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Behavior or Diagnosis? Effects of Irritable Patient Behavior and Diagnostic Labels on Mental Illness Stigma

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BEHAVIOR OR DIAGNOSIS? EFFECTS OF IRRITABLE PATIENT BEHAVIOR
AND DIAGNOSTIC LABELS ON MENTAL ILLNESS STIGMA

A Thesis Presented

by

NATHAN R. HUFF

Submitted to the Graduate School of the University of Massachusetts Amherst in partial
fulfillment of the requirements for the degree of

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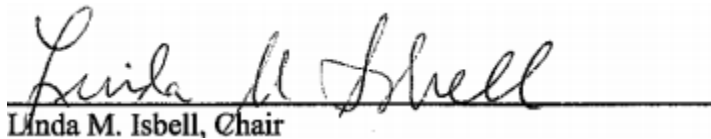
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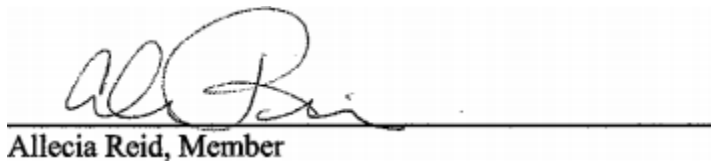
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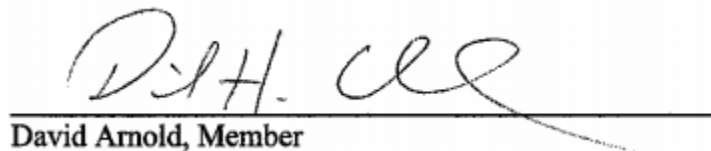
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ABSTRACT

BEHAVIOR OR DIAGNOSIS? EFFECTS OF IRRITABLE PATIENT BEHAVIOR AND DIAGNOSTIC LABELS ON MENTAL ILLNESS STIGMA

FEBRUARY 2022

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Although research demonstrates significant stigma towards individuals with mental illness, the relative importance of observed behavior and a psychiatric diagnosis in eliciting stigma remains poorly understood. Using video vignettes, three experiments ($n_s = 195, 749, \text{ and } 791$) examined the effect of irritable (vs. calm) behavior and the presence (vs. absence) of a psychiatric diagnosis (schizophrenia in Studies 1 and 2; schizophrenia and depression in Study 3) on attitudinal, emotional, and behavioral dimensions of stigma towards a fictitious emergency room patient seeking migraine treatment. In line with labeling theory, irritable behavior resulted in greater blameworthy attributions for behavior, greater fear and anger, less caring emotions, and lower perceived warmth. Both a depression and schizophrenia diagnosis elicited stigma by leading to greater endorsements of other stigmatizing attributions (e.g., substance use) as a reason for behavior. Irritable behavior and both psychiatric diagnoses resulted in patients being rated as less predictable and more dangerous, whereas irritable behavior and schizophrenia only resulted in decreased competence. Irritable behavior and psychiatric diagnosis also interacted to predict desire for social distance. When calm, a psychiatric diagnosis predicted greater distance, such that a patient with no label was

least stigmatized, one with depression was moderately stigmatized, and one with schizophrenia was most stigmatized. When irritable, the patient elicited a higher desire for distance regardless of psychiatric diagnosis. Mediation analyses show that when controlling for behavior, perceived dangerousness and fear mediate the effect of a diagnosis on desire for distance. In all, results suggest both diagnostic labels and irritable behavior result in stigma via different attitudinal and emotional mechanisms, and that individuals with psychiatric diagnoses face stigma even if behaving calmly. By enriching understanding of the relative importance of irritable behavior and a psychiatric diagnosis on multiple dimensions of mental illness stigma, this work has implications for anti-stigma interventions.

Keywords: labeling, mental illness stigma, schizophrenia, depression, person perception, emotion

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CHAPTER 1

INTRODUCTION

Substantial work has demonstrated a widespread persistence of the stigma around mental illness and its consequences for people with ill mental health (Hinshaw & Stier, 2008; Sickel et al., 2014). Mental illness stigma, defined as the societal devaluation of individuals with mental illness, includes unfavorable attitudes and perceptions, negative emotional reactions, and discriminatory behavioral responses towards individuals labelled as having a mental illness (Hinshaw, 2009). Stigma adversely impacts the health and well-being of affected groups via various mechanisms, for example by reducing help-seeking behaviors (e.g., Clement et al., 2015, Corrigan et al., 2014), harming economic well-being (Sharac, et al., 2009), and restricting employment opportunities (Seeman, 2009; Thornicroft et al., 2009). Further, research has demonstrated that stigma towards mental illness is pervasive and pernicious, appearing in diverse settings such as work, daily encounters, and healthcare (Baldwin & Marcus, 2006; Cechnicki et al., 2011; Markowitz, 1998; Parcesepe & Cabassa, 2013).

Mental illnesses are prevalent in the United States, suggesting that stigma impacts large groups of people. The National Institute of Mental Health (NIMH) estimates that in 2019, 5.2% of American adults, or 13.1 million people, had severe mental illness, defined as “a mental, behavioral, or emotional disorder resulting in serious functional impairment” (U.S. Department of Health and Human Services, 2021). When that definition is expanded to include any mental illness, NIMH reports that nearly one in five U.S. adults live with a mental illness, totaling 51.5 million people. Stigma can also exert negative influences on caregivers and family members of those with mental illness (Shi et

al., 2019), suggesting that the effects of mental illness stigma are not constrained only to those with a diagnosis. Due to the severe and continued consequences of mental illness stigma and the large population upon which it levies its effects, researchers have sought to understand when and from where stigma arises. In other words, what “signaling events” precipitate stigmatizing attitudes, emotions, and behaviors towards those with mental illness?

Psychiatric labels (e.g., *mentally ill*, *schizophrenic*, *depressed*) and symptomatic behaviors (e.g., atypical or irritable behavior, social skills deficits) are two primary signaling events that have been shown to relate to mental illness stigma (Corrigan, 2000). Yet, our understanding of their relative importance, and the potential for these signals to interact in generating stigma, remains limited. In this thesis, I will review relevant literature and concepts related to signaling events for mental illness. Through this review, I will trace the history of labelling theory and identify key limitations of this work. Next, I will report results from two studies that examine the form of stigma derived from irritable behavior and a severe psychiatric label (schizophrenia). Following a discussion of these findings, I will consider the possibility that the stigmatizing consequences of signaling events (i.e., irritable behavior and diagnostic label) may differ as a function of diagnosis (no label vs. depression vs. schizophrenia). I then report the results of a third study that tests this question, and synthesize findings across the three studies.

1.1 Signaling Events for Mental Illness

The public relies on multiple types of signaling events to categorize someone as having a mental illness. These include a label (e.g., *mentally ill*, *schizophrenic*, *depressed*), psychiatric symptoms (e.g., atypical or irritable behavior, social skills

deficits), physical appearance (e.g., hygiene), and context (e.g., observing someone exiting a treatment clinic). Prior research has shown that observing these signals can lead to stigmatizing responses including fear, discrimination, and social distance (Corrigan, 2000; Kroska et al., 2014). However, some signals may be more likely to elicit stigma than others. For example, believing an individual has schizophrenia because they told you this (i.e., labeling) may induce different levels of stigma than believing they have schizophrenia because you observed them behave in atypical or erratic ways (i.e., inferring).

Debate around the importance of labels and behaviors in signaling mental illness is longstanding, and research has resulted in conflicting findings (see Link & Phelan, 2017 for a review). Early theoretical work by Scheff (1966) argued that media and other cultural influences teach members of society from an early age to associate mental illness labels with deviant behavior. This association becomes relevant to a particular individual when society labels their behavior symptomatic of persistent mental illness, even if the behavior is transient. Once given a chronic label, society responds to the individual with uniform, negative responses, which can result in the labelled individual internalizing the role of being mentally ill. If this label becomes central to their identity, Scheff argues that they become a ‘stable’ mentally ill person and that it is difficult for them to shed such a categorization. Borrowing from classic work on deviance, Scheff labels this process “Labelling Theory,” and asserts that labeling is “the single most important cause of careers of residual deviance” (Scheff, 1966, p. 92-93).¹

¹ Following critiques from Gove (1980; 1982) and others, Scheff amends his Labelling Theory in future editions of his text, *Being Mentally Ill: A Sociological Theory*, to describe labelling as “among the most important causes” rather than the “single most important cause” (Scheff, 1999).

In response to this theoretical claim, researchers pursued empirical evidence. Using primarily vignette paradigms in which behavior and label were experimentally manipulated, some scholars suggested that behavior above and beyond a label, results in stigmatization (Farina, et al., 1973; Gove, 1982). For example, Kirk (1974) used vignettes and a large sample ($n = 864$) of community college students to examine whether (a) the label ascribed for a behavior (mentally ill, wicked, under stress), (b) the severity of the behavior (normal, moderate, severe), and (c) the individual giving the label (self, family, ‘some people’, psychiatrist) impacted social rejection. He found that more severe behavior resulted in greater rejection regardless of both the label given for the behavior and the labeler. In his study, a psychiatric label alone did not increase stigma, leading Kirk to argue that the influence of labelling in the rejection of the mentally ill may be greatly exaggerated (Kirk, 1974).²

Alternatively, other researchers found that a psychiatric label can elicit stigma even if behavior is controlled (see Link et al., 1989 for a review). For example, Socal and Holtgraves (1992) found in a community-based sample in Indiana that a target with a mental illness (generalized anxiety disorder, major depression, schizophrenia) evoked greater stigma than an identically behaving target with a comparable physical condition

² Some have argued, including Scheff himself, that Labelling Theory is not a denotative or positivist theory, but rather sensitizing in nature (Scheff, 1974). A sensitizing theory is not necessarily unambiguous, and instead aims to direct attention to new data, re-interpret old data, and challenge assumptions. Taken as such, the utility of Labelling Theory is not to denote the exact empirical influence of labels relative to behavior, but instead to “jostle the imagination” (Scheff, 1974, p. 445). As Scheff puts it, the proper question to ask then is not “whether labelling theory is literally true, but whether the relevant studies are more consistent with labelling theory than with its competitor, the medical model” (Scheff, 1974, p. 445). Petrunik (1980) examines how positivist scholars may have used a singular focus on empiricism to deconstruct a “sociological strawman”; in other words, how positivists challenged a claim that Scheff himself was not setting out to defend literally. Alternatively, one could interpret Scheff’s 1974 article as a ‘walking-back’ of theoretical claims that did not withstand closer empirical examination.

(allergic food reaction, drug reaction to anti-hypertensive medication, brain tumor, respectively). The more severe illness behaviors also led to greater stigma (i.e., schizophrenia/brain tumor was more stigmatized than depression/drug reaction which was more stigmatized than anxiety/food allergy), but this effect did not interact with label, suggesting that the two signals may relate to stigma independently.

Consistent with these findings, Modified Labeling Theory (Link et al., 1989) emerged. A tempering of Scheff's theory, Modified Labeling Theory stopped short of claiming that labelling itself can manufacture and perpetuate mental illness, but instead posited that labels and behaviors can both generate stigma towards those with mental illness. This stigma is harmful — resulting in devaluation, rejection, and discrimination — but not necessarily a causal driver of mental illness. Modified Labelling theorists also suggested that those who are labelled as having a mental illness cope with stigma (which may or may not be internalized [see Thoits, 2011]), by using secrecy, withdrawal, or attempts to educate others. Most contemporary work on labelling theory subscribes to this moderate interpretation of the power of labels and behavior in generating stigma. However, more work is needed to test the relative importance and potential interactive effects of these two signaling events, as well as overcome methodological limitations researchers have identified.

1.2 Methodological Limitations of Past Work

While recent work enriches our understanding of labeling theory using updated methods and behavioral outcomes (Kroska et al., 2014; Thibodeau & Principino, 2019), most research suffers from limitations. First, while studies importantly focus on behavioral manifestations of stigma (e.g., social distance), they often do not measure

attitudinal or emotional dimensions of the construct (Angermeyer et al., 2010). This may result in an understanding of stigma akin to a ‘black box’, as stigmatizing behaviors are identified but not attitudes or emotions that prompt or accompany discrimination (Hinshaw, 2009). Understanding these components’ relationship to behavior may aid anti-stigma efforts, as attitude changes can result in behavior change (Sheeran et al., 2016). Also, including attitudes and emotions lays the groundwork for testing process-based questions. For example, observing symptomatic behavior may elicit fear, which leads to social distancing, whereas a label in the absence of such behavior may elicit caring. Before such hypotheses can be tested, an understanding of the links between stigmatizing attitudes, emotions, and behaviors is needed.

Second, prior experimental work describes behaviors almost exclusively using written vignettes. As Kirk (1974) noted, this approach may pre-categorize or ‘label’ the behavior a participant reads about, thereby confounding label and behavior. In other words, participants who read a description of a target behaving abnormally, irritably, or disruptively are not evaluating any actual behavior of a target but are instead evaluating the label assigned to describe that behavior. To address this, video vignettes of individuals behaving in a realistic setting allow for a stronger behavior manipulation that captures both verbal and non-verbal cues (Burgoon et al., 2011). Studies have also used control conditions that omit information about a mental illness (e.g., Farina & Hagelauer, 1975), or explicitly tell participants that the target is normal (e.g., Kirk, 1974). These experimental conditions may not adequately explain abnormal behavior and can result in paradoxical written vignettes in which a target is explicitly labelled as normal but then described as behaving abnormally. These paradoxical vignettes may lead to control

conditions being perceived as less believable relative to mental illness label conditions, making it difficult to ascertain whether the psychiatric label itself, or a feature of the vignette paradigm leads to findings. To overcome this, Socall and Holtgraves (1992) suggested using alternative believable explanation conditions that adequately justify aberrant behavior.

Lastly, a substantial proportion of research in this area has measured public reactions to vague descriptive labels (e.g., *mental patient*, *mentally ill*) rather than specific diagnoses. This approach may result in imprecise understandings of who participants think about when evaluating targets, as such terms likely give rise to different referent groups for different respondents (Phelan et al., 2000). Socall and Holtgraves (1992) also identified this limitation, and others have acknowledged the need to examine stigma towards specific illnesses (Hinshaw, 2009). Recent work on Modified Labeling Theory has largely used specific diagnoses (e.g., Abdullah & Brown, 2020), but little work has done so with the goal of testing the effects of both aberrant behaviors and psychiatric diagnoses (e.g., Abdullah & Brown [2020] compared stigma towards different psychiatric diagnoses among Black Americans but did not manipulate behavior).

1.3 Research Overview

We first present two studies examining the stigmatizing potential of two signaling events for mental illness: a psychiatric label (i.e., schizophrenia) and emotionally evocative behavior (i.e., irritability). Study 3 builds upon findings from Studies 1 and 2 by testing two questions. First, does the specific form of stigma elicited by a psychiatric label differ between schizophrenia and depression? Second, does the relative importance of psychiatric label and emotionally evocative behavior differ for a patient with

schizophrenia and a patient with depression with respect to stigma? Literature relevant to these questions is reviewed in the introduction to Study 3.

To manipulate behavior, I created video recordings of a hospital patient behaving irritably or calmly; to manipulate diagnosis I inserted information concerning mental illness into an electronic health record (EHR). A hospital setting was selected because significant disparities exist for those with mental illness across many healthcare domains (McGinty et al., 2015). As such, the consequences of being labeled in a healthcare setting are high, and likely persist past the point of care (Firth et al., 2019). An EHR is also a common and authoritative place to list a mental illness, so participants should not necessarily be alerted to my interests.

While stigma intensity varies by diagnosis (Abdullah & Brown, 2020), I limited the scope of my initial two studies to schizophrenia. Those with schizophrenia are highly stigmatized and experience particularly severe health disparities. By examining this potent label, I stringently test Kirk's (1974) claim that the effect of labels is negligible relative to behavior. I use adaptations of established attribution, emotion, and behavior measures to capture various dimensions of stigma. In Study 1, I hypothesized a schizophrenia diagnosis and irritable behavior would increase blameworthy (i.e., internal) and stigmatizing attributions for behavior, as well as fear, anger, and desire for distance, and decrease contextual attributions for behavior and caring emotions. In Study 2, I sought to replicate my findings in a large population-based sample, capture additional relevant attitudes, and test whether dangerousness and fear mediate the effect of a psychiatric label on desire for distance (i.e., stigmatizing behavior).

CHAPTER 2

STUDY 1

2.1 Study 1 Methods

2.1.1 Participants

Based on a power analysis assuming a small to medium effect ($f = .2$) set to achieve 80% power, 200 students at a public university in the Northeast United States participated for course credit in December 2019. Three were removed due to experimenter error and two failed one of three attention checks (e.g., indicate the patient's chief complaint) resulting in a sample of 195 participants ranging in age from 18 to 28 ($M_{\text{age}} = 19.92$, $SD = 1.55$). The sample is 154 (79.0%) females and 38 (19.5%) males. Two (1.0%) did not provide a gender and one (0.5%) selected 'Other'. The sample is 62.6% White, 21.0% Asian, 5.6% Black, 5.1% Mixed Race, 1.5% Hispanic, and 3.1% Other Race. 176 (90.3%) participants reported knowing "anyone who has ever been diagnosed or treated for a mental health condition" and 63 (32.3%) reported having "been diagnosed or treated for a mental health condition themselves." Participants were randomly assigned to one of four conditions in a 2 (irritable vs. calm behavior) x 2 (no psychiatric label vs. schizophrenia label) between-subjects design.

2.1.2 Measures

2.1.2.1 Attributions for Behavior

Attributions for behavior were measured using items adapted from prior measures (Corrigan et al., 2003; Weiner et al., 2011). Participants were asked, "To what extent do you think the patient's behavior is due to..." and were given 13 attributions in random order. Participants responded using continuous unnumbered sliding scales scored from 0

(not at all) to 100 (very much). Items were chosen to capture two attribution types supported by theory (Corrigan et al., 2003): internal attributions (e.g., her personality) and external attributions (e.g., lack of sleep), and a third relevant to my research: stigmatizing attributions (e.g., substance use). While this factor structure was based on existing structures, the selection of specific items was necessarily exploratory, as I sought to include items specific to this medical context (e.g., pain from the headache). Factor analysis (Appendix C) supported the presence of three factors, explaining 40.4% of the variance: blameworthy (i.e., internal) attributions (her mood, her personality, her general attitude, having a bad day [$\alpha = .76$]), stigmatizing attributions (a mental disorder, substance use, hormonal imbalance [$\alpha = .74$]), and contextual (i.e., external) attributions (stress, pain, lack of sleep [$\alpha = .52$]).

Three attributions did not load ($< .35$) onto a single factor: being at the hospital, how the doctor is treating them, and being too weak to deal with normal levels of pain. While the need to drop items, and a low reliability for contextual attributions is unfortunate, this is not surprising given the exploratory nature of this measure. As all three contextual attributions were conceptually similar, I used a 3-factor structure (which replicated in Study 2). Blameworthy and contextual attributions (i.e., categories established by prior literature), were averaged, and analyzed using factor scores. Stigmatizing attributions were analyzed separately due to the distinct nature of these identities.

2.1.2.2 Self-Reported Emotions

On continuous unnumbered sliding scales scored from 0 (not at all) to 100 (very much), participants indicated the extent to which they felt 21 emotions (Isbell et al.,

2020) while watching the patient video. Prior work suggests three emotion categories are relevant to mental illness stigma: fear, anger, and caring emotions (Angermeyer & Matschinger, 1997; Sadler et al., 2015). As such, subscales were created by averaging participant responses for fear (afraid, anxious, nervous, unsafe, uneasy [$\alpha = .85$]), anger (angry, irritated, frustrated, upset, calm [reversed], relaxed [reversed] [$\alpha = .84$]), and caring emotions (desire to help, concerned, sympathetic, engaged, compassionate [$\alpha = .83$]). This structure was supported by factor analysis (Appendix C) which also indicated that five items did not significantly load ($< .50$) onto a single factor: happy, sad, apathetic, disinterested, and impatient. Happy and sad were included as filler items. Disinterest, apathy, and impatience were included with the exploratory hypothesis that these items reflected an absence of caring. However, these items failed to load together, and as such were not included in the creation of subscales.

2.1.2.3 Desire for Social Distance

Participants completed a social distance scale (Wark & Galliher, 2007) adapted from prior work (Link et al., 1987). Items were presented in a fixed order: “How comfortable would you be...knowing this person went to your school, being in the same class as this person, sitting next to this person in a lecture, having a conversation with this person, working on a group project with this person, being roommates with this person, having a close friend of yours date this person, having a close friend of yours marry this person” ($\alpha = .93$). Participants responded on continuous unnumbered sliding scales from 0 (not at all comfortable) to 100 (very comfortable). Consistent with classic (Link et al., 1987) and recent work (Abdullah & Brown, 2020), each participant’s responses were

averaged to produce a social distance score. Scores were then subtracted from 100 so higher values indicate greater desire for distance.

2.1.3 Procedure

Study procedures were reviewed and approved by my university's Institutional Review Board (Study Name: "Evaluations and Impressions of Hospital Patients"). Participants completed the study alone in a quiet room on Qualtrics (Qualtrics, 2011). After consent, a computer screen instructed all participants to form impressions of a patient who "is meeting with a doctor in the hospital after having come in with a complaint" (i.e., an initial visit to the emergency room). Participants were then provided a brief written description of the patient, reviewed the patient's EHR, watched a video of the patient interacting with a doctor, and completed all measures.

The brief description of the patient (Appendix A) appeared directly above the EHR and described her as "a 22-year-old student...complaining of a severe headache." Participants in the 'no label' condition were told she was diagnosed with migraines in 2015, and that she "takes medication... but sometimes becomes upset due to the pain." Participants in the 'label' condition were told she was diagnosed with migraines in 2015 and schizophrenia in 2016, and that she "takes medication... but sometimes hears voices and becomes upset due to the pain."

The EHRs (Appendix A) were modeled on EHRs used in real medical contexts. All EHRs listed 'headache' as the patient's chief complaint and provided information common on an EHR (e.g., height, weight). All EHRs included a history of migraines, but participants in the 'label' condition received an EHR that included a schizophrenia diagnosis while those in the 'no label' condition did not (i.e., the 'label' condition

included migraines and schizophrenia, the ‘no label’ condition included migraines only). The schizophrenia diagnosis included a short description of symptoms common to schizophrenia: delusions and auditory hallucinations, which emerged following a period of non-adherence to medication and resulted in hospitalization. The schizophrenia condition also included two medications commonly used to treat schizophrenia: Abilify and Zyprexa. The symptoms and medications were included to ensure that all participants had a shared understanding of schizophrenia in this context.

Next, participants watched a 60-second, fixed-shot video of the patient. The patient, a white female named ‘Jill Buckley,’ sat on an examination table in a hospital room with equipment (e.g., a blood pressure device) behind her and spoke with an out-of-frame male doctor. The videos were filmed in a medical simulation center, and the patient was portrayed by a paid standardized patient (i.e., actor) employed by the center and used to train physicians and nurses. Participants in the ‘irritable’ condition saw a video in which the patient was irritable and upset. She spoke exasperatedly, answered the doctor defensively, and once raised her voice demanding a note for work. Those in the ‘calm’ condition saw a video in which the same patient was calm, spoke quietly, answered the doctor politely, and respectfully asked for a work note. The patient sat in the same location and was filmed from the same angle in both videos, and the conversations were identical in content and included general health questions (e.g., “Can you describe this headache in more detail?”). To allow for natural portrayals of behavior, the transcripts were not identical word-for-word, but followed a script with slight wording differences between the two conditions (see Appendix A for transcripts). Participants then completed

all measures in the order presented in the methods, provided demographics, and were debriefed.

2.2 Study 1 Results

See Table 1 for bivariate correlations. 2 x 2 ANOVAs were conducted to test the effects of patient behavior and schizophrenia diagnosis on dependent variables. See Table 2 for means by experimental condition.

2.2.1 Attributions for Patient Behavior

As predicted, participants who viewed irritable behavior blamed the patient more ($M = 66.32, SD = 14.25$) than those who viewed calm behavior ($M = 48.00, SD = 20.32$), $F(1, 190) = 52.96, p < .001$, partial $\eta^2 = .218$; all other $ps > .20$. I analyzed stigmatizing attribution items separately to examine conceptually distinct cases. Participants were more likely to attribute behavior to a mental disorder if the patient had schizophrenia ($M = 56.20, SD = 28.19$) than if not ($M = 21.34, SD = 24.51$), $F(1, 188) = 83.79, p < .001$, partial $\eta^2 = .308$. Irritable behavior ($M = 42.43, SD = 32.48$) was marginally more likely than calm behavior ($M = 35.19, SD = 30.48$) to be attributed to a mental disorder, $p = .07$. Substance use was also rated as a more likely reason for behavior if the patient had schizophrenia ($M = 26.22, SD = 23.95$) than if not ($M = 16.47, SD = 20.50$), $F(1, 190) = 9.32, p = .003$, partial $\eta^2 = .047$, as was hormonal imbalance (with label: $M = 34.18, SD = 25.57$; without label: $M = 25.13, SD = 26.33$), $F(1, 188) = 5.76, p = .017$, partial $\eta^2 = .030$; all other $ps > .10$. No effects emerged for contextual attributions, all $ps > .25$. Participants indicated a relatively high endorsement of contextual attributions ($M_{\text{Total}} = 70.65, SD = 15.95$).

2.2.2 Self-Reported Emotions

Participants who observed the patient behaving calmly reported more caring emotions ($M = 65.09$, $SD = 19.52$) than those who observed the patient behaving irritably ($M = 58.40$, $SD = 21.59$), $F(1, 188) = 5.05$, $p = .026$, partial $\eta^2 = .026$; all other effects, $p > .37$. Conversely, participants reported feeling greater anger if they observed the irritable patient ($M = 46.89$, $SD = 22.12$) rather than the calm patient ($M = 31.12$, $SD = 19.23$), $F(1, 187) = 27.69$, $p < .001$, partial $\eta^2 = .129$; all other effects $p > .18$. No effects were observed for fearful emotions, all $ps > .26$.

2.2.3 Desire for Social Distance

For desire for social distance, I observed an effect of patient behavior $F(1, 191) = 26.21$, $p < .001$, partial $\eta^2 = .121$ and a marginally significant effect of diagnosis, $F(1, 191) = 3.55$, $p = .06$, partial $\eta^2 = .018$, qualified by an interaction, $F(1, 191) = 7.74$, $p = .006$, partial $\eta^2 = .03$ (Figure 1). A Tukey test revealed that a calm patient without schizophrenia evoked significantly lower desire for social distance ($M = 29.85$, $SD = 20.69$) than each of the other three conditions (calm, with schizophrenia: $M = 44.08$, $SD = 19.87$; irritable without schizophrenia: $M = 53.95$, $SD = 20.95$; irritable with schizophrenia: $M = 51.21$, $SD = 23.50$; $ps < .006$), which did not differ significantly from each other, all $ps > .11$.

2.3 Study 1 Discussion

Study 1 results provide preliminary support for several of my hypotheses. Firstly, a schizophrenia diagnosis and irritable behavior interacted to predict a key self-report measure of behavioral stigma — desire for distance. When a patient did not have schizophrenia, the amount of social distance desired depended on observed behavior; if the patient behaved calmly, she did not elicit a desire for distance, but if she behaved

irritably, she did. If the patient had schizophrenia, she was less likely to be accepted regardless of her behavior. While a self-report measure, desire for distance is central to stigma (Link et al., 1987), and these results suggest that even if a person labeled with schizophrenia acts calmly and displays no symptoms, they may still face stigma and social isolation.

While both behavior and diagnosis influenced desire for distance, these data suggest more specific effects on attributions and emotions. A patient's schizophrenia label, but not their behavior, was more likely to predict participants' endorsement of stereotypically related but distinct stigmatizing attributions (e.g., substance use) as possible causes for behavior. Participant endorsement for stigmatized identities was below the scale midpoint, suggesting that they were not seen as likely reasons for behavior relative to blameworthy or contextual attributions. Yet, associating schizophrenia with other stigmatized identities may exacerbate stigma via stereotyping.

In contrast, when the patient was irritable rather than calm, participants were more likely to blame the patient for her behavior, report greater anger, and report reduced caring emotions. While this work investigates layperson's attitudes towards hospital patient behavior, this finding may be consequential for patient care if replicated with a medical population. Prior literature suggests that fear, anger, and caring emotions contribute to the emergence of mental illness stigma (Corrigan et al., 2003), but I did not find evidence that a schizophrenia diagnosis alone alters participants' emotions. This is puzzling, as the diagnostic label was related to increased desire for distance (i.e., a self-reported behavioral intention to stigmatize). One reason my measures may not have captured the effect of a schizophrenia diagnosis on emotion is methodology. Participants

indicated the extent to which they felt emotion while watching the video, an activity that prioritizes patient behavior rather than diagnostic label. Study 2 addresses this by asking participants to report emotions they would feel if they were to interact with the patient directly.

In sum, Study 1 found that irritable behavior and a schizophrenia diagnosis result in a greater desire for social distance from a hospital patient but impart more specific effects on attributions and emotions. I also found scant evidence that participants' emotions were impacted by a schizophrenia label alone. To further test the relative importance of label and behavior on attitudes, emotions, and behavioral intentions towards those with this severe mental illness label I conducted a second study utilizing the same paradigm, but with several important changes. First, I recruited a larger, older MTurk sample with a more balanced gender distribution to test these effects outside of a college student sample. Second, I modified my emotion measures to guide participants to focus on how they would feel if they were to interact with the patient. Third, drawing from existing work, I captured perceptions of dangerousness and predictability (Corrigan et al., 2003), and perceptions of warmth and competence (Fiske et al., 2002). Finally, I explored whether dangerousness and fear mediate the effect of a schizophrenia label on desire for distance, as previous work has theorized (Corrigan et al., 2003). Taken together, Study 2 permits a more robust test of the differential effects of patient behavior and a schizophrenia diagnosis on stigma components and allows for an examination of mediational hypotheses.

CHAPTER 3

STUDY 2

3.1 Study 2 Introduction

For measures included from Study 1, I predicted I would replicate my findings. By asking participants to report their emotions if they were to interact with the patient, I predicted both irritable behavior and a schizophrenia diagnosis would result in greater fear and anger, and diminished caring emotions. In addition, I hypothesized irritable (vs. calm) behavior and the presence (vs. absence) of a schizophrenia diagnosis would decrease perceptions of warmth, competence, and predictability, and increase perceived dangerousness. Finally, I examined two hypotheses grounded in labeling theory (Corrigan et al., 2003), regarding the mediating role that dangerousness and fear may play in predicting desire for distance as a function of a diagnosis. I predicted a schizophrenia diagnosis would be positively related to perceived danger, which would be positively related to desire for distance. Similarly, I predicted schizophrenia would be related to a greater desire for distance via a serial mediation whereby a label increases perceived danger, which increases fear, which increases desire for distance.

3.2 Study 2 Methods

3.2.1 Participants

An a priori power analysis specified to detect the smallest effect of interest in Study 1 (i.e., social distance interaction) with 80% power, and to power mediation analyses, indicated I should retain a 548-participant sample. 844 participants were recruited via Amazon's Mechanical Turk (MTurk) in October 2020 and were paid \$0.80. Respondents were excluded if they skipped more than 25% of the items ($n = 19$) or

incorrectly completed one of three attention checks: indicate the sex ($n = 31$) and chief complaint ($n = 26$) of the patient and select “disagree” on a specific item ($n = 19$). 749 participants were retained, ranging in age from 18 to 82 ($M_{\text{age}} = 41.74$, $SD = 13.31$). Median household income is \$30,000-\$50,000 and the sample consists of 446 (59.5%) females and 293 (39.1%) males. Six (0.8%) did not provide gender and four (0.5%) selected ‘Other’. The sample is 78.2% White, 9.1% Asian, 7.9% Black, 1.9% Mixed Race, 2.4% Other, 0.5% Missing. 516 (68.9%) participants reported knowing “anyone who has ever been diagnosed or treated for a mental health condition” and 186 (24.8%) reported having “been diagnosed or treated for a mental health condition themselves.” Participants were randomly assigned to one of four conditions in a 2 (irritable vs. calm behavior) x 2 (no psychiatric label vs. schizophrenia label) between-subjects design.

3.2.2 Measures

3.2.2.1 Attributions for Behavior

The attribution items were the same as Study 1. Following factor analysis (Appendix C), the same attribution composite measures from Study 1 were created for blameworthy ($\alpha = .76$), and contextual ($\alpha = .59$) attributions. Despite an acceptable alpha, stigmatizing attributions ($\alpha = .73$) were again analyzed separately due to the distinct nature of these stigmatized identities.

3.2.2.2 Warmth and Competence

Based on prior research (Fiske et al., 2002), participants were asked to rate the extent to which the patient is warm (warm, friendly, good-natured, honest) and competent (competent, intelligent, skilled, capable) along unnumbered sliding scales scored from 0

(not at all) to 100 (very much). The warmth ($\alpha = .89$) and competence ($\alpha = .90$) scales demonstrated high reliability and averages were computed for each subscale.

3.2.2.3 Self-Reported Emotions

The emotion items used in Study 2 were identical to Study 1, but the prompt was modified to refer to a future interaction with the patient (e.g., “Please indicate the extent to which you would feel the following emotions if you were to interact with the patient directly”). Following factor analysis (Appendix C) the same subscales were created for fear ($\alpha = .90$), anger ($\alpha = .89$), and caring emotions ($\alpha = .90$).

3.2.2.4 Perceived Dangerousness and Predictability

Two items measuring dangerousness and two measuring predictability were drawn from previous work (Corrigan et al., 2003). On continuous unnumbered sliding scales from 0 (not at all) to 100 (very much), participants indicated how dangerous the patient was and how likely it is the patient will do something violent toward others. These items were averaged ($\alpha = .92$). For predictability, participants completed two items in the same response format and scale: how predictable do you think the patient’s behavior is, and how safe would you feel around this patient. These items were averaged ($\alpha = .70$).

3.2.2.5 Social Distance Scale

Given the non-college student sample in Study 2, I adapted the social distance scale used in Study 1 to a professional context (e.g., “How comfortable would you be working at the same company as this person?”; see Appendix B). The scale demonstrated excellent reliability ($\alpha = .95$) and responses were averaged and subtracted from 100.

Higher values indicate greater desire for social distance, as in Study 1.

3.2.3 Procedure

Study procedures were reviewed and approved by my university's Institutional Review Board (Study Name: "Evaluations and Impressions of Hospital Patients 2"). Participants were routed to a survey built on Qualtrics. The order and content of the EHR and patient video were identical to Study 1; participants reviewed an EHR with or without a schizophrenia label and watched a 60-second video in which the patient acted calmly or irritably. Participants then completed all measures in the order presented in the methods, provided demographic data, and were debriefed.

3.3 Study 2 Results

See Table 1 for bivariate correlations. 2 x 2 ANOVAs were conducted to test the effects of patient behavior and schizophrenia diagnosis on dependent variables. See Table 2 for means by experimental condition. Following these analyses, I examined mediations.

3.3.1 Attributions for Patient Behavior

Replicating Study 1, participants who viewed a patient behaving irritably attributed greater blame to the patient ($M = 62.92$, $SD = 19.71$) than those who viewed the same patient acting calmly ($M = 47.37$, $SD = 21.37$), $F(1, 745) = 106.99$, $p < .001$, partial $\eta^2 = .126$; all other $ps > .80$. Also in line with Study 1, participants were more likely to endorse that a patient's behavior was due to a mental disorder if that patient had schizophrenia ($M = 51.05$, $SD = 28.54$) than if she did not ($M = 21.97$, $SD = 24.76$), $F(1, 745) = 224.68$, $p < .001$, partial $\eta^2 = .232$. Further, a patient acting irritably was more likely to have her behavior attributed to a mental disorder ($M = 39.72$, $SD = 31.07$) compared to that patient acting calmly ($M = 32.41$, $SD = 29.21$), $F(1, 745) = 13.17$, $p < .001$, partial $\eta^2 = .017$. These effects did not interact, $p = .31$. As in Study 1, participants were unlikely to endorse substance use as a reason for behavior, but more likely to do so

if she had schizophrenia ($M = 29.47$, $SD = 26.87$) than if she did not ($M = 21.38$, $SD = 24.56$), $F(1, 745) = 18.38$, $p = .003$, partial $\eta^2 = .028$. Further, irritable behavior was more likely to be attributed to substance use ($M = 27.85$, $SD = 27.10$) than calm behavior ($M = 22.75$, $SD = 24.62$), $F(1, 745) = 7.19$, $p = .007$, partial $\eta^2 = .010$. Similarly, a patient with schizophrenia was judged to be more likely to be behaving due to a hormonal imbalance ($M = 33.11$, $SD = 26.41$) than a patient without schizophrenia ($M = 27.07$, $SD = 25.37$), $F(1, 744) = 10.09$, $p = .002$, partial $\eta^2 = .013$, all other $ps > .20$. Lastly, participants were more likely to endorse contextual attributions for behavior if the patient did not have a psychiatric diagnosis ($M = 67.72$, $SD = 19.03$) than if she did ($M = 62.73$, $SD = 17.33$), $F(1, 745) = 13.80$, $p < .001$, partial $\eta^2 = .018$, all other $ps > .25$.

3.3.2 Self-Reported Emotions

As in Study 1, participants who viewed calm behavior reported greater caring emotions when imagining interacting with the patient ($M = 75.52$, $SD = 18.97$) than those who viewed irritable behavior ($M = 66.09$, $SD = 23.27$), $F(1, 745) = 36.70$, $p < .001$, partial $\eta^2 = .047$. Participants who viewed a calm patient also expressed less anger themselves ($M = 24.96$, $SD = 19.55$) as compared to those who viewed an irritable patient ($M = 45.74$, $SD = 23.48$), $F(1, 745) = 173.29$, $p < .001$, partial $\eta^2 = .189$. Participants also reported less fear when thinking about interacting with the calm patient ($M = 21.09$, $SD = 22.36$) as compared to the irritable patient ($M = 30.60$, $SD = 23.05$), $F(1, 745) = 33.15$, $p < .001$, partial $\eta^2 = .043$. No other effects emerged, all $ps > .21$.

3.3.3 Warmth and Competence

The patient was rated as significantly less warm when behaving irritably ($M = 39.76$, $SD = 20.94$) than when behaving calmly ($M = 65.33$, $SD = 17.94$), $F(1, 745) =$

321.62, $p < .001$, partial $\eta^2 = .302$, and marginally less warm if she had schizophrenia ($M = 50.99$, $SD = 22.36$) than if not ($M = 53.98$, $SD = 24.12$), $F(1, 745) = 3.54$, $p = .06$, partial $\eta^2 = .005$. Similarly, the patient was judged to be less competent when irritable ($M = 56.32$, $SD = 18.89$) compared to calm ($M = 67.82$, $SD = 16.42$), $F(1, 745) = 79.31$, $p < .001$, partial $\eta^2 = .096$, and less competent if she had schizophrenia ($M = 59.55$, $SD = 18.14$) than if she did not ($M = 64.42$, $SD = 18.75$), $F(1, 745) = 13.57$, $p < .001$, partial $\eta^2 = .018$. For both outcomes, these effects did not interact, $ps > .80$.

3.3.4 Perceived Dangerousness and Predictability

The patient was rated as non-threatening overall, $M_{\text{Total}} = 20.88$, $SD = 22.24$. Even so, the irritable patient was rated as more dangerous ($M = 25.88$, $SD = 23.70$) as compared to the calm patient ($M = 15.87$, $SD = 19.47$), $F(1, 745) = 41.43$, $p < .001$, partial $\eta^2 = .053$. Further, a schizophrenia diagnosis increased dangerousness ($M = 25.94$, $SD = 23.40$) relative to no diagnosis ($M = 16.13$, $SD = 19.99$), $F(1, 745) = 39.34$, $p < .001$, partial $\eta^2 = .050$. When irritable, the patient was judged to be less predictable ($M = 56.63$, $SD = 22.46$) than when calm ($M = 68.30$, $SD = 20.21$), $F(1, 745) = 58.22$, $p < .001$, partial $\eta^2 = .072$, and a schizophrenia label decreased perceived predictability ($M = 56.83$, $SD = 21.78$) relative to no label ($M = 67.74$, $SD = 21.17$), $F(1, 745) = 50.54$, $p < .001$, partial $\eta^2 = .064$. No interaction emerged for either variable, $ps > .20$.

3.3.5 Desire for Social Distance

For desire for social distance, a main effect of patient behavior $F(1, 745) = 150.82$, $p < .001$, partial $\eta^2 = .168$ and a main effect of schizophrenia diagnosis $F(1, 745) = 17.57$, $p < .001$, partial $\eta^2 = .023$ emerged, qualified by a marginally significant interaction, $F(1, 745) = 3.11$, $p = .08$, partial $\eta^2 = .004$ (Figure 1). While the interaction

did not reach significance, I held an a priori hypothesis based on Study 1. As such, I performed a Tukey test to correct for family-wise error and used $\alpha = .01$ as a significance threshold (i.e., a double-correction). As in Study 1, a calm patient without schizophrenia evoked a significantly lower desire for distance ($M = 21.92, SD = 21.57$) than the same calm patient with schizophrenia ($M = 32.55, SD = 21.98$), $p < .001$. Also replicating Study 1, an irritable patient evoked a relatively high desire for distance whether they had schizophrenia ($M = 51.31, SD = 26.25$) or did not ($M = 46.98, SD = 27.27$), $p = .32$. In contrast to Study 1, a calm patient with schizophrenia elicited a lower desire for distance than an irritable patient with or without schizophrenia, $ps < .001$.

3.3.6 Does a Label Increase Social Distance Via Dangerousness and Fear?

After obtaining evidence that a schizophrenia label increases perceived dangerousness and desire for social distance, I tested my hypothesized mediations. Model one hypothesized that the presence of a schizophrenia diagnosis increases perceived danger, which increases desire for social distance, controlling for patient behavior. Model two hypothesized a serial mediation, in which the presence of schizophrenia, controlling for patient behavior, increases perceived danger, in turn elevating fear, which predicts increased desire for social distance. Mediation models were run using Hayes' PROCESSv3.4 in SPSS with 10,000 bootstrap samples.

Model 1. Dangerousness Mediates the Effect of a Schizophrenia Label on Desire for Distance. Results were consistent with my mediational hypothesis. Examining the first step of the mediation model (Figure 2), a schizophrenia label was associated with a significant increase in perceived dangerousness ($b = 9.70, SE = 1.55, p < .001$), controlling for patient behavior. An increase in perceived dangerousness was related to

an increase in desire for distance ($b = 0.54$, $SE = 0.04$, $p < .001$), controlling for behavior and diagnosis. As such, the model significantly predicted desire for distance, $F(3, 745) = 141.08$, $p < .001$, $R^2 = .36$, and the indirect effect of a diagnosis on desire for distance through perceived dangerousness, was significant ($b = 5.21$, $SE = 0.94$, bootstrapped 95% CI [3.45, 7.12]). When controlling for behavior and this indirect effect, the direct effect of a diagnosis on desire for distance was no longer significant ($b = 2.26$, $SE = 1.62$, $p = .16$).

Model 2. Dangerousness and Fear Mediates the Effect of a Schizophrenia

Label on Desire for Distance. I next examined a serial mediation (Figure 2), in which a schizophrenia label sequentially predicted dangerousness, fear, and desire for distance, controlling for patient behavior. Results were also consistent with this mediational model. Again, a label was associated with an increase in perceived dangerousness ($b = 9.70$, $SE = 1.55$, $p < .001$). This was associated with greater fear when thinking about interacting with the patient ($b = 0.60$, $SE = 0.03$, $p < .001$). Finally, greater fear was associated with a greater desire for distance, controlling for all other predictors ($b = 0.16$, $SE = 0.04$, $p < .001$). The model significantly predicted desire for distance, $F(4, 744) = 111.48$, $p < .001$, $R^2 = .37$, and the indirect effect of label on distance through dangerousness and fear, was significant ($b = 0.93$, $SE = 0.32$, bootstrapped 95% CI [0.39, 1.66]). When controlling for behavior and all indirect effects, the effect of a schizophrenia diagnosis on desire for distance fell to marginal significance ($b = 3.01$, $SE = 1.62$, $p = .06$).

3.4 Study 2 Discussion

Consistent with Study 1 and in a larger, older, population-based sample with a more balanced gender distribution, I find evidence for discrete effects of a schizophrenia

diagnosis and irritable behavior on negative attitudes and emotions towards a hospital patient. Irritable behavior, compared to calm, again resulted in greater blameworthy attributions for behavior, greater anger, and less caring emotions. Stigmatizing attributions were again found to be unlikely reasons for behavior, but more likely for patients with schizophrenia. Also, desire for distance varied as a function of a marginally significant interaction between patient behavior and schizophrenia diagnosis.

Extending Study 1, perceptions of warmth, competence, dangerousness, and predictability all varied independently as a function of patient behavior and psychiatric diagnosis. An irritable patient was rated as less competent, less predictable, more dangerous, and colder than a calm patient. Similarly, a patient with schizophrenia was rated as less competent, less predictable, more dangerous, and marginally colder. The effect sizes of irritable behavior on warmth and competence were much larger than the effect sizes of a schizophrenia label (provided in the written EHR), indicating that observed behavior may be more salient than a written diagnosis when assessing warmth and competence. While the patient was seen as non-threatening and predictable, the effect sizes for irritable behavior and written label on these judgements were of similar magnitude. A schizophrenia label and behavior thus appear to levy comparable effects on dangerousness and predictability, which aligns with work suggesting these judgements are key precipitants of mental illness stigma (Jorm et al., 2012). These findings enrich this work by indicating that such appraisals associated with mental illness may emerge in response to this specific label and irritable behaviors equally.

The importance of perceived dangerousness in generating stigma was further indicated by mediational analyses. The presence of a schizophrenia diagnosis was

significantly related to greater perceived dangerousness, which was related to a greater desire for distance. Similarly, a schizophrenia diagnosis was serially related to greater perceptions of dangerousness, greater fear, and a greater desire for distance. Crucially, these indirect effects were significant when controlling for behavior. Because these measurements are at one timepoint it is impossible to draw causal conclusions, but findings are consistent with the widely held idea that negative behavioral intentions manifest as a function of negative attitudes and emotions towards stereotyped groups generally (Cuddy et al., 2007) and those with mental illness specifically (Corrigan et al., 2003).

3.4.1 Studies 1 and 2 Limitations

Studies 1 and 2 are not without limitations. First, my EHR manipulation includes clinical markers (e.g., medications, delusions, hallucinations, medication non-adherence) that may confound the effect of a label alone. This presentation offers strengths (i.e., real-world validity, participants having a shared understanding of the diagnosis), but these markers may also serve as alternate explanations for participants' negative ratings of the patient. Study 3 attempts to retain the real-world validity of an EHR by keeping necessary diagnostic symptoms (i.e., delusions, hallucinations), but removing medication non-adherence from the clinical work-up. Second, Studies 1 and 2 examine schizophrenia only. It may be that the stigmatizing effects of a written diagnosis on an EHR is constrained to relatively less common, and stereotypically more severe psychiatric conditions. Study 3 aims to examine the effects of irritable behavior and diagnostic labels on stigma toward a relatively more common mental illness diagnosis — depression — as well as schizophrenia.

CHAPTER 4

STUDY 3

4.1 Study 3 Introduction

Study 3 builds upon findings from Studies 1 and 2 by investigating two key questions. First, does the specific form of stigma elicited by a psychiatric label differ between schizophrenia and depression? Second, does the relative importance of observed behavior and written diagnosis differ for a patient with schizophrenia versus one with depression with respect to stigma? Study 3 also removes medication non-adherence from the schizophrenia and depression EHRs to rule out this information as an explanatory component of the effects of written diagnosis. Before describing the hypotheses for Study 3, I first review literature relevant to stigma towards schizophrenia and depression.

4.1.1 Stigma Towards Schizophrenia and Depression

Substantial work demonstrates that schizophrenia and depression are psychiatric labels that elicit different levels of stigma. Compared to individuals with depression, individuals with schizophrenia evoke a greater desire for social distance (Angermeyer & Matschinger, 2003; Angermeyer et al., 2004; Crisp et al., 2000; Lauber et al., 2004; Marie & Miles, 2008; Pescosolido et al., 1999; see Jorm & Oh, 2009 for a review). In addition to consistent findings suggesting the intensity of stigma (i.e., social distance) differs between schizophrenia and depression, studies have explored differences in beliefs, attitudes, and emotions related to stigma towards these labels. Perceived dangerousness, biological etiology, prognosis, and personal responsibility have all been identified as relevant dimensions of stigma that may explain differences in social distance. Individuals with schizophrenia, as compared to those with depression, are

perceived to be more dangerous (Angermeyer & Matschinger, 2003; Crisp et al., 2000; Marie & Miles, 2008), more likely to have their condition due to biological etiology (Angermeyer & Matschinger, 2003; Dietrich et al., 2006; Schomerus et al., 2006), more likely to have a worse prognosis for their illness (Goerg et al., 2004), and less likely to be responsible for the onset of their illness (Jorm et al., 1997).

Two studies of note have used mediational analysis to specifically test whether differences in these beliefs explain differences in social distance from individuals with schizophrenia and depression. Using written vignettes and a sample of New Zealand university students, Marie and Miles (2008) found that participants desired greater distance from individuals with schizophrenia compared to those with depression, and that greater perceived dangerousness partially mediated this effect.³ Norman et al., (2010) examined the same question across two studies, and also found that schizophrenia, relative to depression, elicited a greater desire for social distance. In their studies, however, analyses implicated beliefs about the likely appropriateness of social behavior as a mediator of the effect of diagnostic label on desire for distance. Dangerousness only partially mediated the effect of label on desire for distance in a college age sample (Study 1) and did not do so in a community sample (Study 2). Further, perceived dangerousness did not vary between depression and schizophrenia in Study 2. This runs counter to the body of literature reviewed by Jorm et al., (2012) that suggests people with schizophrenia are more likely to be perceived as dangerous relative to people with depression.

³ Marie and Miles (2008) also included substance dependence and alcohol use disorder as vignette conditions. They found the depression vignette elicited a significantly lower desire for distance than the schizophrenia, substance dependence, and alcohol use disorder vignettes. Regression analyses found that greater perceived dangerousness predicted greater desire for distance for all vignettes except the depression vignette, further suggesting that for depression, dangerousness is less relevant to judgements of social distance.

While extant literature delineates the form and intensity of stigma towards schizophrenia and depression, it suffers from methodological limitations described in the introduction. Namely, written vignette studies confound behavior and diagnostic label. As such, the literature reviewed allows for the formation of clear hypotheses regarding the impact of diagnostic labels on the form and intensity of stigma but sheds less light on the relative importance of behavior and label in eliciting stigma across these two labels.

4.1.2 Study 3 Hypotheses

H1: Irritable vs. Calm Behavior. Replicating Studies 1 and 2, I predict irritable behavior, relative to calm behavior, will result in greater blaming attributions, fear, anger, and dangerousness, as well as lower caring emotions, warmth, competence, and predictability, regardless of psychiatric diagnosis.

H2a: Schizophrenia Label vs. No Psychiatric Label. Also replicating Studies 1 and 2, a schizophrenia label relative to no psychiatric label will result in greater stigmatizing attributions, lower warmth, competence, and predictability, and higher ratings of perceived dangerousness to oneself and others.

H2b: Depression Label vs. No Psychiatric Label. Extending Study 1 and 2 findings to a novel psychiatric label, I predict that a depression label relative to no psychiatric label will result in greater stigmatizing attributions, lower warmth, competence, and predictability, and higher perceived dangerousness to oneself, but not higher ratings of perceived dangerousness to others (Jorm et al., 2012).

H2c: Schizophrenia Label vs. Depression Label. Based on existing literature, I hypothesize that a schizophrenia label, relative to a depression label, will result in greater

stigmatizing attributions, lower warmth, competence, and predictability, and higher ratings of perceived dangerousness to others (but not to oneself).

H3a: Interaction of Behavior and Label on Desire for Social Distance. As in Studies 1 and 2, a psychiatric label and irritable behavior are hypothesized to interact to predict desire for social distance. The nature of this interaction is unclear, however, as my prior studies only investigate schizophrenia, and written vignette studies are unable to tease apart the contributions of labeling and behavior. Nonetheless, I predict that the interaction present in Study 2 for schizophrenia will be replicated for depression. An irritable patient — regardless of psychiatric label — will elicits a high desire for distance, whereas desire for social distance from a calm patient will vary as a function of diagnostic label, such that a calm patient with no psychiatric label is least stigmatized, one with depression is moderately stigmatized, and one with schizophrenia is highly stigmatized.

H3b: Dangerous Mediates the Effect of a Schizophrenia (But Not Depression) Label on Desire for Distance. I hypothesize that dangerousness and fear, as in Study 2, will mediate the effect of a schizophrenia label on desire for social distance. I expect that this mediational pathway will not remain significant for a depression label.

4.2 Study 3 Methods

4.2.1 Participants

An a priori power analysis specified to detect the smallest effect of interest in Study 2 (i.e., social distance interaction) with 80% power, and to power mediation analyses, indicated I should retain a 700-participant sample. 823 participants were recruited via MTurk in October 2021 and were paid \$0.80. Respondents were excluded if

they skipped over 25% of the items ($n = 1$), requested their data be excluded ($n = 4$), or failed one of three attention checks: indicate the patient's sex ($n = 5$) and chief complaint ($n = 10$) and select "disagree" on a specific item ($n = 12$). 791 participants were retained, ranging in age from 19 to 81 ($M_{\text{age}} = 42.05$, $SD = 13.68$). Median household income is \$50,000-\$70,000 and the sample consists of 543 (68.6%) females and 241 (30.5%) males. Four participants (0.5%) indicated they were non-binary, two (0.2%) provided other gender identities, and one (0.1%) did not provide gender information. The sample is 79.3% White, 8.5% Black, 5.1% Asian, 4.3% Mixed Race, 2.1% Other, and 0.7% chose not to respond. 609 (77.0%) participants reported knowing "anyone who has ever been diagnosed or treated for a mental health condition" and 324 (41.0%) reported having "been diagnosed or treated for a mental health condition themselves." Participants were randomly assigned to one of six conditions in a 2 (calm vs. irritable behavior) x 3 (no psychiatric label vs. depression label vs. schizophrenia label) between-subjects design.

4.2.2 Measures

The attribution, warmth, competence, self-reported emotions, perceived dangerousness, predictability, and social distance scales were identical to those used in Study 2. Two additional items capturing dangerousness to oneself were adapted from the dangerousness items used in Study 2: "How dangerous do you think this patient is to herself?" and "How likely is it that this patient would do something harmful to herself?" Both items were scored on unnumbered sliding scales scored from 0 (Not dangerous at all/Not at all likely), to 100 (Very dangerous/Very likely). In line with Studies 1 and 2, composite scores were created for blameworthy attributions ($\alpha = .77$), contextual attributions ($\alpha = .60$), warmth ($\alpha = .87$), competence ($\alpha = .87$), fear ($\alpha = .89$), anger ($\alpha =$

.89), caring emotions ($\alpha = .90$), dangerousness to others ($\alpha = .91$), predictability ($\alpha = .60$), and desire for distance ($\alpha = .96$) by averaging participant responses to items in each factor. Also consistent with Studies 1 and 2, stigmatizing attributions (e.g., substance use, hormonal imbalance, a mental disorder) were analyzed separately. A composite score was created for dangerousness to self by averaging participant responses to the two new items ($\alpha = .96$). See Appendix B for all study measures.

4.2.3 Procedure

Study procedures were reviewed and approved by my university's Institutional Review Board (Study Name: "Evaluations and Impressions of Hospital Patients 2"). The procedure for Study 3 closely followed Studies 1 and 2 but included six experimental conditions in a 2 (calm vs. irritable behavior) x 3 (no psychiatric label vs. depression label vs. schizophrenia label) between-subjects experimental design. In addition, minor changes were made to the stimulus materials. Participants were routed from the MTurk platform to a survey created in Qualtrics. After consent, participants were randomly assigned to review a patient description and EHR that included a diagnosis of migraines only (no psychiatric label condition), a diagnosis of depression and migraines (depression label condition), or a diagnosis of schizophrenia and migraines (schizophrenia label condition). As in Studies 1 and 2, the brief description of the patient (Appendix A) appeared directly above the EHR and described her as "a 22-year-old student... complaining of a severe headache." Participants in the 'no label' condition were told she was diagnosed with migraines in 2017, and that she "takes medication... but sometimes becomes upset due to the pain." Participants in the 'schizophrenia label' condition were told she was diagnosed with migraines in 2017 and schizophrenia in 2018, and that she

“takes medication... but sometimes hears voices and becomes upset due to the pain.”

Participants in the ‘depression label’ condition were told she was diagnosed with migraines in 2017 and depression in 2018, and that she “takes medication... but sometimes has a depressed mood and becomes upset due to the pain.”

Identical in format to those used in Studies 1 and 2, the EHRs (Appendix A) listed ‘headache’ as the patient’s chief complaint and provided the same information common on an EHR (e.g., height, weight). All EHRs included a history of migraines, but participants in the ‘schizophrenia label’ condition and the ‘depression label’ condition received an EHR that included a schizophrenia diagnosis and a depression diagnosis respectively, while those in the ‘no label’ condition did not. Like Studies 1 and 2, the schizophrenia diagnosis included a short description of symptoms common to schizophrenia: delusions and auditory hallucinations. Unlike Studies 1 and 2, the EHR did not include a period of non-adherence to medication. The schizophrenia condition also included only one medication (rather than two, as in Studies 1 and 2) commonly used to treat schizophrenia: Abilify. Non-adherence was removed to ensure it did not explain the effects of a schizophrenia label on attitudes in Studies 1 and 2 and the second medication was removed to ensure that the total number of medications in the schizophrenia and depression condition was equal. The depression diagnosis included a short description of symptoms common to depression: a depressed mood and fatigue. The depression condition also included one medication commonly used to treat depression: Celexa. The symptoms and medications were included to ensure that participants had a shared understanding of schizophrenia and depression in this context.

Next, participants watched a video of the patient behaving calmly or irritably. Videos were identical to Studies 1 and 2 (see Appendix A for transcripts). Participants then completed all patient judgement measures in the order presented in the methods, provided demographics, and were debriefed.

4.3 Study 3 Results

See Table 1 for bivariate correlations. 2 (calm vs. irritable behavior) x 3 (no psychiatric label vs. depression label vs. schizophrenia label) ANOVAs were conducted to examine effects of patient behavior and psychiatric label on outcomes of interest. See Table 2 for means by experimental condition. For significant main effects of psychiatric label, follow-up comparisons were conducted by selecting relevant cases to test for differences between marginal means (e.g., no psychiatric label, depression, schizophrenia). When a significant interaction was observed, planned contrasts were used to examine the effect of psychiatric labels in the presence and absence of irritable behavior. Finally, hypothesized mediation models were examined. See Table S6 (Appendix C) for a summary of results from all three studies.

4.3.1 Attributions for Patient Behavior

Blameworthy Attributions. Consistent with Studies 1 and 2, participants were more likely to blame the patient for her behavior if she was irritable ($M = 65.97$, $SD = 19.69$) than if she was calm ($M = 47.02$, $SD = 20.99$), $F(1, 785) = 171.08$, $p < .001$, partial $\eta^2 = .179$, all other $ps > .45$.

Stigmatizing Attributions. Irritable patient behavior ($M = 41.77$, $SD = 31.05$) was also more likely than calm behavior ($M = 30.39$, $SD = 27.64$) to be attributed to a mental disorder, $F(1, 784) = 36.18$, $p < .001$, partial $\eta^2 = .044$. Belief that the patient's

behavior was due to a mental disorder also varied as a function of her psychiatric diagnosis, $F(2, 784) = 79.79, p < .001$, partial $\eta^2 = .169$. These effects did not interact, $F(2, 784) = 0.24, p = .78$, partial $\eta^2 = .001$. Follow-up analyses indicated the patient with no psychiatric diagnosis was less likely to have her behavior attributed to a mental disorder ($M = 19.55, SD = 22.57$) than both the patient with depression ($M = 40.29, SD = 29.17$), $F(1, 522) = 86.35, p < .001$, partial $\eta^2 = .142$, and the patient with schizophrenia ($M = 48.10, SD = 29.85$), $F(1, 522) = 162.32, p < .001$, partial $\eta^2 = .237$. Further, schizophrenia resulted in significantly higher mental disorder attributions compared to depression, $F(1, 524) = 9.89, p = .002$, partial $\eta^2 = .019$.

Similarly, participants were more likely to endorse substance use as a reason for behavior if the patient was irritable ($M = 26.98, SD = 27.08$) than if the patient was calm ($M = 19.59, SD = 23.42$), $F(1, 785) = 17.15, p < .001$, partial $\eta^2 = .021$. Substance use attributions also varied significantly as a function of psychiatric diagnosis, $F(2, 785) = 5.95, p = .003$, partial $\eta^2 = .015$, and did not interact with patient behavior, $F(2, 785) = 1.49, p = .23$, partial $\eta^2 = .004$. Similar to mental disorder attributions, the patient's behavior was rated as less likely to be due to substance use if she had no psychiatric diagnosis ($M = 19.12, SD = 23.42$) compared to both an identical patient with depression ($M = 26.58, SD = 27.87$), $F(1, 523) = 11.22, p = .001$, partial $\eta^2 = .021$, and an identical patient with schizophrenia ($M = 23.99, SD = 24.65$), $F(1, 522) = 5.66, p = .018$, partial $\eta^2 = .011$. Unlike mental disorder attributions, substance use attributions did not differ between the depression and schizophrenia conditions, $F(1, 525) = 1.22, p = .27$, partial $\eta^2 = .002$.

Lastly, irritable behavior resulted in greater attributions to hormonal imbalance ($M = 31.08$, $SD = 27.21$) compared to calm behavior ($M = 26.17$, $SD = 24.45$), $F(1, 785) = 7.24$, $p = .007$, partial $\eta^2 = .009$. Attributions to hormonal imbalance also differed as a function of psychiatric diagnosis, $F(2, 785) = 3.91$, $p = .02$, partial $\eta^2 = .010$. These effects did not interact, $F(2, 785) = 1.45$, $p = .24$, partial $\eta^2 = .004$. Similar to substance use and mental disorder attributions, the behavior of a patient with no psychiatric diagnosis was rated as less likely to be due to hormonal imbalance ($M = 25.04$, $SD = 24.57$) than both an identical patient with depression ($M = 31.06$, $SD = 26.68$), $F(1, 523) = 7.28$, $p = .007$, partial $\eta^2 = .014$, and an identical patient with schizophrenia ($M = 29.65$, $SD = 26.26$), $F(1, 522) = 4.41$, $p = .036$, partial $\eta^2 = .008$. Like substance use, hormonal imbalance attributions for patients with depression and schizophrenia were not significantly different from one another, $F(1, 525) = 0.35$, $p = .55$, partial $\eta^2 = .001$.

Contextual Attributions. As in Studies 1 and 2, contextual attributions did not vary as a function of behavior, diagnosis, or an interaction of these factors, all $ps > .31$.

4.3.2 Self-Reported Emotions

Anger. Participant anger differed as a function of patient behavior, $F(1, 784) = 240.38$, $p < .001$, partial $\eta^2 = .235$, and psychiatric diagnosis, $F(2, 784) = 4.54$, $p = .01$, partial $\eta^2 = .011$, but these main effects were qualified by a two-way interaction, $F(2, 784) = 3.93$, $p = .02$, partial $\eta^2 = .010$ (Figure 3). When the patient was irritable, a schizophrenia label reduced anger ($M = 40.80$, $SD = 23.08$) compared to no label ($M = 49.26$, $SD = 22.85$), $t(256.92) = 2.97$, $p = .003$, partial $\eta^2 = .033$, and compared to a depression label ($M = 47.34$, $SD = 22.59$), $t(258.49) = 2.31$, $p = .02$, partial $\eta^2 = .020$, which did not differ from one another, $t(259.81) = 0.69$, $p = .49$, partial $\eta^2 = .002$. When

the patient was calm, a schizophrenia label had the same effect on anger ($M = 22.49$, $SD = 15.22$) as no label ($M = 21.32$, $SD = 16.96$), $t(260.08) = 0.59$, $p = .56$, partial $\eta^2 = .001$). However, a calm patient with depression elicited significantly more anger ($M = 26.34$, $SD = 20.00$) than a calm patient without a label, $t(256.78) = 2.20$, $p = .029$, partial $\eta^2 = .018$ and marginally more anger than a calm patient with schizophrenia, $t(246.56) = 1.77$, $p = .078$, partial $\eta^2 = .012$.

Fear. Participants reported feeling greater fear when they imagined interacting with an irritable patient ($M = 29.25$, $SD = 22.66$) as compared to a calm patient ($M = 18.19$, $SD = 20.42$), $F(1, 784) = 52.18$, $p < .001$, partial $\eta^2 = .062$. Fear also differed as a function of psychiatric diagnosis, $F(2, 784) = 3.60$, $p = .03$, partial $\eta^2 = .009$, which did not interact with patient behavior, $F(2, 784) = 1.27$, $p = .28$, partial $\eta^2 = .003$. Imagining interacting with a patient with depression elicited greater fear ($M = 26.58$, $SD = 23.58$) than with a patient with no label ($M = 22.36$, $SD = 21.70$), $F(1, 523) = 4.83$, $p = .03$, partial $\eta^2 = .009$, or a patient with schizophrenia ($M = 22.02$, $SD = 21.16$), $F(1, 524) = 5.51$, $p = .02$, partial $\eta^2 = .010$. As in Studies 1 and 2, fear did not differ between the no label and schizophrenia conditions, $F(1, 521) = 0.03$, $p = .87$, partial $\eta^2 < .001$.

Caring. Also in line with Studies 1 and 2, participants reported greater caring emotions if asked to imagine interacting with a calm patient ($M = 77.38$, $SD = 18.26$) as compared to an irritable patient ($M = 65.80$, $SD = 22.83$), $F(1, 784) = 62.32$, $p < .001$, partial $\eta^2 = 0.74$, all other $ps > .18$.

4.3.3 Warmth and Competence

Warmth. Replicating Study 2, the patient was rated as significantly less warm when behaving irritably ($M = 38.06$, $SD = 17.98$) than when behaving calmly ($M = 64.24$,

$SD = 17.38$), $F(1, 785) = 435.74$, $p < .001$, partial $\eta^2 = .357$. The effect of psychiatric diagnosis on warmth was non-significant, $F(2, 785) = 2.40$, $p = .09$, partial $\eta^2 = .006$, and did not interact with patient behavior, $F(2, 785) = 1.77$, $p = .17$, partial $\eta^2 = .004$.

Competence. An irritable patient was judged to be less competent ($M = 56.97$, $SD = 17.25$) than her identical, calm counterpart ($M = 66.90$, $SD = 15.62$), $F(1, 784) = 72.98$, $p < .001$, partial $\eta^2 = .085$. Competence also varied as a function of diagnosis, $F(2, 784) = 4.48$, $p = .01$, partial $\eta^2 = .011$, and these effects did not interact, $F(2, 784) = 0.83$, $p = .44$, partial $\eta^2 = .002$. Replicating Study 2, a patient with schizophrenia was perceived to be less competent ($M = 59.74$, $SD = 17.18$) than a patient with no label ($M = 63.93$, $SD = 17.09$), $F(1, 521) = 8.88$, $p = .003$, partial $\eta^2 = .017$. A patient with a depression label, however, was rated as similarly competent ($M = 62.29$, $SD = 17.06$) to a patient with no label, $F(1, 523) = 1.28$, $p = .26$, partial $\eta^2 = .002$, but marginally more competent than a patient with schizophrenia, $F(1, 524) = 3.33$, $p = .069$, partial $\eta^2 = .006$.

4.3.4 Perceived Dangerousness and Predictability

Dangerousness to Others. Dangerousness to others differed as a function of patient behavior, $F(1, 785) = 76.98$, $p < .001$, partial $\eta^2 = .089$, and psychiatric diagnosis, $F(2, 785) = 18.51$, $p < .001$, partial $\eta^2 = .045$, but was qualified by a significant two-way interaction, $F(2, 785) = 3.03$, $p = .05$, partial $\eta^2 = .008$ (Figure 4). When the patient was calm, perceived dangerousness without a psychiatric label ($M = 6.50$, $SD = 12.60$) was lower than schizophrenia ($M = 15.92$, $SD = 18.05$), $t(239.91) = 4.95$, $p < .001$, partial $\eta^2 = .084$, and depression ($M = 13.17$, $SD = 17.89$) $t(237.28) = 3.51$, $p = .001$, partial $\eta^2 = .045$, which did not differ from one another, $t(265.99) = 1.25$, $p = .21$, partial $\eta^2 = .006$. When the patient was irritable, perceived dangerousness without a psychiatric label ($M =$

20.32, $SD = 22.43$) was statistically similar to depression ($M = 20.76$, $SD = 22.86$), $t(260.00) = 0.15$, $p = .88$, partial $\eta^2 < .001$, and schizophrenia was rated as more dangerous ($M = 31.59$, $SD = 23.02$) than both no psychiatric label, $t(256.71) = 3.99$, $p < .001$, partial $\eta^2 = .058$, and depression $t(258.77) = 3.81$, $p < .001$, partial $\eta^2 = .053$.

Dangerousness to Self. Irritable patients were rated as more likely to be a danger to themselves ($M = 31.60$, $SD = 25.74$) compared to calm patients ($M = 22.28$, $SD = 22.22$), $F(1, 785) = 33.75$, $p < .001$, partial $\eta^2 = .041$. Perceptions of dangerousness to oneself also varied as a function of psychiatric diagnosis, $F(2, 785) = 44.56$, $p < .001$, partial $\eta^2 = .102$, which did not interact with behavior, $F(2, 785) = 1.61$, $p = .20$, partial $\eta^2 = .004$. A patient without a psychiatric diagnosis was perceived to be significantly less likely to be a danger to herself ($M = 16.93$, $SD = 20.65$) than a patient with depression ($M = 28.16$, $SD = 24.77$), $F(1, 523) = 33.04$, $p < .001$, partial $\eta^2 = .059$, and a patient with schizophrenia ($M = 35.49$, $SD = 24.14$), $F(1, 522) = 96.33$, $p < .001$, partial $\eta^2 = .156$. A patient with schizophrenia was also rated as more likely to be a danger to herself than a patient with depression, $F(1, 525) = 12.55$, $p < .001$, partial $\eta^2 = .023$.

Predictability. A patient behaving irritably was perceived to be less predictable ($M = 56.63$, $SD = 21.74$) relative to a patient behaving calmly ($M = 69.00$, $SD = 18.50$), $F(1, 785) = 80.27$, $p < .001$, partial $\eta^2 = .093$. Predictability also varied as a function of psychiatric diagnosis, $F(2, 785) = 26.51$, $p < .001$, partial $\eta^2 = .063$, and did not interact with behavior, $F(2, 785) = 0.81$, $p = .45$, partial $\eta^2 = .002$. A patient without a psychiatric diagnosis was perceived to be more predictable ($M = 68.12$, $SD = 20.01$) than an identical patient with depression ($M = 64.45$, $SD = 21.41$), $F(1, 523) = 4.49$, $p = .035$, partial $\eta^2 = .009$, and an identical patient with schizophrenia ($M = 56.11$, $SD = 20.04$), $F(1, 522) =$

53.61, $p < .001$, partial $\eta^2 = .093$. Further, a patient with schizophrenia was rated as less predictable than a patient with depression, $F(1, 525) = 23.62$, $p < .001$, partial $\eta^2 = .043$.

4.3.5 Desire for Social Distance

Desire for social distance varied as a function of patient behavior $F(1, 785) = 232.82$, $p < .001$, partial $\eta^2 = .229$, psychiatric diagnosis, $F(2, 785) = 4.73$, $p = .01$, partial $\eta^2 = .012$, and an interaction between these two factors, $F(2, 785) = 3.76$, $p = .02$, partial $\eta^2 = .009$ (Figure 5). When the patient was calm, both a depression label ($M = 23.57$, $SD = 23.25$) and a schizophrenia label ($M = 29.01$, $SD = 21.42$) resulted in a significantly greater desire for distance relative to no label ($M = 16.76$, $SD = 17.27$), (depression: $t(243.70) = 6.82$, $p = .007$, partial $\eta^2 = .027$; schizophrenia: $t(255.80) = 12.25$, $p < .001$, partial $\eta^2 = .091$). Furthermore, a calm patient with schizophrenia elicited a significantly greater desire for distance than an identical calm patient with depression, $t(263.52) = 5.43$, $p = .048$, partial $\eta^2 = .015$). Among irritable patients, desire for distance was similar regardless of psychiatric status (no label: $M = 48.97$, $SD = 29.59$; depression: $M = 49.46$, $SD = 26.35$; schizophrenia: $M = 49.67$, $SD = 25.56$), all $ps > .838$.

4.3.6 Does a Label Increase Social Distance Via Dangerousness and Fear?

Finally, I tested mediation models from Study 2. To accommodate a multicategorical predictor (no mental illness label, depression, schizophrenia), dummy codes were created with no mental illness label serving as the reference category. Model one hypothesized that the presence of a schizophrenia diagnosis — but not a depression diagnosis — increases perceived danger, which increases desire for social distance, controlling for patient behavior. Model two hypothesized a serial mediation (Corrigan et al., 2003) in which the presence of schizophrenia diagnosis — but not a depression

diagnosis — increases perceived danger, in turn elevating fear, which predicts increased desire for social distance, controlling for patient behavior. Mediation models were run using Hayes' PROCESSv3.4 in SPSS with 10,000 bootstrap samples.

Model 1. Dangerousness Mediates the Effect of a Both a Schizophrenia Label and a Depression Label on Desire for Distance. Results were somewhat consistent with my mediational hypotheses (Figure 6). A schizophrenia label was associated with a significant increase in perceived dangerousness ($b = 10.31, SE = 1.73, p < .001$), controlling for patient behavior. Contrary to hypotheses, a depression label was also significantly associated with a descriptively weaker, but still significant increase in perceived dangerousness ($b = 3.56, SE = 1.73, p = .04$). An increase in perceived dangerousness was subsequently related to an increase in desire for distance ($b = 0.60, SE = 0.04, p < .001$), controlling for behavior and diagnosis. As such, the model significantly predicted desire for distance, $F(4, 786) = 140.38, p < .001, R^2 = .42$, and the indirect effect of a schizophrenia label on desire for distance through perceived dangerousness, was significant ($b = 6.16, SE = 1.13$, bootstrapped 95% CI [4.01, 8.43]). Further, replicating Study 2, the direct effect of a schizophrenia diagnosis on desire for distance was no longer significant when controlling for patient behavior and this indirect effect ($b = 0.40, SE = 1.89, p = .83$). Similarly, the indirect effect of a depression label on desire for distance through perceived dangerousness, was significant ($b = 2.13, SE = 1.04$, bootstrapped 95% CI [0.15, 4.23]). When interpreting the indirect effect of a depression label on desire for distance however, it is important to note that the total effect of label on distance (when no mediators are included in the model), was only marginally significant ($b = 3.68, SE = 2.12, p = .08$). Even so, when controlling for behavior and the indirect

effect, the direct effect of a depression diagnosis on desire for distance was weakened, and similarly non-significant ($b = 1.55$, $SE = 1.85$ $p = .40$).

Model 2. Dangerousness and Fear Mediates the Effect of a Schizophrenia Label on Desire for Distance. Again, results were somewhat consistent with my mediation hypotheses (Figure 7). A schizophrenia label ($b = 10.31$, $SE = 1.73$, $p < .001$) and a depression label ($b = 3.56$, $SE = 1.73$, $p = .04$) were again associated with greater perceived dangerousness, controlling for patient behavior. Greater dangerousness was subsequently related to greater fear ($b = 0.52$, $SE = 0.03$, $p < .001$), controlling for behavior and diagnosis. Fear, in turn, was related to a significant increase in desire for distance ($b = 0.15$, $SE = 0.04$, $p < .001$), controlling for all other predictors. Like Model 1, Model 2 significantly predicted desire for distance, $F(5, 784) = 117.67$, $p < .001$, $R^2 = .43$. The indirect effect of a schizophrenia label on desire for distance through perceived dangerousness and fear was significant ($b = 0.78$, $SE = 0.28$, bootstrapped 95% CI [0.29, 1.38]), and when controlling for indirect effects and patient behavior, the direct effect of a schizophrenia label on distance became non-significant ($b = 1.06$, $SE = 1.89$, $p = .58$). The indirect effect of a depression label through both mediators was also significant ($b = 0.27$, $SE = 0.16$, bootstrapped 95% CI [0.01, 0.64]), and the direct effect of depression on distance was also non-significant when controlling for indirect effects ($b = 1.20$, $SE = 1.84$, $p = .51$). Yet, it remains important to note that the total effect of depression on distance was marginally significant ($b = 3.68$, $SE = 2.12$, $p = .08$).

4.4 Study 3 Discussion

Study 3 replicates effects of irritable behavior and a schizophrenia diagnosis on stigma markers from Studies 1 and 2 and extends these findings to a novel psychiatric

diagnosis — depression. Beginning with my primary outcome, desire for social distance, my findings closely align with hypotheses (H3a). When the patient was irritable, relatively greater distance was desired from the patient regardless of the type or presence of a psychiatric label. When the patient was calm, however, a patient with no psychiatric label was the least stigmatized, one with depression was moderately stigmatized, and one with schizophrenia was most stigmatized. The effect of a label on distance was also mediated by perceptions of dangerousness to others and fear (H3b).

Regarding attitudes and emotions, I again found that irritable behavior, relative to calm behavior, resulted in greater blame, fear, anger, and danger to others, as well as lower caring emotions, warmth, competence, and predictability (H1). I also found evidence that irritable behavior increased perceptions of dangerousness to oneself (i.e., self-harm). Replicating previous studies, a schizophrenia diagnosis resulted in greater stigmatizing attributions, lower competence, lower predictability, and higher ratings of perceived dangerousness to others relative to an identical patient with no psychiatric label (H2a). A schizophrenia label also increased perceptions of likelihood to engage in self-harm relative to no psychiatric label and was unrelated to emotions.

For depression, I found mixed support for hypotheses. A depression label, relative to no label, resulted in greater stigmatizing attributions, lower predictability, and higher ratings of dangerousness to oneself (H2b). However, counter to hypotheses, a depression label did not diminish warmth and competence relative to no psychiatric label and was positively related to dangerousness to others and participant fear. Similarly, my findings were mixed regarding differences between stigma towards schizophrenia and depression (H2c). Consistent with hypotheses, a patient with schizophrenia was rated less

predictable and marginally less competent compared to a patient with depression. However, the behavior of patients with depression and schizophrenia was seen as equally likely to be due to substance use and a hormonal imbalance, and they were perceived to be equally cold and equally likely to harm themselves.

Lastly, two outcomes other than social distance unexpectedly differed as a function of both observed behavior and diagnostic label — participant anger and perceptions of dangerousness. These interactions were not hypothesized and should be interpreted cautiously. Anger in response to an irritable (but not calm) patient was reduced if a schizophrenia (but not depression) label was present. It may be that patients with schizophrenia are viewed as low in personal responsibility (Jorm et al., 1997), and this perception of uncontrollability is theorized to reduce anger (Corrigan, 2000). This is consistent with the fact that mental disorder attributions were more likely for patients with schizophrenia as compared to with depression and with no diagnostic label. Second, when the patient was calm, a depression and schizophrenia label both resulted in greater perceived dangerousness to others relative to no label, whereas when irritable, only schizophrenia increased perceived dangerousness. It may be that in the absence of irritable behavior, any psychiatric label is enough to elevate perceptions of dangerousness, even if the label is not stereotypically associated with danger (i.e., depression; Angermeyer & Matschinger, 2003), whereas for irritable patients, a label only elevates perceptions of dangerousness if it is also a stereotypically dangerous label (i.e., schizophrenia).

CHAPTER 5

GENERAL DISCUSSION

Three studies assessed the importance of a psychiatric diagnosis and irritable behavior in generating stigma towards a hospital patient. In line with labeling theory, irritable behavior and a psychiatric label separately impacted attitudes and emotions, but consistently interacted to predict desire for distance. These findings lend experimental support to the notion that precipitants of stigmatizing behavior (i.e., attitudes and emotions; Hinshaw, 2009) are impacted in distinct ways by labels and behaviors, but both are important in predicting behavioral manifestations of stigma (i.e., desire for distance).

Examining the interaction of label and behavior in predicting desire for distance sheds light on how and when specific signaling events result in stigma. In all three studies, irritable behavior resulted in a higher desire for distance relative to calm behavior, regardless of psychiatric status. In other words, the negative effect of irritable behavior appears to overshadow any differences in stigma that may emerge due to a diagnostic label. Conversely, when the patient was calm, psychiatric labels did predict desire for distance. This is noteworthy, as it suggests that patients with psychiatric labels may have little control over how they are perceived due to their label: they are likely to experience stigma as a function of their mental health condition even when they behave calmly and respectfully. If replicated among medically experienced populations (e.g., nurses or physicians), written labels on EHRs may be a specific pathway through which stigma perpetuates known disparities in care for these populations (McGinty et al., 2015).

The primary mechanism through which diagnostic labels impacted stigma was via stereotyping (e.g., associating a labelled person with other stigmatizing attributions).

Consistently, both a schizophrenia label (Studies 1-3) and a depression label (Study 3) elicited greater behavioral attributions to substance use and hormonal imbalance. The effects of a diagnostic label on these stigmatizing attributions suggests that those with psychiatric diagnoses experience stigma not only as a direct function of their label, but also as an indirect function of other stigmatized labels, which may not be relevant to them specifically. My findings also indicate that stigmatizing attributions are not substitutive, but additive. Once a stereotype is activated by a stigmatizing label (e.g., schizophrenia), other negative attributions (e.g., substance use) are activated as well, and observers infer that these negative attributions are also relevant to the target. In this way, psychiatric diagnoses may elicit stigma akin to “double jeopardy,” in which negative inferences that emerge due to stereotypic associations further stigmatize labelled individuals.

On the other hand, the primary mechanism through which irritable behavior elicited stigma was via emotions. In all three studies, irritable patients elicited greater fear, greater anger, and diminished caring emotions. Emotions did not consistently vary as a function of written diagnosis alone, suggesting that emotions towards those with mental illness may be less likely to be evoked by a diagnosis and more likely to be evoked by behavior. The only effects of the diagnostic label on participant emotions emerged in Study 3, in which depression resulted in greater fear in response to a patient, and schizophrenia reduced anger in response to an irritable patient. These findings are inconsistent with prior literature, as most work suggests that disorders stereotypically associated with danger and violence (i.e., schizophrenia; Angermeyer & Matschinger, 2003) should elicit fear. The counterintuitive finding in Study 3 may be due to the fact that imagining interacting with a patient with depression elicits fears of “making a

mistake” or “saying the wrong thing” in front of someone who is perceived to be emotionally fragile. This possibility should be tested in future work. As described in Study 3, a schizophrenia label decreased anger towards irritable patients, possibly due to a reduction in perceived controllability. While it is important to investigate possible reasons for a relationship between diagnostic labels and emotions, the bulk of evidence from these studies suggest that behavior is a more potent signaling event for emotional components of stigma than written labels.

Finding that a written diagnostic label discretely affects stereotypes, and that observed behavior discretely affects emotions has implications for anti-stigma interventions. Specifically, uncovering distinct mechanisms suggests that two common types of interventions — contact and education — may reduce stigma via different processes. Contact interventions involve participants interacting with or imagining interacting with an outgroup member (e.g., someone with mental illness; Pettigrew & Tropp, 2008). My findings suggest that such interventions likely target stigma that emerges as a function of observed behavior by providing examples of real, non-threatening behavior, thereby diminishing fear, and increasing caring. Educational interventions provide information to contradict inaccurate stereotypes (Morgan et al., 2018). My findings suggest this likely reduces stigma that emerges as a function of a label alone, such as false perceptions (e.g., believing those with mental illness to be dangerous). Considering these different mechanisms, contact and education interventions may work best when implemented together: contact to reduce negative emotions and education to decrease endorsement of harmful stereotypes. Testing this possibility, as well as the long-term efficacy of such hybrid interventions is necessary.

Finally, examining the process-based questions tested by Studies 2 and 3 provides mixed results for Corrigan and colleagues' (2003) hypothesized mediation models. Centrally, dangerousness to others was found to be a consistent, key mediator of the effect of a psychiatric label on desire for distance. This is not particularly surprising for schizophrenia, as past work suggests the label is associated with dangerousness (Marie & Miles, 2008). This finding is surprising for depression however, as depression is not stereotypically associated with danger to others. It is important to note that while a depression label does predict significantly greater dangerousness, the associated increase in danger is much smaller ($b = 3.56$) than for schizophrenia ($b = 10.31$). Including fear as a serial mediator only resulted in a 1% increase in the proportion of variance explained in desire for distance (Study 2: $R^2 = .37$; Study 3: $R^2 = .43$) compared to dangerousness only (Study 2: $R^2 = .36$; Study 3: $R^2 = .42$). While it is possible that the fear measures (e.g., self-reported emotions regarding a hypothetical encounter) were unable to capture true participant emotions, this modest increase in explained variability suggests that fear, compared to perceptions of dangerousness, may be a less important predictor of desire for distance as a function of label. This aligns with the main finding that behavior (not label) largely predicts elevated participant emotions.

5.1 Strengths, Limitations, and Future Directions

This work has several strengths. For one, I overcome methodological criticisms of past work by using specific labels (i.e., schizophrenia/depression [and migraines]) and a 'no-label' condition (i.e., migraines only) that adequately explain irritable behavior. Importantly, all conditions included a migraine diagnosis, so causal effects of psychiatric label are explained by the addition of a psychiatric diagnosis and not the omission of a

migraine diagnosis. Also, the EHR is modeled on health records used in the real world, strengthening external validity, and Study 3 eliminates the possibility that medication non-adherence explains the effects of written diagnosis. I also used video interactions to manipulate behavior and employed large samples in Studies 2 and 3 to ensure adequate power to replicate marginal effects in Study 1. Lastly, my manipulations were subtle: the patient mildly raises her voice and speaks exasperatedly in the irritable video, and the diagnostic label was embedded in an EHR with other medical history. As such, stigma derived from these signals is activated by slightly irritable behavior and knowledge of a psychiatric label.

This work is not without limitations. First, my EHR manipulation includes clinical markers of psychiatric conditions (e.g., medications, delusions, hallucinations, depressed mood, fatigue). This offers some strengths — real-world validity, participants having a shared understanding of the diagnosis — but the clinical markers may confound the effect of a diagnostic label alone. Future work should examine whether a simple, one-word manipulation of schizophrenia or depression impacts stigma to the same extent as this clinical presentation. Additionally, although I employed video stimuli, all my data are from self-report measures. As such, my measures may be subject to self-report biases and participant inattention. Indeed, this may explain the absence of a label's effect on self-reported emotions: participants may underestimate or purposefully under-report emotions they would feel during an encounter with a patient with schizophrenia or depression. Future work could address this limitation by simulating real world interactions or using physiological measures of emotional activity. I also measure attributions, emotions, and behavioral intentions in a fixed order, which may influence

findings regarding social distance (e.g., by priming participants to think about their emotions).

Importantly, this work examines schizophrenia and depression only, does not vary the patient's visible identity (e.g., gender, race), and my samples are disproportionately white. Future work should consider manipulating the patient's visible identity, include additional diagnoses, and recruit racially diverse samples to test the influence of labels and behaviors on stigma processes for diverse populations and illnesses. Lastly, while not my current focus, examining demographic moderators of the effect of psychiatric diagnosis on stigma markers is needed. In supplementary analyses (Appendix C), I explored whether theoretically important moderators — participant's age, gender, perceived similarity to the patient, knowledge of someone with mental illness, and one's own mental illness status — moderate the effects of a label on all stigma markers that demonstrated label effects in all studies. Although I found little evidence across the studies of any variable consistently moderating these effects, future work specifically designed to test moderation is needed, as past work suggests that respondent age (Jorm & Oh, 2009) and exposure to mental illness (Couture & Penn, 2003) likely play a role.

5.2 Conclusion

Stigma towards those with mental illness results in significant health disparities, but when and why specific signaling events elicit stigma towards these groups is unclear. Across three studies, irritable behavior, and a psychiatric diagnosis both signal mental illness, but impart divergent effects on attitudes, emotions, and behavioral intentions. Rather than concluding one is more consequential than the other, this work shows that both signaling events can result in stigma, but via different attitudinal and emotional

mechanisms. Observed irritable behavior was consistently related to blaming the patient and eliciting negative emotional reactions (e.g., anger, un-caring attitudes), while a diagnosis was consistently related to associating the patient with other stigmatized identities (e.g., substance use). Future work, including anti-stigma interventions, should consider the specificities of these stigma processes. A nuanced understanding of the reasons and precipitating events for stigma, be it behavior or diagnosis, is helpful in seeking to combat its ill effects.

Table 1.

Studies 1-3: Bivariate Correlations Among Study Variables and Cronbach Alphas (in parenthesis)

Study 1 Variable	1	2	3	4	5	6	7	8	9
1. Blaming Attributions	(.76)	.21**	.16*	.23**	.22**	-.13†	.23**	.07	.32**
2. Substance Use		—	.47**	.52**	-.01	-.10	.02	.23**	.30**
3. Hormonal Imbalance			—	.53**	.14†	-.07	.03	.16*	.17*
4. A Mental Disorder				—	.00	-.01	.12	.19**	.37**
5. Contextual Attributions					(.52)	.35**	.14†	.19*	.01
6. Caring Emotions						(.83)	.05	.23**	-.23**
7. Anger Emotions							(.84)	.49**	.31**
8. Fear Emotions								(.85)	.14†
9. Desire for Distance									(.93)

Study 2 Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Blaming Attributions	(.76)	.32**	.28**	.32**	.11**	-.21**	.37**	.24**	-.42**	-.30**	.27**	-.21**	.37**
2. Substance Use		—	.49**	.52**	-.11**	-.27**	.30**	.38**	-.22**	-.30**	.55**	-.35**	.36**
3. Hormonal Imbalance			—	.42**	.08*	-.19**	.28**	.39**	-.04	-.13**	.44**	-.26**	.22**
4. A Mental Disorder				—	-.11**	-.18**	.26**	.32**	-.28**	-.33**	.49**	-.39**	.37**
5. Contextual Attributions					(.59)	.40**	-.09*	.04	.28*	.30**	-.06	.13**	-.19**
6. Caring Emotions						(.83)	-.56**	-.34**	.44**	.49**	-.33**	.38**	-.45**
7. Anger Emotions							(.84)	.74**	-.46**	-.40**	.46**	-.43**	.52**
8. Fear Emotions								(.90)	-.17**	-.21**	.57**	-.41**	.41**
9. Warmth									(.89)	.73**	-.26**	.43**	-.61**
10. Competence										(.90)	-.30**	.42**	-.51**
11. Dangerousness											(.92)	-.55**	.52**
12. Predictability												(.70)	-.68**
13. Desire for Distance													(.93)

Study 3 Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Blaming Attributions	(.77)	.26**	.22**	.31**	.15**	-.25**	.36**	.25**	-.46**	-.26**	.30**	.28**	-.24**	.44**
2. Substance Use		—	.42**	.49**	-.16**	-.32**	.30**	.34**	-.35**	-.33**	.48**	.50**	-.27**	.42**
3. Hormonal Imbalance			—	.44**	.09*	-.19**	.21**	.28**	-.16**	-.24**	.34**	.35**	-.19**	.27**
4. A Mental Disorder				—	-.01	-.23**	.28**	.33**	-.30**	-.32**	.48**	.52**	-.38**	.43**
5. Contextual Attributions					(.60)	.31**	-.11**	.04	.19**	.19**	-.08*	-.03	.04	-.13**
6. Caring Emotions						(.90)	-.60**	-.41**	.52**	.48**	-.31**	-.22**	.31**	-.48**
7. Anger Emotions							(.89)	.73**	-.52**	-.38**	.42**	.34**	-.39**	.53**
8. Fear Emotions								(.89)	-.26**	-.24**	.50**	.45**	-.37**	.40**
9. Warmth									(.87)	.69**	-.38**	-.35**	.44**	-.69**
1. Competence										(.87)	-.34**	-.31**	.39**	-.55**
11. Dangerousness to Others											(.91)	.71**	-.50**	.56**
12. Dangerousness to Self												(.96)	-.48**	.49**
13. Predictability													(.60)	-.57**
14. Desire for Distance														(.96)

Note. Blaming Attributions: General attitude, mood, personality, having a bad day. Contextual Attributions: Stress, pain, lack of sleep. Caring Emotions: Concerned, compassionate, sympathetic, engaged, desire to help. Angry Emotions: Angry, irritated, frustrated, upset, calm (rev.), relaxed (rev.). Fear Emotions: Afraid, anxious, nervous, unsafe, uneasy. Warmth: Warm, friendly, good-natured, honest. Competence: Competent, intelligent, skilled, capable. Dangerousness to Others: 2 items. Dangerousness to Self: 2 items. Predictability: 2 items. Desire for Distance: 8 items. * $p < .05$. ** $p < .01$.

Table 2.

Studies 1-3: Mean Attitudes, Emotions, and Desire for Social Distance as a Function of Patient Behavior and Mental Illness Diagnosis

Outcome Variable	Study	Calm Patient Behavior				Irritable Patient Behavior				Total			
		No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total
<i>n</i>	1	49	—	49	98	48	—	49	97	97	—	98	195
	2	195	—	179	374	191	—	184	375	386	—	363	749
	3	132	133	135	400	130	132	129	391	262	265	264	791
Blaming Attributions	1	49.15 (21.04)	—	46.83 (19.72)	48.00 (20.32)	68.40 (13.28)	—	64.28 (14.99)	66.32 (14.25)	58.68 (20.03)	—	55.65 (19.48)	57.16 (19.77)
	2	47.65 (22.01)	—	47.06 (20.70)	47.37 (21.37)	62.93 (20.33)	—	62.91 (19.10)	62.92 (19.71)	55.21 (22.51)	—	55.10 (21.40)	55.16 (21.96)
	3	45.68 (22.06)	48.22 (19.58)	47.14 (21.33)	47.02 (20.99)	66.21 (20.45)	67.33 (17.64)	64.35 (20.89)	65.97 (19.69)	55.87 (23.59)	57.74 (20.92)	55.55 (22.77)	56.39 (22.44)
Substance Use	1	14.30 (20.46)	—	29.45 (24.93)	21.96 (23.95)	18.63 (20.53)	—	22.99 (22.73)	20.83 (21.67)	16.47 (20.50)	—	26.22 (23.95)	21.39 (22.79)
	2	19.13 (22.78)	—	26.69 (25.98)	22.75 (24.62)	23.68 (26.11)	—	32.18 (27.51)	27.85 (27.10)	21.38 (24.56)	—	29.47 (26.87)	25.30 (26.00)
	3	13.40 (18.08)	24.53 (27.06)	20.77 (22.98)	19.59 (23.42)	24.92 (26.66)	28.63 (28.62)	27.35 (25.94)	26.98 (27.08)	19.12 (23.42)	26.58 (27.87)	23.99 (24.65)	23.24 (25.55)
Hormonal Imbalance	1	23.28 (25.56)	—	36.75 (24.85)	29.95 (25.98)	27.06 (27.24)	—	31.60 (26.27)	29.35 (26.71)	25.13 (26.33)	—	34.18 (25.57)	29.65 (26.28)
	2	27.51 (24.74)	—	31.17 (26.59)	29.27 (25.67)	26.63 (26.05)	—	35.00 (26.18)	30.74 (26.41)	27.07 (25.37)	—	33.11 (26.41)	30.00 (26.04)
	3	20.52 (20.65)	30.25 (26.72)	27.67 (24.69)	26.17 (24.45)	29.63 (27.32)	31.87 (26.71)	31.72 (27.75)	31.08 (27.21)	25.04 (24.57)	31.06 (26.68)	31.06 (26.68)	28.59 (25.95)
A Mental Disorder	1	17.56 (22.67)	—	53.18 (26.80)	35.19 (30.48)	25.29 (25.95)	—	59.23 (29.48)	42.43 (32.48)	21.34 (24.51)	—	56.20 (28.19)	38.77 (31.61)
	2	19.47 (23.16)	—	46.50 (28.64)	32.41 (29.21)	24.53 (26.11)	—	55.48 (27.82)	39.72 (31.07)	21.97 (24.76)	—	51.05 (28.54)	36.07 (30.35)
	3	13.42 (16.75)	35.49 (27.20)	41.99 (28.74)	30.39 (27.64)	25.77 (25.85)	45.10 (30.36)	54.50 (29.76)	41.77 (31.05)	19.55 (22.57)	40.29 (29.17)	48.10 (29.85)	36.02 (29.90)

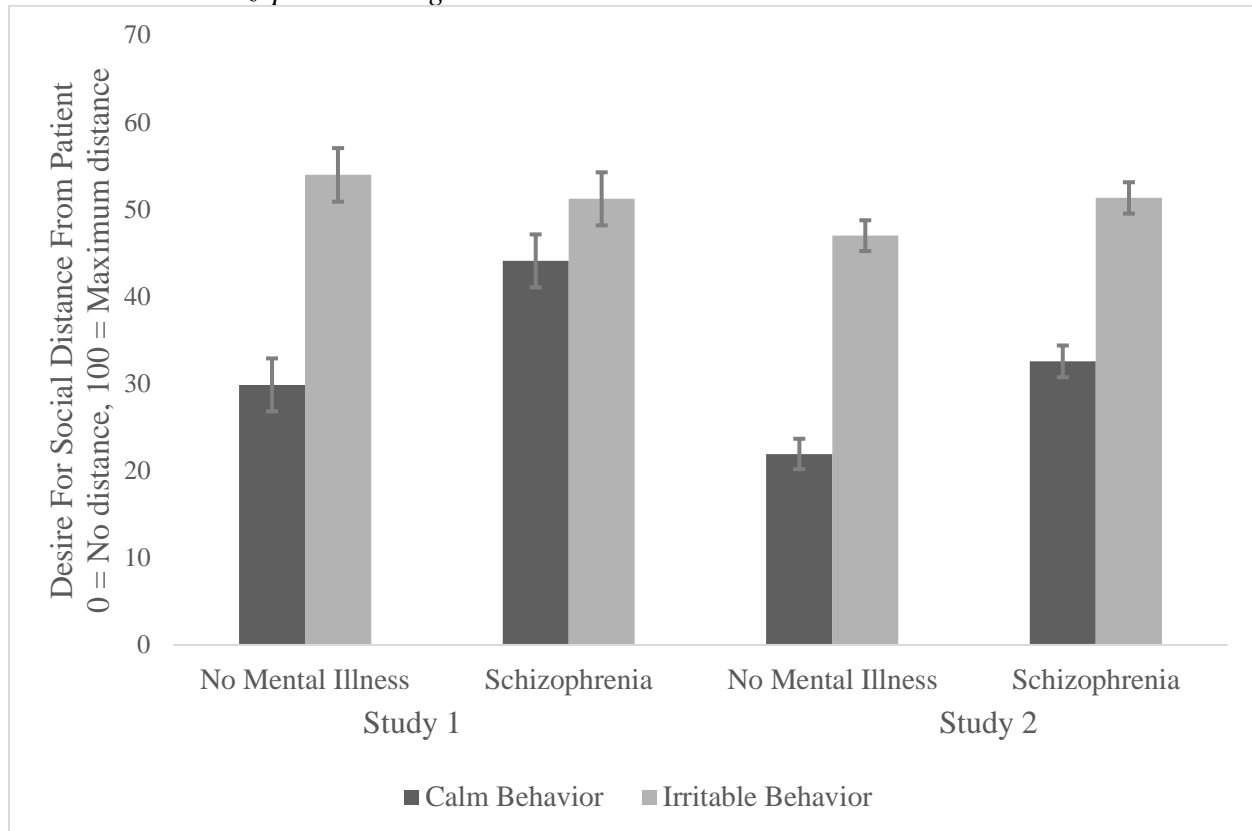
Outcome Variable	Study	Calm Patient Behavior				Irritable Patient Behavior				Total			
		No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total
Contextual Attributions	1	69.40 (17.33)	—	69.30 (16.07)	69.35 (16.63)	73.35 (18.53)	—	70.60 (11.09)	71.96 (15.21)	71.35 (17.95)	—	69.95 (13.75)	70.65 (15.95)
	2	68.74 (17.13)	—	63.12 (17.66)	66.05 (17.59)	66.67 (20.79)	—	62.39 (17.05)	64.57 (19.14)	67.72 (19.03)	—	62.75 (17.33)	65.31 (18.38)
	3	65.37 (16.83)	66.31 (17.92)	65.28 (16.68)	65.65 (17.11)	64.52 (20.93)	66.90 (21.30)	63.08 (18.12)	64.85 (20.19)	64.94 (18.94)	66.61 (19.64)	64.20 (17.40)	65.25 (18.69)
Caring Emotions	1	65.69 (19.49)	—	64.49 (19.74)	65.09 (19.52)	56.29 (23.91)	—	60.50 (19.02)	58.40 (21.59)	60.99 (22.20)	—	62.50 (19.39)	61.74 (20.80)
	2	75.57 (19.27)	—	75.47 (18.68)	75.52 (18.97)	65.22 (24.43)	—	67.00 (22.02)	66.09 (23.27)	70.45 (22.55)	—	71.18 (20.85)	70.80 (21.73)
	3	78.01 (16.27)	75.56 (19.64)	78.57 (18.67)	77.38 (18.26)	62.65 (23.79)	66.50 (23.76)	68.26 (20.56)	65.80 (22.83)	70.39 (21.72)	71.05 (22.22)	73.51 (20.26)	71.65 (21.43)
Anger Emotions	1	33.26 (20.50)	—	28.93 (17.80)	31.12 (19.23)	44.99 (22.55)	—	48.80 (21.75)	46.89 (22.12)	39.12 (22.23)	—	38.97 (22.17)	39.05 (22.14)
	2	25.96 (18.81)	—	23.88 (20.32)	24.96 (19.55)	46.26 (25.52)	—	45.19 (21.21)	45.74 (23.48)	36.00 (24.56)	—	34.69 (23.33)	35.36 (23.96)
	3	21.32 (16.96)	26.34 (20.00)	22.49 (15.22)	23.38 (17.59)	49.26 (22.85)	47.34 (22.59)	40.80 (23.08)	45.82 (23.07)	35.19 (24.46)	36.80 (23.74)	31.47 (21.49)	34.49 (23.35)
Fear Emotions	1	19.56 (19.58)	—	19.94 (19.72)	19.76 (19.55)	17.93 (19.43)	—	23.94 (19.12)	20.97 (19.41)	18.74 (19.42)	—	21.94 (19.42)	20.37 (19.44)
	2	21.55 (21.86)	—	20.58 (22.96)	21.09 (22.36)	29.04 (23.06)	—	32.22 (22.99)	30.60 (23.05)	25.26 (22.74)	—	26.48 (23.67)	25.85 (23.19)
	3	15.17 (18.60)	21.96 (23.08)	17.43 (18.83)	18.19 (20.42)	29.65 (22.24)	31.23 (23.25)	26.80 (22.42)	29.25 (22.66)	22.36 (21.70)	26.58 (23.58)	22.02 (21.16)	23.66 (22.24)
Desire for Distance	1	29.85 (20.69)	—	44.08 (19.87)	36.96 (21.41)	53.95 (20.95)	—	51.21 (23.50)	52.57 (22.20)	41.78 (23.99)	—	47.64 (21.95)	44.72 (23.12)
	2	21.92 (21.57)	—	32.55 (21.98)	27.01 (22.38)	46.98 (27.27)	—	51.31 (26.25)	49.10 (26.82)	34.32 (27.54)	—	42.06 (25.96)	38.07 (27.05)
	3	16.76 (17.27)	23.57 (23.25)	29.01 (21.42)	23.16 (21.36)	48.97 (29.59)	49.46 (26.35)	49.67 (25.56)	49.36 (27.15)	32.74 (29.03)	36.47 (27.98)	39.10 (25.66)	36.11 (27.68)

Outcome Variable	Study	Calm Patient Behavior				Irritable Patient Behavior				Total			
		No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total	No Diagnosis	Depression	Schizophrenia	Total
Warmth	1	—	—	—	—	—	—	—	—	—	—	—	—
	2	66.50 (18.67)	—	64.06 (17.07)	65.33 (17.94)	41.19 (22.29)	—	38.27 (19.40)	39.76 (20.94)	53.98 (24.11)	—	50.99 (22.36)	52.53 (23.31)
	3	67.40 (15.55)	61.89 (18.66)	63.46 (17.42)	64.24 (17.38)	37.94 (18.24)	36.80 (18.16)	39.48 (17.58)	38.06 (17.98)	52.78 (22.44)	49.39 (22.26)	51.74 (21.20)	51.30 (21.99)
Competence	1	—	—	—	—	—	—	—	—	—	—	—	—
	2	70.24 (16.23)	—	65.19 (16.26)	67.82 (16.42)	58.48 (19.31)	—	54.07 (18.23)	56.32 (18.89)	64.42 (18.75)	—	59.55 (18.14)	62.06 (18.60)
	3	69.90 (14.39)	66.51 (16.50)	64.34 (15.51)	66.90 (15.62)	57.88 (17.52)	58.05 (16.61)	54.95 (17.57)	56.97 (17.25)	63.93 (17.09)	62.29 (17.06)	59.74 (17.18)	61.99 (17.17)
Perceived Predictability	1	—	—	—	—	—	—	—	—	—	—	—	—
	2	73.30 (19.18)	—	62.84 (19.95)	68.30 (20.21)	62.06 (21.65)	—	50.99 (21.94)	56.63 (22.46)	67.74 (21.17)	—	56.83 (21.78)	62.45 (22.14)
	3	75.54 (16.72)	69.98 (17.99)	61.63 (18.15)	69.00 (18.50)	60.59 (20.31)	58.88 (23.14)	50.32 (20.37)	56.62 (21.74)	68.12 (20.01)	64.45 (21.41)	56.11 (20.04)	62.88 (21.08)
Perceived Danger to Others	1	—	—	—	—	—	—	—	—	—	—	—	—
	2	12.18 (18.72)	—	19.90 (19.51)	15.87 (19.47)	20.15 (20.49)	—	31.83 (25.34)	25.88 (23.70)	16.13 (19.99)	—	25.94 (23.40)	20.88 (22.24)
	3	6.50 (12.60)	13.17 (17.89)	15.92 (18.05)	11.90 (16.83)	20.32 (22.43)	20.76 (22.86)	31.59 (23.02)	24.19 (23.30)	13.36 (19.40)	16.95 (20.83)	23.57 (22.04)	17.97 (21.19)
Perceived Danger to Self	1	—	—	—	—	—	—	—	—	—	—	—	—
	2	—	—	—	—	—	—	—	—	—	—	—	—
	3	10.88 (15.84)	25.47 (23.17)	30.29 (22.20)	22.28 (22.22)	23.07 (23.08)	30.88 (26.09)	40.92 (24.96)	31.60 (25.74)	16.93 (20.65)	28.16 (24.77)	35.49 (24.14)	26.88 (24.45)

Note. Standard Deviations in parentheses. All responses provided on unnumbered sliding scales scored 0-100. Study 1 includes 195 college students. Study 2 ($n = 749$) and Study 3 ($n = 791$) employed MTurk samples.

Figure 1.

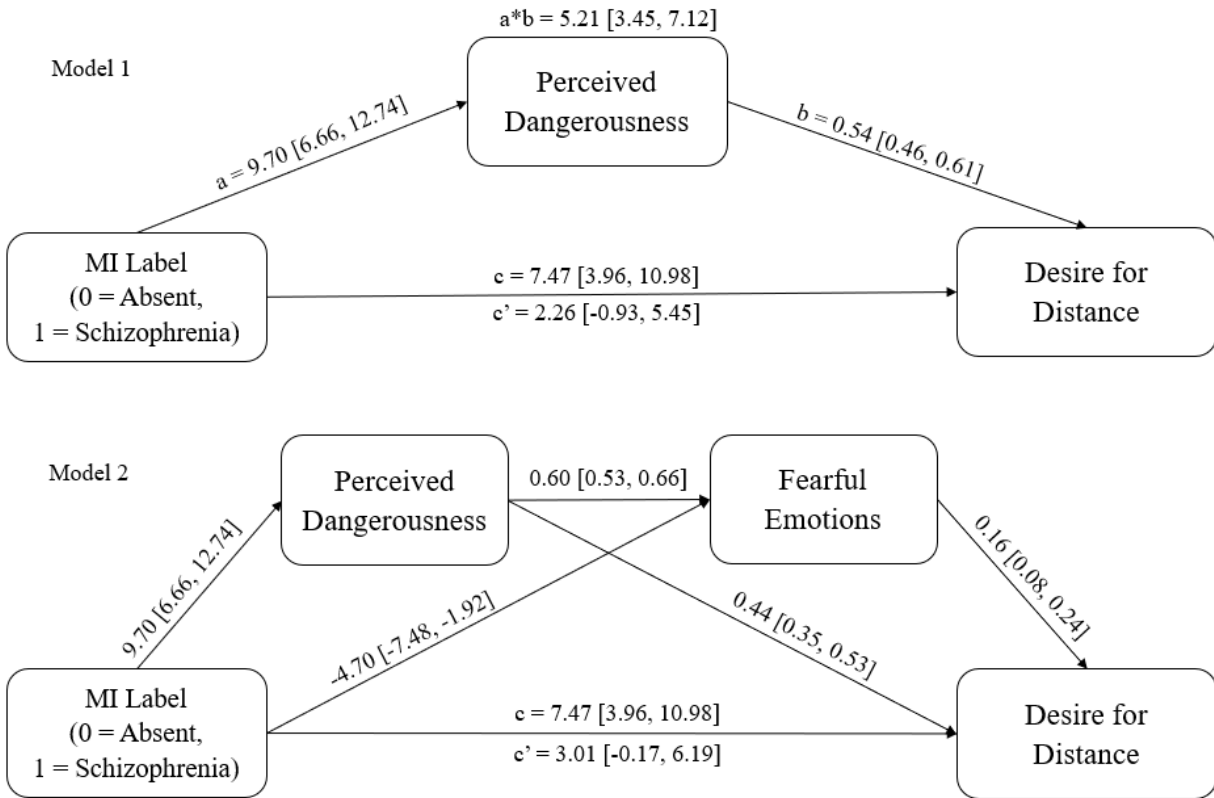
Studies 1 and 2: Desire for Social Distance from a Hospital Patient as a Function of Patient Behavior and Schizophrenia Diagnosis



Note. In study 1 ($n = 195$ undergraduate students), desire for social distance from the calm/no mental illness patient is significantly lower than desire for distance from all three other conditions, $p < .01$, which do not differ from one another, $p > .30$. In study 2 ($n = 749$ Mturk participants), all conditions are significantly different from one another, $p < .01$, except the irritable/no mental illness condition and the irritable/schizophrenia condition, which do not differ from one another, $p = .32$. Error bars = ± 1 SE.

Figure 2.

Study 2: Single and Serial Mediation Models of Perceived Dangerousness and Fear Mediating the Effect of a Schizophrenia Diagnosis on Desire for Social Distance



Note. Both mediation models control for patient behavior. Unstandardized regression coefficients are presented with 95% confidence intervals. In the single mediation model (Model 1), indirect ($a*b$), total (c), and direct (c') effects are presented in the diagram. In the serial mediation model (Model 2), the indirect effect through perceived dangerousness only is 4.28 [95% C.I. 2.71, 6.07], the indirect effect through fearful emotions only is -0.75 [95% C.I. -1.45, -0.25], and the indirect effect through both dangerousness and fear is 0.93 [95% C.I. 0.39, 1.66].

Figure 3.

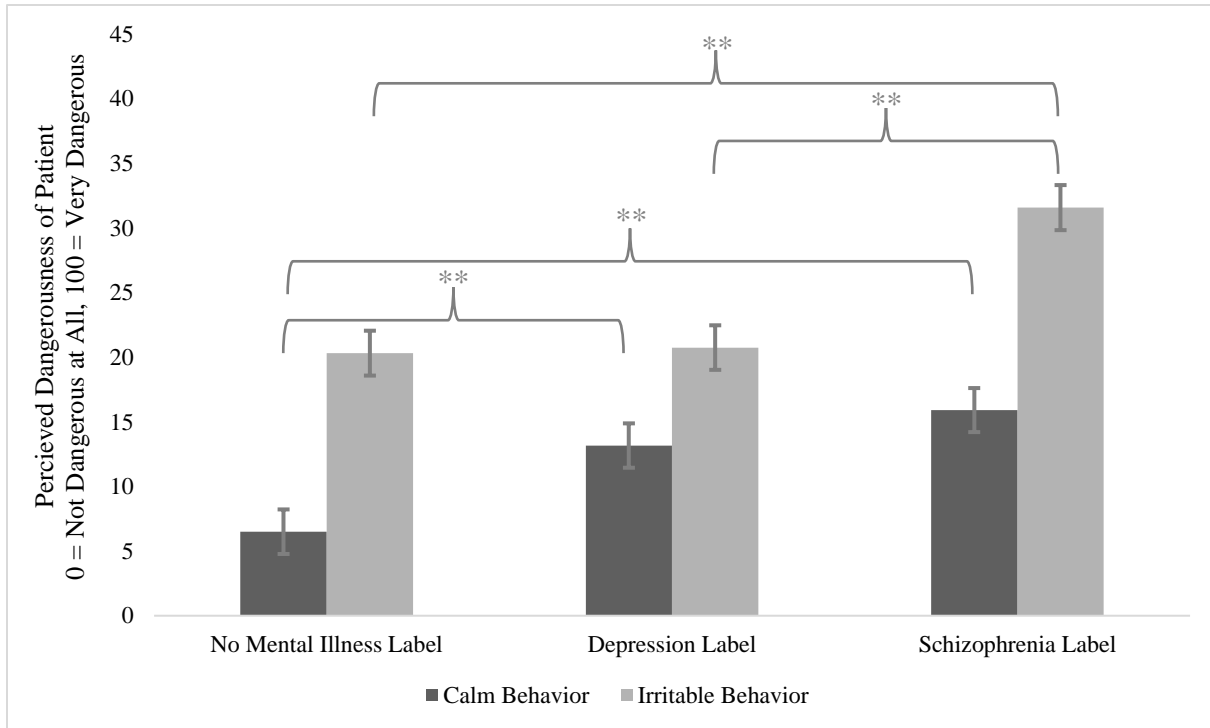
Study 3: Participants' Self-Reported Anger Towards a Hospital Patient as a Function of Patient Behavior and Psychiatric Diagnosis



Note. $n = 791$ Mturk participants. Angry Emotions: Angry, irritated, frustrated, upset, calm (reversed), relaxed (reversed) ($\alpha = .89$). Among irritable patients, a schizophrenia label results in reduced anger relative to no label ($p = .003$), whereas among calm patients, a schizophrenia label does not reduce anger ($p = .56$). ** = $p < .01$. Error bars = ± 1 SE.

Figure 4.

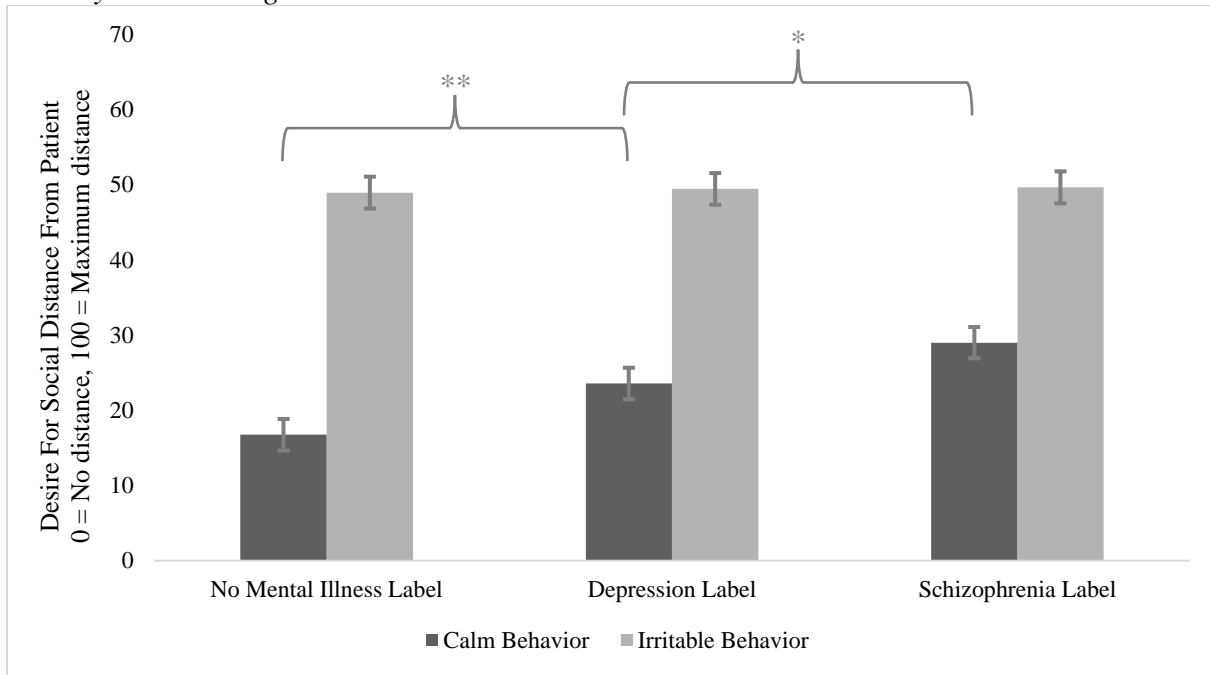
Study 3: Perceived Dangerousness of a Hospital Patient as a Function of Patient Behavior and Psychiatric Diagnosis



Note. $n = 791$ Mturk participants. Among irritable patients, the schizophrenia patient is rated as significantly more dangerous than both the no mental illness label patient ($p < .001$) and the depression patient ($p < .001$), which do not differ from each other ($p = .88$). Among calm patients, the no mental illness label patient is rated as significantly less dangerous than the depression patient ($p = .001$) and the schizophrenia patient ($p < .001$) which do not differ from each other ($p = .21$). ** = $p < .01$. Error bars = ± 1 SE.

Figure 5.

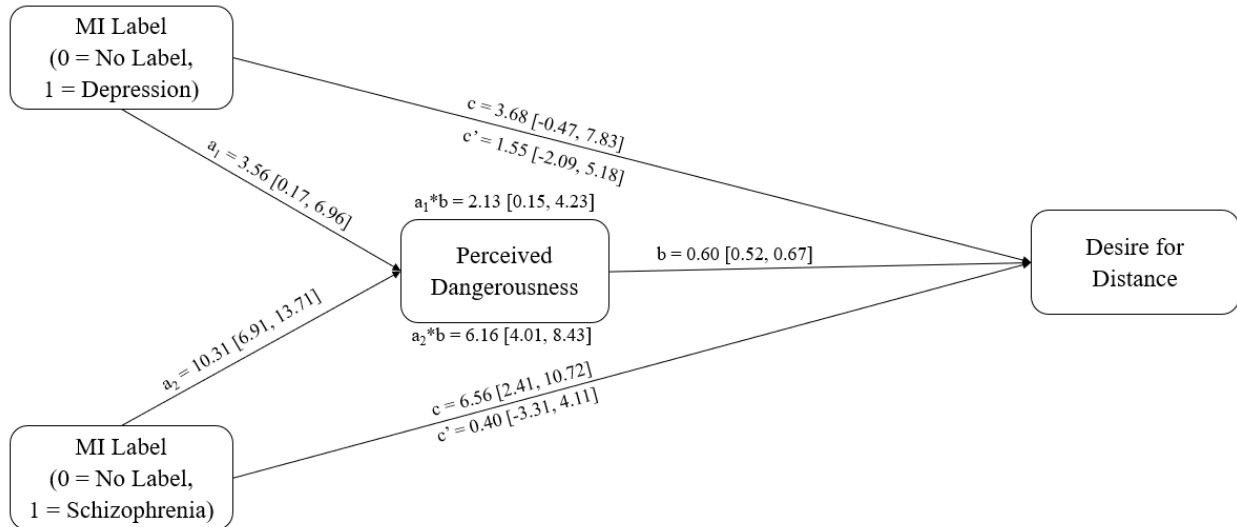
Study 3: Desire for Social Distance from a Hospital Patient as a Function of Patient Behavior and Psychiatric Diagnosis



Note. $n = 791$ Mturk participants. All calm behavior conditions differ significantly from all irritable behavior conditions, $ps < .001$. Desire for social distance from the calm/no mental illness label condition is significantly lower than both the calm/depression condition ($p = .007$) and the calm/schizophrenia condition ($p < .001$) which also differ significantly from one another ($p = .048$). Irritable behavior conditions are all statistically similar to one another, $ps > .838$. * = $p < .05$. ** = $p < .01$. Error bars = ± 1 SE.

Figure 6.

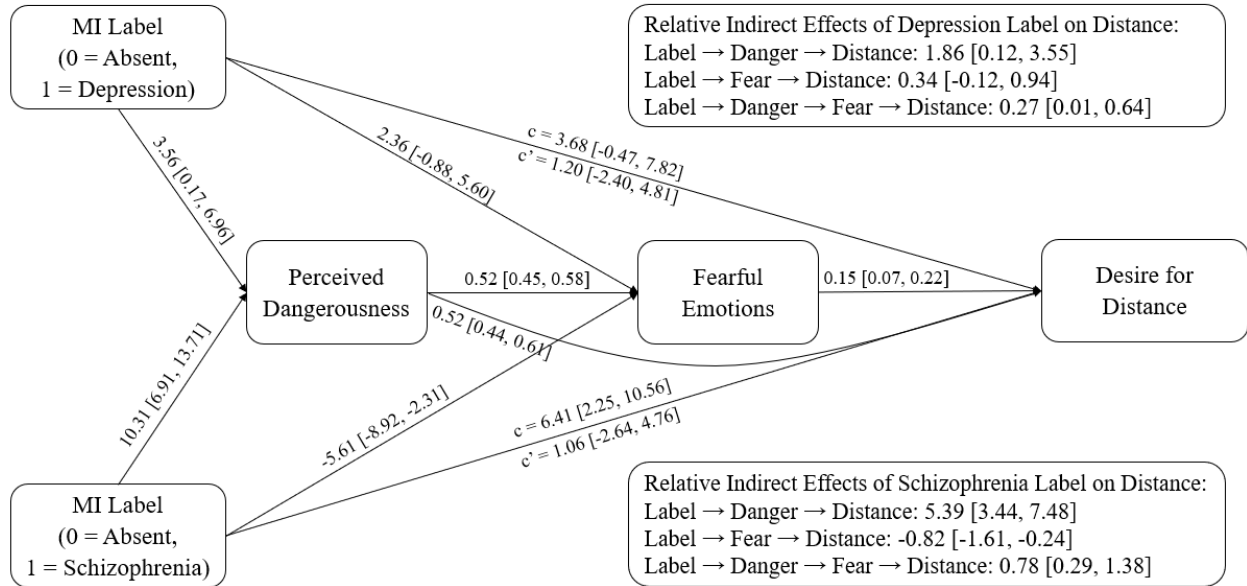
Study 3: Single Mediation Model of Perceived Dangerousness Mediating the Effect of Specific Psychiatric Diagnoses on Desire for Social Distance



Note. Mediation model is controlling for patient behavior. Unstandardized regression coefficients are presented with 95% confidence intervals. Indirect ($a*b$), total (c), and direct (c') effects are presented in the diagram. The indirect effect of label through perceived dangerousness on desire for distance is significant for both schizophrenia and depression.

Figure 7.

Study 3: Serial Mediation Model of Perceived Dangerousness and Fear Mediating the Effect of Specific Psychiatric Diagnoses on Desire for Social Distance



Note. Mediation model is controlling for patient behavior. Unstandardized regression coefficients are presented with 95% confidence intervals. Relative total (c), and direct (c') effects for each dummy coded diagnostic label are presented in the diagram. Relative indirect effects of dummy coded diagnostic labels through mediators are presented in list form.

Appendix A


Study Materials

No Mental Illness Label Condition (Studies 1 and 2)

In the no mental illness label condition for Studies 1 and 2, this written description of the patient appeared directly above the electronic health record (EHR): “Jill Buckley is a 22-year-old student who has come into her doctor's office complaining of a severe headache. She was diagnosed in 2015 with migraines and has been hospitalized twice over the last three years. She takes medication for this illness, but sometimes becomes upset due to the pain.” Figure S1 is the EHR used in the no mental illness label condition.

Figure S1.

Studies 1 and 2: No Mental Illness Electronic Health Record

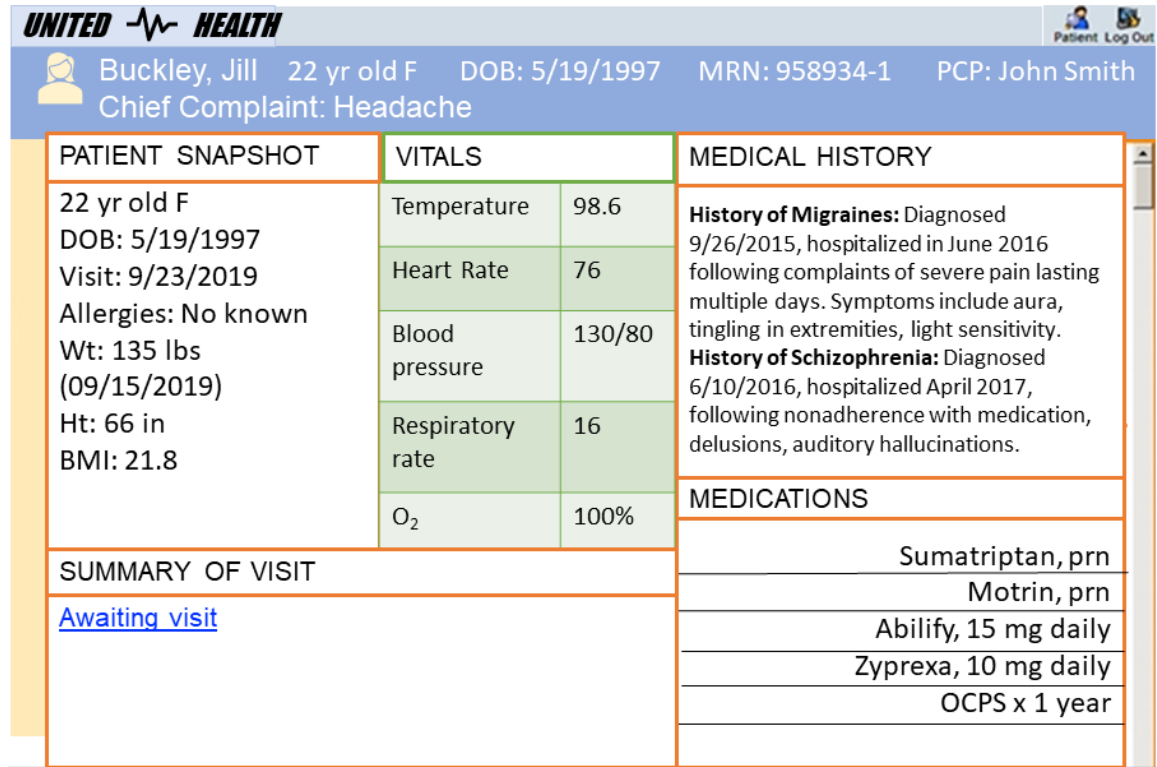
UNITED HEALTH		Patient Log Out											
 Buckley, Jill 22 yr old F DOB: 5/19/1997 MRN: 958934-1 PCP: John Smith Chief Complaint: Headache													
PATIENT SNAPSHOT 22 yr old F DOB: 5/19/1997 Visit: 9/23/2019 Allergies: No known Wt: 135 lbs (09/15/2019) Ht: 66 in BMI: 21.8	VITALS <table border="1" style="width: 100%;"> <tr> <td>Temperature</td> <td>98.6</td> </tr> <tr> <td>Heart Rate</td> <td>76</td> </tr> <tr> <td>Blood pressure</td> <td>130/80</td> </tr> <tr> <td>Respiratory rate</td> <td>16</td> </tr> <tr> <td>O₂</td> <td>100%</td> </tr> </table>	Temperature	98.6	Heart Rate	76	Blood pressure	130/80	Respiratory rate	16	O ₂	100%	MEDICAL HISTORY History of Migraines: Diagnosed 9/26/2015, hospitalized in June 2016 and April 2017 following complaints of severe pain lasting multiple days. Symptoms include aura, tingling in extremities, light sensitivity.	
Temperature	98.6												
Heart Rate	76												
Blood pressure	130/80												
Respiratory rate	16												
O ₂	100%												
SUMMARY OF VISIT Awaiting visit		MEDICATIONS Sumatriptan, prn Motrin, prn OCPS x 1 year											

Schizophrenia Label Condition (Studies 1 and 2)

In the schizophrenia label condition for Studies 1 and 2, this written description of the patient appeared directly above the EHR: “Jill Buckley is a 22-year-old student who has come into her doctor’s office complaining of a severe headache. She was diagnosed in 2015 with migraines and 2016 with schizophrenia, and has been hospitalized twice over the last three years. She takes medication for these illnesses, but sometimes hears voices and becomes upset due to the pain.” Figure S2 is the EHR used in the schizophrenia label condition for Studies 1 and 2.

Figure S2.

Studies 1 and 2: Schizophrenia Electronic Health Record




UNITED HEALTH		
Patient: Buckley, Jill 22 yr old F DOB: 5/19/1997 MRN: 958934-1 PCP: John Smith Chief Complaint: Headache		
PATIENT SNAPSHOT	VITALS	MEDICAL HISTORY
22 yr old F DOB: 5/19/1997 Visit: 9/23/2019 Allergies: No known Wt: 135 lbs (09/15/2019) Ht: 66 in BMI: 21.8	Temperature	98.6
	Heart Rate	76
	Blood pressure	130/80
	Respiratory rate	16
	O ₂	100%
SUMMARY OF VISIT Awaiting visit		History of Migraines: Diagnosed 9/26/2015, hospitalized in June 2016 following complaints of severe pain lasting multiple days. Symptoms include aura, tingling in extremities, light sensitivity. History of Schizophrenia: Diagnosed 6/10/2016, hospitalized April 2017, following nonadherence with medication, delusions, auditory hallucinations.
		MEDICATIONS
		Sumatriptan, prn
		Motrin, prn
		Abilify, 15 mg daily
		Zyprexa, 10 mg daily
		OCPS x 1 year

No Mental Illness Label Condition (Study 3)

In the no mental illness label condition for Study 3, this written description of the patient appeared directly above the EHR: “Jill Buckley is a 22-year-old student who has come into the hospital complaining of a severe headache. She was diagnosed in 2017 with migraines and has been hospitalized twice over the last three years. She takes medication for this illness, but sometimes becomes upset due to the pain.” Figure S3 is the EHR used in the no mental illness label condition for Study 3.

Figure S3.

Study 3: No Mental Illness Label Electronic Health Record


UNITED HEALTH			Patient Log Out	
 Buckley, Jill 22 yr old F DOB: 5/19/1999 MRN: 958934-1 PCP: John Smith Chief Complaint: Headache				
PATIENT SNAPSHOT 22 yr old F DOB: 5/19/1999 Visit: 9/23/2021 Allergies: No known Wt: 135 lbs (09/15/2021) Ht: 66 in BMI: 21.8	VITALS		MEDICAL HISTORY	
	Temperature	98.6	History of Migraines: Diagnosed 9/26/2017, hospitalized in June 2018 and April 2019 following complaints of severe pain lasting multiple days. Symptoms include aura, tingling in extremities, light sensitivity.	
	Heart Rate	76		
	Blood pressure	130/80		
	Respiratory rate	16		
O ₂	100%			
SUMMARY OF VISIT			MEDICATIONS	
Awaiting visit			Sumatriptan, prn	
			Motrin, prn	
			OCPS x 1 year	

Schizophrenia Label Condition (Study 3)

In the schizophrenia label condition for Study 3, this written description of the patient appeared directly above the EHR: “Jill Buckley is a 22-year-old student who has come into the hospital complaining of a severe headache. She was diagnosed in 2017 with migraines and 2018 with schizophrenia, and has been hospitalized twice over the last three years. She takes medication for these illnesses, but sometimes hears voices and becomes upset due to the pain.” Figure S4 is the EHR used in the schizophrenia label condition for Study 3.

Figure S4.

Study 3: Schizophrenia Label Electronic Health Record

UNITED HEALTH			Patient Log Out	
 Buckley, Jill 22 yr old F DOB: 5/19/1999 MRN: 958934-1 PCP: John Smith Chief Complaint: Headache				
PATIENT SNAPSHOT	VITALS		MEDICAL HISTORY	
22 yr old F DOB: 5/19/1999 Visit: 9/23/2021 Allergies: No known Wt: 135 lbs (09/15/2021) Ht: 66 in BMI: 21.8	Temperature	98.6	History of Migraines: Diagnosed 9/26/2017, hospitalized in June 2018 following complaints of severe pain lasting multiple days. Symptoms include aura, tingling in extremities, light sensitivity. History of Schizophrenia: Diagnosed 6/10/2018, hospitalized April 2019, following delusions, auditory hallucinations.	
	Heart Rate	76		
	Blood pressure	130/80		
	Respiratory rate	16		
	O ₂	100%		
SUMMARY OF VISIT		MEDICATIONS		
Awaiting visit		Sumatriptan, prn		
		Motrin, prn		
		Abilify, 15 mg daily		
		OCPS x 1 year		

Depression Label Condition (Study 3)

In the depression label condition for Study 3, this written description of the patient appeared directly above the EHR: “Jill Buckley is a 22-year-old student who has come into the hospital complaining of a severe headache. She was diagnosed in 2017 with migraines and 2018 with depression, and has been hospitalized twice over the last three years. She takes medication for these illnesses, but sometimes has a depressed mood and becomes upset due to the pain.” Figure S5 is the EHR used in the schizophrenia label condition for Study 3.

Figure S5.

Study 3: Depression Label Electronic Health Record

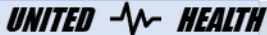

 Patient Log Out		
 Buckley, Jill 22 yr old F DOB: 5/19/1999 MRN: 958934-1 PCP: John Smith Chief Complaint: Headache		
PATIENT SNAPSHOT	VITALS	MEDICAL HISTORY
22 yr old F DOB: 5/19/1999 Visit: 9/23/2021 Allergies: No known Wt: 135 lbs (09/15/2021) Ht: 66 in BMI: 21.8	Temperature	98.6
	Heart Rate	76
	Blood pressure	130/80
	Respiratory rate	16
	O ₂	100%
SUMMARY OF VISIT Awaiting visit		History of Migraines: Diagnosed 9/26/2017, hospitalized in June 2018 following complaints of severe pain lasting multiple days. Symptoms include aura, tingling in extremities, light sensitivity. History of Depression: Diagnosed 6/10/2018, hospitalized April 2019, following depressed mood, fatigue.
		MEDICATIONS
		Sumatriptan, prn
		Motrin, prn
		Celexa, 15 mg daily
		OCPS x 1 year

Table S1.

Studies 1-3: Video Stimuli Transcripts

<i>Calm Patient Script (60 seconds)</i>	<i>Irritable Patient Script (62 seconds)</i>
<p>Physician: Hi, good afternoon Ms. Buckley. I'm Dr. Campbell. What brings you to the emergency department today?</p>	<p>Physician: Hi there Ms. Buckley. I'm Dr. Campbell. It's nice to meet you. What brings you into the emergency department today?</p>
<p>Patient: I just, uh, I have a really bad migraine. It's lasted about 9 days. Um, I've had migraines in the past but it's never lasted this long and I'm really tired.</p>	<p>Patient: Finally! Um... I have a bad migraine headache. I've had it for 9 days. I've had headaches in the past but they've never lasted this long and I'm getting really tired of it.</p>
<p>Physician: Can you describe for me this headache in more detail?</p>	<p>Physician: Can you try to describe for me this headache in more detail?</p>
<p>Patient: Yeah, it's just like a pain all over my head, like it's being squeezed.</p>	<p>Patient: It's a, it's a bad migraine? It's like pain all over my head, my heads being squeezed.</p>
<p>Physician: How long really have you been feeling this way?</p>	<p>Physician: How long has it been feeling like this?</p>
<p>Patient: Well, I woke up this morning and it was feeling a lot worse.</p>	<p>Patient: It got much worse this morning when I woke up.</p>
<p>Physician: Have you seen anyone for this headache?</p>	<p>Physician: Have you seen anybody for this particular headache?</p>
<p>Patient: Yeah, I went to the ER a few days ago. They didn't really do much for me? They told me it was a migraine and that it would go away with some time but it hasn't. It's gotten a lot worse. I've missed a lot of work so I don't know if it's possible to get, like a note for today?</p>	<p>Patient: Yeah, I went to the ER a few days ago and they basically did nothing for me! They just told me it was a migraine and they sent me home. They said it would go away in time and it hasn't! It's gotten much worse and I've missed a ton of work so, so I'm going to need a note.</p>
<p>Physician: Tell me a little bit more about this headache first. Did it start suddenly or gradually?</p>	<p>Physician: Can you tell me if this headache started suddenly or gradually?</p>
<p>Patient: No it wasn't sudden. It was gradual.</p>	<p>Patient: No, it wasn't suddenly. It was-it's been getting worse!</p>

Appendix B

Study Measures

Example of sliding scale instrument used to record responses in all studies:

Please click on the dot and slide it to a position of your choosing. You must perform the function test to make sure you are able to respond to questions in the survey.

Not at all

Very much



Study 1 Measures

Attributions for Behavior

Having reviewed the patient information and watched the video, to what extent do you think the patient's behavior with their doctor is due to _____?

1. Lack of sleep
 2. Pain from the headache
 3. Stress
 4. Being at the hospital
 5. How the doctor is treating them
 6. Having a bad day
 7. Her general attitude
 8. Her mood
 9. Her personality
 10. Hormonal imbalance
 11. Being too weak to deal with normal levels of pain
 12. Substance use
 13. A mental disorder
-

Note. Items were presented in a random order, all on the same page. Responses were provided on unnumbered sliding scales that were then scored from 0 (Not at all) to 100 (Very much).

Participant Emotions

We are also interested in how you felt while you were viewing the video. Please indicate the extent to which **you** experienced each of the following emotions while watching the video.

1. Happy
2. Sad
3. Angry
4. Calm
5. Sympathetic
6. Apathetic

7. Engaged
 8. Disinterested
 9. Uneasy
 10. Anxious
 11. Concerned
 12. Compassionate
 13. Afraid
 14. Irritated
 15. Upset
 16. Frustrated
 17. Nervous
 18. Relaxed
 19. Impatient
 20. Unsafe
 21. Desire to help
-

Note. Items were presented in a random order, all on the same page. Responses were provided on unnumbered sliding scales that were then scored from 0 (Not at all) to 100 (Very much).

Perceived Pain and Similarity.

How much pain do you think this patient is in? 0: No pain at all, 10: Severe pain

How similar do you think you are to this patient? 0: Not similar at all, 100: Very similar

Desire for Social Distance

For the next series of questions, we are interested in your initial reaction when reading these questions. Please respond to these questions quickly, based off your first impression.

With what you know about this patient, how comfortable would you be...

1. knowing this person went to your school?
 2. being in the same class as this person?
 3. sitting next to this person in a lecture?
 4. having a conversation with this person?
 5. working on a group project with this person?
 6. being roommates with this person?
 7. having a close friend of yours date this person?
 8. having a close friend of yours marry this person?
-

Note. Items were presented in a fixed order, on separate pages. Responses were provided on unnumbered sliding scales ranging from 0 (Not at all comfortable) to 100 (Very comfortable).

Study 2 Measures

Attributions for Behavior

Identical to Study 1

Warmth and Competence

To what extent do you believe this patient is _____?

1. Warm
 2. Friendly
 3. Good-natured
 4. Honset
 5. Competent
 6. Intelligent
 7. Skilled
 8. Capable
 9. Angry
 10. Calm
-

Note. Items were presented in a random order, all on the same page. Responses were provided on unnumbered sliding scales that were then scored from 0 (Not at all) to 100 (Very much).

Participant Emotions

Imagine you are interacting with this patient directly. Please indicate the extent to which **you would feel** the following emotions while interacting with the patient directly.

1. Happy
 2. Sad
 3. Angry
 4. Calm
 5. Sympathetic
 6. Apathetic
 7. Engaged
 8. Disinterested
 9. Uneasy
 10. Anxious
 11. Concerned
 12. Compassionate
 13. Afraid
 14. Irritated
 15. Upset
 16. Frustrated
 17. Nervous
 18. Relaxed
 19. Impatient
 20. Unsafe
 21. Desire to help
-

Note. Items were presented in a random order, all on the same page. Responses were provided on unnumbered sliding scales that were then scored from 0 (Not at all) to 100 (Very much).

Perceived Pain, Similarity, Likeability

On a scale from 0 to 10 with 0 being no pain at all and 10 being the worst pain imaginable, how do you think **this patient** might rate her pain? 0: No pain at all, 10: The worst pain imaginable

Using the same 0 to 10 pain scale, how much pain do **you believe** this patient is experiencing? 0: No pain at all, 10: The worst pain imaginable

How similar do you think you are to this patient? 0: Not similar at all, 100: Very similar

How likeable did you find this patient? 0: Not likeable at all, 100: very likeable

Perceived Dangerousness and Predictability

How dangerous do you think this patient is? 0: Not dangerous at all, 100: Very dangerous

How likely is it that this patient would do something violent towards other people? 0: Not likely at all, 100: Very likely

How predictable do you think this patient's behavior is? 0: Not predictable at all, 100: Very predictable

How safe would you feel being around this patient? 0: Not safe at all, 100: Very safe

Desire for Social Distance Scale

With what you know about this patient, how comfortable would you be...

1. knowing this person lives in the same town as you?
 2. working at the same company as this person?
 3. sitting next to this person in a meeting?
 4. having a conversation with this person?
 5. working on a project with this person?
 6. being roommates with this person?
 7. having a close friend of yours date this person?
 8. having a close friend of yours marry this person?
-

Note. Items were presented in a fixed order, on separate pages. Responses were provided on unnumbered sliding scales ranging from 0 (Not at all comfortable) to 100 (Very comfortable).

Study 3 Measures

Attributions for Behavior

Identical to Studies 1 and 2

Warmth and Competence

Identical to Study 2

Participant Emotions

Identical to Study 2

Perceived Pain, Similarity, Likeability

Identical to Study 2

Perceived Dangerousness and Predictability

Identical to Study 2

Perceived Dangerousness to Self

How dangerous do you think this patient is to herself? 0: Not dangerous at all, 100: Very dangerous

How likely is it that this patient would do something harmful to herself? 0: Not likely at all, 100: Very likely

Desire for Social Distance Scale

Identical to Study 2

Appendix C

Supplemental Analyses

Attributions for Behavior Factor Analyses

Study 1

Attributions for the patient's behavior were measured using thirteen items developed for use in this study but inspired by previously used attribution measures (Corrigan et al., 2003; Weiner et al., 2011). Participants were prompted: "To what extent do you think the patient's behavior with their doctor is due to..." and were given a list of possible attributions for their behavior presented in a random order. Participants responded to each item using continuous unnumbered sliding scales scored from 0 (not at all) to 100 (very much). Drawing from attribution theory (Corrigan et al., 2003), items were hypothesized to fall into two categories: blameworthy attributions (e.g., her personality) and contextual attributions (e.g., lack of sleep). While this factor structure was based on existing structures, the selection of specific items was necessarily exploratory, as I sought to include items specific to this medical context (e.g., pain from the headache). A principal component factor analysis specifying a two-factor solution using Varimax rotation explained 32.2% of the variance. However, a visual inspection of a scree-plot indicated a three-factor solution would yield a significant increase in variance explained.

A three-factor solution, explaining 40.4% of the variance and with three factors with Eigenvalues greater than 1, was retained. The first factor consisted of: having a bad day, her general attitude, her personality, and her mood ($\alpha = .76$). These items were averaged to create a 'blameworthy attribution' score, as they attribute the patient's

behavior to causes which are irrelevant to the patient's symptoms and which indicate a judgement of the patient's character. The second factor included: a mental disorder, substance use, and hormonal imbalance ($\alpha = .74$). These items were grouped as stigmatizing attributions but analyzed separately due to the distinct nature of these identities. The third factor consisted of: stress, pain from the headache, and lack of sleep ($\alpha = .52$). Despite this low alpha, these attributions were averaged to produce a 'contextual attributions' score, as they are conceptually similar and consist of attributions relevant to the patient's context and symptoms. Three attributions did not significantly load ($< .35$) onto a single factor: being at the hospital, how the doctor is treating them, and being too weak to deal with normal levels of pain. While the need to drop items, and low reliability for contextual attributions is unfortunate, this is not surprising given the exploratory nature of this measure. Furthermore, all three contextual attributions were conceptually similar, in that they described reasons for behavior grounded in the context surrounding the patient's visit (pain, stress, lack of sleep). As such, I used a 3-factor structure (which replicated in Study 2).

Study 2

The administration and content of the attributions scale was identical to Study 1. An exploratory factor analysis set to extract a three-factor solution, as in Study 1, produced a structure which explained 44.1% of the variance and included three factors with Eigenvalues greater than 1. Further, a visual inspection of a scree-plot suggested that the three-factor structure from Study 1 was replicated in this dataset. All items from the Study 1 subscales loaded onto their respective factors in Study 2 (all loadings $> .40$). Therefore, three groupings identical to Study 1 were created by averaging participant

responses to their items: blameworthy attributions ($\alpha = .76$), stigmatizing attributions ($\alpha = .73$), and contextual attributions ($\alpha = .59$).

Study 3

After having obtained evidence across two studies for the presence of three attribution factors consisting of the same items, I examined the reliabilities of these subscales in Study 3 (i.e., I did not conduct an additional exploratory factor analysis on the Study 3 participant responses). The reliabilities were acceptable, and consistent with my past studies I created subscales by averaging participant responses to blameworthy attributions ($\alpha = .77$), and contextual attributions ($\alpha = .60$). Despite an acceptable alpha, stigmatizing attributions ($\alpha = .71$) were analyzed separately.

Self-Reported Emotions Factor Analyses

Study 1

Participants were prompted to indicate the extent to which they felt 21 different emotions while watching the video. Participants responded to each emotion on continuous unnumbered sliding scales scored from 0 (not at all) to 100 (very much). Happy, sad, angry, and calm were presented first in a fixed order, followed by the remaining items in a random order. Previous work suggests three categories of emotion are particularly relevant to mental illness stigma: fear, anger, and caring emotions (Angermeyer & Matschinger, 1997; Sadler et al., 2015). As such, emotion items taken from previous work (Isbell et al., 2020) were hypothesized to capture these three dimensions.

A principal component factor analysis specifying a three-factor solution with Varimax rotation explained 45.3% of the variance and supported the presence of the three

relevant emotion clusters. The first factor included afraid, anxious, nervous, unsafe, and uneasy ($\alpha = .85$). The second included angry, irritated, frustrated, upset, calm (reverse scored), and relaxed (reverse scored) ($\alpha = .84$). The third included desire to help, concerned, compassionate, sympathetic, and engaged ($\alpha = .83$). Subscales were produced by averaging the items contributing to each factor, labelled ‘fear emotions,’ ‘anger emotions,’ and ‘caring emotions’ respectively. Five items did not significantly load ($< .50$) onto a single factor: happy, sad, apathetic, disinterested, and impatient. Happy and sad were included as filler items. Disinterest, apathy, and impatience were included with the exploratory hypothesis that these items reflected an absence of caring. However, these items failed to load together in the EFA, either reverse-scored with the caring factor or as their own factor, and as such were not included in the creation of subscales.

Consequently, I decided to retain the 3-factor structure, as each factor displayed acceptable alphas, and are reflected in the literature (Angermeyer & Matschinger, 1997).

Study 2

The self-reported emotion items used in Study 2 were identical to those in Study 1, but the prompt was modified to increase participant endorsement of self-reported emotions (e.g., “Please indicate the extent to which you would feel the following emotions if you were to interact with the patient directly”). An EFA constrained to extract three factors explained 59.5% of the variance and included three factors with Eigenvalues greater than 1. This solution replicated that found in Study 1 and suggested by prior work, namely three distinct clusters of fear, anger, and caring emotions (Angermeyer & Matschinger, 1997; Sadler et al., 2015). As such, the same subscales

were created for fear emotions ($\alpha = .90$), anger emotions ($\alpha = .89$), and caring emotions ($\alpha = .90$).

Study 3

After having obtained evidence across two studies for the presence of three emotion factors consisting of the same items, I examined the reliabilities of these subscales in Study 3 (i.e., I did not conduct an additional exploratory factor analysis on the Study 3 participant responses). The reliabilities were good, and consistent with my past studies. Therefore, I created subscales by averaging participant responses to fear ($\alpha = .89$), anger ($\alpha = .89$), and caring emotions ($\alpha = .90$).

Do Demographic Variables Moderate the Effect of a Mental Illness Label on Stigma Markers?

Considering past research suggesting older adults may be more likely to express stigma towards people with mental illness than younger adults (Jorm & Oh, 2009), and that people who have contact with mental illness may be less likely to express stigma than people who have not had contact with mental illness (Couture & Penn, 2003), I examined whether the significant effects of a mental illness label on stigma markers in my studies were moderated by a participant's age, their self-reported exposure to people with mental illness, and their own self-reported mental illness status. I also hypothesized that similarity to the target patient may moderate effects of a diagnostic label, so I assessed participant gender and perceived similarity to the patient as moderators as well. Participant age and gender were captured using free response text boxes at the end of the survey. Participant exposure to mental illness was captured using two yes/no questions at the end of the survey: "Do you know anyone who has ever been diagnosed or treated for

a mental health condition?” and “Have you ever been diagnosed or treated for a mental health condition?” Perceived similarity (0 = not similar at all, 100 = very similar) was captured on a continuous slider directly following felt emotion measures. Age and perceived similarity were treated as continuous moderators, while exposure to those with mental illness (0 = No, 1 = Yes), a participant’s own mental illness status (0 = No, 1 = Yes), and gender (0 = Male, 1 = Female) were treated as dichotomous moderators.

To test for moderation, I used Hayes’ PROCESSv3.4 in SPSS with 10,000 bootstrap samples. For Studies 1 and 2, I used Model 1 and entered the label condition (0 = schizophrenia label absent, 1 = schizophrenia label present) as the focal predictor, one selected variable (age, gender, knowledge of someone with a mental illness, one’s own mental illness status, and perceived similarity) as a moderator, and the patient behavior condition (0 = calm behavior, 1 = irritable behavior) as a covariate. For Study 3, I used the same approach but with a dummy-coded, three level predictor (1 = no mental illness label, 2 = depression label, 3 = schizophrenia label) with no mental illness label serving as the reference group. This analysis approach was taken to specifically test the possibility of these demographic variables moderating the effect of a mental illness label, rather than the effect of irritable behavior, on stigma markers.

Study 1 Moderations

In Study 1, the age range of the college-aged participants was limited, spanning from 18 to 28 ($M = 19.92$, $SD = 1.55$), and was therefore not assessed as a moderator. The analyzed sample for moderation was 154 (79.0%) females and 38 (19.5%) males. 19 (9.7%) of the participants reported not knowing someone with mental illness and 176

(90.3%) did report knowing someone with mental illness. 132 (67.7%) participants did not have a mental illness themselves and 63 (32.3%) did report having a mental illness.

Table S2 presents the full results of moderation analyses in Study 1. No stigma markers that displayed main effects of a schizophrenia label in Study 1 were significantly moderated by any of the four hypothesized moderators (all $ps > .14$).

Table S2.

Study 1: Demographic Moderators of a Schizophrenia Label's Effect on Stigma Markers

<i>Outcome</i>	Moderator							
	Participant Gender		Perceived Similarity		Knowing Someone with Mental Illness		Having a Mental Illness	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Substance Use Attribution	-5.17	.53	-0.003	.98	-12.20	.26	2.71	.69
Hormonal Imbalance Attribution	-2.08	.83	0.06	.65	-1.23	.92	5.01	.54
A Mental Disorder Attribution	0.79	.93	0.05	.74	4.50	.73	-1.35	.87
Desire for Social Distance	0.76	.92	0.01	.91	0.29	.98	-9.97	.14

Note. Unstandardized regression weights for the interaction between the focal predictor (patient schizophrenia label, 0 = absent, 1 = present), and the specified moderator are presented. All regressions control for patient behavior (0 = calm, 1 = irritable). Participant gender: 0 = Male, 1 = Female. Knowing someone with mental illness: 0 = Does not know anyone with mental illness, 1 = Knows someone with mental illness. Having a mental illness: 0 = Does not have a mental illness, 1 = Has a mental illness.

Study 2 Moderations

In Study 2, the mean age of the sample was 41.74 (SD = 13.31). The analyzed sample for moderation was 446 (59.5%) females and 293 (39.1%) males. 215 (28.7%) of the participants reported not knowing someone with mental illness and 516 (68.9%) did report knowing someone with mental illness. 544 (72.6%) participants did not have a mental illness themselves and 186 (24.8%) did report having a mental illness.

Table S3 presents the full results of moderation analyses for Study 2. In Study 2, some variables exhibited evidence of moderating the relationship between the presence of a schizophrenia label and stigma markers, controlling for patient behavior. Of note, reporting knowing someone with a mental illness in real life was related to a greater positive impact of a schizophrenia label on thinking the patient is behaving due to a mental disorder, and a greater negative impact of a schizophrenia label on thinking this patient is predictable. Having a mental illness oneself was related to a schizophrenia label levying greater negative effects on the patient’s perceived warmth and competence. However, none of the hypothesized variables moderated the relationship between the presence of a label and more than two of the nine stigma markers, and no variable moderated the relationship between a schizophrenia label and dangerousness or desire for distance.

Table S3.

Study 2: Demographic Moderators of a Schizophrenia Label’s Effect on Stigma Markers

<i>Outcome</i>	<i>Moderator</i>									
	<i>Participant Gender</i>		<i>Participant Age</i>		<i>Perceived Similarity</i>		<i>Knowing Someone with Mental Illness</i>		<i>Having a Mental Illness</i>	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Substance Use Attribution	-4.84	.21	0.18	.19	-0.00	.97	-3.53	.39	-4.17	.33
Hormonal Imbalance Attribution	6.07	.12	0.28	.05	0.02	.27	3.27	.43	-3.07	.47
A Mental Disorder Attribution	7.21	.07	-0.04	.77	-0.13	.06	8.84	.04	4.25	.34
Contextual Attributions	-0.36	.90	-0.08	.46	-0.01	.91	0.31	.92	-3.74	.22
Warmth	-2.91	.32	0.00	.95	0.06	.19	-1.82	.56	-6.64	.05

Competence	0.58	.83	-0.05	.58	-0.01	.83	-1.79	.53	-6.09	.04
Dangerousness	0.53	.87	0.13	.26	-0.01	.85	0.09	.98	-2.50	.48
Predictability	3.18	.31	-0.19	.09	0.04	.43	-6.42	.05	-3.99	.25
Desire for Social Distance	-0.13	.97	0.14	.31	-0.01	.88	-0.17	.97	1.57	.70

Note. Unstandardized regression weights for the interaction between the focal predictor (patient schizophrenia label, 0 = absent, 1 = present), and the specified moderator are presented. All regressions control for patient behavior (0 = calm, 1 = irritable). Participant gender: 0 = Male, 1 = Female. Knowing someone with mental illness: 0 = Does not know anyone with mental illness, 1 = knows someone with mental illness. Having a mental illness: 0 = Does not have a mental illness, 1 = Has a mental illness.

Study 3 Moderations

In Study 3, the mean age of the sample was 42.05 (SD = 13.68). The analyzed sample for moderation was 543 (68.6%) females and 241 (30.5%) males. 169 (21.4%) participants reported not knowing someone with mental illness and 609 (77.0%) did report knowing someone with mental illness. 451 (57.0%) participants did not have a mental illness themselves and 324 (41.0%) did report having a mental illness.

Tables S4 and S5 present the full results of moderation analyses for both a schizophrenia label and a depression label in Study 3. Some variables exhibited evidence of moderating the relationship between the presence of a schizophrenia label and stigma markers, controlling for patient behavior. No variables moderated the relationship between a depression label and stigma markers, controlling for patient behavior. Of note, the moderating effects of knowing someone with a mental illness I observed in Study 2 were not significant in Study 3 (all $ps > .18$). Instead, I find in Study 3 that having a mental illness label oneself appears to moderate the relationship between a label and stigma markers. Specifically, the negative effect of a schizophrenia label on the patient's

perceived competence and predictability was stronger among participants who reported having a mental illness themselves. Similarly, having a mental illness oneself was related to a schizophrenia label levying greater positive effects on the patient's perceived dangerousness towards oneself and others.

Table S4.

Study 3: Demographic Moderators of a Schizophrenia Label's Effect on Stigma Markers

<i>Outcome</i>	Participant Gender		Participant Age		Moderator Perceived Similarity		Knowing Someone with Mental Illness		Having a Mental Illness	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Substance Use Attribution	3.16	.51	-0.23	.16	0.03	.69	5.14	.32	2.70	.56
Hormonal Imbalance Attribution	5.58	.25	0.03	.87	0.05	.52	6.19	.24	4.87	.30
A Mental Disorder Attribution	8.12	.11	-0.21	.22	-0.11	.19	-0.53	.92	6.99	.16
Competence	1.70	.58	0.08	.45	-0.06	.23	-4.44	.18	-6.22	.04
Dangerousness to Others	5.61	.13	-0.06	.62	0.06	.35	4.51	.26	8.87	.01
Dangerousness to Self	6.60	.12	0.04	.81	0.01	.93	3.85	.41	10.26	.01
Predictability	-1.37	.71	-0.09	.47	-0.11	.06	-2.51	.53	-7.79	.03
Desire for Social Distance	0.05	.99	-0.02	.92	0.19	.01	0.92	.85	5.66	.20

Note. Unstandardized regression weights for the interaction between the focal predictor (patient schizophrenia label, 0 = absent, 1 = present), and the specified moderator are presented. All regressions control for patient behavior (0 = calm, 1 = irritable). Participant gender: 0 = Male, 1 = Female. Knowing someone with mental illness: 0 = Does not know anyone with mental illness, 1 = knows someone with mental illness. Having a mental illness: 0 = Does not have a mental illness, 1 = Has a mental illness.

Table S5.

Study 3: Demographic Moderators of a Depression Label's Effect on Stigma Markers

<i>Outcome</i>	Moderator									
	Participant Gender		Participant Age		Perceived Similarity		Knowing Someone with Mental Illness		Having a Mental Illness	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Substance Use Attribution	1.19	.80	-0.08	.61	0.03	.65	-5.86	.29	0.83	.85
Hormonal Imbalance Attribution	-1.64	.74	-0.01	.97	0.06	.41	-5.96	.29	-0.86	.85
A Mental Disorder Attribution	3.79	.46	-0.28	.11	0.08	.27	-0.79	.89	2.54	.59
Competence	-1.10	.72	0.10	.33	-0.03	.54	1.94	.59	1.93	.50
Dangerousness to Others	-4.13	.28	-0.07	.61	0.05	.37	-4.00	.36	-0.62	.86
Dangerousness to Self	-1.39	.75	0.03	.83	-0.01	.83	0.29	.95	-2.24	.58
Predictability	1.57	.67	0.14	.28	0.01	.82	0.58	.89	-2.01	.56
Desire for Social Distance	-3.13	.50	-0.16	.30	0.07	.27	3.21	.55	5.02	.24

Note. Unstandardized regression weights for the interaction between the focal predictor (patient depression label, 0 = absent, 1 = present), and the specified moderator are presented. All regressions control for patient behavior (0 = calm, 1 = irritable). Participant gender: 0 = Male, 1 = Female. Knowing someone with mental illness: 0 = Does not know anyone with mental illness, 1 = knows someone with mental illness. Having a mental illness: 0 = Does not have a mental illness, 1 = Has a mental illness.

Summary

These exploratory analyses suggest no consistent evidence of moderation by any of these five moderating variables investigated. In Study 2, knowing someone with a mental illness moderated the effect of a schizophrenia label on two of the nine stigma markers, suggesting some possible consistencies with prior findings (Couture & Penn,

2003). However, these effects were not replicated in Study 3 for schizophrenia, nor did they extend to depression. Instead, Study 3 found that having a mental illness oneself may moderate the effect of a schizophrenia (but not depression) label on stigma markers. The negative effects of a schizophrenia label on the patient's perceived competence and predictability, as well as its positive effects on perceived dangerousness to self and others, were significantly stronger for participants who reported having a mental illness themselves as compared to those who did not report having a mental illness. It is important to note that this investigation is largely exploratory, not the primary focus of the present investigation, and may be underpowered to detect some moderations (e.g., the group sizes in Study 1 for participants who do not know someone with mental illness were small). Furthermore, prior literature reviews of studies specifically focused on testing these moderations do suggest these variables are important in moderating stigma (Couture & Penn, 2003; Jorm & Oh, 2009). As such, future work that specifically sets out to test moderation hypotheses using video vignettes is needed.

Table S6.

Studies 1-3: Summary of Results

Descriptive Statistic/ Dependent Variable	Study 1 Effects	Study 2 Effects	Study 3 Effects
Sample Size	195 Undergraduate Students	749 US MTurkers	795 US MTurkers
Data Collected	Fall 2019	Fall 2020	Fall 2021
Fear	No effects	Patient Emotion	Emotion and Label
Anger	Patient Emotion	Patient Emotion	Interaction
Caring	Patient Emotion	Patient Emotion	Patient Emotion
Blameworthy Attributions	Patient Emotion	Patient Emotion	Patient Emotion
Substance Use Attribution	Patient Label	Emotion and Label	Emotion and Label
Hormonal Imbalance Attribution	Patient Label	Emotion and Label	Emotion and Label
Dangerousness to Others	—	Emotion and Label	Interaction
Dangerousness to Self	—	—	Emotion and Label
Predictability	—	Emotion and Label	Emotion and Label
Warmth	—	Emotion and Label ^a	Patient Emotion
Competence	—	Emotion and Label	Emotion and Label
Social Distance	Interaction	Interaction	Interaction

Note. ^a Effect of label on warmth in Study 2 was marginal, $p = .06$.

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