

# MENTAL HEALTH STIGMAS IN SACRIFICIAL MORAL DILEMMAS

A Thesis By

MARCOS RODRIGUEZ  
ORCID ID: 0009-0006-0523-8749

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**Department:**

Department of Psychology

**Committee:**

Jack Mearns, Department of Psychology, Chair  
William Marelich, Department of Psychology  
Lisa Mori, Department of Psychology

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**Abstract:**

This study explored how people make moral judgments about individuals who display behavioral symptoms of mental illness. Two processes underlie moral judgment: intuitions about what is right and wrong and the application of moral rules in action. In this study, I focused on intuitions about utilitarian moral judgment by asking participants to rate both how right and how wrong they felt it would be to sacrifice one person to save five others—the trolley problem. I also asked participants what they felt they would do in these unusual situations, because measures of moral action can differ considerably from measures of moral judgment. Participants were 431 psychology undergraduates who read multiple vignettes in which the moral dilemma differed based on who was the target to be sacrificed. Characters had the following disorders: PTSD, schizophrenia and substance use disorder (SUD). Participants displayed a positive bias in favor of the PTSD character and negative bias against one, but not all, characters with schizophrenia and the SUD character. In general, when presented with fictitious moral dilemmas, respondents reported being more likely to respond with inaction than to take an action to sacrifice a character. This study documents that some mental disorders are stigmatized while others are not. Knowing which disorders are stigmatized will help improve advocacy efforts for stigma reduction and allocate resources to disorders that are most stigmatized.

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## CHAPTER 1

### INTRODUCTION

One of the effects of being diagnosed with a psychological disorder or presenting signs of mental illness is stigmatization. According to Corrigan and Penn (1999), “Public stigma refers to a set of negative attitudes and beliefs that motivate people to fear, reject, avoid, and discriminate against people with mental illness” (p. 1). Fear of stigma may possibly inhibit help-seeking behaviors among individuals diagnosed with a mental disorder, prevent reintegration into the community, and reduce overall well-being (Corrigan, 2004). In terms of interpersonal functioning, stigmatization can reduce hope, lower self-esteem, increase pathology, and create difficulties with social relationships (Yanos et al., 2010).

A study on public attitudes towards people with mental illness in the United States found that only 42% of Americans 18-24 years of age believe occupational success was attainable for this population, 26% believe that society is caring towards this population, and 25% believe that patients have high rates of recovery (NAMI-GC, 2013; Substance Abuse and Mental Health Services Administration, 2008). Thus, the majority of citizens in the United States and many Western European nations hold negative, pessimistic attitudes about individuals with mental disorders (Corrigan & Watson, 2002).

Over the past two decades, studies have explored public stigma towards mental illness. However, there is a lack of consistency and clarity in both the conceptualization and measurement of mental illness stigma, which has limited the accumulation of scientific knowledge about mental illness stigma and its consequences. Fox et al. (2018) reported that out of 400 measures of mental illness stigma, only one-third have undergone systematic psychometric evaluation. For the most part, many studies that assess attitudes towards people with mental illness and ask directly about these attitudes have two shortcomings: (1) participants must be self-aware to answer these questions accurately, and (2) participants may not truthfully report their attitudes because of social desirability.

An alternative to questionnaires about biased attitudes is simulation research that utilizes realistic scenarios to evoke emotional reactions from respondents. Such scenarios enable researchers to measure implicit bias, rather than explicit or overt bias, revealing biases participants may not know they have or may deny having. Comparisons of a control character with an experimental character (e.g., mentally ill character) is a subtle and inconspicuous way of revealing participants' biases (Navarick & Moreno, 2022).

According to Sandu et al. (2019), explicit attitudes are what individuals say to others about their beliefs about a given topic. Whereas implicit attitudes are internal beliefs individuals hold independent of what they say or even think they believe. Explicit attitudes are studied more frequently than implicit attitudes, given that they are easier to measure. To date, work on the stigma of mental illness has relied primarily on self-report measures, however there has been growing recognition of the importance of assessing implicit bias. A common test that examines this form of bias is the Implicit Association Test (IAT). The IAT is a computer-based cognitive-behavioral association test that assesses the saliency of implicit attitudes (Greenwald et al., 1998). The first IAT was developed in 1998 to reveal unconscious attitudes, automatic preferences, and hidden biases by measuring the time that it takes an individual to classify concepts into distinct categories, an index of how fast our brains process information. Faster processing implies that concepts are more interconnected in a participant's mind.

Research by Griffiths et al. (2006) utilized vignettes about individuals with psychological disorders and asked participants to report their personal attitudes and perceptions pertaining to the situations described. Participants reported more avoidance behaviors, personal stigma, and perceived stigma for individuals with schizophrenia than for depression. Research respondents are more likely to react with anger and to withhold help in response to psychiatric disability than to feel pity (Corrigan et al., 2002; Socall & Holtgraves, 1992; Weiner et al., 1988). Adult respondents view adults with schizophrenia, depression, alcohol dependence or drug dependence as more likely to be violent than a person dealing with daily or typical stressors (Martin et al., 2004; Pescosolido et al.,

1999). Corrigan and Watson (2002) stated that members of the general public not only have anger toward a person with mental illness but may follow up with punishment or withhold help. The risk for actual violence is higher among individuals with schizophrenia spectrum disorders compared to typical individuals, which may lead to more stigmatization against individuals diagnosed with schizophrenia spectrum disorders (Whiting et al., 2022).

### **Sacrificial Moral Dilemmas**

According to iResearchNet (2016), moral judgment is the “determination a person makes about an action (or inaction), motive, situation, or person in relation to standards of rightness or wrongness.” Sacrificial moral dilemmas are situations that trigger conflicting thoughts or sentiments about what is right or wrong and require a decision. The decision involves potentially sacrificing the life of one person to save the lives of several others.

Foot (1967) discussed the moral implications of a classic prototypical sacrificial dilemma scenario named the trolley problem. Specifically, a version developed by Thomson (1976) has a trolley speeding towards five people who cannot escape because they are trapped by steep banks. The character in the trolley problem is faced with competing options. One option is to push a heavy man off a bridge onto the tracks to stop the trolley and save the lives of the five passengers. The alternative is to let the trolley proceed and kill five people. In another version of the dilemma, sacrificing the man takes the form of inaction (Cushman et al., 2006), which involves allowing him to drop onto the tracks after he accidentally falls over the railing and clings to the edge of the bridge. The decision in the trolley problem is typically interpreted as choosing between a utilitarian choice and a deontological choice. The utilitarian choice is for the greater good, while the deontological choice favors not sacrificing the man on the bridge due to the universal unwritten rule that murder is wrong.

Researchers have examined the impact of varying the characteristics of the potential sacrifice. Navarick (2021) found that sacrificing a notorious bank robber was rated as more morally right than sacrificing a firefighter hero, reflecting positive bias towards a hero and negative bias against a

criminal. These judgments paralleled ratings of likability of these characters. In addition, ratings of morally right varied significantly less across targets than did ratings of wrong, indicating that judgments of morally wrong are more influenced by potentially causing harm than are judgments of right. Previous literature has not explored mental illness stigmatization expressed in terms of moral judgment and moral action in the context of sacrificial dilemmas.

To explain moral psychology, Janoff-Bulman et al. (2009) proposed a theory in which there are two different types of norms, prescriptive and proscriptive. When following prescriptive norms, individuals typically focus on positive outcomes in accordance with what one should do. On the other hand, proscriptive norms focus on negative outcomes in accordance with what one should not do. Prescriptive norms are generally followed because conforming to these values leads to feelings of achievement. The violation of proscriptive norms activates feelings associated with punishment (Janoff-Bulman et al., 2009)

Judgments may be influenced by using the term “morally right,” which can prime prescriptive norms about helping behaviors, or by presenting the term “morally wrong,” which can prime proscriptive norms about harming behaviors. Framing questions in terms of “morally right” and “morally wrong” can influence the attention participants give to particular characters (Navarick, 2021). Given that proscriptive norms make salient what one “should not do,” when proscriptive norms are activated, the focus is on the identity of the character who would be harmed. Prescriptive norms represent what one “should do”; therefore, prescriptive norms may reduce attention to the identity of the target character and direct attention to other stakeholders who would be affected by one’s actions or inactions.

Describing a character as having a mental disorder may prime certain attitudes in participants. Whether they help the character or harm the character may depend on the particular mental disorder presented in the scenario. Mental disorders that are regarded with positive bias may activate prescriptive norms, whereas mental disorders that incur negative bias may activate proscriptive norms. If a target character primes proscriptive norms, then sacrificing that character may be viewed

as a deserved form of punishment. If a character description primes prescriptive norms, then not sacrificing that character could be seen as a deserved form of reward (Janoff-Bulman et al., 2009). These priming effects may create complex cognitions that will be explored in the present study.

Here is an example of a character in the trolley problem scenario that may activate the moral norms of prescriptive categories: “Suppose that the stranger is a FIREFIGHTER you recognize from TV, who was honored for rescuing several children from a burning building. How MORALLY RIGHT [WRONG] do you feel it would be to push the FIREFIGHTER off the bridge onto the tracks to save these five people?” Cognitive representations of prescriptive norms would be positive bias in the form of feelings of sympathy and helping behavior manifested toward the firefighter. Furthermore, not sacrificing the firefighter may be perceived as a deserved form of reward for this particular character.

A character that would facilitate the priming of proscriptive norms was described as “a BANK ROBBER you recognize from an FBI ‘Most Wanted’ poster. How MORALLY RIGHT [WRONG] do you feel it would be to push the BANK ROBBER off the bridge onto the tracks to save these five people?” Cognitive representations of proscriptive norms are heightened due to negative bias in the form of feelings of avoidance of and harming behaviors toward a bank robber. Furthermore, sacrificing the bank robber may be seen as a deserved punishment for this particular character. Presenting the terms “morally right” and “morally wrong” in separate questions to the same respondents could provide insights into how priming effects influence moral judgment and other associated cognitions.

Analogously to the trolley scenario, Navarick and Moreno (2022) utilized sacrificial moral dilemmas in a hospital setting where respondents were required to decide about offering immediate life-saving care to one of two patients. Participants rated the “moral deservingness” of each patient to receive immediate care and also how likely the participants would be to choose each patient. The patients varied in age, kinship to the participant, gender, and villain/hero status. Patients who did not receive life-saving care would die as a result of inaction, which is analogous to utilitarian options like

letting a character fall off a bridge. Setting the scenarios in a hospital made the sacrificial moral dilemmas more realistic and socially significant.

Sacrificing the target through direct personal action is typically judged to be less morally acceptable than sacrificing the target by not acting to prevent the same event from occurring. This is called “omission bias.” Research by Cushman et al. (2006) found that respondents rated harmful actions as morally worse than harmful omissions. Spranca et al. (1991) found that individuals rated harmful omission as less immoral and less bad than harmful commissions, where the action is taken. “Action bias” is the inverse of omission bias, representing the premise that letting someone die is not as bad as initiating events that kill a person. Stigma is often at the root of choosing not to help a stigmatized person who is in need, rather than acting aggressively toward that person (Corrigan et al., 2012). Therefore, scenarios had to be included in this study that measure participants’ reactions to taking sacrificial action, both through direct physical contact with the target and through refusal to help the target.

### **Moral Judgment vs. Moral Action**

In the present study, participants' reactions to the prospect of sacrificing one person to save five others were measured using two different scales. One scale represented participants' moral judgments—how morally right and how morally wrong they felt it would be to act this way. The other scale represented participants' inclination to choose an option—action involving personal contact with the target or inaction that would allow this person to die.

For questions about participants' own inclination toward the utilitarian option, there were analogous forms of the *let* and *push* utilitarian options. Participants were asked, “In this situation, on a scale from 0 to 5, how likely do you feel it would be that you would actually try to PUSH the stranger off the bridge and onto the tracks to save these five people (0 = definitely would not, 5 = definitely would)?” “In this situation, on a scale from 0 to 5, how likely do you feel it would be that you would actually try to LET the stranger fall off the bridge and onto the tracks to save these five?”

Moral action and moral judgment relate to different reactions to the sacrificial dilemma. Moral decisions are influenced by the personality traits of the participants. Tassy et al. (2013) had participants make judgments about 10 scenarios involving sacrificial action and fill out a sociopathy scale. Sociopaths have less moral feeling related to performing a violent action. Tassy et al. (2013) found that higher sociopathy scores predicted a higher inclination to kill one person to save several others but did not correlate with ratings of the acceptability of this behavior. Questions of moral judgment were phrased as “would it be acceptable to,” whereas questions of moral action were phrased as “would you...?” The utilitarian option was endorsed by sociopaths more in response to a choice of actions than to acceptability, suggesting that sociopathic individuals may choose an action that they judge to be morally unacceptable.

Cima et al. (2010) found that, even though sociopaths have diminished emotional arousal, they resembled normal participants in judging personal moral actions that involve physical contact with the victim to be sacrificed as less permissible than impersonal moral actions that require no physical contact with the target. Personal sacrificial dilemmas typically arouse higher emotional intensity than do impersonal sacrificial dilemmas (Koenigs et al., 2007). Both sociopaths and non-sociopaths share similar understandings of the distinction between right and wrong. However, sociopaths typically do not consider the potential negative consequences of their morally inappropriate behavior (Cima et al., 2010).

The purpose of the current study was to examine how mental health stigmatization might affect sacrificial moral dilemmas. Existing literature illustrates that the general public continues to hold negative views of individuals with mental disorders. Stigmatization is documented by self-report questionnaires that measure the degree of negative bias. However, questionnaires are subject to social desirability and response bias. The present study took an alternative approach by using scenarios to measure bias. The current study’s questions about moral judgment were based on a bivariate scale of measurement (Navarick, 2013, 2021), where participants separately rated both “How MORALLY RIGHT” and “How MORALLY WRONG” they felt it would be to perform the action or

inaction to save five beneficiaries. Given that the current study was a within-subjects design, participants were exposed to all experimental conditions.

Participants were asked, “How MORALLY RIGHT do you feel it would be to LET the stranger fall off the bridge and onto the tracks to save these five people (0 = not at all right, 5 = extremely right)?” This question focused attention on the word “LET,” which conveys inaction. An example of a question about action is, “How MORALLY RIGHT do you feel it would be to PUSH the stranger off the bridge and onto the tracks to save these five people (0 = not at all right, 5 = extremely right)?” This question highlights moral action because the word “PUSH” involves physical action.

Participants’ bias against individuals who present signs of mental illness is revealed by comparing ratings of that character with ratings of a generic control character with minimal social identity. The mean difference in ratings of right and wrong between characters across action and inaction is the amount of bias. A mentally ill character with schizophrenia with disorganized thought and speech was described as follows: “Suppose that the large man you see on the bridge is facing a lamppost and talking. ‘Those ants are telling you to get out of the way. My brother had an ant farm when we were kids. He was real short. Now he’s, like, 7 feet!...’ how MORALLY RIGHT do you feel it would be to LET the stranger fall off the bridge and onto the tracks to save these five people (0 = not at all right, 5 = extremely right)?” I hypothesized that characters with schizophrenia-like symptoms would face negative bias.

An example of a character displaying symptoms of post-traumatic stress disorder, or PTSD, was: “Suppose that the large man you see on the bridge is someone you recognize from a TV interview. He has had difficulty dealing with Post-Traumatic Stress Disorder after experiencing a terrifying traffic accident. He is sitting on the bridge and has swollen eyes with dark circles under them. He startles when a car honks its horn and places his hands over his ears. He is trembling and breathing heavily. He then stands next to the edge of the bridge, leaning over a low railing. The only way to save the lives of the five people is to push this stranger off the bridge and onto the tracks

below where his large body will stop the trolley. The stranger will die if you do this, but the five people will be saved.”

### **Summary of Design**

In this study, ratings were analyzed in relation to two variables: Characters (mentally ill vs. not) and utilitarian options (action vs. inaction). The psychological disorders in this study were PTSD, schizophrenia with disorganized thought and speech plus delusions/hallucinations, schizophrenia with inappropriate affect, and substance use disorder (SUD). Characters who did not have a psychological disorder were a firefighter, a bank robber, and a control character with minimal identity.

Thus, there were seven different characters— four of whom displayed symptoms of mental illness. The second variable, utilitarian options, consisted of two levels – action and inaction. The beneficiaries were always strangers. The objective of the present study was to examine bias through comparisons of the control character with no psychological disorder versus the experimental characters with mental illness. Bias is represented by the mean differences in ratings between these characters. The greater the difference between ratings of mentally ill characters versus the control characters, the greater the bias against mental illness.

### **Hypotheses**

#### **Hypothesis 1**

To date, research has not explored positive bias for PTSD-diagnosed individuals. I hypothesized that respondents would give lower mean ratings of right and higher mean ratings of wrong for sacrificing the PTSD character than the control character.

#### **Hypothesis 2**

People tend to hold negative views against adults with schizophrenia and substance use disorder, are hostile toward them, and are more likely to withhold help when they are in need (Martin et al., 2004; Pescosolido et al., 1999). I expected to find a negative bias on both the judgment and inclination scales against the substance use disorder (SUD) and the schizophrenia characters for both moral judgment and moral action. For the schizophrenia character displaying inappropriate

affect, when participants read how the character laughs at his graphically described injuries, this seemed likely to arouse disgust or revulsion, the opposite of empathy. For the schizophrenia character displaying disorganized thought and speech along with delusions and hallucinations, the character's misinterpretations of reality might arouse feelings of fear and rejection in participants.

### **Hypothesis 3**

I hypothesized that participants would choose inaction more than action across characters. Participants would also rate inaction more morally right and less morally wrong because of the omission bias (Cushman et al., 2006), in which an omission is rated as less immoral than taking action (Spranca et al., 1991).

### **Hypothesis 4**

I hypothesized that, because of mental illness stigma, there would be an interaction between the character variable and utilitarian options, where the difference between action and inaction would be greater for the schizophrenia characters than for the control.

## CHAPTER 2

### METHOD

#### Participants

A total of 431 undergraduates at California State University, Fullerton, participated in the survey during the Spring 2022 semester. Participants chose the study titled, “Moral Perspectives on Mental Health.” Duplicate and incomplete data cases were deleted. Most students came from Introductory Psychology classes and participated to receive course credit.

The study had more women (75.8%) than men (20.4%), with the rest identifying as “Other” or selecting “Prefer not to answer.” The average age was 19.73 years ( $SD = 2.26$ , range = 18-38). Participants reported their ethnicity: African American or Black, 2.7%; Asian or Asian American, 24%; Caucasian or White, 13.4%; Latinx/Hispanic/Latino, 48.9%; Multiracial, 5.4%; Native Hawaiian or Pacific Islander, 1%; Middle Eastern, 1.7%.

#### Experimental Design and Approach to Data Analysis

There were two independent variables: characters—control vs. other, four of whom had a mental illness—and utilitarian options—action, which was pushing the character off a bridge, and inaction, which was letting the character accidentally fall off the bridge. There were three dependent variables: ratings of morally right, ratings of morally wrong, and ratings of inclination to personally carry out a utilitarian option. The present study used a within-subjects design, where all participants responded to all levels of the independent variables. Data were analyzed using a variety of 3x3 within-subjects repeated measures ANOVAs. Some repeated measures ANOVAs had additional factors and levels to measure bias among a particular group of characters. All paired sample  $t$ -tests were interpreted at a  $p$ -value of .01 to account for inflated Type 1 error.

#### Procedure

The survey was administered online through Qualtrics. Participants gave informed consent. They then read scenarios and questions that were segmented into two non-randomized blocks. The blocks were separated according to utilitarian options, where Block 1 referred to action and Block 2

referred to inaction. Block 1 presented the control condition character first and subsequent pages presented the other six scenarios in random order. Block 2 presented the control condition character first on and subsequent pages presented the other six scenarios in random order. All characters were designated as male to remove the influence of target gender on participants' decisions. Given that the present experiment was a within-subjects design, all participants read and responded to every condition. The first block was action, because action would be easier to conceptualize than inaction. Letting the stranger fall off the bridge would then be evaluated as an alternative to pushing.

After each scenario, participants gave three ratings: “How MORALLY RIGHT” and “How MORALLY WRONG” they felt it would be to perform the action or inaction to save the five people on the tracks, and how likely they felt it was that they would perform the action or inaction to save the five people. All questions were worded in the same way within a block. In Block 1, “push” referred to action, whereas in Block 2 “let” represented inaction. The control character description is as follows:

A runaway trolley is heading down the tracks toward a group of five men and women who have wandered onto the tracks from a nearby gathering. They have not noticed the trolley and they will all be killed if the trolley proceeds on its present course. You are on a footbridge over the tracks, in between the approaching trolley and the five people. There is no time to warn them, but you do have an option available to save their lives. Next to you on this footbridge is a man you don't know who happens to be very large. He then stands next to the edge of the bridge, leaning over a low railing. The only way to save the lives of the five people is to push this stranger off the bridge and onto the tracks below where his large body will stop the trolley. The stranger will die if you do this, but the five people will be saved.

On a scale from 0 to 5, how MORALLY RIGHT do you feel it would be to PUSH the stranger off the bridge and onto the tracks to save these five people (0 = not at all right, 5 = extremely right)?

On a scale from 0 to 5, how MORALLY WRONG do you feel it would be to PUSH the stranger off the bridge and onto the tracks to save these five people (0 = not at all wrong, 5 = extremely wrong)?

In this situation, on a scale from 0 to 5, how likely do you feel it would be that you would actually try to PUSH the stranger off the bridge and onto the tracks to save these five people (0 = definitely would not, 5 = definitely would)?

The other character descriptions, presented in a random order, were as follows:

*Schizophrenia—Hallucinating/Delusional/Disorganized:* Suppose that the large man you see on the bridge is facing to your left and talking to someone that only he sees |The ants are telling you that I better attack other people on this bridge before they attack

me? I must defend myself! (Suddenly grins widely and laughs repeatedly.) My brother had an ant farm when we were kids. He was real short. Now he's, like, 7 feet!]

*Substance Use Disorder:* Suppose that the large man you see on the bridge appears disheveled and reeks of alcohol and body odor. He clumsily pulls out his phone and listens to a voicemail that says, [You have missed work too much! What is going on with you?!?] The man makes a face and curses at his phone. He then reaches into his pocket and pulls out a syringe. He pulls up his sleeve (you see needle marks on his arm), injects himself, and shortly afterwards appears relaxed, smiles, closes his eyes, and stands swaying back and forth.

*Post-Traumatic Stress Disorder:* Suppose that the large man you see on the bridge is someone you recognize from a TV interview. He has had difficulty dealing with Post-Traumatic Stress Disorder after experiencing a terrifying traffic accident. He is sitting on the bridge and has swollen eyes with dark circles under them. He startles when a car honks its horn and places his hands over his ears. He is trembling and breathing heavily. He then stands next to the edge of the bridge, leaning over a low railing.

*Schizophrenia—Inappropriate Affect:* Suppose that the large man you see on the bridge suddenly trips and falls, banging his forehead on the pavement. He laughs wildly. You can see a big, red swelling on his forehead. The man continues to laugh, louder than before as he gets up, rubbing the welt, which is now bleeding.

*Firefighter—Hero:* Suppose that the stranger is a FIREFIGHTER you recognize from TV who was honored for rescuing several children from a burning building. He then stands next to the edge of the bridge, leaning over a low railing.

*Bank Robber—Villain:* Suppose that the stranger is a BANK ROBBER you recognize from an FBI “Most Wanted” poster. He then stands next to the edge of the bridge, leaning over a low railing.

The following text presents the structure and organization of Block 2:

A runaway trolley is heading down the tracks toward a group of five men and women who have wandered onto the tracks from a nearby gathering. They have not noticed the trolley and they will all be killed if the trolley proceeds on its present course. You are on a footbridge over the tracks, in between the approaching trolley and the five people. There is no time to warn them, but you do have an option available to save their lives. Next to you on this footbridge is a man you don't know who happens to be very large. He then stands next to the edge of the bridge, leaning over a low railing. He loses his balance and almost falls off but manages to grab onto the edge of the bridge with a couple of fingers. He will fall in just a few seconds unless you pull him back up. The only way to save the lives of the five people is to let this stranger fall off the bridge and onto the tracks below where his large body will stop the trolley. The stranger will die if you let this happen, but the five people will be saved.

On a scale from 0 to 5, how MORALLY RIGHT do you feel it would be to LET the stranger fall off the bridge and onto the tracks to save these five people (0 = not at all right, 5 = extremely right)?

On a scale from 0 to 5, how MORALLY WRONG do you feel it would be to LET the stranger fall off the bridge and onto the tracks to save these five people (0 = not at all wrong, 5 = extremely wrong)?

In this situation, on a scale from 0 to 5, how likely do you feel it would be that you would actually LET the stranger fall off the bridge and onto the tracks to save these five people (0 = definitely would not, 5 = definitely would)?"

*Demographics* This brief measure asked participants for their age, gender, and ethnic identity.

## CHAPTER 3

### RESULTS

Multiple data analyses explored potential biases; *t*-tests examined the mean difference across the characters in both the action and inaction phase of the utilitarian options variable. Some *t*-tests were also conducted to detect mean differences between action and inaction in the utilitarian options. I conducted several 3x3 within-subjects repeated measures ANOVAs to detect bias toward a particular character. All paired sample *t*-tests were interpreted at a *p*-value of .01 to account for inflated Type 1 error due to the large number of analyses.

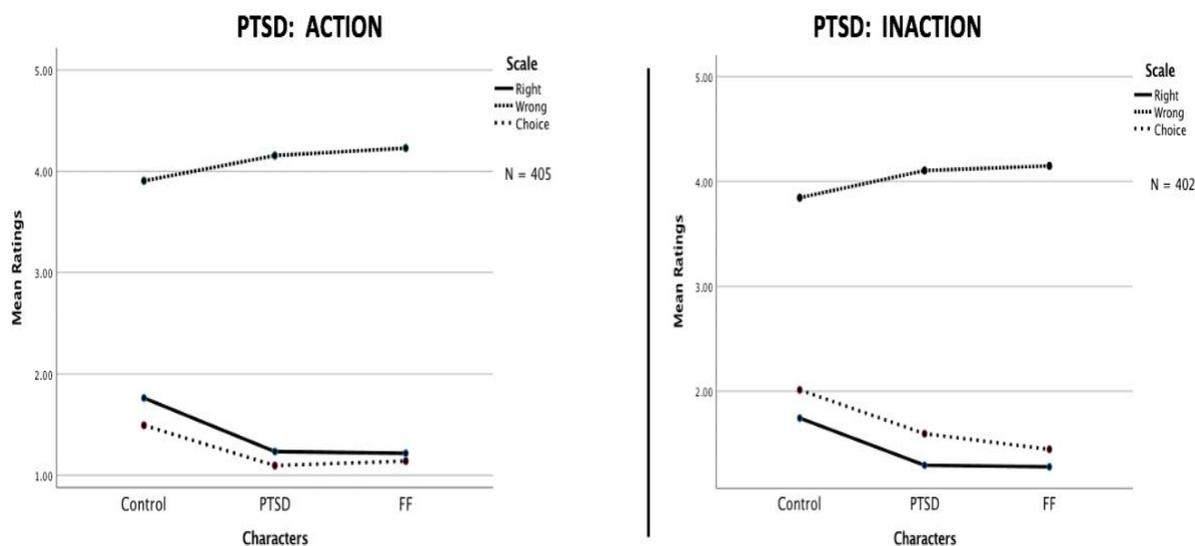
Repeated measures ANOVAs (within-subjects design) examined main effects and interaction effects between utilitarian options and the characters variable. The following characters were expected to elicit positive bias: firefighter (FF) and post-traumatic stress disorder (PTSD). Those expected to receive negative bias were bank robber (BK), schizophrenia DTSD (disorganized thoughts and speech plus delusion/hallucinations), schizophrenia IA (inappropriate affect), and substance use disorder (SUD).

#### **Hypothesis 1: Exploring Positive Bias Toward Characters**

Hypothesis 1 stated that participants would show positive bias toward the PTSD and FF characters, in comparison to the control character, both for moral judgment and moral choice. Hypothesis 1 was supported by paired-sample *t*-tests for selected comparisons. Multiple statistical tests involving the same dependent variable are vulnerable to Type 1 errors—rejection of a true null hypothesis. Therefore, all paired sample *t*-tests are interpreted at the alpha level of *p* equal to or less than .01. Values of Cohen’s *d* were obtained using the calculator for repeated measures design: [https://www.psychometrica.de/effect\\_size.html](https://www.psychometrica.de/effect_size.html). Values reported here are referred to in the calculator as *dRepeatedMeasures, pooled*, which uses “the pooled standard deviation, controlling for the intercorrelation of both groups.”

Figure 1 presents participants’ mean ratings of right, wrong, and choice of action as a function of characters (control, PTSD, FF) in the action condition (left panel) and the inaction condition (right

panel). The solid line represents ratings of right, the dashed line represents ratings of wrong, and the dotted line represents ratings of probable choice. The central finding illustrated by the graph is that participants showed positive bias toward both the FF and PTSD characters but not toward the control character, in both the action and inaction conditions. There also was an interaction between characters and rating type, specifically, a greater difference between control and PTSD for ratings of right than ratings of wrong. This runs counter to the hypothesis. In addition, the inclination toward response was higher in the inaction condition than in the action condition. Pillai's Trace assessed the significance of main effects and interactions in multivariate tests. Pillai's Trace corrects  $F$  values for potential departures from assumptions, such as homogeneity of variance. It also provides a measure of effect size—partial eta squared.



*Figure 1.* Exploring positive bias: Mean ratings of right, wrong, and choice for the PTSD and firefighter characters as compared to control in the action and inaction conditions.

A 3x3 repeated measures ANOVA (within-subjects design) measured bias effects of ratings and character (control, FF, PTSD) in the action condition. Ratings of wrong were reversed to be in the same direction as ratings of right. A significant interaction between characters and rating type would show as a difference in the steepness of the slopes across characters. There was also a significant main effect for rating type averaged across characters,  $F(2, 403) = 41.08, p < .05$ ; Pillai's trace = .17. There was a significant main effect for characters,  $F(2, 403) = 63.20, p < .05$ ; Pillai's trace = .24.

Additionally, there was a significant interaction between rating type and characters,  $F(4, 401) = 4.77$ ,  $p < .05$ ; Pillai's trace = .05. The interaction reveals a greater difference between control and PTSD characters for ratings of right than for ratings of wrong.

A total of 3 paired samples  $t$ -tests were conducted for the PTSD character across rating type in the action utilitarian option. Participants rated it more morally right to push the control character ( $M = 1.76$ ,  $SD = 1.57$ ,  $N = 407$ ) off the bridge than the PTSD character ( $M = 1.22$ ,  $SD = 1.50$ ,  $N = 407$ );  $t(406) = -8.91$ ,  $p < .01$ ,  $d = .56$ . Participants rated it more morally wrong to push the PTSD character ( $M = 4.15$ ,  $SD = 1.22$ ,  $N = 407$ ) off the bridge than the control character ( $M = 3.90$ ,  $SD = 1.23$ ,  $N = 407$ );  $t(406) = -4.42$ ,  $p < .01$ ,  $d = .23$ . Furthermore, participants rated that they actually would push the control character ( $M = 1.49$ ,  $SD = 1.52$ ,  $N = 406$ ) off the bridge more than the PTSD character ( $M = 1.09$ ,  $SD = 1.44$ ,  $N = 406$ );  $t(405) = 6.91$ ,  $p < .01$ ,  $d = .42$ . The tendency to sacrifice the control character more willingly than the PTSD character indicates positive bias in favor of the PTSD character.

A total of 3 paired-sample  $t$ -tests were conducted for the FF character across rating type in the action utilitarian option. Participants rated it more morally right to push the control character ( $M = 1.77$ ,  $SD = 1.56$ ,  $N = 407$ ) off the bridge than the FF ( $M = 1.22$ ,  $SD = 1.43$ ,  $N = 407$ );  $t(406) = 8.70$ ,  $p < .01$ ,  $d = .51$ . Participants rated it more morally wrong to push the FF ( $M = 4.23$ ,  $SD = 1.11$ ,  $N = 407$ ) off the bridge than the control character ( $M = 3.90$ ,  $SD = 1.23$ ,  $N = 407$ );  $t(406) = 5.66$ ,  $p < .01$ ,  $d = .38$ . Lastly, participants stated they actually would push the control character ( $M = 1.50$ ,  $SD = 1.52$ ,  $N = 406$ ) off the bridge more than the FF ( $M = 1.40$ ,  $SD = 1.14$ ,  $N = 406$ );  $t(405) = 6.67$ ,  $p < .01$ ,  $d = 0.08$ .

A 3x3 repeated measures ANOVA (within-subjects design) measured bias effects of rating type and character (control, FF, PTSD) in the inaction condition. The ratings of wrong were again reversed to go in the same direction as ratings of right. There was a significant main effect for rating type averaged across characters,  $F(2, 398) = 69.07$ ,  $p < .01$ ; Pillai's trace = .25. There was a significant main effect for character averaged across rating type,  $F(2, 398) = 109.93$ ,  $p < .01$ ; Pillai's

trace = .21. Additionally, there was a significant interaction between rating type and characters,  $F(4, 396) = 6.07, p < .01$ ; Pillai's trace = .04. Thus, the same main effects and interactions were evident in both the action and inaction conditions.

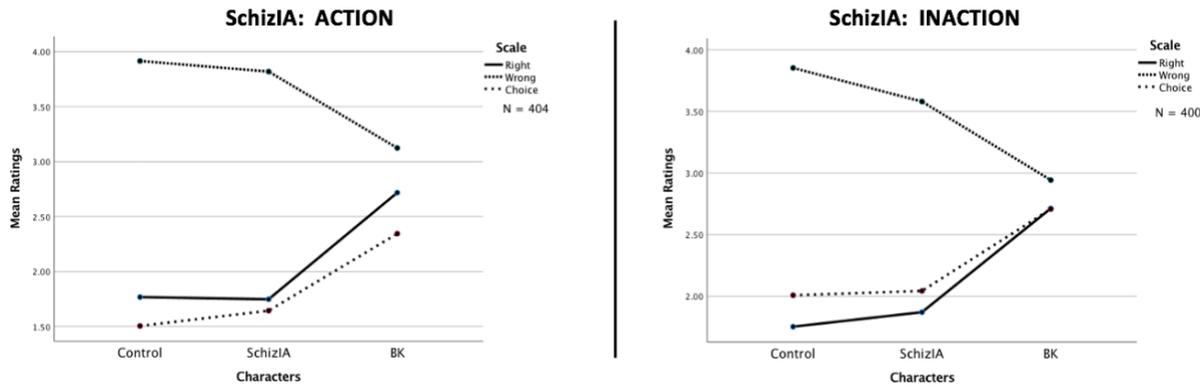
Three paired-sample  $t$ -tests were conducted for the PTSD character across rating types in the inaction utilitarian option. Participants rated it more morally right to let the control character ( $M = 1.74, SD = 1.56, N = 406$ ) fall off the bridge than the PTSD character ( $M = 1.29, SD = 1.4$ );  $t(405) = 8.29, p < .01, d = .55$ . Participants rated it more morally wrong to let the PTSD character ( $M = 4.09, SD = 1.17, N = 405$ ) fall off the bridge than the control character ( $M = 3.84, SD = 1.22, N = 405$ );  $t(404) = -4.84, p < .01, d = .27$ . Lastly, participants rated that they actually would more likely let the control character fall ( $M = 2.00, SD = 1.59, N = 405$ ) off the bridge than the PTSD character ( $M = 1.59, SD = 1.54, N = 405$ );  $t(404) = 5.91, p < .01, d = .33$ . The tendency to sacrifice the control character over the PTSD character indicates positive bias toward individuals who show symptoms of PTSD.

An additional three paired-sample  $t$ -tests were conducted for FF across ratings in the inaction utilitarian option. Similarly to the FF in the action phase, participants rated it more morally right to let the control character ( $M = 1.76, SD = 1.56, N = 405$ ) fall off the bridge than the FF ( $M = 1.27, SD = 1.48, N = 405$ );  $t(404) = 7.61, p < .01, d = .59$ . Participants also rated it more morally wrong to let the FF ( $M = 4.14, SD = 1.12, N = 404$ ) fall off the bridge than the control character ( $M = 3.84, SD = 1.22, N = 404$ );  $t(403) = 5.96, p < .01, d = .35$ . Lastly, participants rated that they more likely would let the control character ( $M = 2.00, SD = 1.59, N = 405$ ) fall off the bridge than the FF ( $M = 1.44, SD = 1.52, N = 405$ );  $t(404) = 7.97, p < .01, d = .44$ . The tendency to save the FF character over the control character indicates positive bias toward firefighters.

### **Hypothesis 2: Exploring Negative Bias Toward Characters**

Hypothesis 2 stated that participants would show negative bias toward the SchizIA, SchizDTSD, SUD, and BK characters in comparison to the control character, both for moral judgment and moral choice. Hypothesis 2 was partially supported by paired-sample  $t$ -tests for selected

comparisons. All paired sample *t*-tests were interpreted at the alpha level  $p$  equal to or less than .01. Figure 2 compares control, SchizIA, and BK characters across utilitarian options. Figure 3 compares control, SchizDTSD, SUD, and BK characters across utilitarian options. Analyses tested for negative bias against particular characters.



*Figure 2.* Exploring Negative bias: Mean ratings of right, wrong, and choice for the schizophrenia (SchizIA) and bank robber (BK) characters as compared to control for the action and inaction conditions.

Figure 2 presents participants' mean ratings of right, wrong, and choice as a function of characters (Control, SchizIA, BK) in the action condition (left panel) and the inaction condition (right panel). The solid line represents ratings of right, the dashed line represents ratings of wrong, and the dotted line represents ratings of choice. For the action condition, the central finding is that no negative bias is present against the SchizIA or control characters, but there is a large bias against BK. All but one paired samples *t*-test were significant. Specifically, in the inaction condition, there was a negative bias against SchizIA in ratings of wrong but not in ratings of right. In addition, ratings of inclination are higher in the inaction condition than in the action condition.

For the action condition, a 3x3 repeated measures ANOVA (within-subjects design) measured bias using Pillai's Trace in multivariate tests. Ratings of wrong were reversed to be in the same direction as ratings of right. There was a significant main effect for rating type averaged across characters,  $F(2, 402) = 80.85, p < .05$ ; Pillai's trace = .29. There was a significant main effect for character averaged across rating type,  $F(2, 402) = 146.61, p < .05$ ; Pillai's trace = .42. Additionally,

there was a significant interaction between rating type and character,  $F(4, 400) = 6.17, p < .05$ ; Pillai's trace = .06.

A total of 3 paired samples  $t$ -tests were conducted for the SchizIA character across rating type in the action condition. There was no significant difference in ratings of right between control ( $M = 1.76, SD = 1.57, N = 407$ ) and SchizIA characters ( $M = 1.74, SD = 1.58, N = 407$ );  $t(406) = .37, p > .01, d = .03$ . There also was no significant difference in ratings of wrong between control ( $M = 3.90, SD = 1.23, N = 407$ ) and SchizIA characters ( $M = 3.81, SD = 1.31, N = 407$ );  $t(406) = 1.64, p > .01, d = -.08$ . Finally, there was no significant difference in ratings of choice between control ( $M = 1.49, SD = 1.52, N = 406$ ) and SchizIA characters ( $M = 1.63, SD = 1.58, N = 406$ );  $t(405) = -2.44, p > .01, d = .16$ . Therefore, there was no negative bias against the SchizIA character in comparison to the control character for ratings of right.

Three paired samples  $t$ -tests were conducted for BK across rating type in the action condition. Participants rated it more morally right to push BK ( $M = 2.72, SD = 1.66, N = 406$ ) off the bridge than the control character ( $M = 1.77, SD = 1.56, N = 406$ );  $t(405) = -14.12, p < .01, d = .84$ . Participants rated it more morally wrong to push the control character ( $M = 3.90, SD = 1.23, N = 406$ ) off the bridge than the BK character ( $M = 3.11, SD = 1.49, N = 406$ );  $t(405) = 10.54, p < .01, d = .48$ . Lastly, participants stated they more likely would push BK ( $M = 2.34, SD = 1.64, N = 404$ ) off the bridge than the control character ( $M = 1.50, SD = 1.52, N = 404$ );  $t(403) = 12.67, p < .01, d = .76$ . The tendency to sacrifice the BK character more than the control character indicates negative bias against the BK character in accord with Hypothesis 2.

A 3x3 repeated measures ANOVA (within-subjects design) measured bias effects across rating type and character (control, SchizIA, BK) in the inaction condition. The ratings of wrong were again reversed so they would go in the same direction as ratings of right. There was a significant main effect for rating type averaged across characters,  $F(2, 398) = 69.07, p < .05$ ; Pillai's trace = .26. There was also a significant main effect for character averaged across rating type,  $F(2,$

398) = 109.93,  $p < .05$ ; Pillai's trace = .36. Additionally, there was a significant interaction between rating type and characters,  $F(4, 396) = 6.07, < .05$ ; Pillai's trace = .06.

An additional 3 paired samples  $t$ -tests were conducted for SchizIA across rating type in the inaction utilitarian option. There was no significant difference in ratings of right between control ( $M = 1.99, SD = 1.59, N = 404$ ) and the SchizIA characters ( $M = 2.03, SD = 1.60, N = 404$ );  $t(403) = -.52, p > .01, d = .03$ . However, participants rated it more morally wrong to let the control character fall off the bridge ( $M = 3.85, SD = 1.22, N = 403$ ) than the SchizIA character ( $M = 3.58, SD = 1.34, N = 403$ );  $t(402) = 5.22, p < .01, d = .31$ . This supported Hypothesis 2. There was no significant difference in ratings of probable action between the control character ( $M = 1.99, SD = 1.59, N = 404$ ) and the SchizIA character ( $M = 2.03, SD = 1.60, N = 404$ );  $t(403) = -.52, p > .01, d = .03$ . For ratings of wrong, the results imply some negative bias against the SchizIA character. However, this bias was not consistent across all ratings.

Three paired samples  $t$ -tests were conducted for BK. Participants rated it more morally right to let BK ( $M = 2.72, SD = 1.69, N = 402$ ) fall off the bridge than the control character ( $M = 1.76, SD = 1.57, N = 402$ );  $t(401) = 12.02, p < .01, d = .61$ . They rated it more morally wrong to let the control character ( $M = 3.84, SD = 1.23, N = 402$ ) fall off the bridge than BK ( $M = 2.94, SD = 1.50, N = 402$ );  $t(401) = 13.00, p < .01, d = .64$ . Lastly, participants rated that they actually would more likely let BK ( $M = 2.71, SD = 1.11, N = 403$ ) fall off the bridge than the control character ( $M = 1.99, SD = 1.59$ );  $t(402) = 10.24, p < .01, d = .66$ . The tendency to sacrifice BK over the control character indicates negative bias against the BK character.

Figure 3 presents participants' mean ratings of right, wrong, and choice as a function of characters (control, SchizDTSD, SUD, BK) in the action (left panel) and the inaction (right panel) utilitarian options. The solid line represents ratings of right, the dashed line represents ratings of wrong, and the dotted line represents ratings of choice. The central finding illustrated by the graph was that negative bias is present against SchizDTSD and SUD characters, as compared to the control character for both action and inaction options. There also is an interaction between characters

and rating type, revealed by a greater difference between control and BK for ratings of right than for ratings of wrong. In addition, ratings of the inclination to choose the utilitarian option are higher for inaction than for action. Pillai's Trace was utilized in multivariate tests to assess the significance of main effects and interactions.

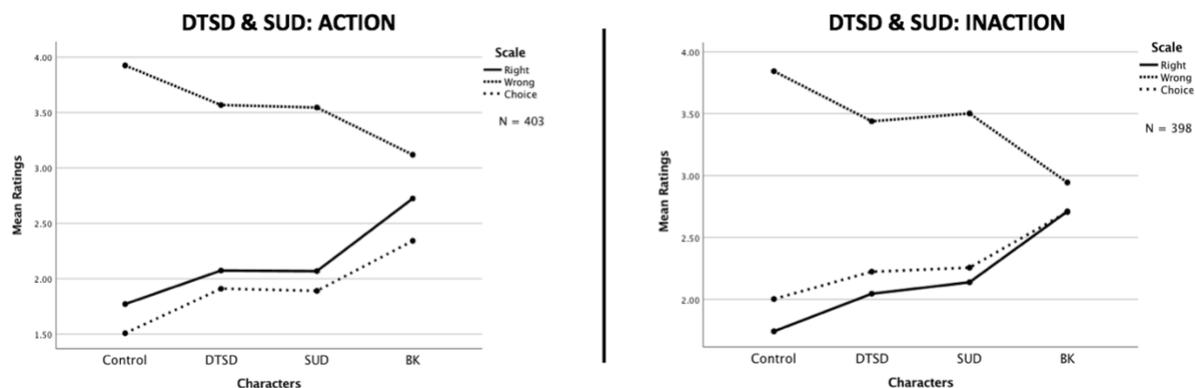


Figure 3. Negative bias: mean ratings of right, wrong, and choice for the disorganized schizophrenia (DTSD), substance abuser (SUD), and bank robber (BK) as compared to the control character for the action and inaction conditions.

A 3x4 repeated measures ANOVA (within-subjects design) measured bias effects across ratings and characters (Control, SchizDTSD, SUD, BK) in the action condition. The ratings of wrong were again reversed so they would go in the same direction as ratings of right. There was a significant main effect for rating type averaged across characters,  $F(2, 401) = 87.72, p < .05$ ; Pillai's trace = .30. There was a significant main effect for characters averaged across rating type,  $F(3, 400) = 89.76, p < .05$ ; Pillai's trace = .40. Additionally, there was a significant interaction between rating type and character,  $F(6, 397) = 2.79, p < .05$ ; Pillai's trace = .04.

Paired samples *t*-tests were conducted comparing the control character with the two mentally ill characters, but not the bank robber because those tests were already reported in Figure 2. A total of 3 paired samples *t*-tests was conducted for the SchizDTSD character across rating type in the action utilitarian option. Participants rated it more morally right to push the SchizDTSD character ( $M = 2.07, SD = 1.67, N = 406$ ) off the bridge than the control character ( $M = 1.77, SD = 1.56, N = 406$ );  $t(405) = 4.62, p < .01, d = -.29$ . Participants rated it more morally wrong to push the control

character ( $M = 3.90$ ,  $SD = 1.23$ ,  $N = 407$ ) off the bridge than the SchizDTSD character ( $M = 3.55$ ,  $SD = 1.38$ ,  $N = 407$ );  $t(406) = 5.33$ ,  $p < .01$ ,  $d = .26$ . Lastly, participants rated that they would more likely push the SchizDTSD character ( $M = 1.91$ ,  $SD = 1.61$ ,  $N = 406$ ) off the bridge than the control character ( $M = 1.50$ ,  $SD = 1.52$ ,  $N = 406$ );  $t(405) = 6.07$ ,  $p < .01$ ,  $d = -.36$ . This indicates a negative bias against the SchizDTSD character, given that respondents indicated a higher likelihood of sacrificing the SchizDTSD character than the control. A negative bias towards BK parallels the bias against SchizDTSD and SUD characters, highlighting the extent to which SchizDTSD and SUD are stigmatized—i.e., they are stigmatized as much as a criminal.

A total of 3 paired samples  $t$ -tests were conducted for the SUD character across rating type. Participants rated it more morally right to push the SUD character ( $M = 2.07$ ,  $SD = 1.62$ ,  $N = 407$ ) off the bridge than the control character in the action utilitarian option ( $M = 1.77$ ,  $SD = 1.56$ ,  $N = 407$ );  $t(406) = 4.70$ ,  $p < .01$ ,  $d = -.29$ . Participants rated it more morally wrong to push the control character ( $M = 3.90$ ,  $SD = 1.23$ ,  $N = 407$ ) off the bridge than the SUD character ( $M = 3.52$ ,  $SD = 1.38$ );  $t(406) = 5.63$ ,  $p < .01$ ,  $d = -.28$ . Lastly, participants rated that they were more likely to push the SUD character ( $M = 1.89$ ,  $SD = 1.64$ ,  $N = 406$ ) off the bridge than the control character ( $M = 1.50$ ,  $SD = 1.52$ );  $t(405) = 6.25$ ,  $p < .01$ ,  $d = .40$ . The tendency to avoid harming the control character more than the SUD character indicates a negative bias against the SUD character.

A 3x4 repeated measures ANOVA (within-subjects design) measured bias across rating type and character (Control, SchizDTSD, SUD, BK) in the inaction condition. The ratings of wrong were again reversed to go in the same direction as ratings of right. There was a significant main effect for rating type averaged across characters,  $F(2, 396) = 78.78$ ,  $p < .05$ ; Pillai's trace = .29. There was a significant main effect for character averaged across rating type,  $F(3, 395) = 70.53$ ,  $p < .05$ ; Pillai's trace = .35. Additionally, there was a significant interaction between rating type and characters,  $F(6, 392) = 3.53$ ,  $p < .05$ ; Pillai's trace = .05. There was a smaller effect of character on ratings of choice than ratings of right.

Paired samples *t*-tests were conducted between the control character and the two mentally ill characters. A total of 3 paired samples *t*-tests were conducted for the SchizDTSD character across rating type for the inaction utilitarian option. Participants rated it more morally right to let the SchizDTSD character ( $M = 2.05$ ,  $SD = 1.67$ ,  $N = 402$ ) fall off the bridge than the control character ( $M = 1.74$ ,  $SD = 1.56$ ,  $N = 402$ );  $t(401) = 4.49$ ,  $p < .01$ ,  $d = -.27$ . Participants also rated it more morally wrong to let the control character ( $M = 3.84$ ,  $SD = 1.23$ ,  $N = 401$ ) fall off the bridge than the SchizDTSD character ( $M = 3.43$ ,  $SD = 1.38$ ,  $N = 401$ );  $t(400) = 6.71$ ,  $p < .01$ ,  $d = -.36$ . Lastly, participants said they would more likely let the SchizDTSD character ( $M = 2.22$ ,  $SD = 1.62$ ,  $N = 402$ ) fall off the bridge than the control character ( $M = 1.99$ ,  $SD = 1.59$ ,  $N = 402$ );  $t(401) = 3.31$ ,  $p < .01$ ,  $d = -.19$ . The greater tendency to let the SchizDTSD character fall off the bridge than the control character indicates a negative bias against SchizDTSD.

A total of 3 paired samples *t*-tests were conducted for the SUD character across rating type for the inaction utilitarian option. Participants rated it more morally right to let the SUD character ( $M = 2.14$ ,  $SD = 1.66$ ,  $N = 403$ ) fall off the bridge than the control character ( $M = 1.75$ ,  $SD = 1.56$ ,  $N = 403$ );  $t(402) = 6.02$ ,  $p < .01$ ,  $d = -.361$ . Participants rated it more morally wrong to let the control character ( $M = 3.84$ ,  $SD = 1.23$ ,  $N = 402$ ) fall off the bridge than the SUD character ( $M = 3.49$ ,  $SD = 1.34$ ,  $N = 402$ );  $t(401) = 6.22$ ,  $p < .01$ ,  $d = -.35$ . Lastly, participants stated they would more likely let the SUD character ( $M = 2.26$ ,  $SD = 1.63$ ,  $N = 402$ ) fall off the bridge than the control character ( $M = 2.00$ ,  $SD = 1.59$ ;  $t(401) = 3.86$ ,  $p < .01$ ,  $d = -.23$ ). The tendency to sacrifice the SUD character over the control character indicates negative bias against people with SUD.

### **Hypothesis 3: Exploring Utilitarian Options (Inaction vs. Action)**

Hypothesis 3 stated that participants would show a stronger inclination to choose the inaction option than the action option. Also, participants would rate inaction as more morally right and less morally wrong than action. This should be true across characters. Finally, there would be an interaction between characters and utilitarian options, where the difference between action and inaction would be greater for the schizophrenia characters than for the control character, because

mental illness stigma should lead to denying the stigmatized person the help they need to survive. In addition to ANOVAs, all paired sample *t*-tests were interpreted at the alpha level of *p* equal to or less than .01. Statistical data are reported only for the significant tests. Hypothesis 3 was partially supported.

A 2x3x3 repeated measures ANOVA (within-subjects design) measured bias in choice of utilitarian options across rating type and characters (control, PTSD, FF). The ratings of wrong were reversed to be in the same direction as ratings of right. There was a significant main effect for utilitarian option averaged across characters and rating type,  $F(1, 398) = 22.31, p < .05$ ; Pillai's trace = .05. There was no significant two-way interaction between utilitarian options and character,  $F(2, 397) = .56, p > .05$ ; Pillai's trace = .00. However, there was a significant interaction between utilitarian option and ratings,  $F(2, 397) = 32.85, p < .05$ ; Pillai's trace = .14.

A total of 9 paired samples *t*-tests were conducted for the utilitarian options variable across characters of control, PTSD, and FF. Participants indicated that they would be more likely to let the control character ( $M = 1.99, SD = 1.59, N = 405$ ) fall off the bridge than to push the control character ( $M = 1.75, SD = 1.52, N = 405$ );  $t(404) = -6.48, p < .01, d = -.16$ . Participants rated that they would be more likely to let the PTSD character ( $M = 1.59, SD = 1.54, N = 405$ ) fall off the bridge than to push the PTSD character ( $M = 1.10, SD = 1.44, N = 405$ );  $t(404) = -7.41, p < .01, d = -.42$ . Participants said that they would be more likely to let the FF character ( $M = 1.16, SD = 1.41, N = 404$ ) fall off the bridge than to push the FF character ( $M = 1.44, SD = 1.52, N = 404$ );  $t(403) = -4.43, p < .01, d = .24$ . All three characters would be allowed to fall more than they would be pushed. *t*-tests for ratings of right and wrong across utilitarian options revealed no significant differences.

A 2x3x3 repeated measures ANOVA (within-subjects design) measured bias effects in the utilitarian options variable across rating type and characters (control, SchizIA, BK). The ratings of wrong were reversed to be in the same direction as ratings of right. There was a significant main effect for utilitarian options averaged across characters and ratings,  $F(1, 396) = 31.54, p < .05$ ; Pillai's trace = .07. There was no significant interaction between utilitarian options and characters,  $F(2,$

395) = 1.65,  $p > .05$ ; Pillai's trace = .01. However, there was a significant interaction between utilitarian options and rating type,  $F(2, 395) = 22.87$ ,  $p < .05$ ; Pillai's trace = .10.

For the choice rating type, 6 paired samples  $t$ -tests were conducted for the utilitarian options and the control, SchizIA, and BK characters. Participants rated that they would be more likely to let the BK character ( $M = 2.72$ ,  $SD = 1.65$ ,  $N = 402$ ) fall off the bridge than to push off the BK ( $M = 2.34$ ,  $SD = 1.64$ ,  $N = 402$ );  $t(401) = -5.21$ ,  $p < .01$ ,  $d = -.30$ . Participants rated that they would be more likely to let the schizophrenia IA character ( $M = 2.03$ ,  $SD = 1.60$ ,  $N = 404$ ) fall off the bridge than to push the schizophrenia IA character off ( $M = 1.63$ ,  $SD = 1.58$ ,  $N = 404$ );  $t(403) = -5.75$ ,  $p < .01$ ,  $d = -.33$ . For moral judgment, participants rated it more morally wrong to push the schizophrenia IA character ( $M = 3.81$ ,  $SD = 1.31$ ,  $N = 404$ ) off the bridge than to let the schizophrenia IA character fall off the bridge ( $M = 3.58$ ,  $SD = 1.34$ ,  $N = 404$ );  $t(403) = 2.85$ ,  $p < .01$ ,  $d = -.22$ . No other comparisons involving moral judgment were significant.

A 2x3x4 repeated measures ANOVA (within-subjects design) measured bias in utilitarian options across ratings and across control, SchizDTSD, SUD, and BK characters. The ratings of wrong were again reversed to be in the same direction as ratings of right. There was a significant main effect for utilitarian options averaged across characters and ratings,  $F(1, 394) = 20.95$ ,  $p < .05$ ; Pillai's trace = .05. There was no significant interaction between utilitarian options and characters,  $F(3, 392) = .25$ ,  $p > .05$ ; Pillai's trace = .00. However, there was a significant interaction between utilitarian options and ratings,  $F(2, 393) = 28.39$ ,  $p < .05$ ; Pillai's trace = .13.

A total of 6 paired samples  $t$ -tests were conducted for utilitarian options across control, SchizDTSD, SUD, and BK characters. Paired sample  $t$ -tests were conducted between the action and inaction conditions for the control and two mentally ill characters. Participants rated that they would be more likely to let the SchizDTSD character ( $M = 2.22$ ,  $SD = 1.62$ ,  $N = 402$ ) fall off the bridge than to push the SchizDTSD character ( $M = 1.91$ ,  $SD = 1.60$ ,  $N = 402$ );  $t(401) = 4.23$ ,  $p < .01$ ,  $d = .225$ . Participants also rated that they would be more likely to let the SUD character ( $M = 2.26$ ,  $SD = 1.63$ ,

$N = 402$ ) fall off the bridge than to push the SUD character ( $M = 1.90$ ,  $SD = 1.64$ ,  $N = 402$ );  $t(401) = 5.40$ ,  $p < .01$ ,  $d = -.33$ . No other comparisons involving moral judgment were significant.

#### **Hypothesis 4: Exploring Higher Sensitivity on Scales**

Based on the findings of Navarick (2021), Hypothesis 4 stated that participants would differ in sensitivity of ratings, where ratings of wrong would change more across characters than ratings of right. Hypothesis 4 was not supported; rather the opposite was true. There were more significant effects for ratings of right than for ratings of wrong. Ratings of right was a more sensitive scale that varied more across variables.

## CHAPTER 4

### DISCUSSION

Overall, the results of this study support the conclusion that people hold both positive and negative biases toward individuals with psychological disorders. Through the use of sacrificial moral dilemmas, comparisons of a control character with an experimental character revealed predicted biases by examining mean ratings. Although not all mentally ill characters were subject to negative bias, my findings are consistent with the notion that negative and pessimistic attitudes stigmatize individuals with mental illnesses (Corrigan & Watson, 2004). However, my study also showed that not all psychological disorders are stigmatized. In fact, positive bias resulted in favorable treatment toward the character with PTSD, in contrast to the negative bias toward characters with schizophrenia and SUD.

Specifically, negative bias appeared to influence judgments about individuals with schizophrenia and substance use disorder. Participants were more likely to sacrifice characters with schizophrenia and substance abuse, and they viewed it as less morally wrong to do so. My findings are consistent with previous research in which adult respondents viewed adults with schizophrenia and alcohol dependence or drug dependence as more likely to be violent than a person dealing with daily typical stressors (Martin et al., 2000). This belief about potential violence fuels stigma and avoidance.

Supporting hypothesis 3, respondents favored scenarios that followed the omission bias, allowing a person to fall, where the failure to perform an action is less disagreeable than performing an action, pushing characters off the bridge (Cushman et al., 2006; Spranca et al., 1991).

#### **Assessment of Hypotheses**

Hypothesis 1 stated that participants would show positive bias towards the PTSD character for both moral judgment and moral choice, which would be evident if participants were more likely to sacrifice the control character than the PTSD character across utilitarian options. My findings supported positive bias towards people with PTSD, which likely springs from greater empathy toward

and more desire to help these individuals. The firefighter character produced positive bias similar to the PTSD character. According to Navarick (2020), people show protective behaviors towards firefighter given that this protection reciprocates the protection they offer to society. The similarity in findings between PTSD and FF indicates that these characters are functionally equivalent given that positive bias is present toward both.

Hypothesis 2 stated that participants would show negative bias towards the schizophrenia and SUD characters. Hypothesis 2 was partially supported, given that an interaction between rating type and characters was significant. The following characters were compared to the control character: schizophrenia IA, schizophrenia DTSD, and SUD. Overall, mean ratings did not differ for the schizophrenia IA character across utilitarian options, except for ratings of wrong. Participants rated it more morally wrong to withhold help and let the control character die than the schizophrenia IA character. The BK character produced the most negative bias given that, across moral judgment and moral action, participants were significantly more likely to sacrifice the BK character than the control. Participants' treatment of the schizophrenia DTSD and SUD characters was similar to their inclination to sacrifice the bank robber.

Although the current study is hypothetical in that participants rated fictional vignettes, work by Farina et al. (1966) supports the conclusion that, when someone is believed to have a mental illness, perceptions of inadequacy and incompetence are present against the mentally ill. Also, individuals with mental illness are treated more harshly and given more punishment than a person with no mental disorder (Farina et al., 1965). In general, Farina and colleagues' work has demonstrated that interaction with someone believed to be mentally ill is distressing for people and results in biased behavior towards the purportedly mentally ill person. It is worth noting that Farina et al.'s works were done almost 60 years ago, which supports how biases against the mentally ill persist in society.

I hypothesized that the BK character and the schizophrenia IA character would be functionally equivalent and produce similar results. This portion of my hypothesis was not supported. In my study, schizophrenia DTSD and SUD were the two mentally ill characters most stigmatized. These findings

are consistent with the tendency for individuals to hold hostile views about and withhold help from individuals with schizophrenia and substance use disorder (Martin et al., 2004; Pescosolido et al., 1999).

Of the two schizophrenia characters, schizophrenia DTSD, who had disorganized thought and speech plus delusions/hallucinations, was subject to more negative bias than the character with schizophrenia IA. For example, across moral judgment and moral action, respondents were more likely to sacrifice the schizophrenia DTSD character than the control character. Similar attitudes prevailed towards the SUD character. Participants rated that they were more likely to sacrifice the SUD character's life than they were the control character, indicating negative bias against SUD. Overall, negative bias existed against the schizophrenia DTSD character and the SUD character.

Given that the risk for actual violence is higher for individuals with disorders along the schizophrenia spectrum, stigmatization is higher (Whiting et al., 2022). The schizophrenia characters displayed emotions that may arouse counter-empathy or repulsion that tend to produce negative bias. However, schizophrenia IA produced minimal negative bias. This can be explained by the context of each scenario. The schizophrenia DTSD character may have been seen as displaying the most psychopathology with multiple symptoms of schizophrenia, whereas the IA only displayed one symptom. Also, the schizophrenia IA character sustained an injury, which could have aroused sympathy and reluctance to further inflict pain.

Another potential explanation of this finding relates to the diagnostic criteria for schizophrenia. The SchizIA character does not meet the full criteria for schizophrenia, and inappropriate affect alone can be observed in many psychological disorders and is not definitive for or exclusive to schizophrenia. The ambiguity of the SchizIA character's schizophrenia could have affected my findings. Participants may not have perceived this individual as having schizophrenia; it is possible they understood his symptoms as stemming from a traumatic brain injury when the character hit his forehead on the pavement. Given that the schizophrenia DTSD character may have been perceived as more deranged, a greater level of physical distance was evident for schizophrenia DTSD. Work by

Corrigan et al. (2003) utilizing vignettes with an individual diagnosed with schizophrenia found negative attitudes against schizophrenic patients. Negative biases such as unwillingness to help, lack of support, and engaging in avoidance behaviors were present (Corrigan et al, 2003).

Hypothesis 3 stated that participants would show a stronger inclination to choose the inaction option than the action option. Hypothesis 3 was partially supported, given that ratings of choice produced the most significant differences, with the exception of a few ratings of wrong. These findings are consistent with the tendency to follow the omission bias (Cushman et al., 2006). In my study, respondents were more likely to let a character fall off the bridge because inaction is a more favorable choice. Inaction involves less emotional distress, whereas action may cause participants to have greater reluctance given that direct physical contact is involved. Individuals favored the omission bias, because sacrificing the target through direct personal action is judged as less morally acceptable (Spranca et al., 1991). Omission bias still expresses stigma, because one chooses not to help a person who needs help (Corrigan et al., 2012).

Hypothesis 4 stated that there would be an interaction between the characters variable and the utilitarian options variable, where the difference between action and inaction options would be greater for the schizophrenia character than for the control character. Hypothesis 4 was not supported, given that there was no significant interaction between characters and utilitarian options. There was a significant main effect for characters, but no interaction effect. The absence of a significant interaction indicates that there was no change in the pattern of differences across characters across options. No interaction effect indicates that action and inaction did not differ in terms of bias towards characters with mental illness.

### **Limitations and Future Research**

Given that the present study was a within-subjects design, a carryover effect could have influenced participants' responses due to a repetition of task items. Participants were presented with the same seven scenarios twice; one block presenting scales for action and another block presenting scales for inaction. There also could have been a fatigue effect for later scenarios.

Because the responses to this study were self-report, it is possible that socially desirable responses influenced participants' ratings. Also, the presence and degree of biases may vary across samples drawn from regions with different histories and values. My sample was highly diverse in terms of ethnicities, and the study was conducted at a public university that explicitly values and promotes diversity and tolerance. Furthermore, participants were selected from undergraduate psychology courses with some knowledge and awareness of abnormal psychology. As a result, my findings may not be representative of the U.S. population, since psychology students have higher empathy than students from other academic disciplines (Harton & Lyons, 2003). These influences could have resulted in less bias against characters with psychopathology. It is possible that more extreme bias would be present in a sample of the general public. Additionally, it is possible that gender bias influenced my results, given that most of the participants were women. Much research has shown that women are more empathetic than men (Toussaint & Webb, 2005). Higher empathy in women could have resulted in less negative bias and more positive bias. Also, all of the characters were male. Given that most of the participants were women, women's attitudes toward and perceptions of men could have influenced participants' bias.

Another challenge to the study is the artificial nature of responding to vignettes about events that have no chance of happening to people. Sacrificial moral dilemmas are fictitious and may not capture true cognitions given that they were unrealistic. If these scenarios were to occur in the real world, there would be a noticeable difference between real-time responses versus survey responses. Findings involving actual behavioral interaction to examine stigma revealed how individuals who deviate from the norm (e.g., individuals with mental disorders) are dealt harsher punishment (Farina et al., 1965). Work by Farina et al. (1965) may fully capture behaviors that follow cognitions that promote stigmatization through non-fictional interpersonal interactions between individuals. Work by Farina et al. (1966) entailed less artificial measures of bias through behavioral interactions rather than utilizing sacrificial moral dilemmas.

Finally, the present study utilizes only a subset of mental disorders to display either positive or negative bias against mentally ill characters. There are more than 200 classified forms of mental illness, with each exhibiting different levels of stigma. It would be useful to select another subset of common disorders, such as major depressive disorder, anxiety disorders, and eating disorders to name a few. Replications involving a variety of the most common mental disorders would expand our understanding of bias. This can increase research that explores the complexity of why some mental disorders are stigmatized and others are not. Knowing this will help allocate resources to disorders that are most stigmatized.

### **Conclusion**

The present study points to both positive bias for PTSD and negative bias against schizophrenia and SUD. Also, respondents are more likely to choose inaction than action when deciding on sacrificial moral dilemmas. Based on the present study, it may be useful to increase awareness and education on mental illness to decrease mental health stigma.

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