PERCEIVED WORK ABILITY FOR EMPLOYEES WITH MENTAL ILLNESS: THE ROLES OF SYMPTOM SEVERITY, ANTICIPATED DISCRIMINATION, AND INTERNALIZED STIGMA

by

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A thesis submitted to the faculty of
The University of North Carolina at Charlotte
In partial fulfillment of the requirements
For the degree of Master of Arts in
Industrial/Organizational Psychology

Charlotte

2021

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ABSTRACT

TARYA BARDWELL. Perceived Work Ability for Employees with Mental Illness: The Roles of Symptom Severity, Anticipated Discrimination, and Internalized Stigma. (Under the direction of DR. ALYSSA MCGONAGLE)

Working adults with mental illness must navigate stigma and impairment in the workplace, and these factors may affect their perceived ability to continue working in their current job. Using appraisal theory and the why try model, the current study tested for predictors (symptom severity and anticipated discrimination) of perceived work ability. Participants were recruited from Amazon's MTurk to complete two self-report surveys, one week apart. I found that symptom severity and anticipated discrimination negatively predicted perceived work ability. Internalized stigma was not found to moderate these effects. Additionally, I found a bi-directional relationship between anticipated discrimination and symptom severity. Because direct effect hypotheses were built on the theoretical foundation of stress appraisal, a supplemental mediation analysis was included. Stress was found to partially mediate the relationships between symptom severity and perceived work ability. Results lay groundwork for future research, including intervention studies designed to support the work ability of employees with mental illness.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my thesis chair and mentor, Dr. Alyssa McGonagle. She shared her vast expertise in several areas relevant to this thesis, including the body of research on disability and perceived work ability, strategies for accessing and collecting data from a specific population (workers with mental illness), quality academic writing, and much more. Her guidance and wisdom throughout this process made this thesis possible. I would also like to thank my committee members Dr. Linda Shanock and Dr. George Banks. I am grateful for the time they committed to serving as committee members, and I thank them for sharing their valuable insights during the planning and completion of this thesis.

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CHAPTER 1: INTRODUCTION

Mental illnesses are chronic (long-lasting) health conditions characterized by psychological distress and impaired functioning (National Institute of Mental Health; NIMH, 2017). Mental health problems, a similar but distinct construct, refer to day-to-day, possibly undiagnosed psychological challenges (Center for Disease Control, 2018). Mental illness and mental health problems overlap and share many predictors and outcomes (e.g. Dimoff & Kelloway, 2019; Follmer & Jones, 2018), but, in addition to being chronic, a distinct aspect of mental illness is a diagnosis in accordance with the Diagnostic and Statistical Manual (American Psychiatric Association, 2013). Mental illness is common; nearly 19 percent of working age adults in the United States currently have a mental illness (NIMH, 2017). Further, mental illness is increasing. Depression diagnoses, for example, increased by 18.4 percent between 2005 and 2015 (World Health Organization; WHO, 2017). Employees with mental illness and mental health problems have higher rates of absenteeism and presenteeism (lack of engagement with work tasks, due to health problems; Bailey et al., 2016; Lerner & Henke, 2008), early retirement, job loss (Luciano & Meara, 2014; Yu, Brackbill, Locke, Stellman, & Gargano, 2016), unemployment (Baldwin & Marcus, 2007), and lower levels of work ability (Martimo et al., 2007) than employees without mental illness.

Individuals with mental illness are often stigmatized. For instance, they are often considered dangerous and unreliable (Overton & Medina, 2008). In one study, 47% of the general public reported that they would be unwilling to work closely with a person with major depression, and 74% would be unwilling to work closely with someone with alcohol dependence (Pescosolido et al., 2010). Individuals with mental illness also report experiencing discrimination in many forms, such as dismissive treatment, denial of opportunities, criticism, and social

exclusion (Reavley et al., 2017). Further, stigma is harmful to people with mental illness. For instance, mental illness stigma is associated with lower quality of life (Hawke et al., 2013) and fewer help-seeking behaviors (Clement et al., 2015). Stigmatized people may react to discrimination experiences with harmful cognitions, such as anticipation of future discrimination (Quinn et al., 2015) and application of stigmatizing beliefs to themselves (Corrigan et al., 2006). These cognitions are frequent and deleterious for individuals with mental illness (Mashiach-Eizenberg et al., 2013; Schauman et al., 2019).

As illustrated in Figure 1, I propose that mental illness symptom severity and anticipated discrimination are negatively related to perceptions of *work ability* for people with mental illness. Work ability refers to a person's ability to continue working in their current job, given the internal and external resources available to them, including health, and characteristics associated with that job (Ilmarinen et al., 2000). Work ability is crucial for successful continued employment (e.g., McGonagle et al., 2015). Therefore, helping employees improve their work ability not only allows employers to retain valuable talent, but also provides financial independence for employees, empowering them as contributors to society. The current study indicates variables that can be addressed in future efforts to improve work ability and may indirectly help organizations and employees in this way. Extant research demonstrates that all types of health conditions, including mental health problems, are associated with low work ability (Martimo et al., 2007; Pohjonen, 2001; Seibt et al., 2009).

Considering the prevalence of mental illness and the challenges faced by this large and growing population, research on the relationship between mental health conditions and work ability is surprisingly sparse in the organizational sciences. Extant studies are primarily descriptive, using cross-sectional designs to identify general associations. For example, Martimo

et al., (2007) and Pohjonen, (2001) reported the various health conditions that people consider inhibitors to their own work ability. Martimo et al.(2007) described various health conditions (both mental and physical) associated with people in work ability *categories* (able, partially able, unable, and cannot say), and found that 53% of those reporting mental health conditions were only partially able or unable to work. Pohjonen, (2001) also found that psychosomatic symptoms were associated with poor work ability. They further considered workplace demands, finding that low job control, poor ergonomics, time pressure, and poor experiences with management increased the odds of one having poor work ability. These studies are valuable for demonstrating that mental health problems, among other health conditions, are associated with poor work ability. As far as I am aware, these are the only extant studies that link mental health problems and work ability, and they lay the groundwork for additional research.

The small body of literature on mental health problems and work ability has yet to include mental illness symptom severity, anticipated discrimination, and internalized stigma. However, considerable evidence has demonstrated other various harmful effects of anticipated discrimination and internalized stigma (e.g. poor wellbeing; Schauman et al., 2019) and even the symptoms themselves (e.g. early retirement; Harkonmäki et al., 2006). The prevalence of mental illness and mental illness stigma, in addition to the consequences for these suggest that these variables are important in the workplace for workers with mental illness.

The current study addresses these gaps. I first test whether anticipated discrimination and symptom severity predict perceived work ability. Knowing these relationships may help support future efforts toward work ability promotion for members of this growing population. I also propose that internalized stigma, or the negative evaluation of one's self based on mental illness, will moderate (strengthen) the proposed negative link between anticipated discrimination and

subsequent work ability perceptions as well as the proposed negative link between symptom severity and work ability perceptions. Internalized stigma for mental illness is a highly studied variable in clinical psychology and related fields (e.g. Corrigan & Watson, 2006), where researchers have demonstrated its prevalence and its many pernicious effects (low vocational functioning, for example; Yanos et al., 2010). By studying how internalized stigma interacts with symptom severity and anticipated discrimination specifically in the work domain, I hope to elucidate the relevance of this variable in work ability and workplace stigma research.

CHAPTER 2: HYPOTHESIS DEVELOPMENT

2.1 Mental Illness Symptoms and Work Ability

A common misconception is that mental illness is the opposite of mental health. However, as mentioned, mental illness is a chronic condition and mental health refers to day-to-day psychological well-being (CDC, 2018; Follmer & Jones, 2018). Follmer and Jones (2018) further clarify that mental health problems are defined as short-lived challenges with thoughts, feelings, and behaviors (such as stress), and mental illnesses are chronic conditions that significantly impair function (such as bi-polar disorder). It is possible to have a mental illness, but not be exhibiting any symptoms (in remission) at a given point in time. However, mental illness and mental health problems often co-vary, and mental health problems can be indicative of future mental illness (Keyes, 2005). Therefore, I review research on both mental illness and mental health problems in this thesis.

Symptoms of mental illness impact people across many domains, including the workplace (Mueser et al., 1997). These symptoms range in nature, frequency, and severity, and have varying impacts for individuals (Follmer & Jones, 2017; Kessler et al., 2005). Follmer and Jones (2017) categorized symptoms as physical, emotional, cognitive, and behavioral; someone who is fidgety as a result of ADHD (behavioral), for example, may have a radically different experience from someone who struggles with emotion changes (emotional).

Mental illness symptoms have employment consequences for many workers, which can also lead to expensive outcomes for employers. In their review, Lerner and Henke (2008) found that more severe depressive symptoms were associated with absenteeism and presenteeism. The authors also found that absenteeism and presenteeism decreased with symptom improvement, supporting a possible causal connection. Goetzel et al. (2004) evaluated the costs of absenteeism

and presenteeism due to various illnesses and found general mental health problems to be among the costliest to organizations (along with musculoskeletal problems, respiratory disorders, and migraines). Similarly, poor mental health was found to predict early retirement intentions among municipal employees in Finland (Harkonmäki et al., 2006). Also in Finland, Ahola et al. (2011) found that mental illness among employees is predictive of using disability pensions, particularly among those with comorbid diagnoses.

Cross-sectional evidence suggests that mental health problems are also associated with work ability. In a study of teachers and office workers, Seibt et al. (2009) found a negative association between mental illness and work ability. Martimo, Varonen, Husman, and Viikari-Juntura, (2007) found that mental illness was associated with low self-reported work ability in patients. Similarly, Granda and Maggiore (2013) conducted a study on call center workers and found that depression was associated with lower work ability.

Until now, no studies have focused on people with *diagnosed* mental illness, and none have examined the role of mental illness symptom *severity* predicting perceived work ability. Severe symptoms impair functioning in daily life, including work (Karpov et al., 2017; Mueser et al., 1997), meaning that perceived work ability is likely low when mental illness symptoms are severe. As mentioned, work ability is a function of available resources, and health is one resource critical to work ability. Testing symptom severity as a predictor of perceived work ability presents a more fine-grained view of the relationship between mental health problems and work (e.g. Karpov et al., 2017). The severity of mental illness symptoms may affect perceived work ability, both due to the experience of this impaired function, and due to an evaluation of one's own symptoms as reducing one's ability to continue working. Simply, severe mental illness symptoms mean one is likely to evaluate themselves as less healthy and less able to work.

Hypothesis 1: Symptom severity will negatively predict lagged perceived work ability.

2.2 Mental Illness Stigma at Work

Mental illness is a distinct and highly stigmatized identity. Stigma describes an attribute that is devalued/perceived negatively by others and is a function of both the traits or behaviors of the individual and the social context (Crocker et al., 1998). Although related, stigma is distinct from discrimination in that it describes assumptions and attitudes, while discrimination is behavioral (e.g. not hiring someone because of their mental illness (Reavley et al., 2017). People with mental illness are stigmatized as helpless and dangerous— traits that are highly undesirable in the workplace (Follmer & Jones, 2018). Stigma leads to stressful experiences for people with mental illness, as it informs how they are treated in society and how they see themselves. The diagnosis of mental illness is stigmatizing for people with mental illness symptoms; Link, (1982) found that individuals diagnosed as mentally ill are likely to have higher unemployment rates than those who have the same symptomology without an official diagnosis.

Jones et al. (1984) identified six dimensions of stigma that are consistent across many identities: concealability, disruptiveness, origin, peril, aesthetic qualities, and course. *Concealability* refers to how apparent the stigmatized identity is to others. Mental illness is usually considered concealable, and people with mental illness must navigate disclosure decisions (Corrigan et al., 2005; Santuzzi et al., 2014). It seems possible, however, that prominent mental illness symptoms (e.g. mania) may make mental illness less concealable. *Origin* refers to how the stigmatized traits came to be, such as congenital versus non-congenital causes, and perceptions of origin affect the extent to which the stigmatized are blamed. Mental illness stigma is stronger when the illness is not attributed to an outside cause. (Corrigan, 2000; Feldman & Crandall, 2007). For example, according to this logic, PTSD may be less stigmatized

than schizophrenia, because PTSD is known to be a result of outside trauma, and less likely to be perceived as an inherent flaw. Often, mental illness is perceived as being the fault of the person with the mental illness, perhaps due to poor self-control or even pretending to have the mental illness (Corrigan, 2000; Feldman & Crandall, 2007). *Peril* is the extent to which a stigmatized person is assumed to pose a danger to others. People with mental illness are often portrayed as erratic and violent in media (Wahl, 2003), and others distance themselves from them as a result of this stigma (Corrigan et al., 2005; Link, Cullen, Frank, & Wozniak, 1987). Feldman and Crandall (2007) found that people experience discrimination increasingly with stereotypically dangerous mental illnesses. For example, antisocial personality disorder leads to more social distancing from others than insomnia. Employers are hesitant to hire people with mental illness because they perceive them to be a possible danger to themselves and other workers (Scheid, 2005). *Disruptiveness* is the extent to which the stigmatized identity interferes with normal social interactions and interpersonal relationships. Jones et al. (1984) acknowledge that disruptiveness may be a function of other dimensions (e.g. more perilous identities may be more socially disruptive.) People with mental illness are assumed to be highly disruptive by presenting unusual behaviors that interfere with social interaction (Feldman and Crandall, 2007). *Aesthetic qualities* refer to the attractiveness of aesthetic traits, such as physical body proportion or weight (Jones et al. 1984). To the extent that mental illness symptoms interfere with self-care and lead to poor grooming or hygiene, people with mental illness may be affected by this stigma dimension (see Corrigan, 2000). C*ourse* refers to changes in the stigmatized identity, such as an illness healing or worsening.

Feldman and Crandall (2007) criticized the dimensions identified by Jones et al. (1984) as incomplete and often overlapping (mental illness symptoms perceived as disruptive are likely

low on concealability, for example). Feldman and Crandall (2007) identified dangerousness, personal responsibility for the illness (similar to *origin* in Jones et al., 1984) and perceived rarity of the illness as predictors of others socially distancing themselves from people with mental illness. Feldman and Crandall's (2007) findings are consistent with other studies demonstrating that people with mental illness are often stigmatized as dangerous, helpless, and at fault for their own illness (Clement et al., 2015; Corrigan & Watson, 2002).

Another typology of stigma that is relevant to mental illness and work is degree of perceived warmth and competence (Fiske et al., 2007). Warmth is a social stereotype associated with traits such as trustworthiness and friendliness; competence reflects perceived ability, such as intelligence and skill (Fiske et al., 2007). Emotions and behavioral reactions from others vary according to these dimensions. Physical disabilities are associated with high warmth and low competence (e.g. Louvet, 2007) which, according to Fiske et al.'s (2007) model, is likely to trigger reactions of pity. In comparison, people with mental illness are not perceived as warm, so they are more likely to elicit contempt. Further, low warmth may make them appear to be less suited to jobs that warrant supportive interactions, such as teaching and secretarial positions. In a recent study, Follmer and Jones (2017) found that employees with bipolar disorder and depression were perceived as having low warmth and competence, and those with anxiety were considered low in competence, with only moderate warmth.

The workplace is a relevant setting for stigma under any of the aforementioned frameworks (Feldman & Crandall, 2007; Fiske et al., 2007; Jones et al., 1984); incompetence and/or dangerousness are highly undesirable for workers, whether perceived or real (Scheid, 2005; Tsang et al., 2007). The Americans with Disabilities Act (1990) prohibits employers from discriminating against employees and job applicants based on ability, as long as a the worker is

able to perform essential job functions with any accommodation that does not incur "undue hardship" on the employer (see also Cummings et al., 2013). Mental illnesses and mental illness symptoms are highly variable; employers engage in hiring discrimination when they assume that people with mental illness threaten the safety of others, behave erratically, or are unable to work independently (Tsang et al., 2007). Baldwin and Marcus (2007) found that, in a national sample, twenty percent of workers with mental illness reported experiences of discrimination. Further, these discrimination experiences seem to compound with symptoms. In two case studies, Chang, (2015) reported that workers reported social rejection and deprivation of developmental work opportunities, in addition to challenges related to symptoms and symptom management.

Anticipated Discrimination as a Primary Appraisal. *Anticipated discrimination* is the expectation of discrimination from others based on a stigmatized characteristic (McGonagle & Hamblin, 2014). Generally, people with mental illness who are stigmatized and have experienced discrimination are likely to anticipate future discrimination (Quinn et al., 2015), which in turn leads to harmful behavioral, cognitive, and affective outcomes (Lasalvia et al., 2013). For example, anticipated discrimination often leads people to opt out of important opportunities because they feel such pursuits are futile. In a multinational study of people with depression, Lasalvia et al. (2013) found that anticipated discrimination was negatively associated with efforts toward finding a job, keeping a job, or pursing an intimate relationship. Well-being is also lower with anticipated discrimination; in cross-sectional studies of people using mental health services, Schauman et al. (2019) found that anticipated discrimination was negatively associated with mental well-being. Freidl, Piralic Spitzl, and Aigner (2008) also found that anticipated discrimination in both work and non-work domains was associated with depressive symptoms.

Appraisal theory states that peoples' cognitive and affective reactions play an integral role in stress and outcomes. In appraisal theory, primary appraisal refers to whether an event is perceived as actually or potentially harmful, and secondary appraisal is the evaluations of available resources for coping (Folkman et al., 1986). Over time, ongoing stress appraisals cause strains, or decrements to well-being. Anticipated discrimination is a primary stress appraisal – that is, it signals potential harm to work-related well-being, including perhaps maintaining a job or advancing in the organization. As a stress appraisal, anticipated discrimination is harmful when coping resources are lacking (Folkman et al., 1986), and is likely to trigger strains, including worsening mental illness symptoms (Baumeister, Lightman, & Pariante, 2014; Fried et al., 2017).

It is worth noting that possible coping resources, such as support from a supervisor (a job resource) or self-esteem (a personal resource), may alleviate this effect. Indeed, broader work ability literature suggests that resources are positively related to the work ability of employees with any number of health problems (McGonagle et al., 2015), and that interventions directed at personal resource building can improve work ability (McGonagle et al., 2014). These findings are consistent with Folkman et al.'s (1986) appraisal theory; this evaluation of coping resources is the secondary appraisal stage and enables coping.

The current study hinges on primary appraisal, or how one's evaluation of resource deprivation (e.g. poor health) and resource threat (e.g. anticipated discrimination), predicts a stress outcome (perceived work ability). Workers with mental illness will always have the additional resources required to counteract their stressors (e.g. anticipated discrimination). Thus, I expect there will be an overall direct effect of anticipated discrimination on perceived work

ability. As described in further detail in the discussion, the potential of coping resources is a pertinent topic for future research.

I expect that anticipated discrimination will predict lower perceived work ability. As described, anticipated discrimination is a form of primary threat appraisal – that is, anticipation of harm to one's employment status and/or work-related well-being. In the absence of adequate resources to cope, it will engender a stress response during secondary appraisal (Folkman et al., 1986) and will lead to an evaluation of diminished work ability. Discrimination research supports this, as discrimination itself is associated with other stress-related work outcomes, such as work-strain and exhaustion (McGonagle et al., 2016), job tension (McGonagle & Hamblin, 2014) psychological distress (Quinn & Chaudoir, 2009), and reduced well-being and hopelessness (Schauman et al., 2019). Work ability is one of many variables negatively impacted by stress; Bethge and Radoschewski (2010), for example, found that psychosocial stress was associated with low work ability, and Carmen Martinez et al. (2016) found that job stress, including a lack of job control and social support, predicted lower work ability among hospital workers. Taken together, I propose that anticipated discrimination, as a source of stress, will predict lagged work ability perceptions.

Hypothesis 2: Anticipated discrimination will negatively predict lagged perceived work ability.

Internalized Stigma. In addition to expecting discrimination from others, people with mental illness may direct stigmatizing beliefs toward themselves. *Internalized stigma* (also called self-stigma; see Fox et al., 2018) is this endorsement of the negative beliefs associated with the stigmatized identity (Corrigan & Watson, 2002; Fox et al., 2018). For example, an individual with a mental illness may perceive themselves as being incompetent, dangerous, childlike, and/or at fault for their own illness (Fox et al., 2018; Quinn & Chaudoir, 2009; Schauman et al., 2019).

Internalized stigma can have harmful outcomes. People who internalize mental illness stigma devalue themselves and engage in coping strategies such as social withdrawal and concealment efforts (Link & Phelan, 2006). Internalized stigma is associated with hopelessness and low well-being among people with mental illness (Schauman et al., 2019).

Perhaps unsurprisingly, internalized stigma is also associated with anticipated and actual experiences of mental illness discrimination (Quinn et al., 2015) as well. Extensive literature demonstrates the pernicious effects that internalized stigma has on individuals with mental illness. Internalized stigma is negatively associated with self-esteem, hope, and quality of life (Mashiach-Eizenberg et al., 2013). Corrigan, Larson, and Rüsch, (2009) proposed the "why try" model of internalized stigma. They suggest that low self-esteem from internalized stigma will lead people to feel less deserving of opportunity. Following this, people with mental illness may reduce efforts toward life goals because they see themselves as incapable of achieving these goals. The "why try" model is distinct from similar models that connect evaluations to behavior (such as the Pygmalion effect; Rosenthal, 1973). Specifically, the "why try" model is focused on the effects of stigma on people with mental illness (for a detailed explanation, see Corrigan et al., 2011) The Pygmalion effect, in contrast, describes how positive evaluations from others can improve performance; it was studied first in education and later organizational settings (see Kierein & Gold, 2000). Research supports the "why try" model, and it is uniquely relevant to this population. For example, Yanos, Lysaker, and Roe (2010) conducted a five-month, time lagged study in which participants with schizophrenia were assigned to therapy groups and placed in noncompetitive jobs. They found that internalized stigma (measured as "stereotype agreement") attenuated improvement in quality of life and vocational functioning. This "why try" attitude may translate to the work domain as well, meaning that people who internalize

mental illness stigma might consider themselves less able to do their jobs. In other words, although not hypothesized in the current study, the "why try" model suggests that internalized stigma predicts low perceived work ability.

As described in Hypothesis 1, mental illness symptom severity is likely to predict low perceived work ability. Given the additional harmful effects of internalized stigma, a negative relationship between symptom severity and perceived work ability is likely to be strengthened at higher levels of internalized stigma. With lower levels of internalized stigma, however, I expect the relationship between symptom severity and perceived work ability to still be negative (and statistically significant), but weaker.

Hypothesis 3a: *Internalized stigma will moderate the relationship between symptom severity and perceived work ability such that the negative relationship between symptom severity and perceived work ability will be stronger at higher levels of internalized stigma than at lower levels of internalized stigma.*

As implied by the predictive model in Hypothesis 2, I expect anticipated discrimination will be negatively related to perceived work ability. Combined with internalized stigma (and the "why try" model described above) I expect an interaction between anticipated discrimination and internalized on perceived work ability. Similar to the moderation effect predicted in Hypothesis 3a, I predict that the negative relationship between anticipated discrimination and perceived work ability will be stronger when internalized stigma is higher, and weaker when internalized stigma is lower.

Hypothesis 3b: *Internalized stigma will moderate the relationship between anticipated discrimination and perceived work ability such that the negative relationship between*

anticipated discrimination and lagged perceived work ability will be stronger at higher levels of internalized stigma.

2.3 Bidirectional Relationship between Anticipated Discrimination and Symptom Severity

In addition to the aforementioned hypotheses, I expect a bidirectional relationship between symptom severity and anticipated discrimination. Firstly, there is a well-documented link between stress and mental health problems, including mental illness. Although mental illness is variable in causes and symptoms, atypical activation in the hypothalamic-pituitary-adrenal (HPA) axis, which regulates stress hormones, is common among individuals with mental illness. Stress, for members of this population, is associated with HPA changes and heightened symptoms. Trauma and chronic stress interact with genetic vulnerability, which can trigger mental illness or exacerbate symptoms (Baumeister et al., 2014). Stress is associated with mental illness diagnoses, as well as the severity and frequency of symptoms (Fried et al., 2017; Herbert, 1997). For example, Pflanz (2001) surveyed eighty-five military health patients and found that a wide range of work stressors, from change in responsibilities to dishonorable discharge, were associated with an equally wide range of mental illness diagnoses, such as anxiety and bipolar disorder.

As described in my application of appraisal theory, anticipated discrimination, as a stress appraisal, can be harmful to employees with mental illness. Schauman et al. (2019) found that, in addition to discrimination experiences, anticipated discrimination was associated with reduced well-being among individuals with mental illness. In a time-lagged study, Chaudoir and Quinn (2016) collected data from students with a range of concealable identities (including mental illness). Respondents who reported greater anticipated discrimination at time one had greater lagged depressive symptoms at time two than those with lower anticipated discrimination at time

one. Given the known connection between stressors and mental health problems (Baumeister et al., 2014), and the role of anticipated discrimination as a stressor, I expect that anticipated discrimination will predict symptom severity.

Secondly, symptom severity is likely to predict anticipated discrimination. Fevre et al. (2013) found that, among workers with various disabilities, symptom severity was associated with more discrimination. I expect this to be true of *anticipated* discrimination for employees with mental illness as well. A worker's mental illness is not always apparent to others. However, the more severe one's symptoms are, the more concerned they might be that others will take notice or view the symptoms as confirmation of stigmatizing beliefs (see Rüsch, Angermeyer, & Corrigan, 2005; Santuzzi et al., 2014). As with many disabilities that are not immediately identifiable by others (see Santuzzi et al., 2014), workers with mental illness may be more concerned about others' impressions and expect discrimination as their symptoms worsen.

In sum, I expect a two-way relationship between anticipated discrimination and symptom severity.

Hypothesis 4a: Anticipated discrimination will positively predict lagged symptom severity.

Hypothesis 4b: Symptom severity will positively predict lagged anticipated discrimination.

CHAPTER 3: METHOD

3.1 Participants and Procedure

As part of a larger study on mental health conditions and work, data were collected using two online surveys created in Qualtrics and administered one week apart (Time 1 $N = 472$, Time 2 $N = 232$). Institutional Review Board (IRB) approval was obtained before data were collected. Participants were from Amazon's Mechanical Turk, an online platform where freelancers participate in research (see Cheung et al., 2017).

Participants were recruited through the CloudResearch platform that interfaces with MTurk. To qualify for the study, participants were required to be in the United States, have a mental illness, and work at least 10 hours per week, on average. A subset of MTurkers were pre-identified by CloudResearch using the question, "Have you been diagnosed with a mental health condition, such as depression, anxiety, or any other mental illness or disorder?" Those who responded yes and who meet the other inclusion criteria were invited to participate. For Time 1, participants were paid $2.00 each with a $0.25 bonus. At Time 2 they were paid $2.50 with a $0.25 bonus. The bonuses were included because they can be considered a sign of goodwill, and are associated with lower attrition rates in time-lagged Mturk research (Stoycheff, 2016).

The current study uses a time-lagged design, which improves on cross-sectional research by allowing predictive (but not causal) inferences, and by reducing common method bias (Podsakoff et al., 2003). Logically, the time lag for the current study should reflect the amount of time necessary for participants to experience any variance in their perceived work ability in response to variance in symptom severity and anticipated discrimination. In hopes of accomplishing this, I used a one week time lag (see the discussion section for detail). To test the study hypotheses, I used data from symptom severity, anticipated discrimination, and

internalized stigma measures at Time 1 and data from the perceived work ability measure at Time 2. Supplemental analyses also included data from a Time 1 stress measure.

3.2 Screening and Final Sample

Questions used for screening are as follows. First, the duration of each participation was automatically measured by MTurk. Second, demographics and work-status measures (described below under *measures*) included a question about diagnosed mental illnesses and a question about the number of hours worked per week, as well as a handful of other open-ended questions. Third, responses to open-ended questions were screened for being nonsensical, such as entering a number when asked for a job description. Fourth, participants were asked to respond to four attention check questions (e.g. "Please select not at all"). Fifth, at the end of the survey, participants were given a randomly generated code to enter into the survey for the purpose of connecting their data to future the other time point and awarding their incentive. With these data, participants were first screened out if they 1) completed all measures in less than five minutes, 2) worked fewer than the required ten hours a week or did not report a mental illness, 3) passed fewer than three of the four attention check questions, 4) provided nonsense answers to open-ended questions, and/or 5) did not provide a code. These criteria allowed me to screen out people who were not members of my target population (people with mental illness, who are also employed), people demonstrating IER, and possible non-human responses (i.e., "bots"). These screening criteria were used to determine who to invite to Time 2 participation after Time 1 and again to screen data after collection was complete.

A final sample of 350 participants was used for analyses to test hypotheses 3a and 3b (Time 1 data) and a final sample of 216 participants was used to test hypotheses 1, 2, 4a, and 4b (linked Time 1 and Time 2 data). Here, I describe demographics using the Time 1 sample (N =

350). In response to an open-ended question about gender, 60.9% (n = 213) reported as female, 38.3% (n = 134) reported as male, and 0.9% (n = 3) reported a different gender identity. Age ranged from 18 to 72 years old (M = 38.0, SD = 11.0) and 58.6% of respondents had a bachelor's or more advanced degree (n = 205), and 41.4% had an associate's or less advanced degree (n = 145).

Most participants reported having more than one mental illness (n = 227, 64.9%). The most common mental illnesses reported were depression (n = 264, 70.3%) and anxiety or panic disorders (n =232, 66.3%). Thirty-three percent (n = 116) reported having post-traumatic stress disorder, bipolar disorder, or attention-deficit or attention-hyperactive-deficit disorders (listed in order from most to least frequent in the sample). Eleven percent of respondents (n = 40) reported one or more mental illnesses not listed above. The time since first diagnosis ranged from three months to 44.25 years (M = 12.0 years, SD = 9.9 years).

3.3 Measures

Measures were all self-report. All model measures were taken at both time points, except for some demographics and work status measures as described below.

Demographics. At Time 1 only, participants responded to open-ended questions about their mental illness, gender, years since diagnosis, and age, and a categorical question about their highest level of education.

Work Status. I asked participants to provide their number of current jobs and their estimated average hours worked per week for each job in the past month. They were asked to focus on what they consider their "primary" job for the remaining questions.

I collected data in June 2020, shortly after the Covid-19 pandemic spread across the United States and changed many peoples' work situations. Accounting for this, I asked

participants about recent changes in their work status. These questions were created to control for some of the major stressors that might affect perceived work ability. Being a new and unique situation, there was a dearth of quality academic research on the pandemic's effects on employee stress or work ability; it was not possible to anticipate all relevant stressors. Thus, these questions were developed to target some of the most apparent and frequently reported stressors experienced by workers at the time (Béland et al., 2020).

For Time 1, participants were asked about changes in health or work status that were likely affected by COVID-19 in the past few months. They were asked a series of yes/no questions: 1) "In the past three months, have you changed from on-site work to remote work?," 2) "Do you believe you have had COVID-19 in the last month, either due to symptoms or a positive test result?", 3) "In the past month, have you had a condition that made you vulnerable to COVID- 19?", 4) "Are you considered an essential worker?", and 5) "In the next month, do you anticipate changes to your work status, location, or the number of hours per week that you will work?". If they answered "yes" to questions any of the latter three questions, participants were presented with open-ended response options: "Please explain."

Perceived Work Ability. I used the validated the *perceived work ability* (PWA) measure (McGonagle et al., 2015) which was developed from the longer Work Ability Index (WAI; Ilmarinen et al., 2000) but generally has the same relationships with other variables, is more psychometrically sound, and is less burdensome to administer (see Brady et al., 2019). The participants read the definition of work ability, and then rated their work ability on an 11-point response scale (0 = completely unable to work, 10 = work ability at its best). An example item is "How do you rate your current work ability with respect to the mental demands of your job?" PWA was measured at Time 1 (α =.8) and Time 2 (α =.82). See Appendix A.

Mental Illness Symptom Severity. This was measured with the Symptom Checklist - 10 (SCL-10R; Rosen et al., 2000), which was developed using items from the SCL-90 (Time 1 α = .89, Time 2 α = .90). It has been found to be a valid and reliable indicator of symptoms for a range of mental illnesses. Participants are asked to rate how much they have been distressed by symptoms in the last 30 days (four-point response scale: 0 = not at all, 4 = extremely). An example item is "Feeling blue." See Appendix B.

Anticipated Discrimination. I used McGonagle and Hamblin's (2014) 10-item anticipated discrimination questionnaire (Time 1 α = .94, Time 2 α = .95). The prompt for the original measure was "How likely would this be to happen, assuming everyone at work knew about your chronic illness?" For the current study, "chronic illness" were replaced with "mental illness". An example item is "you will be fired" and responses are on a five-point scale (1 = not likely at all, 5 = extremely likely). See Appendix C.

Internalized Stigma. I used the four item internalized stigma questionnaire from Quinn et al. (2015) (Time 1 α = .93, Time 2 α = .93). An example item is "I believe that my mental illness is a sign of personal failure" (1 = strongly disagree, 7 = strongly agree). See Appendix D.

Stress. I used a short occupational stress measure (Time 1 α = .87, Time 2 α = .90) from Motowidlo et al. (1986). Participants were asked their level of agreement on a 5-point scale (1 = strongly disagree, 5 = strongly agree. An example item is "I feel a great deal of stress because of my job." See Appendix E.

General Open-Ended. At the end of the survey, respondents were asked "Is there anything else you would like to share?"

CHAPTER 4: RESULTS

Analyses were conducted using SPSS and R Studio. As stated, Hypotheses 1, 2, 4a, and 4b were tested with a subset of participants who passed the screening criteria for both Time 1 and Time 2 (n = 216). In order to have an adequate sample size to retain power with the multiple predictors required for moderation analyses, hypotheses 3a and 3b were tested using Time 1 only data (n = 350). Descriptive statistics and bivariate correlations with stress, model variables, and interaction terms are in Table 1.

4.1 Control Variable Analysis

Before choosing to control for any variables, I evaluated their relationships with the outcome variable, perceived work ability. To evaluate the possible relationship between COVID-19 variables and perceived work ability, I conducted frequency analyses and two-tailed independent samples T-tests (assuming equal variance) of perceived work ability, with yes/no COVID-related work-status variables as the groups. In accordance with how data were to be used for hypothesis testing, I first analyzed group differences in Time 2 perceived work ability for Time 1 work status questions and found no significant group differences. Second, I analyzed Time 1 perceived work ability for Time 1 COVID-related work status variables (See Table 2). Two of these COVID-related work-status variables had significant group differences in perceived work ability: 1) vulnerability to COVID-19, $t(348) = 2.22$, $p = .03$) and 2) anticipating changes in work status $t(348) = 2.11$, $p = .04$). First, having a condition that made one vulnerable to COVID-19 (M = 6.80 SD = 1.76) was associated with lower perceived work ability than not having a condition that made one vulnerable to COVID-19 (M = 6.89, SD = 1.77). Second, anticipating future changes to work in the next month (M = 6.89, SD = 1.63) was associated with lower perceived work ability than not anticipating future changes to work in the next month (M =

7.29, *SD* = 1.63). Because of their significant relationships with Time 2 perceived work ability, I entered these two variables into the regression for hypothesis testing. This way the regression would indicate the relationship between the Time 1 predictors (symptom severity and anticipated discrimination) and Time 2 perceived work ability while holding these other variables constant.

4.2 Hypothesis Tests

I tested hypotheses 1 and 2 using multiple regression analyses (see Figure 1 for a visual depiction of all hypotheses and results). To test Hypotheses 1 and 2, Time 1 symptom severity and Time 1 anticipated discrimination were entered into a regression equation predicting Time 2 perceived work ability. No controls were included in these analyses, because there were no significant group differences in Time 1 control variables for Time 2 PWA (described above). Symptom severity negatively predicted perceived work ability, supporting Hypothesis 1 (B = -.61, $p < .01$). Anticipated discrimination also negatively predicted perceived work ability (B = -.44, $p < .01$), supporting Hypothesis 2.

Following steps from Dawson (2014), moderation hypotheses were tested (Table 3). To test Hypothesis 3a, Time 1 internalized stigma and Time 1 symptom severity were mean centered and then multiplied to create an interaction term. Then, the following variables were entered into a regression predicting Time 1 perceived work ability: Time 1 symptom severity, Time 1 internalized stigma, and the two Time 1 work status control variables (identified in the previous section: having a condition that made one vulnerable to COVID and anticipating future changes). Lastly, to test for a moderation effect (Hypothesis 3a) the mean-centered interaction term was added as a second step. This interaction term produced a non-significant beta, so Hypothesis 3a was not supported.

I followed the same steps to test Hypothesis 4a. I created a Time 1 anticipated discrimination and Time 1 internalized stigma mean-centered interaction term. Then Time 1 anticipated discrimination, Time 1 internalized stigma, and the two Time 1 control variables were added to a regression predicting Time 1 perceived work ability, and the interaction term was added as a second step. Again, no significant beta was found and Hypothesis 3b was not supported.

Cross-lagged analysis were conducted using structural equation modeling to test Hypotheses 4a and 4b. Time 1 symptom severity positively predicted Time 2 anticipated discrimination ($B = .63$, $p < 0.01$) and Time 1 anticipated discrimination positively predicted Time 2 symptom severity ($B = .72$, $p < 0.01$), supporting Hypotheses 4a and 4b.

4.3 Supplemental Analyses

Stress theory (appraisal theory; Folkman et al., 1986) and past stress research (e.g. Seibt et al., 2009) played a distinct role in developing the hypotheses for the current study. As a supplemental analysis, the role of stress in these relationships was tested by conducting a path analysis with the "lavaan" package (Rosseel, 2012) in Rstudio (RStudio Team, 2020). Direct and indirect effects were tested (see Figure 2).

Time 1 symptom severity ($B = -.51$, $p < .01$) and Time 1 anticipated discrimination ($B = -.41$, $p <. 01$) both retained the direct negative relationship on Time 2 perceived work ability when Time 1 stress was in this model. The path between symptom severity and stress was significant (symptom severity to stress $B = .34$, $p <.01$, as was the path from stress to perceived work ability $B = -.28$, $p < .01$). The indirect effect of symptom severity on perceived work ability, with stress as a mediator, was also significant ($B = -.095$, $p < .05$). The relationship between anticipated discrimination and stress was non-significant, and stress did not mediate the

relationship between anticipated discrimination and perceived work ability. With zero degrees of freedom, there was an indication of high fit ($\chi 2 = 0$, TLI =1, CFI = 1, RMSEA = 0).

Finally, post-hoc power analyses were conducted using G*Power. The sample size of 216 with an R^2 of .23 was used for a power analysis of Time 1 symptom severity and Time 1 anticipated discrimination on Time 2 perceived work ability. At an alpha of .05, 100 % power was achieved. Additional post-hoc power analyses were conducted on the moderation regressions (Time 1 data only, $N = 350$). The moderations were of particular concern because of the number of variables (each predictor and the interaction term), which could reduce overall power. Internalized stigma moderating the symptom severity – perceived work ability relationship (change in $R^2 = .001$) produced 9% power and the anticipated discrimination – perceived work ability relationship (change in $R^2 = .002$) produced 13% power.

CHAPTER 5: DISCUSSION

The present study added to the small body of literature on mental illness and work ability by expanding our understanding of which variables could affect perceived work ability for workers with mental illness. As hypothesized, significant negative relationships were found between Time 1 symptom severity and Time 2 perceived work ability, and between Time 1 anticipated discrimination and Time 2 perceived work ability. These findings suggest that perceived work ability may be affected by both the impaired functioning from mental illness symptoms and a stigma-related *appraisal* (anticipated discrimination) experienced by these employees. In addition, Time 1 symptom severity positively predicted Time 2 anticipated discrimination, and Time 1 anticipated discrimination positively predicted Time 2 symptom severity. The results preliminarily suggest that when mental illness symptoms worsen, employees expect greater discrimination later and, conversely, when anticipated discrimination is high, symptoms are worse.

Contrary to expectations, Time 1 internalized stigma did not moderate the relationship between Time 1 symptom severity and Time 1 perceived work ability, nor did it moderate the relationship between Time 1 anticipated discrimination and Time 1 perceived work ability. In other words, the direct relationships found between both symptom severity and anticipated discrimination and perceived work ability do not appear to be affected by how much employees stigmatize themselves for their mental illness.

5.1 Theoretical and Practical Implications

Direct Effects. Testing symptom severity along with anticipated discrimination was a new approach. Although not supported by the supplemental analysis in the case of anticipated discrimination, hypotheses were justified by citing appraisal theory (Folkman et al., 1986). As

mentioned, appraisal theory includes two phases of appraisal that lead to stress. Primary appraisal is one's cognitive evaluation of stressors. Secondary appraisal is the evaluation of coping resources, and, in theory, stress ensues when resources are lacking (Folkman et al., 1986). The current study focused solely on primary appraisal to develop the direct effect hypotheses. This study was designed with the assumption that enough people have inadequate coping resources that the effects of *primary* appraisal (anticipated discrimination) would be detectable.

As mentioned, there was also a significant bidirectional relationship between symptom severity and anticipated discrimination (Hypotheses 4a and 4b). These findings can be explained by consideration of two bodies of research: the effects of anticipated discrimination as a stressor and symptom management of concealable stigmas. Anticipated discrimination is positively associated with strains, such as depressive symptoms (Chaudoir & Quinn, 2016), general mental health problems (Baumeister et al., 2014) and poor wellbeing overall. Schauman et al. (2019) found that anticipated discrimination was related to poor well-being outcomes for people with mental illness, implying that anticipated discrimination functions as a stressor and is predictive of these harmful outcomes. The severity of symptoms, on the other hand, may determine how concealable an illness-related stigma is, and severe symptoms can be viewed as confirmation of stigmatizing beliefs (Jones & King, 2014). Further, anticipating discrimination leads people to conceal their stigmatized identities, when possible, and may limit their ability to receive treatment or accommodations that would make symptoms more manageable (Jones & King, 2014). Thus, it is unsurprising that both anticipated discrimination and symptom severity predict each other for employees with mental illness.

These findings also suggest that there may be a harmful spiraling affect between these variables for employees who must navigate mental illness symptoms. Since both variables

predict perceived work ability, applied efforts to reduce both of them may improve perceived work ability. However, by taking efforts to mitigate even one of these variables, the cycle can be broken and harmful outcomes (including low perceived work ability, among others) can be reduced. Interventions reduce mental illness stigma and discrimination (Shann et al., 2019), and reduce mental illness symptoms (Finnes et al., 2019); future researchers and practitioners could use these interventions to break a potential cycle between anticipated discrimination and symptom severity, reducing both of these harmful variables and associated outcomes.

The "Why Try" Model and Internalized Stigma. Although significant direct effects were detected, moderation hypotheses were unsupported. Internalized stigma was tested as a moderator because of the "why try" model. As mentioned, this theory explains reduced efforts in daily activities because, in theory, people with high internalized stigma perceive themselves as generally less *able* to accomplish basic goals. Although internalized stigma is an important variable in the lives of people with mental illness (e.g. Corrigan et al., 2006, 2009; Watson et al., 2006), these findings suggest a couple of possible interpretations: a) the "why try" model may not be an appropriate theory to the population being studied, b) internalized may be relevant to work ability research, but not fit in the nomological net in the way I hypothesized. These interpretations are not necessarily mutually exclusive and, given past research on internalized stigma, I suspect they may both be relevant.

The first interpretation is that the "why try" model does not apply to the working population. More concretely, the model proposed in the current study may be more applicable to people with mental illnesses severe enough to inhibit employability (thus, not relevant to the sample used in this study). As mentioned, little research has considered internalized stigma in a work context at all. Russinova et al. (2018) demonstrates the relevance of internalized stigma to

unemployed people with mental illness. Their intervention significantly increased participants' belief in their own working capacity, reduced their internalized stigma, and increased engagement in employment services. Notably, the intervention did not predict actual job attainment (meaning that they remained unemployed). Russinova et al.'s (2018) study suggests that internalized stigma may be related to work-related self-evaluations, but for a population very different from the one sampled in my study.

The second possible interpretation of the nonsignificant moderations is that internalized stigma does not interact with symptom severity or anticipated discrimination, but instead takes a different place in the nomological net that is still related to perceived work ability. There is a significant negative correlation between Time 1 internalized stigma and Time 2 perceived work ability (r = -.25; see Table 1), suggesting that perceived work ability may be *directly* negatively predicted by internalized stigma. A direct relationship could be explained by the "why try" model if we consider perceived work ability as an evaluation of one's ability to accomplish goals (completing work tasks, perhaps).

As I mentioned, both of these factors (the population studied and placement in the nomological net) may be relevant. In the only other study on internalized stigma of *employed* participants that I am aware of, Yanos et al.(2010) tested the effects of a cognitive-behavioral intervention on vocational functioning. Even though participants were employed, there were key differences from my sample. Yanos et al. (2010) recruited employees who had been diagnosed with schizophrenia specifically. They also recruited directly from mental healthcare medical centers, meaning that participants both had conditions severe enough to warrant treatment, and were *getting* treatment (both factors that I did not sample for). Yanos et al. (2010) found that the intervention improved vocational functioning less when internalized stigma was low, and more

when internalized stigma was high. This demonstrates one context in which internalized does function as a moderator, but with different variables (thus a different place in the nomological net). Future research should test a direct relationship between internalized stigma and perceived work ability, with considerations of the population being sample. Findings could used for further developing of the boundary conditions of the "why try" model and developing interventions to reduce internalized stigma and improve perceived work ability

Stress in Appraisal Theory. The supplemental path analysis clarified the boundary conditions of appraisal theory by exploring the extent to which these findings can be explained by stress. As mentioned, Time 1 stress partially mediated the relationship between Time 1 symptom severity and Time 2 perceived work ability but did not mediate the relationship between Time 1 anticipated discrimination and Time 2 perceived work ability.

The research method in the current study did not meet the requirements for determining causality: the predictors were not manipulated, and the mediator was tested at the same time as the predictor (Time 1). Causal implications in this study are not determined by the data but are purely theory-based. Because the current study was predictive (not causal) and the role of stress was tertiary to the primary focus of my study.

First, Hypothesis 1 was developed under the expectation that mental illness symptoms predict low perceived work ability because symptoms may directly interfere with work functioning. However, it seems intuitive that stress may also mediate this relationship. Mental illness symptoms are often stressful for the person experiencing them. For example, distress due to symptoms is often discussed in the diagnosis of a mental illness (American Psychiatric Association, 2013). Further, as mentioned, stress is an established predictor of work ability (e.g.

Carmen Martinez et al., 2016). Taken together, I was unsurprised to find that stress partially mediates the negative relationship between symptom severity and perceived work ability.

Second, anticipated discrimination was found to negatively predict perceived work ability (Hypothesis 2). I predicted that anticipated discrimination would function as a primary stress appraisal and that stress would mediate the negative relationship between anticipated discrimination and perceived work ability. However, stress was not predicted by anticipated discrimination, indicating a couple possible conclusions: a) either appraisal theory did not fit into my research as expected or b) lack of time-lag between anticipated discrimination and stress meant any predictive relationship between these was undetected. It should be noted that if the latter is a serious problem, then it may be relevant to any of my analyses that used only Time 1 data (I will discuss the time lag further in the following section). There are possible explanations for a direct negative effect of anticipated discrimination on perceived work ability. For example, employees who anticipate mental illness discrimination may experience additional demands associated with efforts to avoid discrimination (such concealing one's mental illness). These demands could function as a resource drain, leaving fewer resources for work tasks.

5.2 Methodological Considerations

As described in the method section, the current study used a one-week time lag between collections of self-report data. Like many areas of research in the organizational sciences, using time-lagged methods is only recently standard practice. In general, time lags between predictors and outcomes are critical in establishing temporal precedence.

Determining the ideal length of the time lag to use in the current study presented a small challenge. There are limited perceived work ability studies that use a time lag design (none of which focus on mental illness). Extant studies are variable in the timeframes they use. For

example, Kabat-Farr et al. (2019) had a lag of approximately 2 weeks, McGonagle et al. (2015) had a two to three week lag, and Walsh et al. (2020) had an average lag of 40.5 days (maximum 60 days). These longer time frames have the advantage of reducing common method variance (Podsakoff et al., 2003). However, common method variance is at its worse when a cross-sectional design is used to correlate responses to two measures that are *both* likely to be affected by the method (see Spector, 2006), and any time-lag at all is likely to alleviate this (Spector, 2006). As mentioned, practical considerations, and the nature of my research questions make shorter time frames advantageous. The time lag in my current study needed to be long enough for Time 2 perceived work ability to vary according to Time 1 variables and not so long that this covariance is missed. In theory, stress experiences should happen shortly after a stressor. Additionally, using a shorter time frame reduces the odds of attrition (Stoycheff, 2016) or study disqualification due to job loss, especially given the increases in coronavirus-related unemployment.

Future studies that use diary or experience sampling methods could be used to establish the amount of time needed for a stressor, such as symptom severity, to predict stress and any relevant outcomes, including perceived work ability. Moreover, this research could inform how long the effects last. For example, it is unclear if a severe mental illness symptoms will continue to reduce perceived work ability for a while after symptoms improve and, if so, for how long. Basic research that clarifies these time lags would be invaluable for any future perceived work ability research that uses a time lag.

Having a time lag was also valuable in establishing temporal precedence, one of the three requirements for making causal inferences. However, the current study did not manipulate or control for spurious variables, so causal inferences are not appropriate. Manipulating variables

such as symptom severity or anticipated discrimination would not be practical or ethical, so I rely heavily on theory for any possible causal considerations. Causation is implicit in the *theoretical* basis for the current study (e.g. stress appraisal causing stress outcomes in appraisal theory), even though this study itself did not test a causal relationship. Using a time lag gave this study *predictive* efficacy, which is still valuable as an incremental contribution. As mentioned, all extant research on mental health-work ability relationship (e.g. Martimo et al., 2007) uses cross-sectional designs. In the future, experimental and quasi-experimental designs can allow for causal conclusions and would be of substantial practical value in the form of intervention studies designed to *help* employees with mental illness.

5.3 Future Research

There is ample opportunity for future research, specifically research that builds on the current study. Some promising approaches include qualitative research and experimental or quasi-experimental research (namely intervention studies).

Qualitative Research. Qualitative research methods are generally less popular in the organizational sciences than quantitative research. Naturally, this is also true for research on employees with mental illness or research on work ability (exceptions include Jansson et al., 2015 and Johnson & Joshi, 2016). This qualitative research is not only lacking, but potential invaluable because for providing a rich perspective on participant experiences. Variables in my current study are entirely based on subjective perceptions (e.g. *perceived* work ability) and a qualitative approach could potentially provide rich data on *how* participants make these evaluations.

Although my study was quantitative, recall that I collected open-ended responses to the question “Is there anything else you would like to share?” These responses suggest directions for

future qualitative research. In my study, participants were not informed of specific hypothesis and were only aware of the general research topic based on the CloudResearch screening question and the variable measures. Although possibly primed, participants were left to comment on anything that they felt might be relevant. Some of these comments are directly relevant to my hypotheses. This short quote, for example: “Social anxiety has been severely limiting to me as far as networking in all of my careers; that's my biggest regret.”

This comment seems to support the first hypothesis (symptom severity predicting perceived work ability), but by affecting networking, not work *tasks* as one might expect. This comment also suggests that the participant perceives a causal connection between their symptoms and their ability to do their job, strengthening any argument for a causal relationship.

Some comments were more distal from my hypotheses, but still provided some interesting insight. For example, the following comment suggest that it would be unreasonable to assume that respondents evaluate their mental illness to be entirely negative:

> I would say that I do not consider being bipolar to be a bad thing, in fact I think it is somewhat a positive thing...I tend to feel like I have a much deeper connection to my emotions than normal people and the mania aspect of it gives me drive and ambition that someone without it could never experience naturally.

As mentioned, these are some interesting comments provided when participants are asked a broad, open-ended question. Future researchers should consider the rich data that would result from deeper, more targeted questions. For example, researchers could learn how specific symptoms affect perceive work ability in different ways, and why some people have a more positive view of their mental illness than others may be addressed with future qualitative research.

Intervention Research. Future intervention research can also be conducted following my findings. As mentioned, the current focused on *primary* appraisal in appraisal theory; future research can focus on the role of resources, as in *secondary* appraisal in appraisal theory (Folkman et al., 1986). Specifically, experimental and quasi-experimental studies can include the manipulation of resources to benefit workers with mental illness. This future research could be invaluable because it can further develop practical approaches to helping employees with mental illness, and it can allow for more causal interpretations of findings through the manipulation and control of variables. This research would examine how resources may improve perceived work ability as well as other outcomes for employees with mental illness.

There is a need for more intervention studies on perceived work ability specifically, especially for employees with mental illness. For example, therapy interventions for mental health and mental illness are common, but, to my knowledge, only one includes work ability. Finnes et al. (2019) manipulated treatments in their intervention study; they had multiple treatment groups, including a "treatment as usual" group. They found that, compared to the other groups, participants in the acceptance and commitment therapy groups reported increased work ability and decreased lagged sickness absence for workers reporting anxiety, depression, or poor mental health due to stress. There are also interventions that have been tested on broader populations, which should be applied to workers with mental illness. For example, McGonagle et al. (2014) conducted an intervention study in which workers with general chronic illnesses were coached in knowledge-building and problem-solving skills. This intervention was designed to build personal resources such as resilience and core self-evaluations, and ultimately improved work ability.

It may be informative for future intervention research to include outcomes besides perceived work ability as well. For example, trainings or interventions may focus on supporting employee mental wellness (building a personal resource; e.g. Finnes et al., 2019) and reducing discrimination (reducing a resource drain; e.g. Shann et al., 2019). Dimoff and Kelloway (2019) conducted an intervention study in which leaders were trained on how to support employee mental health by helping with resource utilization (e.g. suggesting resources or providing accommodation). They evaluated intervention effectiveness by measuring variables such as leader communication about mental health and employee resource use (which both increased significantly in the intervention). Connecting this research to my current study, experimental or quasi-experimental intervention research could consider leader communication to reduce anticipated discrimination or symptom severity, which could break the possible spiral effect I found in the bi-directional relationship.

5.4 Generalizability

The current study focused on working adults with mental illness. Hypotheses were developed with consideration of the experiences that might be unique to this population (e.g. mental illness stigma), so further research would need to be conducted before results could reasonably be generalized to other groups (such as people with other stigmatized identities).

The use of MTurk may give rise to questions of sample appropriateness (see Cheung et al., 2017). Following the recommendations of Cheung et al. (2017), I have taken steps to address this where possible. For example, as described in the method section, my participants had a wide range of work arrangements and were screened at multiple points for being members of the target population (employed and having a mental illness).

Because many working-age adults with mental illness struggle to retain full-time employment even in normal, non-pandemic economic conditions (Chang, 2015), I chose to set the threshold to ten hours, to allow for greater participation than a higher threshold. Further, perceived work ability data may often be skewed positively due to selection bias (participants with the lowest perceived work ability are less likely to be full-time employees). By selecting for people who work a minimum of 10 hours per week, I hoped to access participants who were employed (which is critical to the definition of perceived work ability), but also captured more variance in perceived work ability scores and collected data that is more generalizable to all employees with mental illness.

5.5 Final Thoughts

As mentioned, high and growing rates of mental illness, and the challenges of mental illness at work, make studies such as the current one increasingly relevant. There is ample opportunity for future research, including basic and applied studies, which may support work ability and other positive outcomes for employees with mental illness. Some intervention research demonstrates ways to help workers with mental illness (e.g. Dimoff & Kelloway, 2019). Improving on these efforts can support positive outcomes for both employees and employers.

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APPENDIX A

Perceived Work Ability (PWA) Measure:

Instructions: Work ability refers to your capacity to continue doing your current job, given your health and other resources, in light of your job responsibilities.

For the following questions, please think about your work on YOUR CURRENT MAIN JOB.

Assume that your work ability at its best has a value of 10 points.

1. How many points would you give your CURRENT ABILITY TO WORK?
2. Thinking about the physical demands of your job, how do you rate your current ability to meet those demands?
3. Thinking about the mental demands of your job, how do you rate your current ability to meet those demands?
4. Thinking about the interpersonal/social demands of your job, how do you rate your current ability to meet those demands?

Response Scale: (0) cannot currently work at all to (10) work ability at its lifetime best

APPENDIX B

Mental Illness Symptom Severity Measure

SCL-10R

0 = Not at all
1 = A little bit
2 = Moderately
3 = Quite a bit
4 = Extremely

During the past 30 days, how much have you been distressed by:

1. Feeling blue.
2. Feeling afraid in open spaces or on the streets.
3. Temper outbursts that you could not control.
4. Your feelings being easily hurt.
5. Feeling that you are watched or talked about by others.
6. Difficulty making decisions.
7. Trouble getting your breath.
8. Feeling hopeless about the future.
9. Feeling tense or keyed up.
10. The idea that something is wrong with your mind.

APPENDIX C

Mental Illness Anticipated Discrimination Scale

How likely is this happen, assuming everyone at work knew about your mental illness? Five-point response scale, ranging from 1 (not at all likely) to 5 (extremely likely).

1. You will be fired
2. You will be one of the first to be laid off in a downsizing
3. You will be overlooked for a promotion
4. You will receive a negative performance evaluation
5. You will be moved to a less desirable job
6. You will be disciplined for things that are usually overlooked for others
7. Your behavior at work will be overly scrutinized
8. You will be given less satisfying work
9. Your boss will give a challenging assignment to someone else
10. You will be excluded from things you should have been a part of (e.g. meetings)

APPENDIX D

Internalized stigma Measure

All items will be measured on 1 (Strongly Disagree) to 7 (Strongly Agree) scales.

1. Having experiences with mental illness makes me feel like a bad person
2. I feel I am not as good as others because of my mental illness
3. I feel guilty because of my mental illness
4. I feel that my mental illness is a sign of personal failure.

APPENDIX E

Workplace Stress Scale

1=Strongly Disagree
2=Disagree
3=Neither Agree nor Disagree
4=Agree
5=Strongly Agree

I feel a great deal of stress because of my job
Very few stressful things happen to me at work
My job is extremely stressful
I almost never feel stressed at work

Table 1

Descriptive Statistics and Correlations for Study Variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Symptom Severity (T1)	1.33	0.83	(.89)											
2. Anticipated Discrimination (T1)	1.75	0.86	.56**	(.94)										
3. Internalized Stigma (T1)	3.45	1.8	.63**	.42**	(.93)									
4. Interaction term: SSxIS (T1)[a]	0.96	1.5	.22**	.15**	.11*	--								
5. Interaction term: ADxIS(T1)[a]	0.66	1.62	.14**	.34**	0.07	.50**	--							
6. Stress (T1)	3.18	1.1	.25**	.21**	.19**	-0.03	-0.06	(.87)						
7. Symptom Severity (T2)	1.07	0.83	.87**	.54**	.54**	0.1	0.11	.37**	(.90)					
8. Anticipated Discrimination (T2)	1.69	0.86	.52**	.76**	.39**	.15*	.16*	.27**	.61**	(.95)				
9. Internalized Stigma (T2)	3.11	1.78	.56**	.36**	.71**	0.01	0.04	.27**	.60**	.49**	(.93)			
10. Stress (T2)	3.11	1.1	.29**	.27**	.15*	-0.04	-0.04	.78**	.35**	.31**	.21**	(.90)		
11. PWA (T1)	7.16	1.68	-.50**	-.37**	-.32**	-0.08	-0.07	-.20**	-.40**	-.37**	-.32**	-.29**	(.80)	
12. PWA (T2)	7.58	1.68	-.45**	-.39**	-.25**	-0.1	-.18**	-.33**	-.53**	-.48**	-.35**	-.29**	.64**	(.82)

Note: For correlations between Time 1 variables, $N = 350$ For correlations between Time 2 variables, or a Time 1 and Time 2 variable, $N = 216$.

[a] Variables mean-centered, then multiplied. Variables are abbreviated: "SS" for "symptom severity", "AD" for "anticipated discrimination", "IS" for "Internalized Stigma," and "PWA" for "Perceived Work ability".

Table 2

Two-tailed independent samples T-tests of PWA, by COVID-related work-status variables

Time 1 PWA	Yes			No			*t*	*p*	*sd* pooled	Hedge's *g*
	N	*M*	*SD*	*N*	*M*	*SD*				
Recently changed to remote	189	7.20	1.63	161.00	7.12	1.75	-.47	.64	1.69	.05
Recently had COVID-19	17	6.54	1.96	333.00	7.20	1.67	1.56	.12	1.82	.36
Condition that made one COVID-19 vulnerable	76	6.79	1.76	274.00	7.27	1.65	2.22	.03	1.71	.28
Essential worker	129	7.24	1.73	221.00	7.12	1.66	-.68	.50	1.70	.07
Anticipate future changes to work status	112	6.89	1.77	238.00	7.29	1.63	2.11	.04	1.70	.24
Time 2 PWA	Yes			No			*t*	*p*	*sd* pooled	Hedge's *g*
	N	*M*	*SD*	*N*	*M*	*SD*				
Recently changed to remote	15	7.61	1.63	201.00	7.54	1.75	-.31	.76	1.69	.04
Recently had COVID-19	215	7.77	1.45	1.00	7.57	1.70	-.39	.70	1.58	.13
Condition that made one COVID-19 vulnerable	42	7.41	1.44	173.00	7.63	1.74	.78	.44	1.60	.14
Essential worker	75	7.64	1.91	141.00	7.54	1.55	-.40	.69	1.74	.05
Anticipate future changes to work status	84	7.42	1.75	132.00	7.66	1.65	.96	.34	1.70	.14

Note: See measures section for precise wording of COVID-related work-status questions.

Table 3

Regression Coefficients with Internalized Stigma as a Moderator, Predicting PWA

Variable	B	β	*SE*	R^2
Symptom Severity				
Step 1				.258
Constant	7.27		.10	
Symptom Severity	-.93***	-.47***	.12	
Internalized Stigma	-.03	-.03	.06	
Step 2				.259
Constant	7.27		.11	
Symptom Severity	-.94***	-.47***	.12	
Internalized Stigma	-.03	-.03	.06	
Symptom Severity x Internalized Stigma	.03	.03	.05	
Anticipated Discrimination				
Step 1				.186
Constant	7.32		.11	
Anticipated Discrimination	-.53***	-.27***	.11	
Internalized Stigma	-.19***	-.21***	.05	
Step 2				.188
Constant	7.29		.11	
Anticipated Discrimination	-.57***	-.29***	.11	
Internalized Stigma	-.19***	-.20***	.05	
Symptom Severity x Internalized Stigma	.06	.05	.05	

Note: Variables are mean-centered from Time 1 (N = 350), predicting PWA and controlling for having a condition that makes one vulnerable to COVID-19 and anticipating changes to work status.

***p< .001

Table 4

Regression Coefficients for Path Analysis

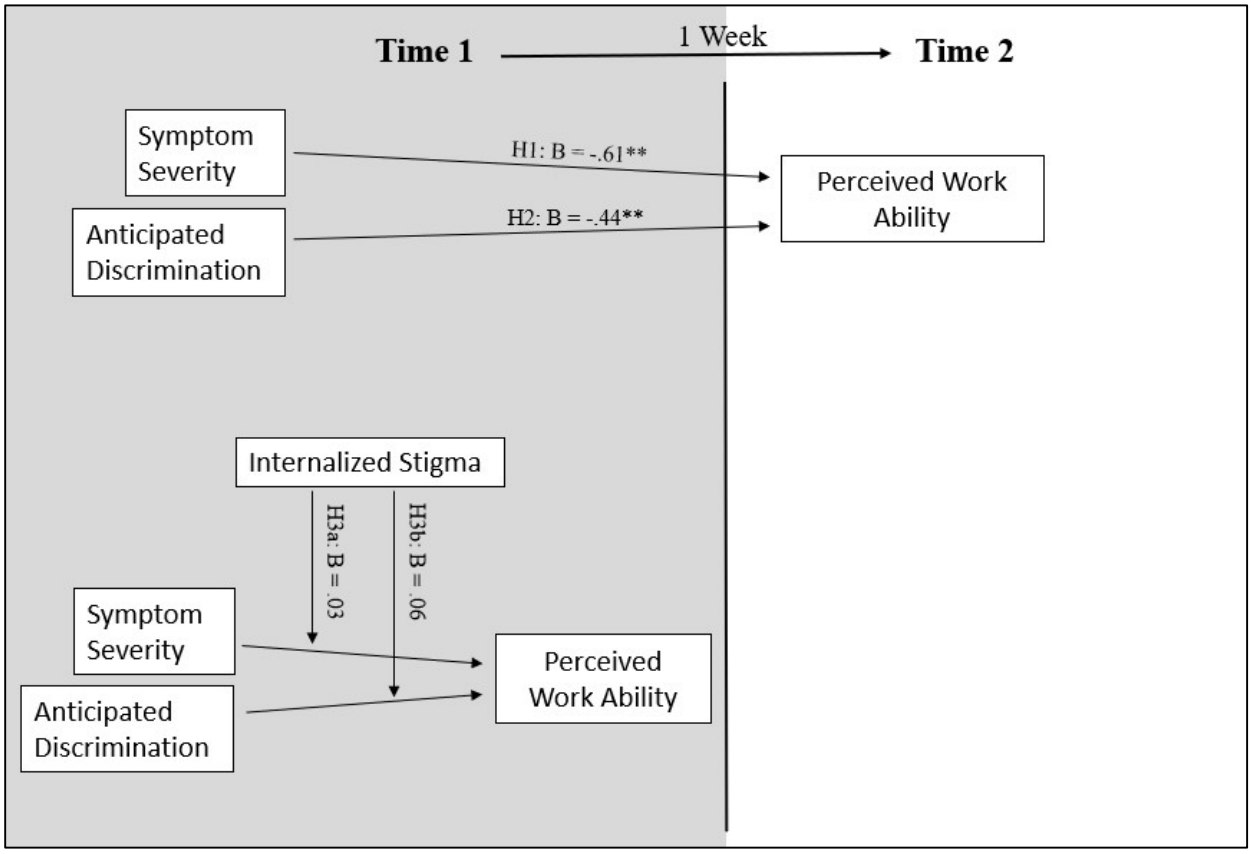
Variable	B	*SE*
Symptom Severity (T1) → Stress (T1)	.34**	.10
Anticipated Discrimination (T1) → Stress (T1)	.11	.08
Symptom Severity (T1)→ PWA (T2)	-.51**	.15
Anticipated Discrimination (T1) → PWA (T2)	-.41**	.12
Stress (T1) →PWA (T1)	-.36**	.10

Note. Perceived work ability shortened to "PWA". Stress $R^2 = .11$, Perceived work ability $R^2 = .26$

**$p < .01$

Figure 1

Direct and Moderation Relationships



Note: Regression analyses. Moderation used Time 1 data only.

** $p < .01$

Figure 2

Supplemental Path Analysis with Stress