F(5,666) = 1.54$, $p = .17$), with a non-significant interaction for any of the message conditions, indicating that participants' duty-based moral beliefs did not significantly predict the time they spent on the differing message types. Although this interaction was not significant, we have plotted the means estimated from regression output for those at +1SD of duty-based moral belief in figure 3 for comparative visualization across two types of moral beliefs.

Figure 3. Time spent on the interactive webpage about Depression information and support varied by message type and moral beliefs.



Results: Moral Foundations, Cultural Self-Construal, Mood, and Message Relevance.

The regression models reported above were run with the following covariates: scores on measures of five moral foundations, interdependent self-construal score, independent self-construal score, and history of seeking mental health support. The direction and significance of

the results did not change. Additionally, we conducted seven other regression models with each of the seven covariates as primary predictors (five moral foundations and two cultural self-construal scores) and found them all seven to be non-significant. Next, we conducted three similar bootstrapped regressions using indicating participants' reported message relevance, positive mood and negative mood as the primary dependent variable and their rights-based belief score and message type as independent variables. We found that message type and rights-based moral beliefs did not significantly change message relevance ($R^2 = .003$; $F(5,666) = .58$, $p = .63$), positive mood ($R^2 = .001$; $F(5,666) = .003$, $p = .96$), or negative mood ($R^2 = .003$; $F(5,666) = .34$, $p = .88$), indicating that the effect is not driven by message relevance or mood. We will not discuss these variables in forthcoming studies; the coefficients and statistics of these ten models have not been detailed in interest of space and can be provided on request.

Discussion. In this study, we used premeasured trait scores to replicate the findings of Study 1 with an online behavioral outcome variable. We demonstrate that while a strong rights-based moral belief score predicts participants' increased engagement with the interactive depression information and help webpage, a strong duty-based score does not. Additionally, this study design allowed us to rule out some alternative mechanisms. We had premeasured two other theoretical frameworks (moral foundations and cultural self-construal) tested the role of these variables in driving our predicted effect. While we find that participants' scores on moral foundations and cultural self-construal are correlated with rights-based and duty-based belief scores consistent with the past literature (e.g., Chiu et al. 1997; Miller 1994), we also find that these variables independently do not predict variance in the outcome variables. In the main study, we also find that the interaction of rights-based moral belief score with message type did not significantly predict variance in message relevance or mood. These effects provide

converging evidence to our theory that moral acceptability of the dimension of stigma, rather than a process of mood or relevance, drives the observed interaction.

STUDY 3: ENHANCED RECOGNITION OF RISK AND INTENTIONS TO SEEK MENTAL HEALTH COUNSELLING

The objective of this study was to test for H2 by measuring participants' acknowledgement of risk after reading one of three types of the mental health message. We predict that after reading the norm-deviating (vs. harm-causing vs. control) message, participants with chronically accessible rights-based (vs. duty-based) moral beliefs will be more likely to recognize the symptoms and their risk of mental health issues, and more likely to seek help with these issues. Additionally, we measured their intentions to seek mental healthcare as the primary dependent variable to test H1.

Methods and Procedure

Like the previous studies, this study was run in two separate steps: a premeasure step and the main experiment. The study design was a 2 Health Message (Norm-deviant vs. Harm-causing vs. Control) X 2 Moral Beliefs (Rights-based vs. Duty-based; continuous) mixed design where moral beliefs and relevant covariates were premeasured at time 1, and message type was manipulated between subjects at time 2 as the main experiment. Three hundred and two undergraduate students ($M_{\text{age}} = 21.85$ years, 143 females) recruited from an introductory marketing course in exchange for partial course credit participated in this study.

Premeasure. Participants answered a battery of questions presented with the cover story of “Lifestyle & Opinions Survey.” Following demographic questions (e.g., age, gender), participants completed the moral beliefs scale embedded among other irrelevant measures. The scale items were found to collapse into two distinct factors, with acceptable reliabilities (rights-based $\alpha = .78$; duty-based $\alpha = .70$). Next, participants answered a set of questions ostensibly measuring their overall healthcare behaviors (e.g., how often they visited a dentist). Among five such questions, we embedded two items that measured participants’ current mental healthcare status. We asked: “In the past 12 months, have you received on-campus counseling for mental health issues?” and “In the past 12 months, have you received professional counseling or support for mental health issues?”; with options to indicate “Yes” or “No.” Consistent with Human Subjects Division’s requirements, participants could choose not to answer these questions.

Main experiment. Participants completed several unrelated studies after the premeasure step, usually taking 30 – 60 minutes between steps. The main experiment was presented to them as a “Student Health Study,” with the same cover story as studies 1 and 2. First, they were randomly assigned to see one of three versions (norm-deviating vs. harm-causing vs. control) of the health message pertaining to depression and anxiety in student life (similar to stimuli from study 1). Participants could spend as much time reading the message as they wished.

Outcome Variables: Time Spent Reading, Interest in Campus Counselling, and Behavioral Intentions. After indicating that they had read the health message, all participants were taken to a page containing a screenshot of the on-campus student counselling webpage. This webpage described channels to seek help for mental health concerns on the college campus, resources of help, and contact information. Participants were instructed on the page that they could note down any information they were interested in, and necessary note-taking stationery

had been placed on each desk for this purpose before the beginning of the study. While the participants were on this page reading or taking notes, the study software measured the time spent by each participant. This measure was used as an indicator of their interest in campus counselling information. (Since the webpage text and graphics contain many references to the authors' institution of affiliation, we have not appended this screenshot for the blind review process.) At the bottom of this page, they were asked: "Are you interested in scheduling an appointment with this service?" on a scale of 1 = "Definitely not" to 10 = "Definitely yes". On the next page, we measured their behavioral intentions using four questions: "Would you be interested in psychiatric consultations services offered on campus?", "Are you interested in mental and emotional counseling services offered on campus?" (on a scale of 1 = "Definitely not" to 10 = "Definitely yes"), "How likely are you to seek professional help for depression and anxiety issues?", and "How likely are you to seek professional help for mental health symptoms?" (on a scale of 1 = "Extremely unlikely" to 10 = "Extremely likely"). These four measures were found to collapse into a single factor with an acceptable scale reliability ($\alpha = .91$) and were combined to form an index of intentions to seek help. See Appendix S for descriptive statistics of each item.

Risk Recognition. On the next page, we wanted to measure participants' likelihood of recognizing the symptoms of anxiety and depression. For this purpose, we adapted items from the 4-item version of PHQ (Patient Health Questionnaire), a widely validated screening instrument for depression and anxiety (Kroenke and Spitzer 2001; Gilbody et al. 2007). They were asked: "In the past 2 weeks, how often have you been feeling down, depressed or hopeless?", "In the past 2 weeks, how often have you experienced little interest or pleasure in doing things?", "In the past 2 weeks, how often have you not been able to stop or control

worrying?”, and “In the past 2 weeks, how often have you been feeling nervous, anxious, or on edge?”. Each item was anchored at 1 = “Never”, 2 = “Sometimes”, 3 = “About half the time”, 4 = “Most of the time” and 5 = “Always”. Although the PHQ is typically used in clinical research to screen patients based on severity of their symptoms (e.g., Smolderen et al. 2009; Kroenke et al. 2009) we use it as a dependent variable varying in response to the experimental treatment. These four measures collapsed into a single factor with an acceptable scale reliability ($\alpha = .84$), so averaged the items to form an index of risk recognition. See Appendix S for descriptive statistics of each item.

Other Measures: Stigma Perceptions and Manipulation Checks. Next, we conducted manipulation check and debriefing procedures. As manipulation check for the message type, participants were asked: “Individuals with mental health issues are stigmatized because others think they are different.” and “Individuals with mental health issues are stigmatized because others think they could hurt others.” (1 = “Strongly disagree” to 10 = “Strongly agree”). Next, they were asked questions that measured perceived stigma of having mental health issues using two items: “People with mental health issues are stigmatized.”, and “Individuals with mental health issues face social stigma.”. These two items were anchored on a scale of 1 = “Strongly disagree” to 10 = “Strongly agree”. They were combined to form an index of stigma perceptions ($\alpha = .84$). See appendix S for the descriptive statistics on these measures. Next, participants were debriefed on the nature of the study, provided resources to seek mental health support, and the study ended.

Results and Discussion

Results: Manipulation Checks. The stigma manipulation checks functioned as expected. Results of these analyses are reported in the Appendix S.

Results: Time spent on campus counselling page. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using the rights-based score as the predictor in one model and duty-based score as a predictor in the second model. In the first model, we indicated the standardized score for time spent by participants on the campus counselling page as the dependent variable, premeasured rights-based beliefs score as a predictor, message type as the second predictor (coded into two dummy variables; D1: coded norm-violating = 1, control = 0, harm-causing = 0; D2 : coded norm-violating = 0, control = 0, harm-causing = 1), and the interaction terms of moral beliefs and message type dummies as predictors. Since this study measures participants' interest and intentions of using the mental health counselling services on campus, we included their premeasured status of whether currently using campus counselling (coded yes = 1, no = 0) as a covariate. We found that the model was significant ($R^2 = .061$; $F(6,291) = 3.17$, $p = .005$). There no main effect of rights-based moral beliefs ($b = 1.16$; $p = .20$), no main effect of whether participants were already using campus counselling ($b = -4.31$; $p = .20$), no main effect of D1 ($b = -8.37$; $p = .44$), and no main effect of D2 ($b = 11.90$; $p = .23$). There was a significant interaction effect of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .025$; $F(2,291) = 3.86$, $p = .022$). Further probing of this interaction revealed that the conditional effect of the rights-based moral beliefs was significant only for the non-deviating message ($b = 2.71$; $p = .007$), and not significant for the harm-causing message ($b = 1.15$; $p = .20$) or the control message ($b = -.87$; $p = .30$) conditions. The estimated means are provided in Table 2 for visualization. We ran a second model with premeasured duty-based moral belief score as

predictor (instead of the rights-based moral belief score) and all other predictors were the same. We found that the model was not significant ($R^2 = .033$; $F(6,291) = 1.66$, $p = .13$), with a non-significant interaction (R^2 increase due to the interaction $R^2 = .004$; $F(2,291) = .56$, $p = .58$), indicating that participants' duty-based moral beliefs did not significantly predict the time they spent on the differing message types. We did not probe the interaction further.

Results: Interest in making an appointment. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using same two predictor models as above using participants' interest in making an appointment with the campus counselling as the outcome variable. We found that the first model (rights-based moral beliefs as predictor) was significant ($R^2 = .068$; $F(6,291) = 3.53$, $p = .002$). There was a significant main effect of whether participants were already using campus counselling ($b = 1.16$; $p = .005$). There was no main effect of rights-based moral beliefs ($b = .01$; $p = .91$), no main effect of D1 ($b = -1.99$; $p = .16$), and no main effect of D2 ($b = -.69$; $p = .59$). There was a significant interaction effect of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .031$; $F(2,291) = 4.70$, $p = .009$). Further probing of this interaction revealed that the conditional effect of the rights-based moral beliefs was significant only for the non-deviating message ($b = .37$; $p = .001$), and not significant for the harm-causing message ($b = .01$; $p = .91$) or the control message ($b = .17$; $p = .12$) conditions. The estimated means are provided in Table 2 for visualization. We ran a second model with premeasured duty-based moral belief score as predictor (instead of the rights-based moral belief score). We found that the model was found to be marginally significant ($R^2 = .04$; $F(6,291) = 1.97$, $p = .07$), with a significant effect of the covariate whether they were already using campus counselling ($b = 1.48$; $p = .007$) and a non-

significant interaction of message type and duty-based moral beliefs (R^2 increase due to the interaction $R^2 = .004$; $F(2,291) = .64$, $p = .53$). We did not further probe the interaction.

Results: Behavioral intentions. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using same two predictor models as above using participants' intentions of seeking help with mental health issues as the outcome variable. We found a significant first model (rights-based moral beliefs; $R^2 = .18$; $F(6,291) = 10.26$, $p < .001$). There was a significant main effect of whether participants were already using campus counselling services ($b = 2.87$; $p < .001$). There was no main effect of rights-based moral beliefs ($b = -.02$; $p = .86$), a main effect of D1 ($b = 3.09$; $p = .03$), and no main effect of D2 ($b = -1.01$; $p = .43$). There was a significant interaction effect of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .02$; $F(2,291) = 3.44$, $p = .03$). Further probing of this interaction revealed that the conditional effect of the rights-based moral beliefs was significant only for the non-deviating message ($b = .43$; $p = .001$), and not significant for the harm-causing message ($b = -.02$; $p = .86$) or the control message ($b = .13$; $p = .25$) conditions. The estimated means are provided in Table 2 for visualization. We ran a second model with premeasured duty-based moral belief score as predictor and found that the model was significant ($R^2 = .15$; $F(6,291) = 8.73$, $p < .001$), with a significant effect of the covariate whether they were already using campus counselling ($b = 2.91$; $p < .001$) and a non-significant interaction of message type and duty-based moral beliefs (R^2 increase due to the interaction $R^2 = .01$; $F(2,291) = 2.27$, $p = .10$). We probed this interaction since it was marginally significant. Probing of this interaction showed that the duty-based moral belief score did not have significant conditional effects in the non-deviating message ($b = .24$; $p = .15$), the harm-causing message ($b = -.23$; $p = .13$) or the control message ($b = .06$; $p = .68$) conditions.

Results: Risk Recognition. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using same two predictor models as above using participants' recognition of risk as the dependent variable. We found a significant first model (rights-based moral beliefs; $R^2 = .09$; $F(6,291) = 4.83$, $p < .001$). There was a significant main effect of whether participants were already using campus counselling services ($b = .62$; $p < .001$), indicating that those who were using the campus counselling were more likely to recognize that they were at risk for anxiety and depression. There was no main effect of rights-based moral beliefs ($b = .01$; $p = .83$), no main effect of D1 ($b = -.75$; $p = .11$), and no main effect of D2 ($b = -.23$; $p = .60$). There was a significant interaction effect of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .02$; $F(2,291) = 3.55$, $p = .03$). Further probing of this interaction revealed that the conditional effect of the rights-based moral beliefs was significant only for the non-deviating message ($b = .12$; $p = .005$), and not significant for the harm-causing message ($b = .01$; $p = .83$) or the control message ($b = .03$; $p = .30$) conditions. The estimated means are provided in Table 2 for visualization. We ran a second model with premeasured duty-based moral belief score as predictor and found that the model was significant ($R^2 = .10$; $F(6,291) = 5.68$, $p < .001$), with a significant effect of the covariate whether they were already using campus counselling ($b = .62$; $p < .001$) and a non-significant interaction of message type and duty-based moral beliefs (R^2 increase due to the interaction $R^2 = .0004$; $F(2,291) = .06$, $p = .94$). We did not probe this interaction.

Results: Stigma Perceptions. We conducted two bootstrapped regressions (Hayes 2013; PROCESS Model 1; 10,000 bootstraps) using same two predictor models as above using participants' perceptions of stigma associated with mental health as the dependent variable. We found a significant first model (rights-based moral beliefs; $R^2 = .07$; $F(6,291) = 3.97$, $p < .001$).

There was a marginally significant main effect of whether participants were already using campus counselling services ($b = .10$; $p = .08$), indicating that those who were using the campus counselling were marginally more likely to perceive that mental health issues were stigmatized. There was no main effect of any factor, and the interaction of the message type dummies and rights-based belief system (R^2 increase due to the interaction $R^2 = .004$; $F(2,291) = .55$, $p = .57$) was not significant either. We did not probe this interaction. We ran a second model with premeasured duty-based moral belief score as predictor and found that the model was not significant ($R^2 = .01$; $F(6,291) = .76$, $p = .60$). Since the omnibus tests were non-significant, we did not probe the interaction for both these models. These results indicate that the perceived stigma of mental health issues does not change with different message types or based on the nature of participants' moral beliefs.

Table 5. Participants with strong rights-based moral beliefs spent more time reading healthcare information, indicated stronger intentions, and were more likely to recognize risk following the norm-deviating (vs. harm-causing vs. control) stigma message.

Measures	Control (No stigma) Message (n = 99)		Norm-deviating Message (n = 97)		Harm-causing Message (n = 100)	
	Low RM (-1 SD)	High RM (+1 SD)	Low RM (-1 SD)	High RM (+1 SD)	Low RM (-1 SD)	High RM (+1 SD)
Time spent reading and noting campus counselling information (z-scores)	-0.10	-0.29	-0.10	0.49*	-0.13	0.12
Interest in making an appointment for campus counselling (10-point scale)	2.97	3.67	2.79	4.29*	2.78	2.83
Intentions to seek mental health help (10-point scale)	3.99	4.50	3.65	5.43*	4.17	4.08
Risk Recognition for Anxiety and Depression (PHQ-4; z-scores)	-0.20	0.11	-0.11	0.28*	-0.20	0.13
Perceptions of stigma surrounding mental health (10-point scale)	4.90	5.67	5.08	5.80	5.23	5.68

Note. RM = Rights-based Moral beliefs score; $-1SD = 5.04/10$, $+1SD = 8.09/10$. Cells contain means calculated from regression outputs. Means with * are statistically different at $p < .05$ from other numbers within that row. Duty-based Moral beliefs data is not tabulated since none of the interaction models were significant.

Discussion. This study provides converging evidence to studies 1 and 2 through four dependent variables and by utilizing participants' chronically accessible endorsement of duty-based and rights-based moral beliefs. Those with a strong trait rights-based belief endorsement stigma spent more time on a page with campus counselling information (with the opportunity to note down information), indicated greater interest in getting an appointment for mental health counselling, indicated stronger intentions of seeking mental healthcare support, and were more likely to recognize their risk for anxiety and depression after seeing a message that accentuated norm-deviating (vs. harm-causing vs. control) dimension of mental health. This effect of the message type was not observed among those with weak ($-1 SD$) endorsement of rights-based beliefs. In contrast, participant's trait endorsement of duty-based moral beliefs did not predict differential responses to the message types. An interesting point of note here is that – although the manipulation checks were successful – the overall perceptions of stigma of mental health issues did not change by message type. This implies that the observed effect is not driven by change in perceptions of stigma, but rather by the enhanced moral acceptability of the being associated with that stigma – as supported by the moderation by rights-based moral beliefs. Participants are thus willing and interested in seeking help – despite the perceived stigma – when being associated with mental health issues is morally acceptable to them. This study highlights the many different manifestations of such interest to seek help for mental health symptoms, beginning with recognition that one is at risk.

STUDY 4: MORAL ACCEPTABILITY AND INCREASED MENTAL HEALTH INFORMATION SEEKING

The objective of this study was to conceptually replicate the finding from the previous studies using a different behavioral outcome measure. We reasoned that an additional behavioral manifestation of individuals' interest in seeking help would be the amount of time they spent in seeking more information about the health issue. For this purpose, we designed an online study in which we could measure the amount of time spent by participants in reading information about signs, symptoms, treatments and processes for seeking professional help for mental health issues. We also measured the time spent reading the mental health messages as a baseline of their reading time. This baseline measure allows us to rule out some alternative theoretical accounts (e.g., depletion, fluency) detailed below and converge at the moral acceptability process.

Methods and Procedure

Six hundred adult US residents were recruited from Amazon's Mechanical Turk pool to participate in this study for monetary compensation. All participants were randomly assigned to one of the six conditions in a 2 Health Message (Norm-deviant vs. Harm-causing vs. Control) X 2 Moral Beliefs (Rights-based vs. Duty-based) design. There were two phases to this study, conducted 5 days apart. The first phase was a premeasure step in which we measured participants' demographic information along with current mental healthcare status using the same items as study 1. The second phase was the main study with a returning final sample of 445 (Mage = 40.79 years, 252 females) participants. As first step of the main study, we manipulated

participants' moral beliefs using the same procedure as study 1. Next, participants were presented with a 2-page 'health pamphlet' developed by an ostensible Population Health Center. The first page of this pamphlet was designed to manipulate stigma message type and the second page was designed for dependent variable measure. The first page of the pamphlet manipulated norm-violating or harm-causing or control message type of stigma (same stimuli as study 1). The study software measured the amount of time each participant spent on this page as the baseline of their reading time across conditions.

Dependent Variable: Time Spent Reading Health Information. The second page of the health message contained common information across conditions. This page detailed information about signs, symptoms of depression and how to seek professional help. Participants were provided a summary of common treatments and sources of healthcare support on this page. They could spend as little or as much time as they liked on this page and could choose to move on to the next page whenever they wanted. The study software measured the amount of time each participant spent on this page as the primary dependent variable.

Other Measures: Manipulation Checks. After indicating that they had finished reading the advertisement, we conducted manipulation check procedures for the stigma message type. Participants were asked to indicate their agreement with same four statements from study 2. Responses on these items were combined to form an index of perceptions of harm-causing ($\alpha = .87$), norm-deviance ($\alpha = .76, p$). On the next page, they were presented with three bipolar items adapted from Chiu et al. (1997) that measure whether they endorsed rights-based versus duty-based moral beliefs (e.g., "In your opinion, what is more immoral?" on a bipolar measure of "People not respecting authority" = 1 to "People not being able to exercise their rights" = 10). After collecting all responses, participants were debriefed on the nature of the study and

provided information on sources to seek help for mental health concerns. When they indicated that they had read and understood the contents, the study concluded.

Results and Discussion

Results: Manipulation Checks. The stigma and moral beliefs manipulation checks were found to work as expected. Results of these analyses are reported in Appendix T.

Results: Time Spent Reading Depression Information. The main dependent variable in this study was the amount of time (in seconds) spent in reading information about signs, symptoms and treatments for depression. We conducted an ANOVA procedure using this dependent variable, the message type and moral beliefs as independent variables and current mental health service status as a covariate. Results showed that the ANOVA model significantly predicted the variance in the dependent variable ($F(6, 438)=3.14; p = .005$). The type of message seen by participants was not a significant predictor ($p = .10$), whereas the nature of the primed moral beliefs was a significant predictor ($p = .014$), such that participants primed with rights (vs. duty)-based morality were more likely to spend time reading the message. Interestingly, the interaction of the two factors was significant ($p = .04$). Probing of this interaction showed that when presented with the harm-causing and control messages, participants primed with rights-based versus duty-based moral beliefs did not differ in the amount of time spent reading the message. However, when rights (vs. duty)-based moral self was made salient, participants spent significantly longer time reading the norm-deviating message than when they were presented other two messages. We conducted a second, similar ANOVA procedure using participants' time spent reach the mental health message as the dependent variable and found that the model was

not significant ($F(6, 438) = 1.27; p = .28$), with a non-significant effect of message ($p = .37$), moral prime ($p = .56$), and interaction ($p = .95$). These results indicate that participants did not vary in the baseline reading time across conditions. Summary and descriptive statistics of these results is tabulated in Table 6.

Table 6. Participants spent more time reading health information following the norm-deviating (vs. harm-causing vs. control) message, moderated by moral beliefs.

Measures	Control (No stigma) Message (n = 145)		Norm-deviating Message (n = 150)		Harm-causing Message (n = 150)		F-statistic for Interaction term
	DM	RM	DM	RM	DM	RM	
DV: Time spent reading health information on Page 2 (in sec.)	32.05 (28.29)	36.11 (30.78)	30.67 (25.90)	49.69* (49.53)	32.38 (24.39)	32.52 (36.62)	$F(2,439) = 3.31;$ $p = .037$
Baseline: Time spent reading health message manipulation on Page 1 (in sec.)	151.24 (129.85)	139.80 (120.22)	153.22 (193.61)	147.15 (132.57)	116.28 (98.20)	115.98 (91.38)	$F(2,439) = .053;$ $p = .948$

Note. DM = Duty-based Moral beliefs condition, RM = Rights-based Moral beliefs condition. Cells contain Means (Std. Dev). Means with * are statistically different at $p < .05$ from other numbers within that row.

Discussion. This study provides converging evidence for the predicted effect using a different behavioral dependent variable and rules out some alternative theoretical explanations. We find that participants took more time reading and noting down information about depression after seeing the norm-deviant (vs. harm-causing vs. control) message, when they were primed with a rights-based versus duty-based control condition. We additionally measured the time they spent reading each message to rule out alternative accounts of a) depletion: the messages themselves were differentially time-consuming or effortful, hence affected subsequent reading, and b) fluency: that those with right-based mindset experienced greater ‘fit’ or metacognitive fluency while reading a mental health message that makes the norm-deviant dimension salient.

GENERAL DISCUSSION, LIMITATIONS, AND FUTURE DIRECTIONS

Essay 1 presented five experiments (and two appended replications) that examine the role of stigmatized risk factors and moral identity in shaping the effectiveness of health messaging. We showed that individuals with high (vs. low) moral identity view advocated health behavior as moral, resulting in greater health persuasion. However, this association and its impact on persuasion were mitigated when health messages included stigmatized risk factors. Essay 2 presented 4 experiments (and two pilot experiments) that together show the prevalence of stigma when processing mental health messaging and identify conditions in which the effect of stigma could be overcome. These studies demonstrated that when the dimension of stigma that was accentuated was morally acceptable, the effectiveness of mental health messaging increased. We tested for this by utilizing the rights-versus-duty moral beliefs framework and showing that when the norm-deviant (vs. harm-causing vs. no stigma) dimension of mental health stigma was made salient in a message, participants were more likely to seek help if they held rights (vs. duty)-based beliefs. This is because being different from the norm is not a moral violation in rights-based conceptualization of morality and allows participants to recognize their risk and seek help.

By integrating the literatures on stigma, health, and morality, this dissertation offers contributions to all three streams of literature. To the stigma literature, it offers an underlying process of moral mechanisms and moderators in various frameworks (moral identity, rights-versus-duty moral beliefs) particularly in the context of persuasion. To the health literature, it offers morality as an antecedent to health persuasion, and stigma as a source of defensive

processing. Finally, to the morality literature, it identifies consequences of and the threat from stigma in the health domain.

The psychology of stigma in the marketplace. Past research documents the many ways stigma impacts individuals (see Major and O'Brien 2005 for a review). Extant consumer research describes the management of stigma arising out of literacy (Adkins and Ozanne 2005), culture (Peñaloza 1996), and subcultural associations (Kozinets 2001). Argo and Main (2008) empirically investigate stigma by association in coupon-clipping behavior. In the context of health, Sinha (2016) shows that weight stigma can influence eating behaviors in public versus private settings as a social identity repair process. Past literature mostly examines stigma through social processes. Stigma is seen as manifesting as others' judgement and prejudice (e.g., Puhl and Latner 2007) or triggering impression management in the presence of others (e.g., Sinha 2016). The current research adds a new avenue to the stream of research on stigma by demonstrating a moral manifestation of stigma. Our research shows that stigma associated with health risk factors taints health behaviors and reduces the perceived morality of those behaviors.

Little research speaks to when (and among whom) the effects of stigma hold and when they do not. Previous research identifies some moderators of stigma's impact on health (such as visibility and controllability of stigma) that relate to making stigma less salient (Major and O'Brien 2005), attributions of control for stigma (Feldman and Crandall 2007; Puhl and Brownell 2003), and group memberships (e.g., sexual orientation, sex, age, race, or ethnicity; Herek 2004; Meyer 2003). Our research links stigma to morality and offers moral identity as a determinant of when stigma has an impact on decisions. This shows that lowering the salience of moral identity can limit the impact of stigma. Future research could identify when stigma works through moral processes as demonstrated here, and when it works through alternative routes.

One such possible alternative route is that of specific emotions. Future research could consider specific emotions as antecedents and consequences of stigma. As antecedents, some specific emotions are more likely to predispose consumers to experience stigma than others. One emotional orientation to explore is the specificity of negative self-inferences. For example, experience of shame could predispose one to see oneself in a global negative manner, in contrast to the closely related emotion of guilt, that provides a more specific negative inference (Han, Duhachek, and Agrawal 2014). One could predict diverging effect of incidental shame versus guilt on how stigma is processed; likely an experience of shame enhances sensitivity to stigma, whereas an experience of guilt enhances sensitivity to stigma only when the stigma-causing domain is the same as the guilt-causing domain. Similarly, another direction to explore the effect of emotions on stigma is to contrast across self-positive and self-negative emotions. One could predict that emotions that evaluate the self in a positive manner (e.g., pride, joy), versus negative manner (e.g., envy, regret), are likely to reduce the sensitivity of the self to implications of stigma.

Much remains to be explored about the complex mechanisms through which stigma shapes consumer behavior. We present one case in which stigma negatively impacts the moral favorability of health behaviors. However, it would be inappropriate to conclude that stigma always has a negative effect. The functionalistic perspective of stigma suggests that it exists as a social governing mechanism (e.g., stigmatization of smoking serves the purpose of curbing a harmful behavior). Future work could identify the circumstances under which stigma could have positive versus negative impact. Past research (Crocker 1999) suggests that stigma could lead to a situational increase in self-esteem. When might stigma lead to experience of shame versus pride (an emotion associated with enhanced self-esteem)? Likely that individuals with a) more

(vs. less) stable identity or b) higher (vs. lower) self-worth are likely to might demonstrate enhanced pride (shame) as a response mechanism to stigma. This line of research would also speak to the broader research on mood management. We build a case here for systematic and holistic study of stigma.

Health persuasion. By identifying the moral drivers of health persuasion, our research opens up a new area for research in health messaging. The health literature has considered cognitive (e.g., calculation of risk), emotional (e.g., fear appeal), and motivational (e.g., self-positivity) factors in health persuasion. Recent work on health does suggest that the self bears a variety of influences on health decisions via emotions, goal activation, and motivated reasoning (e.g., Campbell and Mohr 2011; Duhachek, Agrawal, and Han 2012; Samper and Schwartz 2012; Wilcox et al. 2000). We add to this literature by examining of the role of a moral self-schema in health persuasion. Future research could dig deeper into antecedents and boundaries of such moral influences on health decisions. What turns a clinical, health-related decision into a morality-related decision? One potential approach to answering this question could be study of moral issues. Do consumers consider a health-related decision as a moral issue under all circumstances? Not necessarily and the current research identifies one moderator: moral identity. This means that consumers whose self-conceptualization is heavily defined by morality do see health actions as moral issues. Similar line of research could be toward ethical predispositions of utilitarianism versus formalism. Utilitarianism is where a moral issue is recognized as something that could lead to an overall positive outcome, whereas formalism is the view that means, along with outcomes, define the morality of an action (see Reynolds 2006). Individuals holding these different predispositions might respond differently to health messages, especially those loaded with stigma. A formalistic predisposition might make a health issue as a moral issue when there

is a moral conflict between the means (health actions: such as a preventive vaccination for STDs) and end (a state of healthiness), whereas utilitarian consumers may not be sensitive to such conflicts. Future research could also consider how various frameworks of morality (e.g., moral foundations theory, rights-vs. duty-based) shape perceptions of health risks and behaviors. An individual with moral foundation grounded in purity is likely to be persuaded by a health message that emphasizes contamination avoidance, whereas an individual with a moral foundation grounded in following authority/law might be more persuaded by health messages that emphasize policy reasons to engage in health behaviors.

As for the mechanism of defensive processing, the health literature has extensively documented defensive processing of health messages that feature a threat or risk to the participants' health. Our studies find a significant interactive effect of stigma and moral identity on defensive processing even when actual health risks are controlled for or ruled out by study design. Here, stigmatized risk factors cause defensive processing of health messages by threatening the moral self. This is a novel antecedent to defensive processing of health messages. Our research suggests that health persuasion could be significantly impacted by factors beyond health-related variables (such as risk, disease relevance, etc.), and opens an avenue for systematic study of socio-cultural factors such as stigma on health persuasion. One potential paradigm to delineate social factors that influence health persuasion is to study the effectiveness of health messages in public versus private domains. Consumers are unlikely to engage in healthy behaviors in private if the motivating force for them to do so is cultural, but not self-related. For example, if the cultural norm in one group is to, say, eat salads – then consumers are more likely to eat salads in public, if they have high need for affiliation, and less likely to eat a

salad in public if they had a high need for uniqueness; however, in private, this effect should attenuate and their actual food preference would predict their food consumption.

Moral. A large portion of the literature on moral constructs broadly, and moral identity specifically, focuses on how they influence behaviors in ethical (Reynolds, Ceranic, and Zedeck 2007), moral (Aquino et al. 2007; Aquino, McFerran, and Laven 2011), and prosocial domains (Reed, Aquino, and Levy 2007; Winterich, Mittal, and Ross 2009). The small extant literature on rights-versus-duty moral beliefs, for example, shows associations with implicit theories of reality (Chiu et al 1997) and cultural differences in interpersonal interaction (Miller 1994). We suggest that morality could have an expanded influence beyond moral, ethical domains to other domains – such as health – through some characteristics of moral intuition and intensity. Our studies provide converging evidence that, while controlling for actual health risk through study design and/or covariates, a salient moral self predicts participants’ responses to health messages. In doing so, we demonstrate the important causal relationship between an activated moral self and health outcomes.

Our research also extends the literature on morality by illuminating the links and distinction between the constructs of stigma and morality. Although morality carries a positive social valence and stigma is negative, they vary on more characteristics than valence. Moral acts may sometimes get stigmatized and immoral acts can be normal. For example, binge drinking of alcohol is considered to be immoral (Rozin 1999), but college students who do not drink at parties are often stigmatized (Herman-Kinney and Kinney 2013). Similarly, corruption—considered to be unethical and immoral—can be normative and institutionalized in many settings (Martin et al. 2009; Olken and Pande 2012); and reporting corruption, an act of honesty, could be

stigmatized. Our research opens conversations and future research paths about when morality and norms or stigma converge versus diverge.

Health marketing. Our findings present important implications for health marketers and policy-makers. We demonstrate the negative influence of stigmatized risky behaviors in health communications, while simultaneously establishing which consumer segments may be particularly vulnerable or when such effects might occur (e.g., when the moral self is salient). Importantly, we develop and test a potential messaging intervention in which disproportionate salience of an innocuous risk factor seems to reduce the taint of stigma on the advocated health behavior. Our research can offer health practitioners two suggestions when communicating health issues that may have stigmatized risk factors associated with them: make the moral self less salient and/or emphasize an innocuous risk factor. An important implication of our findings is that health marketers should consider the effects of not only stigma associated health conditions, but also the stigma associated with risk factors. Future research could study how different health actions (such as detection, prevention, curing) might be differently affected by the presence of a stigmatized risk factor. In case of detecting a disease (such as lung cancer screening), a stigmatized risk factor (such as smoking) could reduce the likelihood of detection actions because consumers might fear that they might be revealed as having stigmatized associations. In contrast, disease prevention might be enhanced if the disease is associated with a stigmatized risk factor. In such a case, consumers might be more interested in avoiding the disease as well as stigmatized associations and display greater engagement in preventive behaviors. Another perspective for future research on type of health actions and stigma is to consider thought-level associated with a health action. When detecting a stigmatized health condition, considerations of ‘why’ or outcome (i.e., higher-level thoughts) of detection might be

aversive to consumers and reduce detection, which can be countered by encouraging them to engage in lower-level thoughts such as process and ‘how’ of detection behaviors. Thinking of ‘how’ (vs. ‘why’) might shift the focus away from stigma and emphasize health behaviors.

An important implication of findings from Essay 2 is that health marketers should not deem stigma as “undesirable” and avoid the topic. Especially in contexts such as mental health, which are loaded with stigma, we show that – under some conditions – accentuating its dimensions could enhance health behaviors. Thus, explicit conversations about stigma should to be initiated in health messaging, with a careful consideration of conditions under which stigma can be de-valued, or its negative implications undermined. Findings reported here and future directions of this research indicate the importance of considering stigma as manifesting in the marketplace and highlights the importance of studying this construct with a) greater structural nuance and b) broader theoretical approaches.

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TABLES

Table 1. Summary of study flow and procedures for all studies in Essay 1

Study No.	Time 1	Time 2
1 (Time lag 5-10 days)	Moral Identity scale (IV) [#] Conscientiousness [#] Agreeableness [#] Self-Monitoring [#] Health Risk Covariates: Hand Sanitizer use Height & Weight (for BMI) Body Image	Stigma Manipulation in Message (IV)* Behavioral Intentions (DV) Moral Associations (Process) Other Potential Processes: Fear [#] , Social Desirability [#] Stigma manipulation checks
2 (Time lag 30 – 60 mins)	Health Risk Covariates: Smoking Frequency Ever smoked	Moral Identity Manipulation (IV)* Moral Identity Manipulation Check Stigma Manipulation (IV)* Health Message Risk Estimates (Process) Behavioral Intentions (DV) Response Time (Process) Actual Behavior (DV) Stigma manipulation checks
3 (Time lag 30 – 60 mins)	Moral Identity Scale (IV) Health Risk Covariates: Hand sanitizer use Sexual partner status	Stigma Manipulation in Message (IV)* Behavioral Intentions (DV) Actual Behavior (DV) Manipulation Checks
4	N/A	Self-Affirmation (IV)* Affirmation Manipulation Check Stigma Manipulation (IV)* Health Message Behavioral Intentions (DV) Stigma Manipulation Checks Filler Task Moral Identity Scale (IV)
5 (Time lag 3-5 days)	Health Risk Covariates: Smoking Frequency Ever smoked	Moral Identity Manipulation (IV)* Stigma Salience Messaging Intervention (IV)* Behavioral Choice (DV) Stigma Manipulation Checks

Notes. Order of listing within each block indicates sequence of steps in the study. “Time lag” indicates the time delay between Time 1 and Time 2; * indicates between-subjects random assignment in that step; # indicates randomized order of presentation of that block of items.

APPENDIX A

STUDY 1 MEASURES

STUDY 1: MORAL IDENTITY TRAIT MEASURE

(Aquino and Reed 2002)

Listed below are some characteristics that might describe a person:

Caring, Compassionate, Fair, Friendly, Generous, Helpful, Hardworking, Honest, Kind

The person with these characteristics could be you or it could be someone else. For a moment, visualize in your mind the kind of person who has these characteristics. Imagine how that person would think, feel, and act. When you have a clear image of what this person would be like, answer the following questions.

1. It would make me feel good to be a person who has these characteristics. (I)
2. Being someone who has these characteristics is an important part of who I am. (I)
3. I often wear clothes that identify me as having these characteristics. (S)
4. I would be ashamed to be a person who had these characteristics. (I) (R)
5. The types of things I do in my spare time (e.g., hobbies) clearly identify me as having these characteristics. (S)
6. The kinds of books and magazines that I read identify me as having these characteristics. (S)
7. Having these characteristics is not really important to me. (I) (R)
8. The fact that I have these characteristics is communicated to others by my membership in certain organizations. (S)
9. I am actively involved in activities that communicate to others that I have these characteristics. (S)
10. I strongly desire to have these characteristics. (I)

Notes: I = Internalization subscale; S = Symbolization subscale; R = Reverse coded

STUDY 1: SELF-MONITORING SCALE

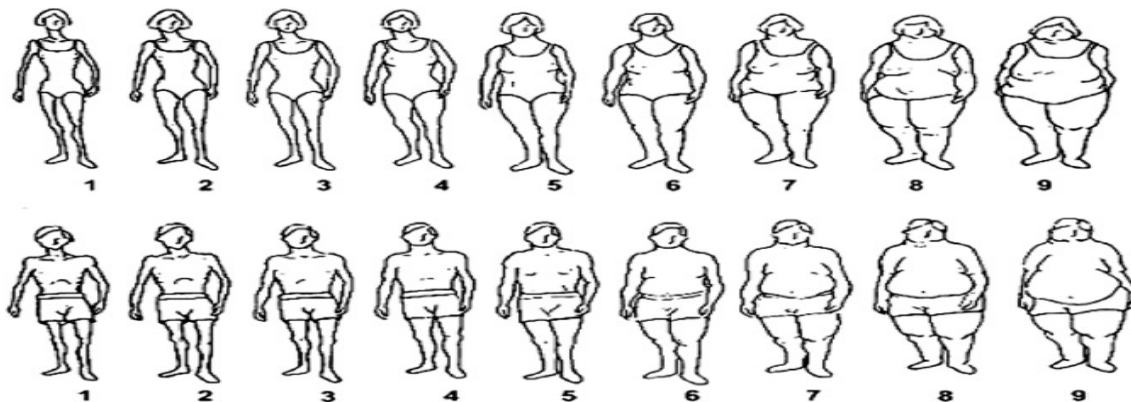
(Lennox and Wolfe 1984, “Concern for Appropriateness” subscale; measures tendency to conform)

The following statements concern your perception about yourself in a variety of situations. Your task is to indicate the strength of your agreement with each statement. In the space provided after each statement, indicate an option such that 1 = Strongly disagree to 7 = Strongly agree.

1. I tend to show different sides of myself to different people.
2. In different situations and with different people, I often act like very different persons.
3. Although I know myself, I find that others do not know me.
4. Different situations can make me behave like very different people.
5. Different people tend to have different impressions about the type of person I am.
6. I am not always the person I appear to be.
7. I sometimes have the feeling that people don't know who I really am.

STUDY 1: STUNKARD FIGURE-RATING SCALE

(Stunkard, Sorensen, and Schulsinger 1983; measures self-perceived body image)
 “Which body-shape looks like your own?” 1 = thinnest, 9 = heaviest



APPENDIX B

STUDY 1 MANIPULATIONS AND STIMULI

STUDY 1: STIMULI – HEALTH MESSAGES

Low Stigma Message

Get Tested for Turner's Disease!

Do any of these describe you?

- ✓ Age 18 to 65 years
- ✓ Does not use hand sanitizers

If yes, you should protect yourself from Turner's Disease.

Many cases of Turner's Disease will cause no physical symptoms. Some cases of Turner's disease will become clinical and lead to prolonged illness.

This may manifest in the form of fever and respiratory complications.



High Stigma Message

Get Tested for Turner's Disease!

Do any of these describe you?

- ✓ Age 18 to 65 years
- ✓ Is overweight or obese

If yes, you should protect yourself from Turner's Disease.

Many cases of Turner's Disease will cause no physical symptoms. Some cases of Turner's disease will become clinical and lead to prolonged illness.

This may manifest in the form of fever and respiratory complications.



APPENDIX C

STUDY 1 RESULTS

STUDY 1: PREMEASURED VARIABLES AND DESCRIPTIVE STATISTICS

Sample n = 549; 273 females, M _{age} = 37.11 years				
Variable	Item	Mean	Std. Dev.	Cronbach's α
Moral Identity (internalization)	Aquino and Reed (2002); 7-point scale (see following section)	5.92	1.01	0.82
Moral Identity (symbolization)		4.29	1.39	0.88
Conscientiousness	Big Five Inventory subscales; 7-point scale	5.40	1.03	0.88
Agreeableness		5.19	0.98	0.84
Self-Monitoring	Lennox and Wolfe (1984); 7-point scale (see following section)	4.36	1.17	0.78
Hand Sanitizer Use	How often do you use hand sanitizers? (1 = Not at all to 5 = Daily)	3.05	1.51	N/A
Flossing (dummy question)	How often do you floss? (1 = Not at all to 5 = Daily)	3.22	1.51	
Body Weight	What is your body weight? (in pounds)	174.55	47.07	
Height	What is your height? (in inches)	67.51	4.09	
BMI	Calculated; see formula below	26.88	6.38	
Body Image	Stunkard figure-rating scale (see following section)	4.64	1.56	

Notes:

- Formula for $BMI = 703 X (weight (lb) \div height^2 (inch^2))$
- The flossing-frequency question was included to support the cover story of a general health survey; this measure was not included in analyses.

STUDY 1: STIGMA PRETEST

Methods and Procedure. This step was conducted independent of the following premeasure step and the main study, and the participants did not overlap with the rest of the study sample. There were 134 adult US MTurk participants (71 females, $M_{\text{age}} = 49.86$ years) recruited with a cover story of “Consumer Opinions Survey.”

On the first page, they were presented a list of eight items: not using hand sanitizers, not flossing, being overweight or obese, eating fatty food, going for a run, having colored hair, being an introvert, and having tattoos. Of these eight items, our target pair of risk factors was using hand sanitizers and being overweight or obese. The order of presentation of these items was randomized. The instructions read: “Following is a list of behaviors, physical features, or lifestyles. Please indicate how socially stigmatized (or not) you think they are.” Each item was anchored on 1 = highly stigmatized to 7 = not stigmatized at all.

On the next page, the same list of items was provided, with different scale anchors. The instructions read: “Following is a list of behaviors, physical features, or lifestyles. Please indicate how socially acceptable or unacceptable you think they are. Indicate 1 = strongly unacceptable to 7 = Socially acceptable.” Following this, demographic information was collected, and the study ended.

Results and Discussion. Participants’ ratings on the two pages were combined to form a stigma score for each behavior. Lower score on this measure indicates greater perceptions of stigma. To test the mean differences across the repeated measures of target risk factors, we conducted a paired samples t-test with 95% confidence interval. Results show that being overweight or obese was perceived to be significantly more stigmatized ($M = 3.21$, $SD = 1.45$) than not using hand sanitizers ($M = 4.19$, $SD = 1.58$; paired $t(133) = 5.924$, $p < .001$).

STUDY 1: FEAR AND SOCIAL DESIRABILITY

Following the measurement of moral associations, we measured the two constructs closely related to our construct of interest to test for their role in driving the interaction of stigma and moral identity.

1. Fear of the disease ($r = .94$; 1 = strongly disagree to 7 = strongly agree)
 - a. “I am afraid of being diagnosed with this disease”
 - b. “I am scared of developing this disease”
2. Social desirability of the behavior ($r = .67$; 1 = strongly disagree to 7 = strongly agree)
 - a. “Testing for Turner’s Disease is very socially desirable.”
 - b. “Testing for this disease is socially encouraged.”

Fear. The data were subjected to a test of moderation using a bootstrapping procedure (Hayes 2013; Process model 1; 10,000 bootstraps) with message type as the independent variable, moral identity score as a moderator, and fear index as the dependent variable. In addition, we specified

conscientiousness, agreeableness, self-monitoring, hand sanitizer use, body image, and BMI as covariates. Results revealed a significant model ($F(10, 455) = 5.35, p < .001$). The model showed a non-significant effect of message type ($b = .30, t(455) = .34; NS$), non-significant effect of moral identity ($b = -.03, t(455) = -.25; NS$), and a non-significant interaction term ($b = -.06, t(455) = -.46; NS$). The only significant predictors in the model were frequency of use of hand sanitizers ($b = .16, t(455) = 3.30; p = .001$) and age ($b = -.02, t(455) = -2.21; p = .03$). We observed a marginal effect of trait conscientiousness ($b = .16, t(455) = -1.87; p = .06$). Since stigma and moral identity do not have main or interactive effects on fear, we did not conduct mediational analysis.

Social Desirability. The data were subjected to a test of moderation using a bootstrapping procedure (Hayes 2013; Process model 1; 10,000 bootstraps) with message type as the independent variable, moral identity score as a moderator, and social desirability index as the dependent variable. In addition, we specified conscientiousness, agreeableness, self-monitoring, hand sanitizer use, body image, and BMI as covariates. Results revealed a significant model ($F(10, 455) = 3.63, p < .001$). The model showed a significant effect of message type ($b = .33, t(455) = 3.59; p = .004$), non-significant effect of moral identity ($b = -.04, t(455) = .59; NS$), and a non-significant interaction term ($b = -.13, t(455) = -1.03; NS$). We also observed a significant effect of body image ($b = .12, t(455) = 1.96; p = .049$) and self-monitoring ($b = -.18, t(455) = -3.71; p = .0002$). These results suggest that perceptions of social desirability vary by the stigma manipulation and participants' trait self-monitoring. However, since perception of social desirability does not vary by an interaction of stigma and moral identity, we did not conduct mediational analysis.

STUDY 1: MANIPULATION CHECK

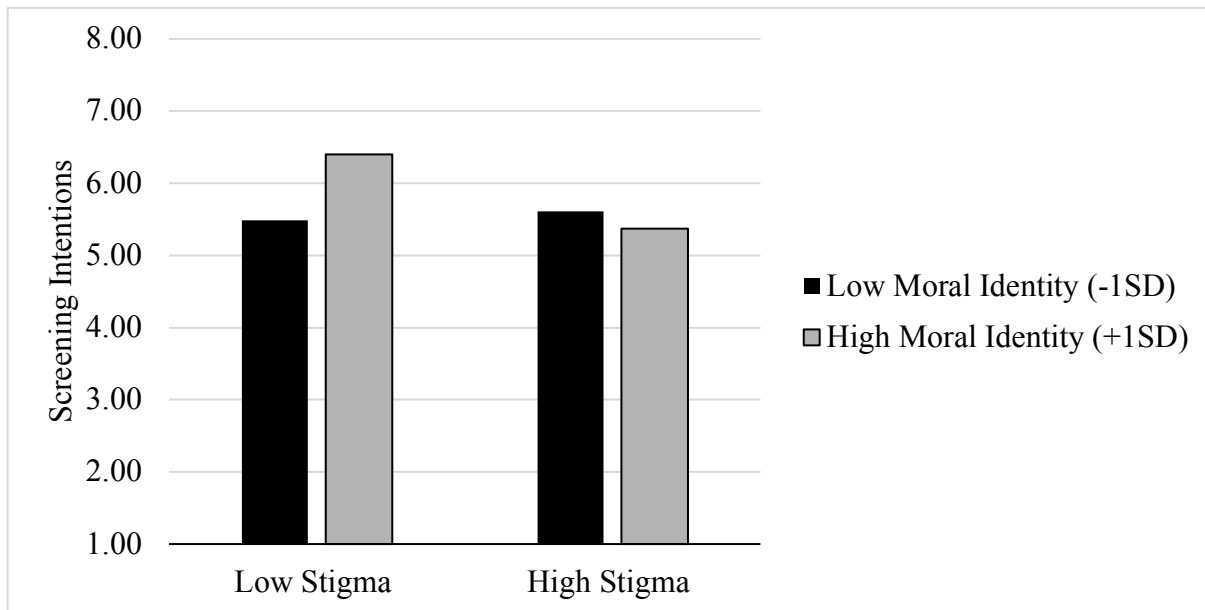
Stigma manipulation-check items were measured in the main study as the last step before debriefing. Participants were presented with the following statements and asked to indicate their agreement with each item on a scale of 1 = Strongly disagree to 7 = Strongly agree.

1. "People with Turner's Disease are stigmatized."
2. "Someone with this disease might get treated differently by others."
3. "Those with Turner's Disease face social stigma."

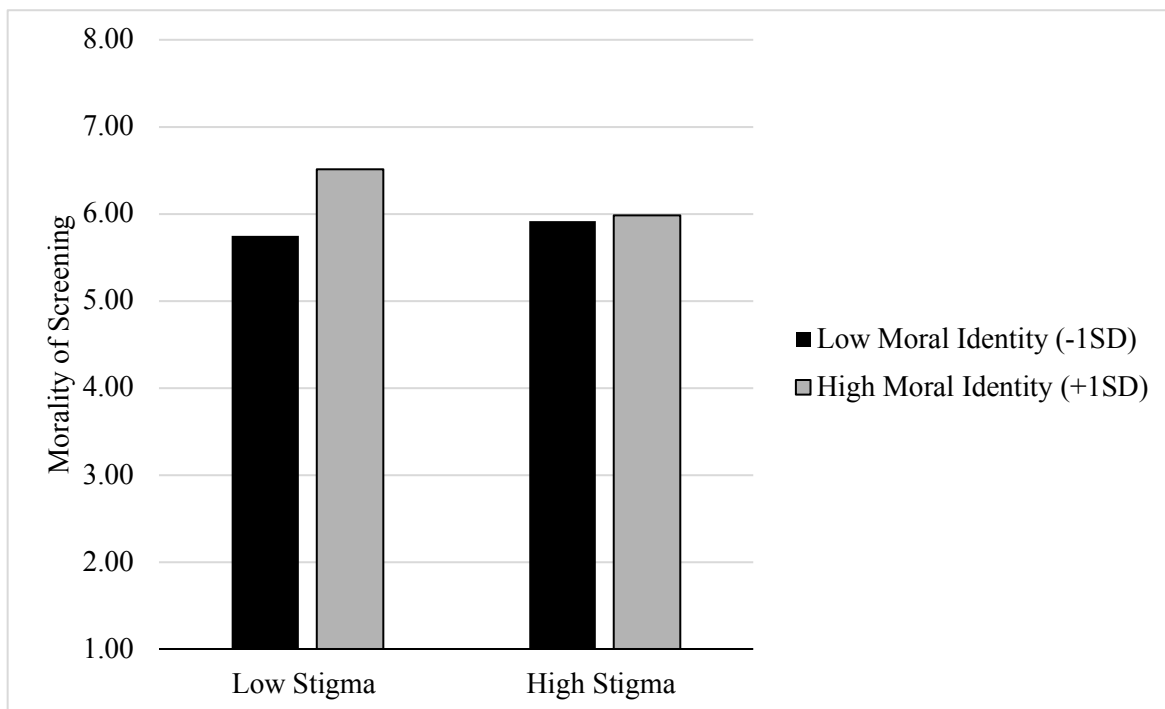
Results show that participants who saw the high stigma message perceived greater stigma attached ($M = 4.74, SD = 2.45$) than did those who saw the low stigma message ($M = 4.22, SD = 2.25; t(465) = 2.40, p = .017$).

STUDY 1 RESULTS: INTERPLAY OF STIGMA AND MORAL IDENTITY

Disease screening intentions for low vs. high stigma message, moderated by moral identity.



Stigma reduced moral associations of the health behavior, moderated by moral identity.



APPENDIX D

STUDY 1B: WEIGHT STIGMA AND MORALITY OF CERVICAL CANCER SCREENING

Study 1B is reported as a conceptual replication of moral associations data from Study 1.

Methods and Procedure

Seven hundred female participants were recruited from Amazon's Mechanical Turk. This study was a two-way 2 (Stigma Salience: low vs. high) \times 2 (Moral Identity: high vs. low; continuous) mixed design. Participants were told that they would take part in three unrelated studies. The first was a "newspaper article evaluation" task (adapted from Sinha 2016) in which participants were randomly assigned to read an article about the history of coffee (low stigma salience) or the stigma of being overweight (high stigma salience). The second study involved reading a cervical cancer screening health message, which included message perusal and health intentions measure. The third and final study was ostensibly about consumers' lifestyles and beliefs, which included the moral identity scale. The final sample was 525 ($M_{\text{age}} = 36.32$) participants.

As a premeasure step, participants were taken to a page of demographic questions. Among these questions (including age, state of residence, etc.), we embedded a measure of relevance of weight stigma to each participant. We measured their body image using a weight-perception scale that is a pictorial representation with nine different line figures from 1 = thinnest to 9 = heaviest were asked, "Which body shape looks like your own?" and they were prompted to select one of the nine body types (Sinha 2016; Stunkard, Sørensen, and Schulsinger 1983).

As the first task of the main study (conducted a day later), stigma was manipulated in a "newspaper article evaluation" task (adapted from Sinha 2016). In the *low stigma salience* condition, participants saw an article detailing the history of coffee. In the *high stigma salience* condition, participants read an article about the stigma of being overweight. While participants were on this page, the study software measured the time spent by each participant reading the passage (without displaying a timer). After reading this passage, participants were asked to indicate their agreement with the following statements: "This article was easy to read," "This article was interesting," and "This article was difficult to read" (reverse coded) on a scale of 1 = strongly agree to 7 = strongly disagree. We used the three items and time spent reading the passage as checks that the articles did not differ in reading difficulty.

After completing the newspaper-article reading task, all participants were told that an ostensible Federal Health Panel Board was interested in consumer feedback on a new pamphlet about cervical cancer screening. This was a two-page pamphlet; the first page described cervical cancer and the importance of screening, while on the second page participants saw a list of risk factors including a weak immune system, age range, weight (the stigmatized factor), and living in North America.

Outcome variables: Intentions to screen for cervical cancer. After reading the health message, participants were asked three questions that measured how persuasive they found the message: "Did the pamphlet make you more or less likely to get the screening?" (1 = less likely, 10 = more likely), "How interested are you in getting more information about cervical cancer testing after reading the pamphlet?" (1 = not interested at all, 10 = highly interested), and "Has

the pamphlet increased your interest in getting the test?” (1 = strongly disagree, 10 = strongly agree). The three items combined to form an index ($\alpha = .93$) of health intentions.

Mediator: Moral associations of cancer screening. Following collection of the dependent variables, participants’ moral associations of the advocated health behavior were measured by asking them to indicate their agreement with the following statements: “Getting tested for cervical cancer is moral” and “A moral person would not get tested for cervical cancer” (reverse coded), 1 = strongly disagree to 10 = strongly agree. Both items were combined to create a moral association index ($r = .84$).

To check that the reading task manipulated stigma associated with cervical cancer, we asked the participants: “In your opinion, please indicate how much stigma is associated in our society with the following health issues.” They were provided a list of three health issues in randomized order: cervical cancer, influenza, and common cold. For each item, they indicated answers on a scale of 1 = not at all stigmatized to 10 = highly stigmatized. Finally, moral identity was measured after a filler task using Aquino and Reed’s (2002) scale from Study 1. Participants were then debriefed about the nature of the study, and the study ended.

Results and Discussion

Participants rated the articles manipulating high versus low stigma as equally easy to read and interesting, and they spent similar amounts of time on the page. A manipulation check confirmed that the stigma prime worked as expected. The items on the moral identity internalization subscale were combined ($\alpha = .74$) to form a moral identity score.

Morality of health behaviors. A regression procedure was run (Hayes 2013; Process model 1, 5,000 bootstrap samples) with stigma salience (coded low stigma salience = -1, high stigma salience = 1) as the independent variable, moral identity as the moderator, moral associations as the dependent variable, and body image as a covariate. Analysis revealed a significant model ($F(4, 520) = 3.63, p = .006$), with a significant simple effect of moral identity ($b = .66, p < .001$) and stigma salience ($b = -.52, p = .013$). Importantly, there was a significant interaction ($b = -.23, t(485) = -2.29, p = .02$) such that when stigma associated with being overweight was made salient, the morality of screening for cervical cancer was reduced among those with higher scores of moral identity ($b = -.52, p < .001$). The moral associations of cervical cancer did not vary across conditions for those with lower scores of moral identity ($b = -.05, p = .69$); Johnson-Neyman point of transition for this sample was found to be at 5.69 on a scale of 7. The region of significance included about 70.28% of this sample.

Moral associations mediate screening intentions. To test whether these associations of morality mediated the interaction of moral identity and stigma on health behavior, we ran moderated mediation analyses (Hayes 2013; Process model 8, 5,000 bootstraps). We used stigma salience condition as the independent variable, moral identity as a moderator, moral associations as the mediator, cancer screening intentions as the dependent variable, and body image factor as a covariate. Results revealed an overall significant model of moderated mediation ($b = -.04, 95\% \text{ CI}, -.1196 \text{ to } -.0006$). The interaction of stigma salience and moral identity significantly predicted moral associations ($b = -.23, p = .03$), which subsequently predicted health behavior ($b = .40, p < .001$). This indicates that higher associations of testing with morality led to higher intentions to test. This indirect effect was significant for participants with high (+1 SD) moral identity ($b = 1.06, 95\% \text{ CI}, -.27 \text{ to } -.02$) but not for those with low (-1 SD) moral identity ($b = -$

.93, 95% CI, -.04 to .08), indicating that the negative influence of stigma on healthy behavior via reduced moral association occurs only among high moral identity individuals.

Discussion. These results provide additional evidence for the psychological process through which stigmatized risk factors shape health behaviors by reducing the morality or “goodness” of a health behavior. This is observed among individuals with high moral identity, because they are likely to be sensitive to moral meanings of actions (Forehand et al. 2002; Reed et al. 2012). The data show that when stigma was not made salient, high moral identity individuals inferred higher associations of morality (therefore increasing their intentions to screen), but the salience of stigma associated with a risk factor weakened these associations (therefore decreasing their intentions to screen). In contrast, low moral identity individuals did not change their moral associations of healthy behavior in the absence or presence of stigma, and their health intentions were not mediated by moral associations with the health behavior.

This study’s findings deviate from past literature on health, which would predict that individuals’ sense of susceptibility to a health issue should drive their health behavior. Findings across Studies 1, 2, and 3 suggest that a) morality or perceptions of “goodness” drive consumers’ engagement in healthy behaviors independent of their actual health risk exposure, and b) stigma can affect health consumption by undermining the perceived morality of health behaviors.

STUDY 1B: STIGMA MANIPULATION AND MANIPULATION CHECKS

Reading Passage, Stigma Condition (adapted from Sinha 2016)

The Negative Stigma of Being Overweight and its Consequences

Rebecca Puhl, PhD

The alarming rates of obesity have brought widespread attention to the medical consequences of this public health problem. Often ignored, however, are the social and personal obstacles that overweight and obese individuals face. Bias, stigma, and discrimination due to weight are frequent experiences for many obese individuals, which have serious consequences for their personal and social well-being and emotional health. Given that at least 66% of the American population is overweight, the number of people potentially faced with discrimination and stigmatization is immense.

Weight Stigma Plays a Role in Everyday Life

There is clear evidence of weight stigma and bias in multiple aspects of daily life for obese individuals. Negative perceptions of obese persons exist in employment settings where obese employees are viewed as less competent, lazy and lacking in self-discipline by their co-workers and employers. These attitudes can have a negative impact on wages, promotions and decisions about employment status for obese employees. Research studies also show that obese applicants are less likely to be hired than thinner applicants, despite having identical job qualifications. There are also increasing legal cases emerging where obese employees

have been fired or suspended because of their weight, despite demonstrating good job performance and even though their body weight was unrelated to their job responsibilities.

How Obesity is Perceived Impacts the Negative Stigma

Perceptions about the causes of obesity may be partially responsible for this stigma and bias. Assumptions that obesity can be prevented by self-control, that patient non-compliance explains failure at weight loss, and that obesity is caused by emotional problems are all examples of attributions that contribute to negative attitudes. Additional research suggests that beliefs about the causality and stability of obesity are also important factors contributing to negative attitudes. For example, studies show that obese individuals are more likely to be stigmatized if their overweight condition is perceived to be caused by controllable factors compared to uncontrollable factors (e.g., overeating vs. a thyroid condition), and if obesity is perceived to be personally changeable rather than an irreversible condition.

Taken together, the consequences of being denied jobs, rejected by peers, or treated inappropriately by healthcare professionals because of one's weight can have a serious and negative impact on quality of life. Obese individuals suffer terribly from this, both from direct discrimination and from more subtle forms of bias and stigma that are frequently encountered.

Reading Passage, Control Condition

History of Coffee, Growth, and Its Consequences

Rebecca Puhl, PhD

Coffee cultivation and trade began on the Arabian Peninsula. By the 15th century, coffee was being grown in the Yemeni district of Arabia and by the 16th century it was known in Persia, Egypt, Syria, and Turkey. Coffee was not only enjoyed in homes, but also in the many public coffee houses—called *qahveh khaneh*—which began to appear in cities across the Near East. The popularity of the coffee houses was unequalled and people frequented them for all kinds of social activity. Not only did the patrons drink coffee and engage in conversation, but they also listened to music, watched performers, played chess, and kept current on the news. Coffee houses quickly became such an important center for the exchange of information that they were often referred to as “Schools of the Wise.” With thousands of pilgrims visiting the holy city of Mecca each year from all over the world, knowledge of this “wine of Araby” began to spread.

European travelers to the Near East brought back stories of an unusual dark black beverage. By the 17th century, coffee had made its way to Europe and was becoming popular across the continent. Some people reacted to this new beverage with suspicion or fear, calling it the “bitter invention of Satan.” The local clergy condemned coffee when it came to Venice in 1615. The controversy was so great that Pope Clement VIII was asked to intervene. He decided to taste the beverage for himself before making a decision, and found the drink so satisfying that he gave it papal approval. Despite such controversy, coffee houses were quickly becoming centers of social activity and communication in the major cities of England, Austria, France, Germany, and Holland. In England “penny universities” sprang up, so called because for the price of a penny one could purchase a cup of coffee and engage in stimulating conversation. Coffee began to replace the common breakfast drink beverages of the time—beer and wine. Those who drank coffee instead of alcohol

began the day alert and energized, and not surprisingly, the quality of their work was greatly improved. (We like to think of this as a precursor to the modern office coffee service.) By the mid-17th century, there were over 300 coffee houses in London, many of which attracted like-minded patrons, including merchants, shippers, brokers, and artists. Many businesses grew out of these specialized coffee houses. Lloyd's of London, for example, came into existence at the Edward Lloyd's Coffee House.

As demand for the beverage continued to spread, there was fierce competition to cultivate coffee outside of Arabia. The Dutch finally got seedlings in the latter half of the 17th century. Their first attempts to plant them in India failed, but they were successful with their efforts in Batavia, on the island of Java in what is now Indonesia. The plants thrived and soon the Dutch had a productive and growing trade in coffee. They then expanded the cultivation of coffee trees to the islands of Sumatra and Celebes.

Stigma Manipulation Reading Task Checks

Measure	Condition	Mean	Std. Dev.	t-statistic
Time spent reading article. (in seconds)	Stigma	115.60	73.15	-0.26
	Control	117.30	76.76	
This article was easy to read. (7-point scale)	Stigma	2.37	1.62	-0.87
	Control	2.49	1.66	
The article was interesting. (7-point scale)	Stigma	2.58	1.52	0.57
	Control	2.50	1.73	
This article was well-written. (7-point scale; reverse)	Stigma	2.48	1.47	0.93
	Control	2.36	1.49	

Stigma Manipulation Checks

In your opinion, please indicate how much stigma is associated in our society with the following health issue	Message Type	Mean	Std. Dev.	t-statistic	p-value
Cervical Cancer	Low Stigma	6.84	1.96	2.56	.011
	High Stigma	7.35	2.01		
Influenza	Low Stigma	2.21	1.45	0.71	.480
	High Stigma	2.09	1.89		
Common Cold	Low Stigma	2.50	1.78	1.25	.21
	High Stigma	2.74	2.05		

STUDY 1B: STIMULI – HEALTH MESSAGE
(CONSTANT ACROSS ALL CONDITIONS)

Cervical Cancer Screening (PDQ®)

PATIENT INFORMATION PAMPHLET PAGE 1

Cervical cancer begins when healthy cells acquire a genetic change (mutation) that causes them to turn into abnormal cells.

Healthy cells grow and multiply at a set rate, eventually dying at a set time. Cancer cells grow and multiply out of control, and they don't die. The accumulating abnormal cells form a mass (tumor). Cancer cells invade nearby tissues and can break off from a tumor to spread (metastasize) elsewhere in the body.

Some screening tests are used because they have been shown to be helpful both in finding cancers early and in decreasing the chance of dying from these cancers. Other tests are used because they have been shown to find cancer in some people.

Studies show that screening test for cervical cancer helps significantly decrease the number of deaths from the disease. Regular screening of women between the ages of 21 and 65 years decreases their chance of dying from cervical cancer. Many doctors recommend the test be done every year.

PATIENT INFORMATION PAMPHLET PAGE 2

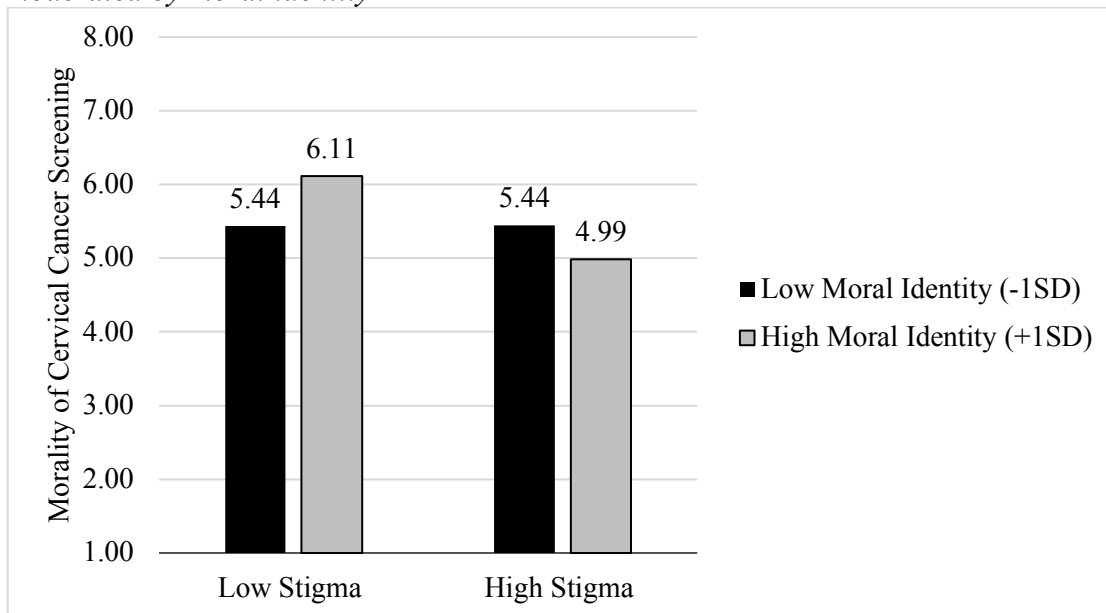
CERVICAL CANCER RISK FACTORS

If you have any of the following, you are at risk for cervical cancer:

- **A weak immune system.** You may be more likely to develop cervical cancer if your immune system is weakened by another health condition.
- **Age.** Women between the ages of 18 and 65 are significantly more likely to develop cervical cancer.
- **Weight.** Women who are overweight are at increased risk for cervical cancer.
- **Living in North America.** Research has shown that women living in North America are at a greater risk of developing cervical cancer.

STUDY 1B RESULTS: STIGMA REDUCES SCREENING UNDER HIGH MORAL IDENTITY

Moral associations of cervical cancer screening under high versus low stigma condition, moderated by moral identity



APPENDIX E

STUDY 2 MEASURES

STUDY 2: PREMEASURE

This step was framed as an ostensible “Student Health Survey” at the beginning of each laboratory session. As part of the survey, participants were presented with a battery of questions that measured their lifestyle and health behaviors (e.g., “In the last one year, how often have you visited a dentist?”). Among these questions, we embedded three smoking behavior questions that were of interest for this study (adapted from the Global Adult Tobacco Survey, Centers for Disease Control and Prevention 2011):

1. “How frequently do you smoke currently?” (1 = never to 7 = Very frequently)
2. “Do you smoke tobacco or any other substances?” (1= never, 2 = more than a year ago, 3 = once a year, 4 = less than monthly, 5 = monthly, 6 = weekly, 7 = daily)
3. “Have you smoked in the past?” 1 = Yes (if yes, what substance) and 0 = No.

Items 1 and 2 were combined to form the smoking frequency covariate ($r = .78$) and item 3 was used as an ever smoked binary covariate. Participants’ unique ID numbers were used to match the smoking data collected here with the main study data. After answering this survey, participants were shown other unrelated studies before being directed to the main experiment.

STUDY 2: MORAL IDENTITY PRIMING PROCEDURE

“Story-Writing Task”

(adapted from Aquino et al. 2007)

Listed below are nine words in alphabetical order. Take a few moments to think about each of these words. In the box below, write a brief story about yourself (one or two paragraphs) that uses each of these words at least once. It may help if you visualize each word as it is relevant to your life.

Moral Identity prime condition:

Caring
Compassionate
Fair
Friendly
Generous
Hardworking
Helpful
Honest
Kind

Neutral prime condition:

Carefree
Compatible
Favorable
Generally
Happy
Harmless
Open-Minded
Polite

APPENDIX F

STUDY 2 MANIPULATIONS AND STIMULI

STUDY 2: STIGMA MANIPULATION AND CHECKS

Stigma Condition Reading Passage:

The Stigmatization and Negative Social Attitudes toward Smoking
Hillary Graham

In high-income countries such USA, Canada, and UK, the negative perceptions of smoking and its social unacceptability have been increasing.

By the mid-1990s, over 50% of non-smokers were reporting that they minded if a smoker smoked near them, a proportion that now exceeds 80%. While health concerns are cited, the unpleasant smell of cigarette smoking, including the smell it leaves on clothes, is the major reason given for disliking physical proximity to smokers; an increasing proportion of non-smokers report that being near a smoker makes them feel sick.

For example, a study of cultural representations of smokers in various media, including news reports, online polls, and dating websites, found them characterized as malodorous, selfish, unattractive, and excessive users of public services. Qualitative studies have confirmed these findings. Non-smokers describe smoking as ‘a disgusting habit’ and smokers as ‘outcasts’ and ‘lepers’ marked by their smell (‘reek’, ‘stink’, ‘stale’) and appearance (‘dirty’, ‘brown teeth’, ‘grey, dry, wrinkly skin’).

Smokers are acutely aware of these negative depictions and report a pervasive social disapproval that they feel reflects ‘an unfair stigmatizing judgment of them as a person’.

Control Condition Reading Passage:

History of Coffee and Its Spread to Europe
Hillary Graham

Coffee cultivation and trade began on the Arabian Peninsula. By the 15th century, coffee was being grown in the Yemeni district of Arabia, and by the 16th century it was known in Persia, Egypt, Syria, and Turkey. Coffee was not only enjoyed in homes, but also in the many public coffee houses, which began to appear in cities across the Near East.

The popularity of the coffee houses was unequaled, and people frequented them for all kinds of social activity. Not only did the patrons drink coffee and engage in conversation, they also listened to music, watched performers, played chess, and kept current on the news. Coffee houses quickly became such an important center for the exchange of information that they were often referred to as “Schools of the Wise.”

European travelers brought back stories of an unusual dark black beverage. By the 17th century, coffee had made its way to Europe and was becoming popular across the continent. As demand for the beverage continued to spread, there was fierce competition to cultivate coffee outside of Arabia. The Dutch started coffee production in the late 17th century.

Stigma Manipulation Reading-Task Checks

	Control Condition	Stigma Condition	t(364)
Time spent reading the stigma/control manipulation (in seconds)	40.43 (16.29)	39.49 (17.81)	0.54
"This article was easy to read." (1 =strongly agree to 7= strongly disagree)	3.06 (1.64)	2.98 (1.62)	-0.50
"This article was difficult to read." (1=strongly agree to 7= strongly disagree)	4.88 (1.78)	5.08 (1.62)	1.19

*Figures in cells are means with standard deviations in parentheses. None of the t-statistics were $p < .05$.

STUDY 2: STIMULUS – HEALTH MESSAGE

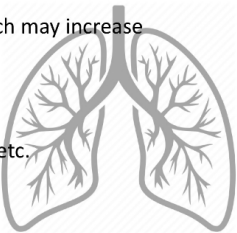
Lung Cancer Health Message - all participants were shown this message

Have you screened for Lung Cancer?

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called *Lung cancer*. Lung cancer begins in the lungs and may spread to other organs in the body.

Research has found several risk factors, any of which may increase your chances of getting lung cancer:

- Smoking
- Secondhand Smoke
- Exposure to substances such as radon, asbestos, etc.
- Family History of Lung Cancer
- Radiation therapy to chest



STUDY 2: SCREENSHOT OF ONLINE LUNG CANCER SCREENING TOOL

Screenshot of online lung cancer screening tool embedded in survey

https://washington.cof1.qualtrics.com/jv/p/preview/SV_0k6e1WNR50s365/BL_ZHG5Ahea3RWed

Return to Blank

Fill in the information below to find out whether you are in the group where screening is recommended. The calculator will also indicate how much you stand to benefit from getting screened. You can spend as much as or little time you would like to on this page. Scroll down and press the red 'next' button when you would like to go to the next page.

NIH NATIONAL CANCER INSTITUTE
Division of Cancer Epidemiology & Genetics

Risk-based NLSI Outcomes Tool (RNOI)

Home Your Results About the NLSI Further Information

Using some basic information you provide about yourself and your smoking behavior, this online tool, the Risk-based NLSI Outcomes tool (RNOI), uses data from the National Lung Cancer Screening Trial (NLSI) to give information about:

- whether someone like you would be recommended to get lung cancer screening by the US Preventive Services Task Force (a group of experts who make recommendations about prevention)
- your chance of getting a lung cancer diagnosis
- your chance of dying from lung cancer
- your risk of a false alarm (a person has a positive screening test but does not actually have lung cancer)

The best way to lower your risk of lung cancer, and all smoking-related diseases, is to quit smoking. Learn more by visiting smokefree.gov and the CDC page on [quitting smoking](#) or call 1-800-QUIT-Now.

Risk Tool

CT lung screening is **not recommended** if (1) you are younger than 55 or older than 80, (2) you have never smoked, (3) you are a current smoker, but you have smoked less than 20 pack-years (such as those who smoked 1 pack per day for 30 years or 2 packs per day for 15 years), or (3) you are a former smoker who quit more than 15 years ago.

Age

Gender

Type of Smoker?

Lung disease?

Parents' or siblings' history of lung cancer (must be blood relative)?

Height and Weight, or BMI?

Education?

Race or Ethnic Group

APPENDIX G

STUDY 2 RESULTS

STUDY 2: NATURE OF DEFENSIVE PROCESSING

To understand the phenomenon reported here in depth, it is useful to conceptualize the precise nature of the defensive processing reported in the text. Defensive processing strategies documented in previous research could be characterized as strategies that distance the self from the source of threat (e.g., lowered relevance, lower risk estimates for oneself, etc.) or as strategies that undermine or minimize the source of threat (e.g., message derogation, evidence disbelief, etc.). Given that the source of threat in the context of the current research is stigma, defensive processing of stigma-laden messages is likely to manifest akin to other documented responses to social stigma. Albrecht, Walker, and Levy (1982) show that stigma against social groups (such as alcoholics, disabled people) manifests as social distancing. Participants estimated greater social distance between themselves and patients who suffered from stigmatized (vs. not stigmatized) medical conditions. In a similar vein, Swim, Ferguson, and Hyers (1999) demonstrate that in the presence of members of a stigmatized group (e.g., lesbians vs. heterosexuals), individuals distanced themselves from stigmatized group members expressing dissimilar beliefs. Along the same lines, we anticipate that defensive processing of a stigma-laden health message, on the part of high moral identity individuals, is likely to manifest in distancing themselves from the health behavior through mechanisms such as lowered perceived relevance of self to the advocated health behavior, lowered estimates of the self's susceptibility to the health issue, and quicker decisions to not follow the advocated action. In addition to the defensive processing measures reported in the main text, we collected other measures to test that defensiveness in the current context indeed manifests as distancing.

Message Derogation as Defensive Processing: Message Credibility. After answering risk-estimate measures in the study, participants were taken to the next page, which measured their defensiveness as message derogation. They were asked about their level of agreement with the following: “The message about lung cancer is not credible,” “The ad about lung cancer was

not believable,” and “The ad about lung cancer was inaccurate” on a scale of 1 = strongly disagree to 10 = strongly agree. These three items were combined ($\alpha = .96$) to form an index.

Results. We ran a third ANCOVA with participants’ responses derogating the message as the dependent variable, the moral identity priming and stigma salience conditions as independent variables, and smoker status (from the premeasure study) as covariates. Results showed a non-significant model ($F(5, 359) = 1.78; p = .13$), with a non-significant interaction of stigma salience and moral identity ($p = .56$), and with non-significant main effects of identity ($p = .76$) and stigma ($p = .70$). We did not probe the interaction for contrasts since it was not found to be significant. Interestingly, we found a significant main effect of the smoker status covariate ($p = .01$) such that smokers were more likely to derogate the message, consistent with health literature findings on health risk processing. The effects of distancing-type defensive strategies (e.g., perceived relevance, risk estimates, time taken to indicate interest) and null effect on the message-derogation-type strategies is consistent with our prediction. While message derogation will allow for undermining of the message, it does not necessarily distance the self.

STUDY 2: MANIPULATION CHECKS FOR MORAL IDENTITY AND STIGMA

Moral Identity Manipulation Checks

(adapted from Aquino et al. 2007)

Item	Condition	Mean	Std. Deviation	t-statistic	p-value
The story-writing task reflects me as a student.	Moral Identity	2.63	2.101	-0.78	0.44
	Neutral Identity	2.80	2.208		
The story-writing task reflects me as a member of an organization.	Moral Identity	3.15	2.422	0.25	0.80
	Neutral Identity	3.09	2.390		
The story-writing task reflects me as safety conscious.	Moral Identity	1.79	1.486	0.49	0.63
	Neutral Identity	1.72	1.488		
The story-writing task reflects me as a moral person.	Moral Identity	4.32	2.751	2.32	0.02
	Neutral Identity	3.64	2.963		

Stigma Manipulation Checks

Following two items were measured on a 10-point scale. Reported below are their means.

	Control Condition			Stigma Salient			t-statistic	p-value
	Neutral Identity	Moral Identity	Avg. Control	Neutral Identity	Moral Identity	Avg. Stigma		
Lung cancer is stigmatized	3.40	3.92	4.00	3.98	4.65	4.32	2.58	0.01
There is stigma associated with lung cancer	3.50	3.79	3.65	3.70	4.67	4.19	2.11	0.04

STUDY 2: MODERATED MEDIATION ANALYSES

Risk Estimates Mediate RNOT Use Intentions

We ran moderated mediation analysis to test whether defensive processing (measured as risk estimates) drove the interaction of moral identity and stigma on vaccination intentions. We used stigma salience as the independent variable, moral identity as a moderator, risk estimates as the mediator, smoker status as covariate, and RNOT tool use intentions as outcomes (Hayes 2013; PROCESS model 8, 5,000 bootstraps).

Results revealed an overall significant model of moderated mediation ($b = -.41$, 95% CI, $-.855$ to $-.07$). The interaction of stigma salience and moral identity significantly predicted risk estimates ($b = -1.37$, $p = .0009$) such that moral (vs. neutral) identity participants estimated that they were at significantly lower risk of lung cancer when the stigma of smoking was made salient. Risk estimates subsequently predicted screening tool use intentions ($b = .43$, $p < .001$) such that lowered estimates reduced screening intentions. This indirect effect was significant for participants primed with moral identity ($b = -.30$, 95% CI, $-.61$ to $-.07$) but not for those primed with neutral identity ($b = -.09$, 95% CI, $-.15$ to $.38$). Interestingly, the mediation was significant only among the participants who were in the high stigma condition ($b = -.59$, 95% CI, -1.15 to $-.03$) and not for those in the low stigma condition ($b = .32$, 95% CI, $-.23$ to $.87$). This pattern of results indicates that when the stigma of a risk factor is made salient, participants primed with moral—but not neutral—identity engaged in defensive processing of the message by reduced risk estimates, leading to reduced health intentions.

Decision Time Mediates RNOT Use Intentions

We ran moderated mediation analysis to test whether defensive processing (measured as time spent on deciding to use the RNOT tool) drove the interaction of moral identity and stigma on vaccination intentions. We used stigma salience as the independent variable, moral identity as a moderator, decision time as the mediator, smoker status as covariate, and RNOT tool use intentions as outcomes (Hayes 2013; PROCESS model 8, 5,000 bootstraps).

Results revealed an overall significant model of moderated mediation ($b = -.14$, 95% CI, $-.34$ to $-.001$). The interaction of stigma salience and identity prime significantly predicted time taken to decide ($b = -.46$, $p = .037$) such that moral (vs. neutral) identity participants were significantly quicker in indicating interest in using RNOT when the stigma of smoking was made salient. Decision times subsequently predicted screening tool use intentions ($b = .31$, $p = .02$) such that quicker decisions meant less likely to be interested in using RNOT. This indirect effect was significant for participants primed with moral identity ($b = -.95$, 95% CI, -1.69 to $-.19$) but not for those primed with neutral identity ($b = -.10$, 95% CI, $-.85$ to $.64$). Interestingly, the mediation was significant only among the participants who were in the high stigma condition ($b = -.66$, 95% CI, -1.39 to $-.09$), and not for those in the low stigma condition ($b = -.18$, 95% CI, $-.94$ to $.57$). This pattern of results indicates that when the stigma of a risk factor is made salient, participants primed with moral—but not neutral—identity engaged in defensive processing of the message, observed as faster decisions consistent with their self-view, leading to reduced health intentions.

APPENDIX H

STUDY 3 MANIPULATIONS AND STIMULI

STUDY 3: STIMULI – HEALTH MESSAGES

Stimuli – HSV Vaccinations

Low stigma condition

Get Vaccinated for HSV!

Do these describe you?

- ✓ Aged 16 to 45 years old
- ✓ Shares food and beverages with others
- ✓ Does not use hand sanitizers



If yes, you should protect yourself from Human Soro Virus.

Many cases of HSV infection will cause no physical symptoms; however, in some people, infections will become clinical and may cause benign papillomas, or in some severe cases, lead to cancer.

High stigma condition

Get Vaccinated for HSV!

Do these describe you?

- ✓ Aged 16 to 45 years old
- ✓ Shares food and beverages with others
- ✓ Has multiple sexual partners



If yes, you should protect yourself from Human Soro Virus.

Many cases of HSV infection will cause no physical symptoms; however, in some people, infections will become clinical and may cause benign papillomas, or in some severe cases, lead to cancer.

APPENDIX I

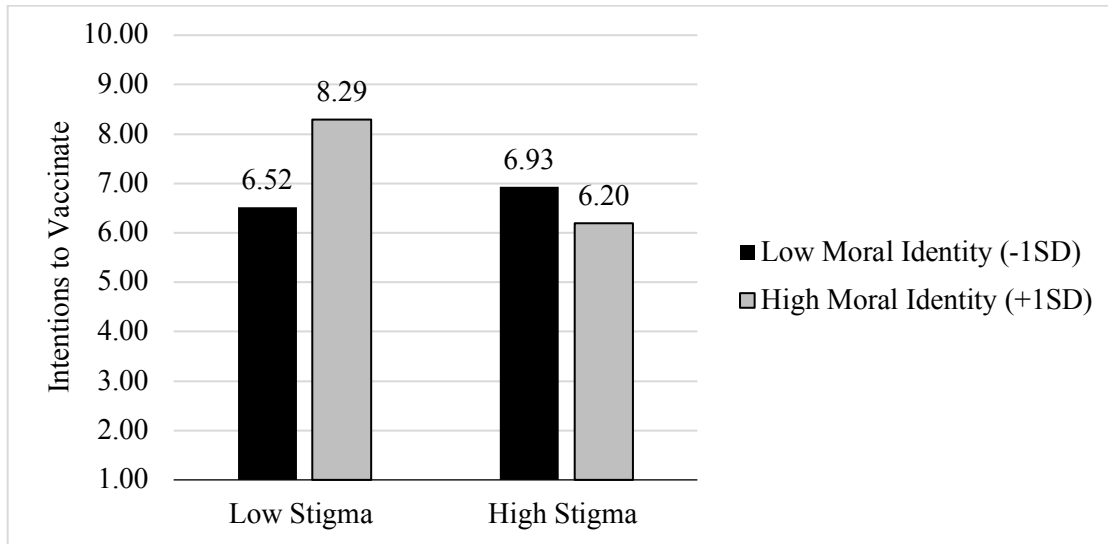
STUDY 3 RESULTS

STUDY 3: STIGMA PRETEST

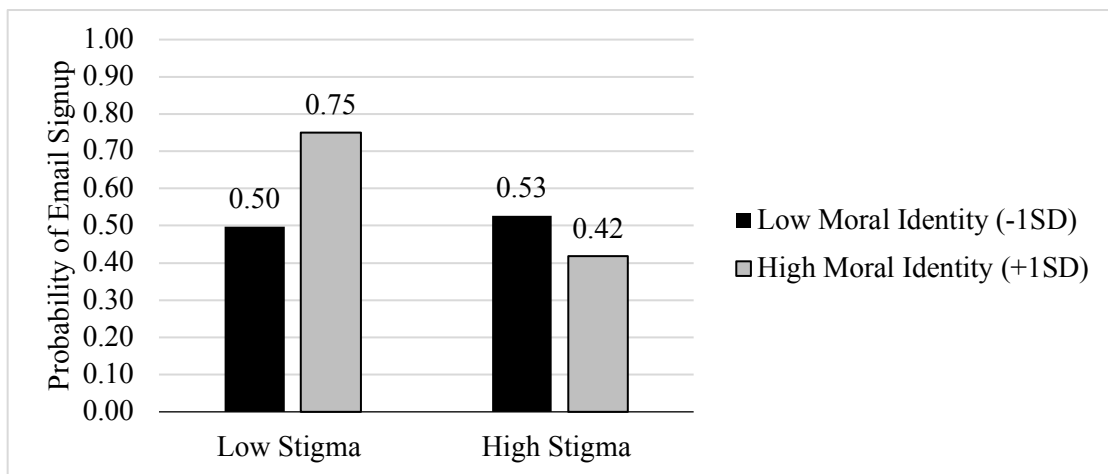
Participants in this pretest ($n = 50$) were asked to rate a list of five behaviors on a 10-point scale to determine how socially stigmatizing they were thought to be (1 = not socially stigmatized, 10 = socially stigmatized). Having multiple sexual partners was perceived as being more stigmatizing ($M = 6.89$, $SD = 2.26$) than infrequent use of hand sanitizers ($M = 5.00$, $SD = 2.20$; $t(48) = 2.30$, $p = .03$).

STUDY 3 RESULTS: STIGMA LOWERS INTENTIONS AND BEHAVIOR UNDER HIGH MORAL IDENTITY

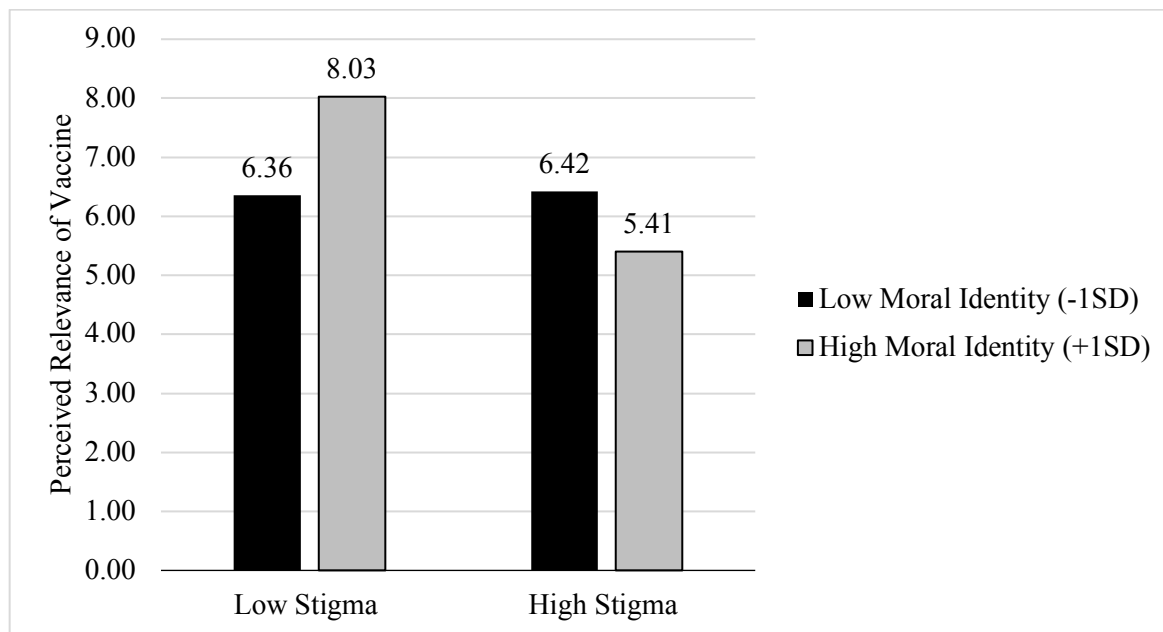
Vaccination intentions for low vs. high stigma message, moderated by moral identity.



Email sign-up probability for low vs. high stigma message, moderated by moral identity.



Perceived relevance of vaccine to self after low vs. high stigma message, moderated by moral identity.



Perceived Relevance Mediates Vaccination Intentions

We ran moderated mediation analysis to test whether defensive processing (measured as perceived relevance) drove the interaction of moral identity and stigma on vaccination intentions. We used stigma as the independent variable, moral identity as a moderator, perceived relevance as the mediator, and vaccination intentions as the dependent variable (Hayes 2013; Process model 8, 5,000 bootstraps).

Results revealed an overall significant model of moderated mediation ($b = -1.05$, 95% CI, -1.66 to $-.44$). The interaction of stigma salience and moral identity significantly predicted perceived relevance ($b = -1.37$, $p = .0009$) such that high (vs. low) moral identity participants perceived the vaccination to be significantly less relevant to them under the high (vs. low) stigma condition (see Figure 1c). Perceived relevance subsequently predicted vaccination intentions ($b = .77$, $p < .001$). This indirect effect was significant for participants with high (+1SD) moral identity ($b = 2.02$, 95% CI, -2.95 to -1.14) but not for those with low (-1SD) moral identity ($b = .04$, 95% CI, $-.78$ to $.83$). This pattern of results indicates that high—but not low—moral identity individuals reduce their perceived relevance of the vaccination after seeing the high stigma message, leading to reduced vaccination intentions.

APPENDIX J

STUDY 4 MANIPULATIONS AND STIMULI

STUDY 4: SELF-AFFIRMATION MANIPULATION

“Life Events Study”

(from Sherman, Nelson, and Steele 2000)

Positive Self-Affirmation Condition

This study is about the ease and ability of recalling positive life events. Below you will see a list of common characteristics. Please rank the characteristics according to their importance to you. Rank the items by clicking on them and moving them to the appropriate position: (study software enables ranking)

1. Aesthetic Appreciation
2. Spontaneity
3. Athletics
4. Music Ability or Appreciation
5. Physical Attractiveness
6. Creativity

Please select your top-rated characteristic from the list above. In a few sentences please describe why this characteristic is important to you: (space below)

Now, recall and write about two personal experiences in which your top-rated choice was important to you and when it has made you feel good about yourself: (space provided below)

Neutral Self-Affirmation Condition

This study is about the ease and ability of recalling positive life events. Below you will see a list of common characteristics. Please rank the characteristics according to their importance to you. Rank the items by clicking on them and moving them to the appropriate position: (study software enables ranking)

1. Aesthetic Appreciation
2. Spontaneity
3. Athletics
4. Music Ability or Appreciation
5. Physical Attractiveness
6. Creativity

Please select your lowest-rated characteristic from the list above. In a few sentences please describe why this characteristic is not important to you: (space below)

Now, think of and write about why this characteristic, while not important to you, might be important to the average person: (space provided below)

STUDY 4: STIGMA-MANIPULATION STIMULI

1) Cancer Screening Message – High Stigma Salience

Cervical Cancer Screening (PDQ®)
Patient Information Pamphlet

Cervical cancer begins when healthy cells acquire a genetic change (mutation) that causes them to turn into abnormal cells. The accumulating abnormal cells form a mass (tumor). Cancer cells invade nearby tissues and can break off from a tumor to spread elsewhere in the body.

Any one of the following can put you at risk for cervical cancer:

- **Age.** Women between the ages of 18 and 65 are significantly more likely to develop cervical cancer.
- **History of sexually transmitted infections.** Some past infections that spread by sexual acts (such as Chancroid, PID) increase the risk for cervical cancer.
- **A weak immune system.** You may be more likely to develop cervical cancer if your immune system is weakened by another health condition.

Studies show that a screening test for cervical cancer helps significantly decrease the number of deaths from the disease. Many doctors recommend the test be done every year.

2) Cancer Screening Message – Low Stigma Salience

Cervical Cancer Screening (PDQ®) Patient Information Pamphlet

Cervical cancer begins when healthy cells acquire a genetic change (mutation) that causes them to turn into abnormal cells. The accumulating abnormal cells form a mass (tumor). Cancer cells invade nearby tissues and can break off from a tumor to spread elsewhere in the body.

Any one of the following can put you at risk for cervical cancer:

- **Age.** Women between the ages of 18 and 65 are significantly more likely to develop cervical cancer.
- **History of certain infections.** Some past infections (such as Chancroid, PID) increase the risk for cervical cancer.
- **A weak immune system.** You may be more likely to develop cervical cancer if your immune system is weakened by another health condition.

Studies show that a screening test for cervical cancer helps significantly decrease the number of deaths from the disease. Many doctors recommend the test be done every year.

APPENDIX K

STUDY 4 RESULTS

STUDY 4 – PRETEST SELF-AFFIRMATION PROCEDURE *(Sherman, Nelson, and Steele 2000)*

This pretest was conducted among 146 adult (71 females; $M_{age} = 37.34$ years) Mturk participants. Participants were randomly assigned to a one-way Self-affirmation (positive vs. neutral) between subjects design. Sherman et al's procedure (see appendix J) was followed by measures of a state self-esteem (Heatherton and Polivy 1991; 5-point scale), moral identity (Aquino and Reed 2002; 7-point scale), and state measures of emotions listed below. The order of these measures was randomized.

State emotions measures read: "At this point, we would like to assess how you are feeling right now. On each of the following scales, please indicate the extent to which the stated feeling reflects the way you feel at this moment. 1 = "not at all" to 7 = "very much"". This instruction was followed by a list of nine emotions in randomized order: Happy, Stressed, Upset, Sad, calm, Tense, Excited, Replaced, Proud.

Results of mean comparison tests for each of the measured variables is presented below:

	Positive Self-Affirmation (n = 75)		Neutral Self-Affirmation (n = 71)		<i>p</i> -value <i>t</i> (145)
	Mean	SD	Mean	SD	
State Self Esteem	3.41	1.07	2.97	1.20	0.02
Moral Identity (Internalized)	5.84	1.15	5.74	0.96	0.60
Moral Identity (Symbolization)	4.23	1.57	4.16	1.39	0.79
Happy	4.94	1.70	4.22	1.86	0.01
Stressed	2.01	1.50	2.59	1.76	0.03
Upset	1.72	1.54	2.07	1.48	0.16
Sad	1.88	1.52	2.07	1.49	0.46
Calm	5.27	1.60	4.85	1.73	0.12
Tense	2.17	1.66	2.37	1.63	0.45
Excited	3.47	1.78	3.16	1.80	0.29
Relaxed	5.06	1.62	4.73	1.82	0.23
Proud	4.18	1.84	3.40	1.98	0.01

This pretest indicates that, the self-affirmation procedure significantly increased state self-esteem, state happiness, and state pride, and it significantly decreased state stress. Importantly, this procedure did not affect participants' scores on the MI trait scale.

STUDY 4: MANIPULATION CHECKS

Affirmation Manipulation Check

(measured immediately following the affirmation task; adapted from Sherman, Nelson, and Steele 2000)

“How do you feel about yourself right now?” 1= poorly to 9 = very positively

A t-test using affirmation task condition as the independent variable and the self-evaluation dependent variable was significant: $t(443) = -2.39$; $p = .02$. Participants had significantly higher self-evaluations immediately after doing the affirmation task ($M = 7.73$, $SD = 1.91$) versus the neutral task ($M = 7.29$, $SD = 2.07$).

Stigma Manipulation Checks

In your opinion, please indicate how much stigma is associated in our society with the following health issue	Message Type	Mean	Std. Dev.	t-statistic	<i>p</i> -value

Cervical Cancer	Low Stigma	6.64	1.28	6.48	< .001
	High Stigma	7.63	1.96		
Chancroid	Low Stigma	5.90	1.47	2.07	0.04
	High Stigma	6.21	1.76		
PID	Low Stigma	6.29	2.21	3.57	< .001
	High Stigma	6.91	1.48		
Common Cold	Low Stigma	2.99	1.99	0.61	0.55
	High Stigma	3.10	2.00		

Additionally, a two-way ANOVA was run using the affirmation task and stigma salience as the independent variables since both these experimental manipulations were run before the stigma manipulation check was measured. The dependent variable was participants' stigma rating of cervical cancer from the list of diseases. Results revealed a significant main effect of the stigma salience condition ($F(1, 439) = 10.44, p = .001$) such that participants rated cervical cancer to be more stigmatized after seeing the high stigma salience message ($M = 7.86, SD = 1.89$) versus the low stigma salience message ($M = 7.23, SD = 2.19$). The main effect of the affirmation task ($F(1, 439) = .01, p > .50$) and the interaction effect of the two variables were not significant ($F(1, 439) = 1.05, p > .30$).

APPENDIX L

STUDY 5 MANIPULATIONS AND STIMULI

STUDY 5: STIMULI – LUNG CANCER STIGMA VERSUS INTERVENTION

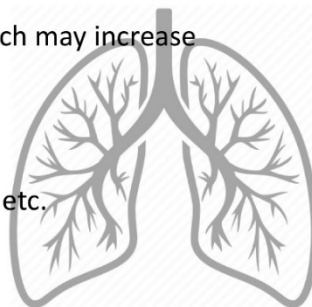
Stigma Message

Time to screen for Lung Cancer

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called *Lung cancer*. Lung cancer begins in the lungs and may spread to other organs in the body.

Research has found several risk factors, any of which may increase your chances of getting lung cancer:

- History of Smoking
- Secondhand Smoke
- Exposure to substances such as radon, asbestos, etc.
- Radiation therapy to chest



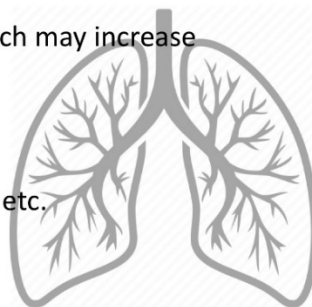
Innocuous-salient Message (Intervention Condition)

Have you been exposed to pollutants? Time to screen for Lung Cancer

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called *Lung cancer*. Lung cancer begins in the lungs and may spread to other organs in the body.

Research has found several risk factors, any of which may increase your chances of getting lung cancer:

- History of Smoking
- Secondhand Smoke
- Exposure to substances such as radon, asbestos, etc.
- Radiation therapy to chest



APPENDIX M

STUDY 5 RESULTS

STUDY 5: MANIPULATION CHECKS

Please indicate your agreement with the following three statements.

- People with lung cancer are stigmatized

- There is stigma about screening for lung cancer.
- Lung cancer screening is associated with social stigma.

Each statement was anchored at 1 = Strongly disagree to 10 = Strongly agree. Statements were presented in random order. All three statements were combined to form an index of perceived stigma ($\alpha = .95$).

A two-way ANOVA procedure was run with the average stigma item as the dependent variable and the priming condition and the message as the independent variables. Results revealed a main effect of message type ($F(1,399) = 5.13, p = .024$), a null effect of priming condition ($F(1,399) = .41, p > .50$), and a null effect of the interaction term ($F(1,399) = 1.12, p > .25$). These statistics indicate that the intervention (vs. high stigma) message successfully reduced the perceptions of stigma surrounding the behavior of screening for lung cancer. Following are the means and standard deviations.

Measures	Stigma Message		Intervention Message	
	Neutral	Moral	Neutral	Moral
	Identity	Identity	Identity	Identity
Stigma manipulation check (Means (SD); 10-point scale)	5.28 (2.64) ^a	5.39 (2.59) ^a	4.98 (2.61) ^b	4.54 (2.51) ^b

APPENDIX N

STUDY 5B: REPLICATION OF STUDY 5 WITH MATCHING MESSAGE LAYOUT

This was a two-way 2 (Message Type: stigma vs. intervention) \times 2 (Identity: moral vs. neutral) between-subjects design. The purpose of this study was to replicate Study 5 (reported in the main manuscript) which a slight change in the text of the stigma condition message to match the layout of the message in the intervention condition. In Study 5, the intervention message has

an additional headline, but the stigma condition does not. We ran this study to rule out the concern that the effect in study 5 was driven by the presence (vs. absence) of a headline.

Methods and Procedure

The study was conducted in two phases three days apart like Study 5. At time 1, 500 participants were recruited as an ostensible “Consumer Health Survey,” we measured participants’ smoking behavior using the same measures as Study 2. Two days later, we invited this pool of participants for the main study (time 2). Three hundred ninety-nine participants ($M_{\text{age}} = 35.62$ years, 232 females) returned to participate in time 2. All analyses were run on this final sample.

All procedures in this study were the same as study 5 up until the health message. After the moral priming step, participants were taken to a page containing instructions that a “Public Health Board” had developed an advertisement and required their feedback. They were randomly assigned to see either “Do you have a history of smoking? Time to screen for lung cancer” (stigma message) or “Have you been exposed to pollutants? Time to screen for lung cancer” (intervention message; see review notes appendix C).

After seeing the message, they were told that as compliments of participating in this study, they could use the RNOT tool on the study webpage for free. They were then asked “How interested are you in using the RNOT tool now?” and “How interested would you be in using this tool? You will not have to leave the study window to access this tool.” Both items were anchored on 1 = “not interested at all” to 10 = “highly interested”. These items were highly correlated ($r = .94$) and were indexed to form a measure of intentions.

Results and Discussion

We subjected the dependent variable to an ANCOVA procedure with the identity and message-type conditions as independent variables and participants’ smoker status as covariate. Results showed a significant model $F(5, 394) = 2.71, p = .02$ with a significant effect of message type ($F(1,394) = 6.52; p = .011$), and a significant interaction of message type and moral prime ($F(1,394) = 8.53; p = .004$). Smoker status frequency had a marginal effect ($F(1,394) = 3.53; p = .061$). No other factors were significant. Upon probing the interaction, we found that among those primed with a moral identity participants’ intention of using RNOT tool was significantly higher after seeing the intervention message ($M_{\text{mor-stigma}} = 6.81, SD_{\text{mor-stigma}} = 3.17; M_{\text{mor-inter}} = 8.12, SD_{\text{mor-inter}} = 2.56; t(189) = 3.13, p = .002$). Among those primed with neutral identity, the intentions did not vary by message type ($M_{\text{neu-stigma}} = 7.42, SD_{\text{neu-stigma}} = 2.92; M_{\text{neu-inter}} = 7.21, SD_{\text{neu-inter}} = 3.07; t(206) = .50, p > .61$). The pattern and significance of these results were the same without the covariate.

STUDY 5B: STIMULI – LUNG CANCER STIGMA VERSUS INTERVENTION

Stigma Message

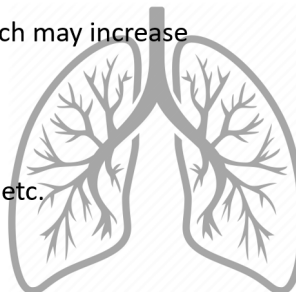
Do you have a history of smoking?

Time to screen for Lung Cancer

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called *Lung cancer*. Lung cancer begins in the lungs and may spread to other organs in the body.

Research has found several risk factors, any of which may increase your chances of getting lung cancer:

- History of Smoking
- Secondhand Smoke
- Exposure to substances such as radon, asbestos, etc.
- Radiation therapy to chest



Innocuous-salient Message (Intervention Condition)

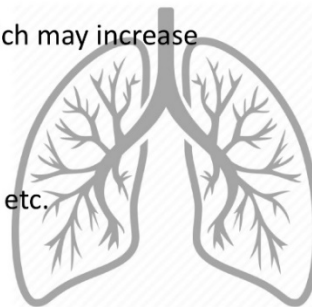
Have you been exposed to pollutants?

Time to screen for Lung Cancer

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called *Lung cancer*. Lung cancer begins in the lungs and may spread to other organs in the body.

Research has found several risk factors, any of which may increase your chances of getting lung cancer:

- History of Smoking
- Secondhand Smoke
- Exposure to substances such as radon, asbestos, etc.
- Radiation therapy to chest



APPENDIX O

PILOT STUDY 1: DESCRIPTIVE STATISTICS AND MEAN TESTING RESULTS OF DEPENDENT VARIABLES

Variable (7-point scale; 1 = Strongly disagree to 7 = Strongly agree)	Mean	Std. Dev
Individuals with (mental) health issues face social stigma.	5.36	1.58
Individuals with (mental) health issue are stigmatized.	5.19	1.59
Individuals with (mental) health issues are perceived to be different than normal.	5.52	1.51
Individuals with (mental) health issues are perceived to be violent.	4.15	1.84

Variables	"Mental Health" Condition (n= 74)		"Health" Condition (n = 75)		t (147)	p-value
	Mean	SD	Mean	SD		
Individuals with (mental) health issues face social stigma.	5.77	1.47	4.95	1.58	3.29	0.007
Individuals with (mental) health issue are stigmatized.	5.54	1.47	4.84	1.63	2.75	0.007
Individuals with (mental) health issues are perceived to be different than normal.	5.93	1.30	5.12	1.60	3.40	0.001
Individuals with (mental) health issues are perceived to be violent.	5.01	1.46	3.29	1.78	6.44	< .001

APPENDIX P

PILOT STUDY 2: STIMULI

No Stigma Message

Population Health Center

Look out for mental health symptoms

Daily Life & Depression. With the busy and demanding life of an average adult, people will experience periods of depression. Major Depression however, more dramatically involves one's mood, body, thoughts and behavior. It affects the way you eat and sleep, the way you feel about yourself, and the way you think about things. Major depression is not a passing blue mood. Without treatment, symptoms can last for weeks, months or years.

Depression Symptoms - The persistent feeling of sadness or loss of interest that characterizes major depression can lead to a range of behavioral and physical symptoms. These may include changes in sleep, appetite, energy level, concentration, daily behavior, or self-esteem. Depression can also be associated with thoughts of suicide.

The mainstay of treatment is usually medication, talk therapy, or a combination of the two. Increasingly, research suggests these treatments may normalize brain changes associated with depression.

Stigma Message

Population Health Center

People with mental health symptoms are stigmatized

Mental health issues such as depression are often stigmatized. Throughout history people with mental health problems have been treated with stigma.

Daily Life & Depression. With the busy and demanding life of an average adult, people will experience periods of depression. Major Depression however, more dramatically involves one's mood, body, thoughts and behavior. It affects the way you eat and sleep, the way you feel about yourself, and the way you think about things. Major depression is not a passing blue mood. Without treatment, symptoms can last for weeks, months or years.

Depression Symptoms - The persistent feeling of sadness or loss of interest that characterizes major depression can lead to a range of behavioral and physical symptoms. These may include changes in sleep, appetite, energy level, concentration, daily behavior, or self-esteem. Depression can also be associated with thoughts of suicide.

The mainstay of treatment is usually medication, talk therapy, or a combination of the two. Increasingly, research suggests these treatments may normalize brain changes associated with depression.

Variable (7-point scale; 1 = Strongly disagree to 7 = Strongly agree)	Message	Mean	Std. Deviation	t (206)
Individuals with mental health issues are stigmatized.	Stigma	5.63	1.32	0.31
	No Stigma	5.57	1.34	
Individuals with mental health issues face social stigma.	Stigma	5.83	1.19	1.10
	No Stigma	5.63	1.32	
Individuals with mental health issues are stigmatized because others think they are violent.	Stigma	4.41	1.60	0.17
	No Stigma	4.38	1.57	
Individuals with mental health issues are stigmatized because others think they are different from the normal.	Stigma	5.90	1.17	0.16
	No Stigma	5.63	1.35	
Time spent reading the message (in seconds)	Stigma	60.93	65.57	0.96
	No Stigma	52.23	62.45	

None of the t-values are significant at $p < .05$ level. Perceptions of mental health stigma do not vary whether the message explicitly mentioned stigma or not.

APPENDIX Q

STUDY 1: MORAL PRIMING PROCEDURE

Duty-based Morality Condition:**What is Moral?**

Although people have many interpretations of what it means to be a moral person, philosophers agree on some basic principles.

Being 'moral' is to follow one's duties and adhere to basic social expectations.

The primary concern of a society is to work toward upholding law and role expectations. People can adhere to society's minimum standard of morality. Therefore, it is the duty of every person to meet these standards, and people who adhere to these standards should be held responsible for their deeds. The defining issue of morality is whether authority is respected, and law breakers are punished.

In the box provided below, please write briefly about one such memory—we are interested in how you, personally, acted morally based on the above definition of morality.”

Rights-based Morality Condition:**What is Moral?**

Although people have many interpretations of what it means to be a moral person, philosophers agree on some basic principles.

Being 'moral' is to protect individual rights and provide equal opportunity.

The primary concern of a society is to work toward upholding principles of human rights. People can recognize individual rights as the minimum standard of morality. Therefore, it is essential that every individual can exercise their rights, and people are free to pursue what they want within reason. The defining issue of morality is whether individual rights are fostered and protected.

In the box provided below, please write briefly about one such memory—we are interested in how you, personally, acted morally based on the above definition of morality.”

STUDY 1: STIMULI – MESSAGE TYPE CONDITIONS**Norm-deviating Message**

Seek Care for Mental Health Symptoms

People with depression are viewed as 'different'

Mental health issues such as depression are often stigmatized. Throughout history people with mental health problems have been treated differently and excluded.

This treatment may come from the misguided views that people with mental health problems are not 'normal' or different from others.

Daily Life & Depression. With the busy and demanding life of an average adult, people will experience periods of depression. Major Depression however, more dramatically involves one's mood, body, thoughts and behavior. It affects the way you eat and sleep, the way you feel about yourself, and the way you think about things. Major depression is not a passing blue mood. Without treatment, symptoms can last for weeks, months or years.

Depression Symptoms - The persistent feeling of sadness or loss of interest that characterizes major depression can lead to a range of behavioral and physical symptoms. These may include changes in sleep, appetite, energy level, concentration, daily behavior, or self-esteem.

Harm-causing Message

Seek Care for Mental Health Symptoms

People with depression are viewed as 'violent'

Mental health issues such as depression are often stigmatized. Throughout history people with mental health problems have been treated differently and excluded.

This treatment may come from the misguided views that people with mental health problems may be more 'violent' or likely to harm others.

Daily Life & Depression. With the busy and demanding life of an average adult, people will experience periods of depression. Major Depression however, more dramatically involves one's mood, body, thoughts and behavior. It affects the way you eat and sleep, the way you feel about yourself, and the way you think about things. Major depression is not a passing blue mood. Without treatment, symptoms can last for weeks, months or years.

Depression Symptoms - The persistent feeling of sadness or loss of interest that characterizes major depression can lead to a range of behavioral and physical symptoms. These may include changes in sleep, appetite, energy level, concentration, daily behavior, or self-esteem.

Control Message

Seek Care for Mental Health Symptoms

Depression and Mental Health

Mental health issues such as depression are often undiagnosed. People with mental health problems should look out for symptoms.

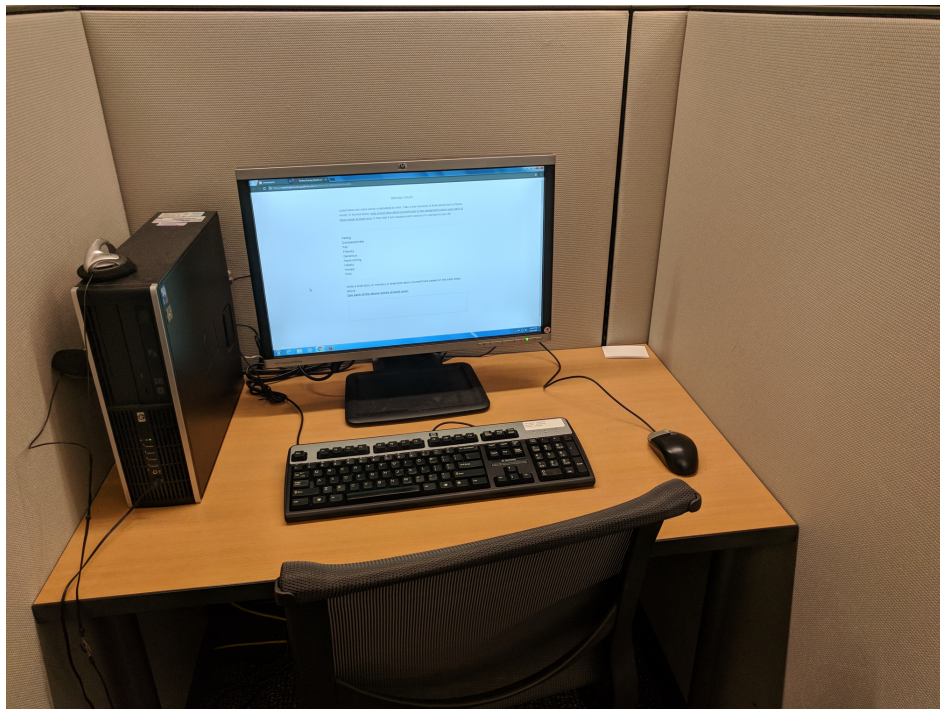
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STUDY 1: CAMPUS COUNSELLING CARD



STUDY 1: CAMPUS COUNSELLING CARD PLACEMENT AT THE LAB CUBICLES



STUDY 1: MEASURES OF MESSAGE READING EASE AND TIME SPENT ACROSS CONDITIONS

Measures	Control Message (n = 145)		Norm-deviat. Message (n = 150)		Harm-causing Message (n = 150)		F Values for the Interaction
	DM	RM	DM	RM	DM	RM	
This message was easy to read. (5-point scale)	3.41	3.66	3.60	3.62	3.52	3.34	$F(2,401) = .52,$ $p = .59$
This message was easy to understand. (5-point scale)	4.29	4.29	4.35	4.19	4.28	4.19	$F(2,401) = .35,$ $p = .70$
Did you find the message relevant to you? (5-point scale)	2.55	2.80	2.72	2.84	2.88	2.59	$F(2,401) = 1.61,$ $p = .20$
Time spent reading the message (in sec)	34.99	35.97	41.17	43.07	43.02	40.73	$F(2,401) = .52,$ $p = .59$

APPENDIX R

STUDY 2: MORAL BELIEF SYSTEM PREMEASURE DESCRIPTIVE STATISTICS

Adapted from Chiu, Dweck, Tong, and Fu (1997)

Instructions: "There are eight statements listed below. Following each statement, please indicate how unacceptable is it for you. This is only a collection of personal opinions, so there are no right or wrong answers."

Scale: 1 = Very Acceptable to 10 = Highly Unacceptable

Subscale	Items	Mean	SD
Duty-based items ($\alpha = .76$)	People do not follow the norms and rules of society.	5.44	2.49
	People do not act according to what is expected of their roles.	5.35	2.49
	People do not respect authority.	6.52	2.40
	People who break the law and order of society are not punished.	7.96	2.08
Rights-based items ($\alpha = .76$)	People do not respect one another's individuality.	7.63	2.09
	People do not respect another individual's self-esteem.	7.50	2.16
	People do not respect human rights.	8.81	1.82
	Our society does not provide equal opportunity to everybody.	7.92	2.35

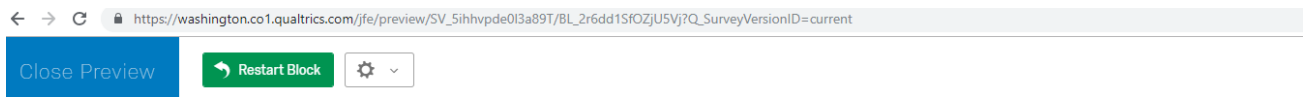
STUDY 2: MORAL BELIEF SYSTEM PREMEASURE DESCRIPTIVE STATISTICS

Message		Positive Mood	Negative Mood	Mssg Relevance	Harm Manip. Check	Norm Manip. Check
Harm-causing (n = 175)	Mean	3.93	2.28	5.13	5.69**	4.97
	SD	1.53	1.35	2.71	1.58	1.66
Control (n = 174)	Mean	3.94	2.10	4.91	3.29	4.06
	SD	1.45	1.36	2.77	1.84	1.95
Norm-deviating (n = 166)	Mean	3.89	2.23	5.37	2.81	6.11**
	SD	1.42	1.36	2.83	1.88	1.40
ANOVA Omnibus Test	F (2, 514)	0.06	0.90	1.17	131.06	63.35
	p value	0.95	0.41	0.31	< .001	< .001

Note. ** indicates that the mean was different from other means in that column at $p < .001$. Difference in between n in the study (DV) and data reported here is due to participants choosing to terminate the study after the behavioral outcome measure and get paid. Following Human Subject Division's guidelines, We allowed the participants to choose to exit the study as they wished without loss of compensation.

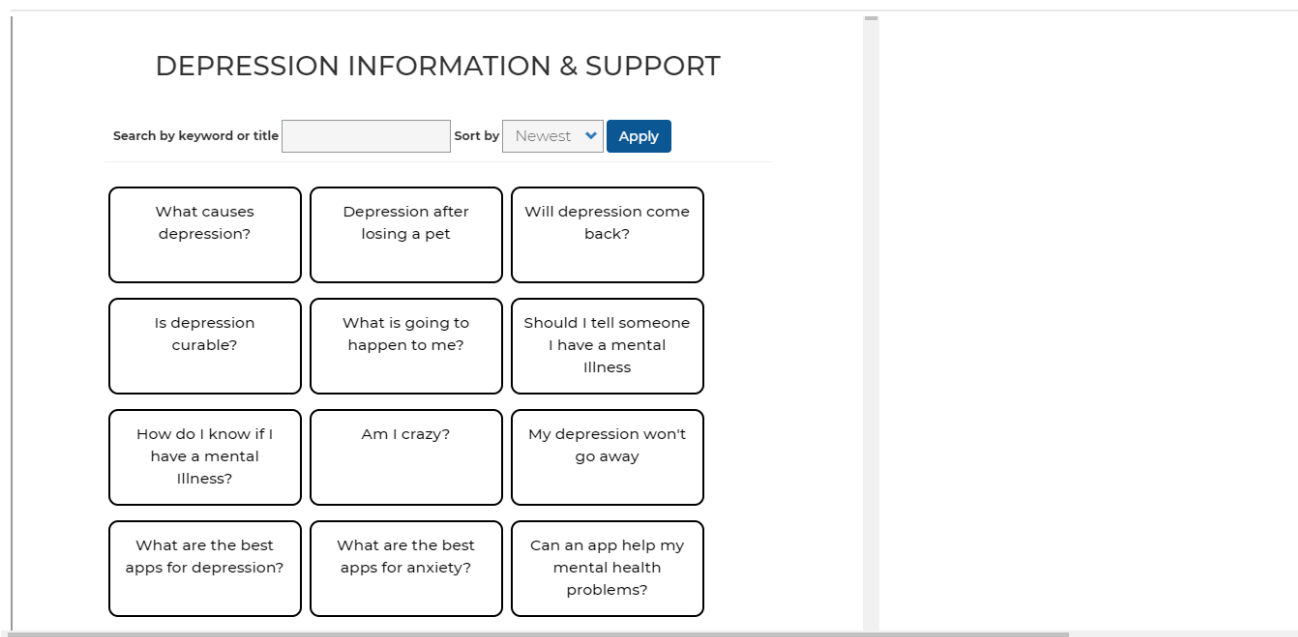
APPENDIX R

STUDY 2: SCREENSHOT OF THE EMBEDDED INTERACTIVE TOOL



As compliments of participating in this study, we are offering a Depression Information and Support page developed by Mental Health America.

This is an interactive page that gives you simple answers to questions about Depression. You can spend as little or as much time as you would like on the next page. Please note that the content of what you look up on the page is hidden from the researchers, your activity on this page is not recorded/observed.



DEPRESSION INFORMATION & SUPPORT

Search by keyword or title Sort by

What causes depression?	Depression after losing a pet	Will depression come back?
Is depression curable?	What is going to happen to me?	Should I tell someone I have a mental illness
How do I know if I have a mental illness?	Am I crazy?	My depression won't go away
What are the best apps for depression?	What are the best apps for anxiety?	Can an app help my mental health problems?

APPENDIX S

STUDY 3: MEASURES AND DESCRIPTIVE STATISTICS

Measure	Variable	Min	Max	Mean	SD
Time spent reading and noting campus counselling information	Behavioral DV	10.67	63.97	14.76	6.83
Are you interested in scheduling an appointment?	Interest DV	1	10	3.20	2.46
Would you be interested in psychiatric consultations services offered on campus?	Help-seeking Intentions DV ($\alpha = .91$)	1	10	3.95	2.77
Are you interested in mental and emotional counseling services offered on campus?		1	10	4.31	2.86
How likely are you to seek professional help for depression issues?		1	10	4.29	2.96
How likely are you to seek professional help for mental health symptoms?		1	10	4.57	3.06
What is the likelihood that you have the symptoms of depression? 0 to 100 sliding scale.	Risk to self	0	100	33.89	29.34
In the past 2 weeks, how often have you experienced little interest or pleasure in doing things?	PHQ ($\alpha = .84$)	1	5	2.28	1.03
In the past 2 weeks, how often have you been feeling down, depressed or hopeless?		1	5	2.06	.94
In the past 2 weeks, how often have you been feeling nervous, anxious, or on edge?		1	5	2.45	1.06
In the past 2 weeks, how often have you not been able to stop or control being worried?		1	5	2.27	1.18
People with mental health issues are stigmatized.	Stigma perceptions ($\alpha = .84$)	1	7	5.36	1.33
Individuals with mental health issues face social stigma.		1	7	5.41	1.30
Individuals with mental health issues are stigmatized because others think they are different.	Manipulation Check	1	7	5.11	1.429
Individuals with mental health issues are stigmatized because others think they could be harmful.	Manipulation Check	1	7	4.15	1.536

