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MENTAL HEALTH STIGMA IN SOUTH ASIANS WITH CROHN'S DISEASE

by

BANSI DIPESH PATEL

**SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT OF THE
DEGREE OF BACHELOR OF ARTS**

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PROFESSOR BARTHOLOMEW**

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Mental Health Stigma in South Asians with Crohn's Disease

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December 9, 2022

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Abstract

Chronically ill individuals often face comorbid mental illnesses. Mental illness symptoms can cause their chronic illness symptoms to worsen; the converse is also true. Such is the case with Crohn's disease (CD) patients. The present literature lacks research on the relationship between CD and mental illness symptoms. Additionally, the literature lacks chronically ill participants who are South Asian Americans (SAA). SAA often face more mental health stigma than their white peers which can worsen one's mental illness symptoms. This study examines the impact that mental health symptoms have on the psychological distress faced by SAA who are diagnosed with CD. Additionally, mental illness type, mental health stigma, acculturation status, quality of life, and illness intrusiveness will moderate this relationship. A sample of 757 SAA participants, both with and without CD, will complete a survey that measures their acculturation status, quality of life, illness intrusiveness, mental health stigma, mental illness type, and psychological distress. It is hypothesized that being diagnosed with CD leads to an increase in mental health symptoms which leads to higher levels of mental health stigma which ultimately results in higher levels of psychological distress. CD participants will experience higher levels of mental health stigma, illness intrusiveness, and psychological distress and lower levels of quality of life than non-CD participants. This study provides a more nuanced look into two underrepresented populations (CD patients and SAA individuals) and can help clinicians develop culturally-informed mental health interventions for SAA CD patients.

Keywords: Crohn's Disease, chronic illness, mental health stigma, South Asians

Mental health stigma in South Asian Americans who have Crohn's disease

Much of the current literature in psychological research focuses on western, educated, industrialized, rich, and democratic (WEIRD) populations (Henrich et al., 2010). Many cultures and ethnicities are not represented by the current psychological research. As a result, these studies cannot be generalized to the rest of the world. This is due to the various factors that influence how different cultures conceptualize and experience psychological factors. It is important to continually research people of different backgrounds, especially those who do not fit into the WEIRD population. People of color and different cultures are not the only people who are underrepresented in the current literature; there are not many published studies documenting chronically ill people and their experiences with mental health struggles. Crohn's disease is a chronic illness that has been particularly underrepresented in the literature. Crohn's disease is a type of Inflammatory Bowel Disease (IBD) that is highly complex and of unknown etiology (Jayarajah et al., 2017). Studies have found that there is an increasing incidence of IBD in Asia, which contrasts historic views that IBD primarily occurred in Western countries (Jayarajah et al., 2017). The current research done on Crohn's disease in South Asia focuses primarily on disease characteristics of Crohn's disease patients in South Asia and not on the quality of life of Crohn's disease patients in South Asia. Additionally, much of the research conducted on Crohn's disease in South Asia was from India and Sri Lanka, so the findings are not generalizable to the entire South Asian region because of the ethnic and cultural diversity of the region (Jayarajah et al., 2017). Moreover, this research may not be generalizable to South Asian Americans as there are different factors that may influence how immigrants experience mental health symptoms and the stigma resulting from their diagnosis. This study will examine two underrepresented populations in the current literature by focusing on South Asian Americans

with Crohn's disease. This study will address whether Crohn's disease affects psychological distress as moderated by mental health stigma.

Gut health and mental health

Recent research has linked gut health to mental health, specifically looking at how gut-targeted interventions can improve one's mental health (Berding & Cryan, 2022). This research has discussed the ways that mental health issues can lead to somatic symptoms, including gut-related issues. Gut-related issues can include any illnesses that involve the digestive system. Additionally, researchers have looked at ways to treat mental illnesses using treatments that were originally for gut-related issues. Empirical evidence shows the positive effect probiotics have on improving panic anxiety, neurophysiological anxiety, negative affect, worry, and increase negative mood regulation (Tran et al., 2019).

Additionally, there is evidence of a link between gut microbiota and inflammatory gastrointestinal disorders like Crohn's disease (Abautret-Daly et al., 2018). Patients with IBD often have comorbid anxiety and depression symptoms. Research suggests that these anxiety and depression symptoms stem from the gut-brain axis. Research also suggests that the inflammatory symptoms of IBD worsen the anxiety and depression symptoms (Abautret-Daly et al., 2018). Stress is a factor that worsens IBD symptoms and can cause an exacerbation of inflammation in IBD patients (Abautret-Daly et al., 2018). This means that when IBD patients experience psychological stress because of their IBD, this can cause their IBD symptoms to flare up, resulting in a cycle that can be hard to break. Majority of the research on gut-health and mental health is recent, however, the information found so far is helpful and could help explain why certain digestive diseases—like Crohn's disease—could be related to worsened mental health.

Chronic illness and mental illness

Chronic illnesses can lead to co-occurring mental illness, especially when the chronic illnesses occur during vital stages of child or adolescent development (Brady et al., 2021). This study found that children who had chronic health problems had disproportionately high rates of mental illness from the ages of 10, 13, and 15 (Brady et al., 2021). Chronic health conditions can negatively impact one's mental health, especially when the chronic illness onset occurs during a vital stage of child or adolescent development. Some reasons why mental illness was disproportionately high in children and adolescents who had chronic illnesses was due to peer victimization and health-related school absenteeism. These factors help one understand how chronic illnesses can affect many parts of one's life and how all these effects ultimately influence each individual's mental health.

There is also a link between people who are physically chronically ill and people who are chronically mentally ill (Criswell, 2022). Often, these two chronic conditions are comorbid, which can lead to one experiencing stigma related to both conditions. College students with physical and mental chronic health conditions were examined to see how these conditions impacted their lives (Criswell, 2022). College students with both mental and physical chronic health conditions reported higher levels of stigma awareness, internalized stigma, diminished physical and psychological quality of life, and resilience to academic qualities than students who only experienced physical chronic health conditions. This research suggests that the added diagnoses of a chronic mental health condition in addition to a physical chronic health condition can be detrimental to one's quality of life and resilience while increasing the amount of stigma that one faces because of these conditions. Another empirical study examined college students with chronic illnesses found that these students had the greatest levels of anxiety but not depression (Mullins et al., 2017). This anxiety may have resulted from the illness uncertainty and

illness intrusiveness that these chronically ill college students faced. Illness uncertainty and illness intrusiveness independently predicted depressive and anxious symptoms. Thus, illness uncertainty and illness intrusiveness seem to be predictors of psychological distress, regardless of illness type (Mullins et al., 2017).

A meta-analysis reviewed multiple studies that observed clinically diagnosed affective and/or anxiety disorders in adults who had rare chronic diseases (Uhlenbusch et al., 2021). The prevalence rates of these disorders were pulled from the studies in this meta-analysis. Current and lifetime rates of major depressive disorder, affective disorders, and anxiety disorders were high in adults who had rare chronic diseases (Uhlenbusch et al., 2021). Regardless of age, people with physical chronic illnesses are more likely to experience mental health issues as well. The comorbid diagnosis of a mental illness in addition to one's chronic illness diagnosis can lead to increased stigma related to both diagnoses. One reason why chronic illnesses can lead to mental illnesses may be related to how chronic illness affects the quality of life of patients.

Chronic illness and quality of life

Patients with chronic illnesses have lower levels of quality of life (QoL). This can include lower levels of physical QoL and psychological QoL (Criswell, 2022). A measure assessing health-related quality of life (HRQoL) was created to determine the QoL in chronic disease patients (Megari, 2013). Some evidence shows that symptomatic activity and sociodemographic variables like gender and education can affect HRQoL. For example, in the case of IBD, male patients with IBD who had higher levels of education and inactive disease had higher HRQoLs than other patients with IBD (Megari, 2013). Additionally symptomatic activity and hospitalizations affect HRQoL. This is seen in patients with IBD, as their symptomatic activity and hospitalizations relate to poor HRQoL which can lead to an increase in psychological distress (Megari, 2013). Understanding the different factors that influence QoL in patients with

chronic illness is an important factor to consider when understanding how QoL affects one's mental health. Illness intrusiveness is one of the most influential factors that influences QoL in chronic illness patients.

Illness intrusiveness and mental illness

Illness intrusiveness is a concept that can measure how chronically ill and disabled people feel about their quality of life by understanding how patients feel their illness or disability affects their life (Bakula et al., 2019). Chronically ill college students were asked about their illness-related stigma, illness intrusiveness, depressive, and anxious symptoms. Ultimately, stigma was significantly related to illness intrusiveness, and illness intrusiveness was significantly related to depressive and anxious symptoms (Bakula et al., 2019). These results suggest that illness intrusiveness is one of the biggest factors that influences mental health and QoL in people with chronic illnesses.

Stigma and chronic illness

When someone has both mental and chronic illnesses, they can face stigma about both types of conditions (Criswell, 2022). The stigma in this study included internalized stigma and stigma faced by others. Students who had both mental and physical chronic health conditions faced higher levels of stigma than students with only physical chronic health conditions. Additionally, internalized stigma impacts other parts of one's well-being including quality of life and resilience (Criswell, 2022). However, internalized stigma is not the only stigma that chronically ill patients face.

There is a link between parents' associative stigma that they face regarding their child's IBD and their child's mental health (Baudino et al., 2021). This study also looks at the depressive symptoms of the children who have IBD. When parents have stigma relating to their child's chronic illness, the child then experiences more lifestyle intrusions and consequently

more depressive symptoms. In this study, the stigma that participants face is not related to mental health, but rather related to the chronic illness that the child has. However, the parents' stigma still leads to mental health issues in their children (Baudino et al., 2021). Evidently, stigma relating to one's chronic illness plays an important role in one's mental health and well-being.

Mental health stigma

Patients who are severely chronically mentally ill are likely to face stigma and discrimination. Family members and healthcare professionals were interviewed and discussed the stigma and discrimination that their clients and relatives faced due to their mental illnesses (O'Reilly et al., 2019). The study found that most people reported that their clients and relatives faced mental health stigma and discrimination often. However, although patients faced a lot of stigma, the healthcare professionals were able to reduce stigma patients faced through strong advocacy and support. The support of healthcare professionals is beneficial in reducing mental health stigma, however, the theory behind mental health stigma still needs to be addressed to help understand the different ways mental health stigma affects one's life.

The theory behind mental health stigma can be explored through cognitive, affective, and behavioral components (Ottati et al., 2005). The cognitive representation of mental health stigma can be seen in stereotypes that people have when thinking of someone who is mentally ill. The prejudice that someone who is mentally ill faces due to mental health stigma can be described as a negative affective reaction, evaluation, or attitude. Finally, the discrimination that mentally ill people face due to mental health stigma can be described as negative behaviors or actions. Thus, the three components of mental health stigma can be linked to stereotypes, prejudice, and discrimination (Ottati et al., 2005). Consequently, mental health stigma can affect one's life in a variety of ways and can ultimately lead to lower levels of QoL. Family and caretakers can help advocate for their mentally ill relatives and clients and help reduce the stigma they face

(O'Reilly et al., 2019). However, not all family members are as supportive towards their relatives' mental health struggles. In some cultures, mental health is deeply stigmatized, and people who are mentally ill may experience discrimination due to their diagnosis from their own family members.

Culture's impact on mental health and stigma

Culture has an impact on mental health in all aspects: symptoms, diagnoses, treatment, and stigma (Hwang et al., 2008). A conceptual model explains the impact culture has on mental health and the stigma people of color face (Hwang et al., 2008). This model also includes other factors that people should consider when talking about the cultural impact on mental health such as cultural background, etiology, cultural meanings and norms, expression of symptoms, help seeking, and policy. Ultimately these factors affect the diagnosis, prevalence, and treatment of the mental illness that patients experience. Additionally, when assessing people of other cultures for mental health diagnoses, it is important to look out for somatic symptoms relating to mental illnesses. Other cultures may somatize their mental pain because physical pain is acceptable whereas mental pain is not (Hwang et al., 2008).

Hwang et al. (2008) are not the only scholars to discuss the impact culture has on mental health and treatment. A paper expressly argued for the need to adapt and increase access to psychosocial interventions for South Asians (Naeem et al., 2019). This paper highlights how Canadian South Asians have higher rates of physical and mental health problems than other Canadians, and that there may be psychosocial factors that are responsible for these high rates. Traditional psychosocial interventions will not be as effective for Canadian South Asians unless they are culturally adapted to align with South Asian values. Adapting these psychosocial interventions will help decrease the stigma South Asians may face when receiving mental health treatment (Naeem et al., 2019).

In the discussion of health-related quality of life (HRQoL) in chronic disease patients, the impact that cross-cultural differences have on HRQoL was emphasized due to the different ways cultures define and perceive health (Megari, 2013). For example, Asian populations perceive health in a more holistic way so the chronic diseases that affect HRQoL in Asian populations are different to what affects Western populations. This study will focus on a specific ethnic minority population and understand how the specific stigma that South Asian American individuals face can affect their mental health experiences and psychological distress.

South Asian populations and mental health stigma

Research has shown that in South Asian populations, there is much more stigma regarding mental health problems which results in less people seeking treatment. These issues are present in South Asian countries (Husain, 2020) as well as in South Asian populations in Western countries (Naeem et al., 2019). In Pakistan, it is estimated that 10%-16% of the population has mild to moderate mental illness, and 1% of the population has severe mental illness (Gerstein et al., 2009). However, despite these numbers, mental illness stigma prevents people from seeking help due to the fear of being discriminated against by others in their community. Thus, instead of seeking psychological help, people are more likely to turn to religion for help (Gerstein et al., 2009). In Pakistan, religion, particularly Islam, plays a pivotal role in how people perceive mental health issues. In Islamic culture, it is more acceptable for people to seek religious help for mental health issues than it is to seek psychological help. The most common way to relieve mental distress is by praying directly to God and by keeping mental distress to oneself (Moodley et al., 2012). In fact, mental illness in Pakistan can be thought of as punishment due to a defective relationship with God or an inability to fulfill religious obligations. There are also indigenous healers that can help treat mental distress through prayer and other religious rituals.

Similar patterns of mental health stigma and help seeking reluctance are prevalent in India.

Although more people in India are open to receiving psychological counseling, there is still a lot of stigma towards mental health issues (Gerstein et al., 2009). So, despite some people seeking psychological help, many believe in indigenous and traditional healing methods for all health problems — mental or physical (Moodley et al., 2012). One common help-seeking outlet is astrologers, as people trust them more than they trust psychologists. This mental health stigma that South Asians face extends to Western countries after they have immigrated as well. There are high rates of physical and mental health problems for Canadian South Asians, but they do not seek treatment as much as their White counterparts (Naeem et al., 2019). Once one migrates to another country, another factor that can influence their mental health stigma is their acculturation status.

Acculturation status and mental health stigma

Acculturation is one of the biggest factors in how someone perceives mental health stigma and affects if they are willing to seek psychological help. Indian women who were first- or second-generation immigrants to the United States, were assessed regarding their mental health and their acculturation processes (Joseph et al., 2020). Women who were behaviorally bicultural, assimilated, separated, or marginalized had no significant differences in their well-being. Women who were married and older had higher levels of self-esteem, and unmarried women reported more attitudinal marginalization from their home-town in India, but not attitudinal marginalization from their Western communities. After controlling for other factors, attitudinal marginalization from their home-town in India was moderately correlated with lower self-esteem and more severe depressive symptoms. These findings suggest that acculturation processes and psychological well-being are strongly related, and that immigrants' mental health is affected by their communities and values from their home country (Joseph et al., 2020).

Another study assessed Indian immigrants for behavioral acculturation, values enculturation, and perceptions of the mental health case descriptions along with treatment-seeking recommendations and stigma associated with treatment seeking (Kumar & Nevid, 2010). There were lower levels of endorsement of psychological determinants and higher levels of biological determinants when the vignette gender was male than when the gender was female. Behavioral acculturation seemed to moderate traditional perceptions of masculinity. Behavioral acculturation also resulted in a greater recognition of the psychological bases of mental disorders. Finally, gender moderated the relationship between behavioral acculturation and perceptions of the psychological basis of the disorders. Both studies show that acculturation has a significant effect on whether individuals are likely to accept mental health diagnoses and to potentially seek psychological treatment. Individuals who are more acculturated to a Western country are less likely to have as much mental health stigma, and in turn, are more likely to seek mental health treatment.

The Present Study

There are a variety of factors that influence why individuals with Crohn's disease experience mental health issues and mental health stigma. Some factors include the gut-brain axis, illness intrusiveness, quality of life, acculturation status and culture's impact on mental health (Abautret-Daly et al., 2018; Criswell, 2022; Hwang et al., 2008; Megari, 2013; Ottati et al., 2005). These factors may lead to increased levels of psychological distress. Although there has been some research done on South Asian populations and South Asian immigrant populations, there is still not a wide variety of research in the literature. Additionally, specific chronic illnesses are vastly underrepresented in the literature. There is very little research available that focuses on the psychological factors that result from IBD and Crohn's disease. The link between chronic illness and mental illness is an important one that must be researched

further. Moreover, research on the intersection between being an ethnic minority, experiencing chronic illness, and facing mental health stigma has not been studied before.

The review of the literature suggests that understanding the cultural impact on mental health stigma through the lens of experiencing a chronic illness has yet to be answered. Thus, this study was designed to explore the impact that Crohn's disease has on experiencing psychological distress and the effect that mental health stigma has on moderating this relationship. I hypothesized that, individuals with Crohn's disease will have higher levels of psychological distress than individuals without Crohn's disease. I also hypothesized that individuals who experience higher levels of mental health stigma will exhibit higher levels of psychological distress. Additionally, I hypothesized that being diagnosed with Crohn's disease leads to an increase in mental health problems which leads to higher levels of mental health stigma which ultimately results in higher levels of psychological distress. Moreover, I hypothesized that individuals who have acculturated more to the U.S. will experience less mental health stigma leading to lower levels in psychological distress than individuals who are not as acculturated to the U.S. Additionally, I hypothesized that individuals with Crohn's disease will have lower levels of health-related quality of life leading to increased levels of psychological distress. Further, I hypothesized that individuals with Crohn's disease will have significantly lower quality of life scores than individuals without Crohn's disease. Finally, I hypothesized that individuals with different categories of mental illness will experience different levels of psychological distress due to increased levels of mental health stigma, such that, individuals with depressive disorders and anxiety disorders will experience more psychological distress than individuals with disruptive, impulse-control, and conduct disorders.

Specific Aims

This study aims to fill a gap in the literature regarding the link between mental health, chronic illness, and stigma. Additionally, this study looks at an underrepresented population in psychological research by solely examining South Asian individuals. Furthermore, this study focuses on chronic illness — another underrepresented population in the current literature. By focusing on Crohn's disease in particular, this study will aim to understand the link between this specific chronic illness and mental health issues and psychological distress. Finally, this study will explore the link between acculturation status and mental health stigma.

Proposed Method

Participants

Participants in this study will be South Asian American individuals who are diagnosed with at least one mental illness. Additionally, half of the participants in this study will be diagnosed with Crohn's disease, a subtype of Inflammatory Bowel Disorder (IBD). The only age requirements that participants need to meet is that they are over the age of 18. The survey that participants will complete will be entirely in English, so participants must be able to read and understand English fluently. A power analysis was conducted to get a power level of .80 ($\alpha = .05$) with a small effect size of .10. This study will use a multiple regression with eight independent variables. Using this information, a power analysis was conducted, and it was found that this study will consist of 757 participants.

Based on national census data, it is expected that the ethnic demographic breakdown of participants will be 82.15% Indian American, 9.91% Pakistani American, 3.67% Bangladeshi American, 1.03% Sri Lankan American, and 3.23% Nepalese American (Bureau, n.d.). Based on national census data, it is also expected that 49.5% of participants will identify as female, 48.5%

will identify as male, and less than one percent of participants will identify as nonbinary or other (*U.S. Census Bureau QuickFacts*, n.d.). Finally, based on national census data, the mean age of the participants is expected to be 38.8 years (Bureau, n.d.).

These participants will be recruited through a variety of ways. The first way to recruit participants will be to use social media groups that are communities of South Asian individuals with Crohn's disease. Some examples of this include @IBDesis and @SouthAsianIBD on Instagram. Additionally, influential South Asian IBD influencers might be willing to share the study information with their followers. An example of a South Asian IBD influencer is @OwnYourCrohns on Instagram (she has 10,000 followers). Social media will also be used to help recruit participants from the control group. Some possible Facebook groups to recruit from would be "Subtle Asian Mental Illness" (61,000 members), "South Asian American Community" (over 1000 members), and "Asian Mental Health Professionals" (3,900 members).

Another way to recruit participants will be by utilizing doctors' offices. For the Crohn's disease group, the study information will be given to doctors that focus on IBD. These doctors will be asked to share the study information with any South Asian American participants that are eligible. For the control group, this study information will be given to therapists who have a client base that includes South Asian Americans. These therapists will be asked to share the study information with any South Asian American participants that are eligible.

Finally, these two primary modes of recruitment will hopefully lead to word of mouth. Participants who choose to participate in this study may know other people who are eligible to participate and inform them of this study.

Materials

Mental Illness

To understand the impact that different mental illnesses have on the mental health stigma and psychological distress that individuals experience, participants will be asked to categorize the type of mental illness(es) they experience. Adapted from the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), participants will be given a list of the DSM-5 diagnostic chapters and asked to check the category or categories that their diagnosis or diagnoses fall under. This is not a measure, so it does not have any psychometric properties. Rather, this will be used to evaluate whether certain categories of mental illnesses lead to higher levels of mental health stigma which ultimately leads to increased levels of psychological distress. See Appendix A for the full categorization list that participants will see.

Quality of Life in Control Participants

All participants will have their quality of life assessed using the Multicultural Quality of Life Index (Mezzich et al., 2011). This measure assesses the quality of life through a culturally-sensitive lens. This 10-item measure covers key concepts relating to quality of life that range from physical well-being to spiritual fulfillment. Each item on this measure is rated on a Likert scale ranging from 1-10. The prompt for each item of this scale is “Please indicate the quality of your health and life at present, from “Poor” to “Excellent”, from 1-10”. Sample items from this scale include, “Occupational functioning (able to carry out work, school and homemaking duties)” and “Personal fulfillment (Experiencing a sense of balance, dignity, and solidarity; enjoying sexuality, the arts, etc.)”. See Appendix B for full measure. This measure has been validated on samples of psychiatric patients and hospital professionals from New York City. The test-retest reliability of this measure was high ($r = .87$), so was the inter-item reliability ($\alpha = .92$) suggesting that the measure has high internal consistency. There was also a significant difference

in discriminant validity between the mean total scores of professionals and patients who were presumed to have different levels of quality of life.

Quality of Life in Inflammatory Bowel Disease Participants

Quality of life in the individuals with Crohn's disease will be assessed through the Quality of Life in Inflammatory Bowel Disease Survey Questionnaire (Kubesch et al., 2020). This survey assesses the quality of life in participants and takes into consideration IBD related factors that affect quality of life. Some examples of IBD related factors assessed in this survey include IBD-associated stressed, recognized disability, and contact with the social care system. This questionnaire includes 80 questions which are separated into five sections: general information, emotional stress in daily life, emotional stress in work life, discrimination in daily/private life, and social care system. The purpose of this measure is to provide richer information on possible reasons why participants diagnosed with Crohn's disease may have lower levels of quality of life than control participants. This measure includes a few questions which have multiple-choice responses. Most of the measure includes questions that are rated on a Likert scale (1-5). Sample items include "To what extent do you experience general exhaustion due to your IBD?" and "How much does IBD affect your daily life/cause emotional stress when fearing to not find a restroom in time?". See Appendix C for full measure. The psychometric properties for this measure have not been calculated, so once this measure is used in this study, the reliability and validity will be calculated.

Mental Health Stigma

All participants will have their mental health stigma assessed through the Mental Health Stigma Scale which provides a multidimensional assessment of mental illness stigma (Yasuhara et al., 2019). This 24-item measure assesses many dimensions of mental illness stigma including

perceived dangerousness, self-care, social distance, treatment amenability, and predicted police behavior. Each item on this measure is rated on a Likert scale (1-7). Five items on this measure will be reverse scored. Sample items include “A close relationship with someone with [a mental illness] would be like living on an emotional roller coaster” and “I can tell that someone has [a mental illness] by the way he or she acts”. See Appendix D for full measure. The psychometric properties of this measure were assessed, and inter-item reliability ($\alpha = .92$) suggests that the measure has high internal consistency. Additionally, the validity of this measure was reassessed, and the convergent validity of this scale was adequate ($\alpha = .87$).

Acculturation

Acculturation status of all participants will be measured through the Brief Acculturation Orientation Scale which is a bidimensional measure of home and host country acculturation orientation (Demes & Geeraert, 2014). This eight-item scale measures acculturation orientation toward home and host culture separately. Each item on this measure is rated on a Likert scale (1-7). The prompt before each item in the scale is “It is important for me to...”. Sample items include “Do things the way [home country] people do” and “Take part in [host country] traditions”. See Appendix E for full measure. The inter-item reliability for the home scale ($\alpha = .78$) and the inter-item reliability for the host scale ($\alpha = .72$) suggests that this scale has good internal consistency. The concurrent validity was assessed by seeing the correlation between the home and host factors. There was a weak correlation between the two, which helps support their independence.

Illness Intrusiveness

All participants will complete the Illness Intrusiveness Ratings Scale (Devins et al., 1983). Control participants should score low on this measure as they do not have a chronic illness. Participants with Crohn’s disease will have their illness intrusiveness assessed through

this measure. This scale assesses the extent to which illness and/or its treatment affects life domains relating to quality of life. This is a brief scale that measures the extent of illness across 13 life domains that are related to perceived quality of life. These 13 life domains were categorized into three distinct psychosocial domains that are vulnerable to disruptions from chronic disease: Instrumental, Intimacy, and Relationships and Personal Development. Each item on this measure will be rated on a Likert scale (1-7). The prompt before each item on the scale is “How much does your illness and/or its treatment interfere with your:”. Sample items include “Health” and “Family relations”. See Appendix F for full measure. This scale had good internal consistency; inter-item reliability ($\alpha = .80$). The validity of this scale was not calculated. Thus, after participants in this study complete this measure, the validity will be calculated.

Psychological Distress

Psychological distress of all participants will be measured with the Kessler Psychological Distress Scale which is a 10-item measure that helps screen for non-specific psychological distress (Kessler et al., 2002). Each item in this measure will be rated on a Likert scale (1-5). The prompt before each item on the scale is “During the last 30 days, about how often did...”. Sample items include “... you feel restless or fidgety?” and “... you feel nervous?”. See Appendix G for full measure. The psychometric properties of this measure were extremely good. The 10-item measure had excellent internal consistency reliability, ($\alpha = .93$). The 10-item measure also had consistent psychometric properties across different socio demographic subsamples. The measure also was able to strongly discriminate between community cases and non-cases of DSM-IV/SCID disorders.

Procedure

After recruiting participants through the aforementioned ways, the researcher will ensure that there is approximately the same number of Crohn’s disease and control participants.

Participants will complete a survey that will be administered through an online platform like Qualtrics. Before starting the survey, participants will first see a screen that includes the informed consent form. This screen will be time locked so the button to continue will not show up until one minute has passed to ensure that participants read the informed consent form. After providing informed consent and confirming that they are over the age of 18, participants will be asked if they have been diagnosed with Crohn's disease or not. Participants who have been diagnosed with Crohn's disease will be directed to the survey that includes the measure that assesses quality of life in IBD patients. Participants who do not have Crohn's disease will be part of the control group and will be directed to the survey that does not include the quality of life in IBD patients measure. The first few questions on the survey will be about the mental illness or illnesses that the participants are diagnosed with. Participants will be asked what type of mental illness they have, when they were diagnosed with this illness, and what treatments they are currently seeking for these mental illnesses. There will be a question that asks the participants what category their mental illness is a part of. The rest of the survey will use the measures to assess the quality of life, acculturation status, mental health stigma, and psychological distress that each participant experiences. After completing the survey, participants will be debriefed, compensated with a \$20 electronic gift card, and thanked for their time.

Ethical Considerations

As aforementioned, participants will be informed and asked for consent before agreeing to participate in this study. Participants will only complete the study if they want to, the compensation level is not too high, and participants will be compensated regardless of whether they complete the study or not. Before the study begins, participants will be informed that they are free to exit out of the study at any point without any consequences. Thus, the study is completely voluntary.

This study involves some individuals who are chronically ill, but they are not considered to be a protected or vulnerable population. Additionally, this study will not involve a treatment or experimental manipulation, so participants will be protected from anything above minimal risk. This study will also not involve deception. Participants who are chronically ill will be filling out information relating to their quality of life and illness intrusiveness. This may cause participants to feel some discomfort. The privacy of participants is important since this study involves some sensitive information. Therefore, the data collected will be anonymous - the researcher will not be able to identify any participant with the information they provide when they complete the study.

Participants will not have any direct benefits because of this study. However, participants will benefit from the knowledge gained from this study because this study represents two underrepresented populations: South Asians and chronically ill individuals, specifically those with Crohn's disease. Research done on these two underrepresented populations will be extremely beneficial for the scholarly knowledge base as there has not been a lot of research done on either of these two populations. Specifically, there has not been any research done on Crohn's disease in the psychological context, so this study will hopefully inspire other researchers to explore individual chronic illnesses as they relate to mental health. Society at large will also benefit from this study because this study will add to the limited research on chronic illness and mental health while providing new information by studying a specific type of chronic illness and using participants who are part of an ethnic minority.

The benefits of this study outweigh the potential risks to participants because there is almost no risk to participants. Participants will not be subject to any treatments or other forms of experimental manipulation. The only risk that participants may be subject to is mental; their mood might be lowered after answering questions relating to mental health, mental health

stigma, illness intrusiveness, and quality of life. However, this level of risk is minimal, and not above the level of risk that one would encounter in their day to day lives. At the end of the study, participants will be shown positive images to help boost their mood.

Anticipated Results

Data Analysis Strategy

Three of the seven hypotheses are correlational. Thus, the statistical test to run for these hypotheses will be a correlation. The other four hypotheses involve moderation and mediation relationships. Thus, these hypotheses will be tested with a multiple regression analysis.

Hypothesis 1, individuals with Crohn's disease will have higher levels of psychological distress than individuals without Crohn's disease, will be assessed using the dichotomous predictor variable of Crohn's disease and the dependent variable of psychological distress which will be measured using the Kessler Psychological Distress Scale (Appendix G; Kessler et al., 2002). Participants' Crohn's disease diagnosis will be assessed through a yes or no question in the survey. The scores on all individual items for each scale will be averaged to create a scale score. Additionally, the reliability analyses for all measures will be performed to determine each scale's reliability.

Hypothesis 2, individuals who experience higher levels of mental health stigma will exhibit higher levels of psychological distress, will be assessed using the continuous predictor variable of mental health stigma and the dependent variable of psychological distress. Participants' mental health stigma will be measured using the Mental Illness Stigma Scale (Day et al., 2007; Appendix D). Some of the items on the Mental Illness Stigma Scale will need to be reverse scored (Day et al., 2007; Appendix D). Then, the scores on all individual items for each

scale will be averaged to create a scale score. Additionally, the reliability analyses for all measures will be performed to determine each scale's reliability.

Hypothesis 3, being diagnosed with Crohn's disease leads to an increase in mental health problems which leads to higher levels of mental health stigma which ultimately results in higher levels of psychological distress, will be assessed using the dichotomous predictor variable of Crohn's disease and the continuous predictor variable of mental health stigma, along with the dependent variable of psychological distress.

Hypothesis 4, individuals who have acculturated more to the U.S. will experience less mental health stigma leading to lower levels in psychological distress than individuals who are not as acculturated to the U.S., will be assessed using the continuous predictor variable of acculturation status, and the continuous predictor variable of mental health stigma, along with the dependent variable of psychological distress. Acculturation status of participants will be measured using the Brief Acculturation Orientation Scale (Appendix E; Demes & Geeraert, 2014).

Hypothesis 5, individuals with Crohn's disease will have lower levels of quality of life due to illness intrusiveness leading to increased levels of psychological distress, will be assessed using the dichotomous predictor variable of Crohn's disease, the continuous predictor variable of quality of life, the continuous predictor variable of illness intrusiveness, along with the dependent variable of psychological distress. The quality of life of all participants will be measured using the Multicultural Quality of Life Index--English Version (Appendix B; Mezzich et al., 2011). The quality of life of participants with Crohn's disease will also be measured using the Quality of Life in Inflammatory Bowel Disease Survey Questionnaire (Appendix C; Kubesch et al., 2020). This additional measure will help provide more information into possible reasons

why the quality of life of Crohn's disease patients may be lower than control participants. It is expected that the illness intrusiveness of participants without Crohn's disease will be low as they do not experience chronic illnesses.

Hypothesis 6, individuals with Crohn's disease will have significantly lower quality of life scores than individuals without Crohn's disease, will be assessed using the dichotomous predictor variable of Crohn's disease and the continuous predictor variable of quality of life.

Hypothesis 7, individuals with different categories of mental illness will experience different levels of psychological distress due to increased levels of mental health stigma, such that, individuals with depressive disorders and anxiety disorders will experience more psychological distress than individuals with disruptive, impulse-control, and conduct disorders, will be assessed using the categorical predictor variable of mental illness type, continuous predictor variable of mental health stigma, and the dependent variable of psychological distress. Mental illness type will be determined through the DSM-5 categorizations (Regier et al., 2013; Appendix A). Participants will be asked to identify which category the mental illness(es) they are diagnosed with belongs in. The full list of mental illness categorizations can be found in Appendix A.

Anticipated Results

To evaluate Hypothesis 1, individuals with Crohn's disease will have higher levels of psychological distress than individuals without Crohn's disease, a correlational analysis will be run. Crohn's disease and psychological distress will be strongly positively correlated. These results will suggest that individuals with Crohn's disease had significantly higher levels of psychological distress than individuals without Crohn's disease. These results are likely due to the link between chronic illness and mental illness. Chronic illnesses that occur during vital

stages of child or adolescent development can lead to disproportionately high rates of mental illness (Brady et al., 2021). There is also a link between individuals who have physical chronic illnesses and mental chronic illnesses. Often, these two chronic conditions are comorbid which can lead to increased stigma from both conditions. Research has shown that college students who were physically and mentally chronic ill experienced higher levels of stigma awareness, internalized stigma, diminished physical and psychological quality of life, and resilience to academic qualities than students who only experienced physical chronic health conditions (Criswell, 2022). This suggests that experiencing a chronic mental health condition in addition to a physical chronic health condition can lead to decreased quality of life and increased stigma. Additionally, there is a link between gut health and mental health. Recent literature has discussed the ways in which mental health symptoms are often somatized; sometimes these somatic symptoms appear as gut issues (Berding & Cryan, 2022). Understanding this link has allowed researchers to develop gut-targeted interventions that can lead to improvements in one's mental health. Some researchers have also found empirical evidence that probiotics have positive effects on improving panic anxiety, neurophysiological anxiety, negative affect, worry, and increase negative mood regulation (Tran et al., 2019). Research has also shown the specific link between gut microbiota and inflammatory gastrointestinal disorders like Crohn's disease (Abautret-Daly et al., 2018). This research shows that patients with IBD often have comorbid anxiety and depression symptoms. This research suggests that these anxiety and depression symptoms originate from the gut-brain axis. Additionally, this research suggests that the inflammatory symptoms resulting from IBD worsen one's anxiety and depression symptoms. Stress is a factor that worsens IBD symptoms and can increase inflammation in patients. Thus, when IBD patients

experience psychological stress from their IBD, their IBD symptoms can flare up, leading to worsened psychological stress. This creates a cycle that is difficult to break.

To evaluate Hypothesis 2, individuals who experience higher levels of mental health stigma will exhibit higher levels of psychological distress, a correlational analysis will be run. Higher levels of mental health stigma were strongly positively correlated. These results will suggest that individuals who experience higher levels of mental health stigma will exhibit significantly higher levels of psychological distress than individuals with lower levels of mental health stigma. These results are likely due to the effect mental health stigma has on individuals. Mental health stigma can be explored through cognitive, affective, and behavioral components (Ottati et al., 2005). The cognitive dimension of mental health stigma can be seen in the stereotypes that individuals hold towards mentally ill individuals. The affective dimension of mental health stigma can be seen in the prejudice that an individual who is mentally ill faces. Finally, the behavioral component of mental health stigma can be seen in the discrimination that mentally ill individuals face. These three components of mental health stigma highlight how mental health stigma can affect many parts of an individual's life. These effects can often lead to higher levels of psychological distress.

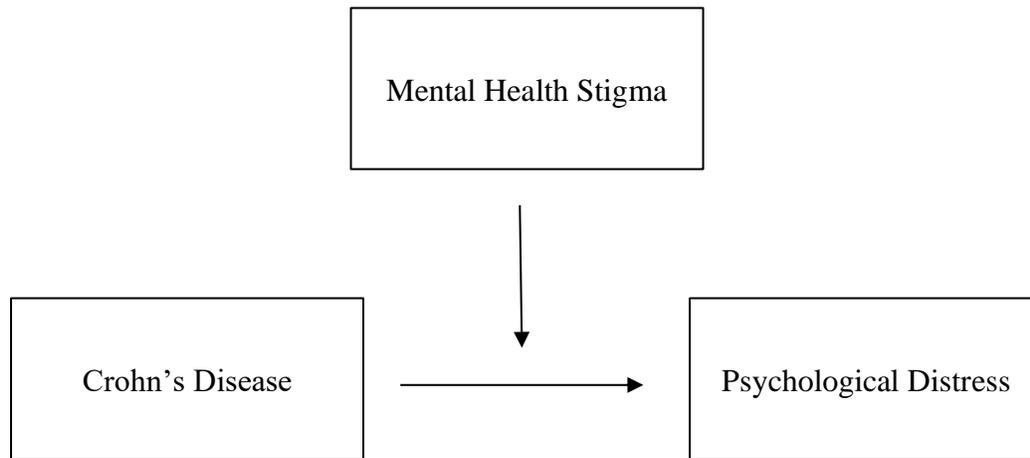
To evaluate Hypothesis 3, being diagnosed with Crohn's disease leads to an increase in mental health problems which leads to higher levels of mental health stigma which ultimately results in higher levels of psychological distress, a multiple regression will be run. To see if mental health stigma is a moderator on the relationship between Crohn's disease and psychological distress, the relationship between Crohn's disease and psychological distress will first be calculated. Then, mental health stigma will be added into the equation as a moderator variable. A new interaction variable that measures the interaction between Crohn's disease and

mental health stigma will be created and put into the regression model. If this new interaction variable is a significant predictor in the model, then the relationship between mental health stigma and psychological distress is stronger for Crohn's disease participants than for control participants. This will be shown through a positive beta weight. Crohn's disease is the higher coded category, so the positive beta weight means that the slope of the line is steeper for the Crohn's disease category. These results suggest that mental health stigma moderates the relationship between Crohn's disease and psychological distress. This means that the relationship between Crohn's disease and psychological distress is changed depending on the values of one's mental health stigma. Crohn's disease will significantly predict mental health problems. Mental health stigma also explained a significant proportion of variance in psychological distress. These results suggest that being diagnosed with Crohn's disease leads to an increase in psychological distress due to mental health problems. Due to these mental health problems, individuals may experience higher levels of mental health stigma which ultimately results in higher levels of psychological distress. This moderating relationship of mental health stigma is illustrated in Figure 1. These results are likely due to the link between chronic illness and mental illness. Since the comorbidity of mental illness in chronically ill individuals is high, these individuals often face mental health stigma. As aforementioned, this mental health stigma affects many parts of individuals' lives which can lead to higher levels of psychological distress. Chronically ill individuals also face stigma because of their chronic illness. This stigma is compounded when one adds the added stigma one experiences due to their mental illness (Criswell, 2022). The stigma that one faces includes stigma from others as well as internalized stigma. These different types of stigma affect one's well-being, including their quality of life and resilience. In addition to this internalized stigma, patients who have IBD may also experience their parents' associative

stigma (Baudino et al., 2021). When parents experienced associative stigma regarding their child’s IBD diagnosis, the child experienced more lifestyle intrusions, which ultimately led to more depressive symptoms. This highlights the effects that others’ stigma has on one’s mental health.

Figure 1

Moderation effect of mental health stigma



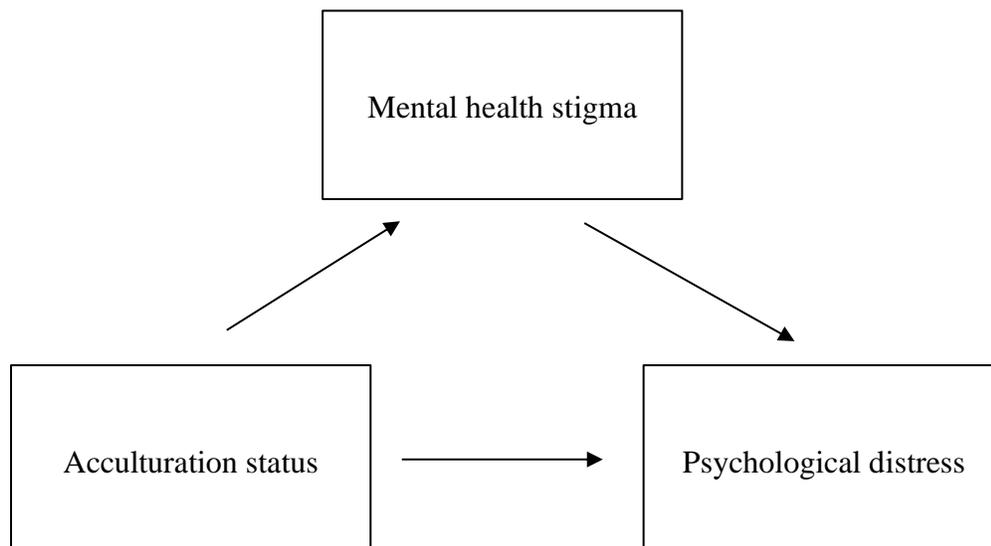
To evaluate Hypothesis 4, individuals who have acculturated more to the U.S. will experience less mental health stigma leading to lower levels in psychological distress than individuals who are not as acculturated to the U.S., a multiple regression will be run. To see if mental health stigma is a mediator on the relationship between acculturation status and psychological distress, the relationship between acculturation status and psychological distress will first be calculated. Then, the relationship between mental health stigma and psychological distress will be calculated. The relationship between acculturation status and mental health stigma will also be calculated. Finally, the presence of acculturation status in the model should decrease the effect of acculturation status on psychological distress. To understand this further, a hierarchical regression model will need to be created. In this model, psychological distress will

be the criterion or outcome variable. Acculturation status will be the independent variable on the first step of the model. This is to confirm that acculturation status is a significant predictor of psychological distress. In another step of the model, mental health stigma will be entered to confirm that it is a significant predictor of psychological distress. Inputting mental health stigma into the model will also help confirm that the relationship between acculturation status and psychological distress changes and becomes less strong or possibly non-significant with the presence of the mediating variable. After this has been confirmed, a regression model will be created with mental health stigma as the criterion or outcome variable, and acculturation status as the predictor. This is to confirm that the acculturation status is related to mental health stigma. If all these conditions are true, these results suggest that some of the relationship between acculturation status and psychological distress can be accounted for by mental health stigma. When mental health stigma was accounted for in the relationship between acculturation status and psychological distress, that relationship was attenuated. Acculturation status will significantly predict mental health stigma. Mental health stigma will also explain a significant proportion of variance in psychological distress. These results will suggest that individuals who have acculturated more to the U.S. will experience less mental health stigma leading to lower levels in psychological distress than individuals who are not as acculturated to the U.S. This relationship is illustrated in Figure 2. These results are likely due to the impact that culture has on mental health stigma. South Asian populations have more mental health stigma and consequently individuals are less likely to seek treatment. These issues are prevalent in South Asian countries (Husain, 2020) as well as in South Asian populations in Western countries (Naeem et al., 2019). Acculturation also affects how one perceives mental health stigma and their willingness to seek psychological help. Research has assessed Indian women who were

first- or second-generation immigrants to the United States regarding their mental health and their acculturation processes and found that women who were behaviorally bicultural, assimilated, separated, or marginalized had no significant differences in their well-being (Joseph et al., 2020). The results from this study suggest that acculturation processes and psychological well-being are strongly related, and that immigrants’ mental health is affected by their communities and values from their home country. Researchers have also assessed Indian immigrants for behavioral acculturation, values enculturation, and perceptions of the mental health case descriptions along with treatment-seeking recommendations and stigma associated with treatment seeking (Kumar & Nevid, 2010). The results of this study found that their behavioral acculturation resulted in a greater recognition of the psychological bases of mental disorders, and gender moderated the relationship between behavioral acculturation and perceptions of the psychological basis of the disorders. Ultimately, individuals who are more acculturated are less likely to have as much mental health stigma, and in turn, will experience lower levels of psychological distress.

Figure 2

Mediation effect of mental health stigma between acculturation status and psychological distress



To evaluate Hypothesis 5, individuals with Crohn's disease will have lower levels of quality of life due to illness intrusiveness leading to increased levels of psychological distress, a multiple regression will be run. To see if illness intrusiveness is a moderator on the relationship between Crohn's disease and psychological distress, the relationship between Crohn's disease and psychological distress will first be calculated. Then, illness intrusiveness will be added into the equation as a moderator variable. A new interaction variable that measures the interaction between Crohn's disease and illness intrusiveness will be created and put into the regression model. If this new interaction variable is a significant predictor in the model, then the relationship between illness intrusiveness and psychological distress is stronger for Crohn's disease participants than for control participants. This will be shown through a positive beta weight. Crohn's disease is the higher coded category, so the positive beta weight means that the slope of the line is steeper for the Crohn's disease category. These results suggest that illness intrusiveness moderates the relationship between Crohn's disease and psychological distress. This means that the relationship between Crohn's disease and psychological distress is changed depending on the values of one's illness intrusiveness. To see if quality of life is also a moderator on the relationship between Crohn's disease and psychological distress, quality of life will be added into the regression model as a moderator variable. A new interaction variable that measures the interaction between Crohn's disease and quality of life will be created and put into the regression model. If this new interaction variable is a significant predictor in the model, then the relationship between quality of life and psychological distress is stronger for Crohn's disease participants than for control participants. This will be shown through a positive beta weight. Crohn's disease is the higher coded category, so the positive beta weight means that the slope of the line is steeper for the Crohn's disease category. These results suggest that quality of life

moderates the relationship between Crohn's disease and psychological distress. This means that the relationship between Crohn's disease and psychological distress is changed depending on the values of one's quality of life. Crohn's disease will significantly predict quality of life. Illness intrusiveness will also explain a significant proportion of variance in psychological distress. These results will suggest that individuals with Crohn's disease will have lower levels of quality of life due to illness intrusiveness which leads to increased levels of psychological distress. This relationship is illustrated in Figure 3 and Figure 4. These results are likely due to the relationship between illness intrusiveness and mental health. Research has shown that illness intrusiveness and illness uncertainty were predictors and anxiety and depressive symptoms (Mullins et al., 2017; Bakula et al., 2019). This research suggests that illness intrusiveness is one of the most influential factors that influences quality of life in individuals who are chronically ill. Quality of life in patients with chronic illnesses is often lower than individuals without chronic illnesses. This is in part due to illness intrusiveness. Quality of life, and in particular, health-related quality of life, is also influenced by sociodemographic variables and symptomatic activity of the disease (Megari, 2013). For individuals with IBD, male patients with IBD who had higher levels of education and inactive disease had higher health-related quality of life scores than other individuals with IBD. Quality of life affects psychological distress, so individuals with lower levels of quality of life will experience higher levels of psychological distress (Criswell, 2022).

Figure 3

Moderation effect of illness intrusiveness on Quality of Life in patients with Crohn’s disease

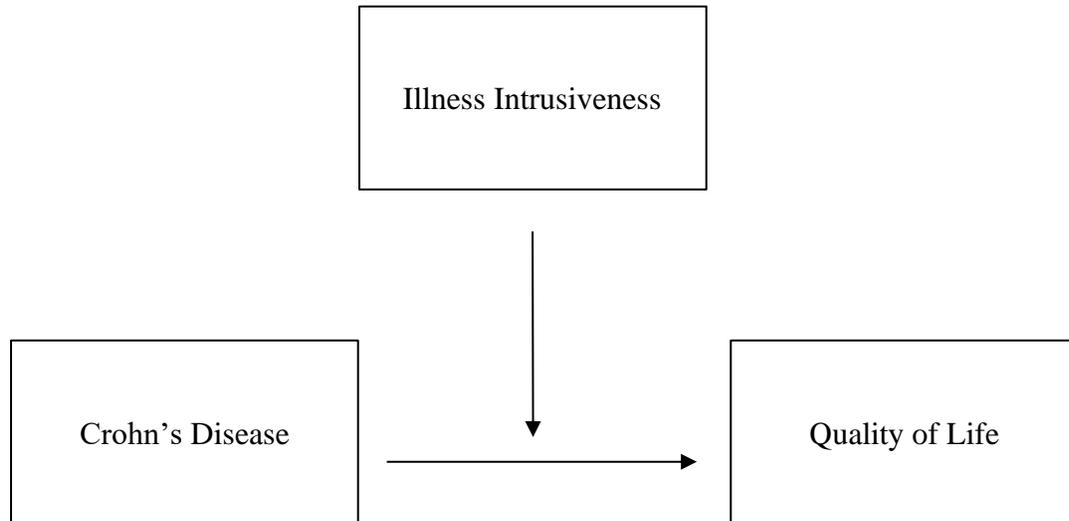
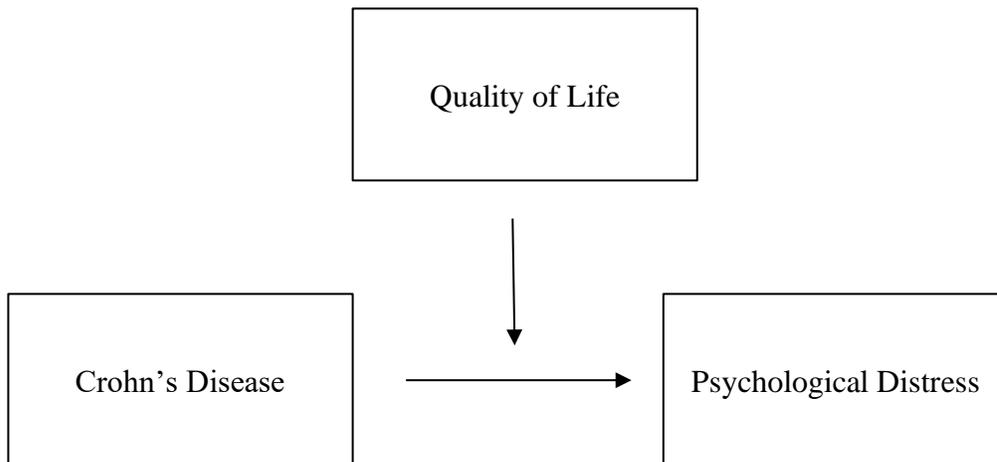


Figure 4

Moderation effect of Quality of Life on psychological distress in patients with Crohn’s disease



To evaluate Hypothesis 6, individuals with Crohn’s disease will have significantly lower quality of life scores than individuals without Crohn’s disease, a correlational analysis will be run. A Crohn’s disease diagnosis and quality of life were strongly negatively correlated. These

results will suggest that individuals who experience Crohn's disease will exhibit significantly lower levels of quality of life than individuals without Crohn's disease. These results are likely due to factors like illness intrusiveness. Individuals who experience high levels of illness intrusiveness will likely feel like their quality of life is diminished due to their chronic illness diagnosis (Bakula et al., 2019). This decrease in quality of life can also lead to individuals experiencing more mental health symptoms. To understand the relationship between Crohn's disease and quality of life further, the results of the IBD Quality of Life measure should be analyzed to see what aspects of one's Crohn's disease diagnosis in particular lead to the lowest ratings of quality of life (Appendix C; Kubesch et al., 2020). Understanding this relationship in more detail will provide valuable information for future research on this area of interest.

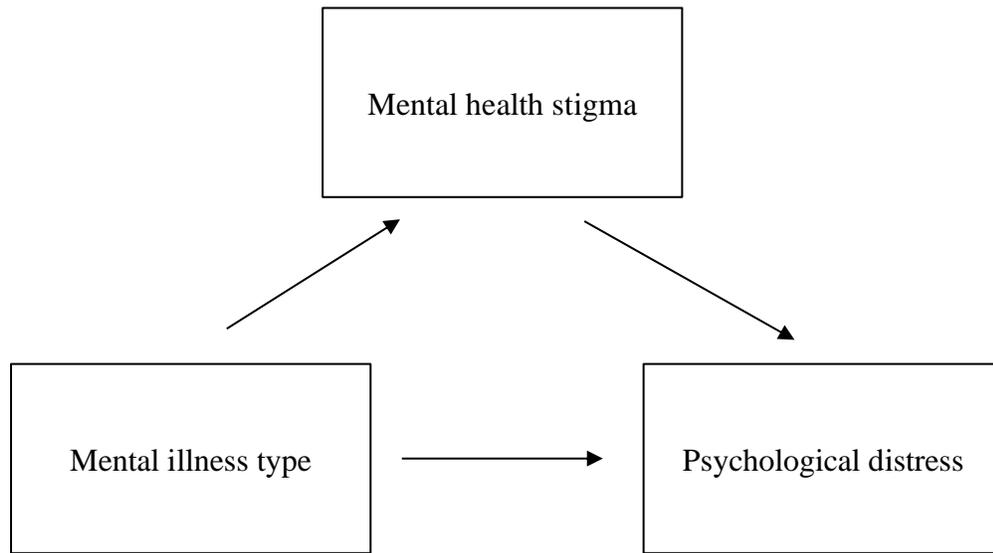
To evaluate Hypothesis 7, individuals with different categories of mental illness will experience different levels of psychological distress due to increased levels of mental health stigma, such that, individuals with depressive disorders and anxiety disorders will experience more psychological distress than individuals with disruptive, impulse-control, and conduct disorders, a multiple regression will be run. To see if mental health stigma is a mediator on the relationship between mental illness type and psychological distress, the relationship between mental illness type and psychological distress will first be calculated. Then, the relationship between mental health stigma and psychological distress will be calculated. The relationship between mental illness type and mental health stigma will also be calculated. Finally, the presence of mental illness type in the model should decrease the effect of mental illness type on psychological distress. To understand this further, a hierarchical regression model will need to be created. In this model, psychological distress will be the criterion or outcome variable. Mental illness type will be the independent variable on the first step of the model. This is to confirm that

mental illness type is a significant predictor of psychological distress. In another step of the model, mental health stigma will be entered to confirm that it is a significant predictor of psychological distress. Inputting mental health stigma into the model will also help confirm that the relationship between mental illness type and psychological distress changes and becomes less strong or possibly non-significant with the presence of the mediating variable. After this has been confirmed, a regression model will be created with mental health stigma as the criterion or outcome variable, and mental illness type as the predictor. This is to confirm that the mental illness type is related to mental health stigma. If all these conditions are true, these results suggest that some of the relationship between mental illness type and psychological distress can be accounted for by mental health stigma. When mental health stigma was accounted for in the relationship between mental illness type and psychological distress, that relationship was attenuated. Mental illness type will significantly predict mental health stigma. Mental health stigma will also explain a significant proportion of variance in psychological distress. These results will suggest that individuals who have certain types of mental illness will experience less mental health stigma leading to lower levels in psychological distress than individuals who experience other types of mental illness. This relationship is illustrated in Figure 5. These results are likely due to the relationship between chronic illness and mental illness and the fact that individuals with comorbid diagnoses of chronic and mental illnesses often experience more mental health stigma than individuals with only one diagnosis (Criswell, 2022). Research has shown that adding a diagnosis of a mental health illness in addition to a chronic illness can be detrimental to one's quality of life and resilience because the stigma they experience increases (Criswell, 2022). Additionally, individuals who are chronically ill have been shown to have more levels of anxiety than depression compared to individuals who are not chronically ill (Mullins et

al., 2017). Overall, major depressive disorder, affective disorders, and anxiety disorders have been shown to be high in adults who have chronic illnesses (Uhlenbusch et al., 2021). This can explain why mental health stigma can affect the relationship between mental illness type and psychological distress.

Figure 5

Mediation effect of mental health stigma between mental illness type and psychological distress



Scholarly Merit

This study will advance the knowledge and understanding of psychological research that is done on chronically ill individuals. The current psychological literature on the relationship between chronic illness and mental illness is not extensive. The present literature also lacks studies that include participants who are diagnosed with specific types of chronic illnesses, like Crohn’s disease. Additionally, the current literature on chronically ill individuals lacks diversity in its participants. Many of the studies that involve chronically ill individuals include participants who are mainly White. This study examines South Asian American individuals with Crohn’s disease. Thus, this study explores two underrepresented populations and brings their experiences into the discussion on chronically ill individuals. Consequently, this research is unprecedented

and will encourage other researchers to continue researching underrepresented populations like these.

This research also explores a topic that is extremely relevant: mental health. Over the past few years mental health issues have risen, leading to more people who experience mental health symptoms. Consequently, it is important to continue expanding the research on this pertinent topic. It is also important to expand the range of participants who are included in the literature on mental health to understand a variety of perspectives and experiences.

Broader Impacts

In addition to the impact this study has on the present literature, this study will provide information that helps underrepresented populations understand their intersectional identities further. Chronically ill people of color who experience mental illnesses are faced with unique challenges that cannot be explained by current research. Thus, this study is a first step into understanding different factors that influence the mental health of chronically ill people of color. This is an important topic to understand as mental illness symptoms can often cause individuals' chronic illness symptoms to flare up. By focusing on only South Asian American individuals diagnosed with Crohn's disease, the results of this study will be generalizable to a very specific population. Future research can expand upon this area of interest and investigate potential mental health interventions or treatments that can reduce mental illness symptoms in individuals with Crohn's disease. Future research can also expand this research in different ethnic communities to see how the results of this study compare to other ethnicities. Ultimately, this research helps increase the wellbeing of disabled individuals of color on a nationwide scale. Eventually, this research should be replicated in other countries to see if the results are still applicable in other

cultures. Society will also benefit from this research because it will bring voice to a community of individuals that are not represented in the current literature.

In summary, this study examines the impact that mental health and mental health stigma has on South Asian American individuals who are diagnosed with Crohn's disease. The results of this study will support the hypotheses that acculturation status, illness intrusiveness, mental health stigma, and mental illness symptoms all impact one's psychological distress. Ultimately, this study helps understand the mental health experiences and stigma that South Asian American individuals who are diagnosed with Crohn's disease face.

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Appendix A

Mental Illness Categories (Regier et al., 2013)

You have been diagnosed with at least one mental illness. Please select all the categories that your mental illness(es) is a part of.

DSM-5 diagnostic chapters

Neurodevelopmental disorders

Schizophrenia spectrum and other psychotic disorders

Bipolar and related disorders

Depressive disorders

Anxiety disorders

Obsessive-compulsive and related disorders

Trauma- and stressor-related disorders

Dissociative disorders

Somatic symptom and related disorders

Feeding and eating disorders

Elimination disorders

Sleep-wake disorders

Sexual dysfunctions

Gender dysphoria

Disruptive, impulse-control, and conduct disorders

Substance-related and addictive disorders

Neurocognitive disorders

Personality disorders

Paraphilic disorders

Other mental disorders

Adapted from

Regier, D. A., Kuhl, E. A., & Kupfer, D. J. (2013). The DSM-5: Classification and criteria changes. *World Psychiatry, 12*(2), 92–98. <https://doi.org/10.1002/wps.20050>

Appendix B

Multicultural Quality of Life Index--English Version (Mezzich et al., 2011)

Please indicate the quality of your health and life at present, from “Poor” to “Excellent”, from 1-10.

1. Physical well-being (feeling energetic, free of pain and physical problems)
2. Psychological/emotional well-being (Feeling good, comfortable with yourself)
3. Self-care and independent functioning (Carrying out daily living tasks; making own decisions)
4. Occupational functioning (able to carry out work, school and homemaking duties)
5. Interpersonal functioning (able to respond and relate well to family, friends, and groups)
6. Social-emotional support (availability of people you can trust and who can offer help and emotional support)
7. Community and services support (pleasant and safe neighborhood, access to financial, informational and other resources)
8. Personal fulfillment (Experiencing a sense of balance, dignity, and solidarity; enjoying sexuality, the arts, etc.)
9. Spiritual fulfillment (experiencing faith, religiousness, and transcendence beyond ordinary material life)
10. Global perception of quality of life (feeling satisfied and happy with your life in general)

Items will be rated on a Likert scale (1-10)

Appendix C**Quality of Life in Inflammatory Bowel Disease Survey Questionnaire (Kubesch et al., 2020)***Section 1: General Information*

1. What IBD do you have?
 - a. 1 = Ulcerative colitis
 - b. 2 = Crohn's disease
 - c. 3 = IBD unclassified

2. How old were you when IBD was diagnosed?
 - a. 1 = 5-10 years
 - b. 2 = 10-15 years
 - c. 3 = 15-25 years
 - d. 4 = 25-35 years
 - e. 5 = >35 years

3. Who is treating you for your IBD?
 - a. 1 = General practitioner
 - b. 2 = Specialist (Gastroenterologist, Proctologist)
 - c. 3 = other
 - d. If other was chosen, please specify: _____

4. How many sick days do you take per year because of your IBD?
 - a. 1 = 1-2 days
 - b. 2 = 3-5 days

c. 3 = >5 days

Section 2: Emotional stress in daily life

Emotional stress in daily life over the past six months

1. How much does IBD affect your daily life/cause emotional stress in daily life?
2. How much does IBD affect your daily life/cause emotional stress when doing household chores (for example cleaning, shopping)?
3. How much does IBD affect your daily life/cause emotional stress in body hygiene?
4. How much does IBD affect your daily life/cause emotional stress when being outside and fearing not finding a restroom in time?
5. How much does IBD affect your daily life/cause emotional stress in social activities (for example meeting friends)?
6. How much does IBD affect your daily life/cause emotional stress when doing sports?
7. How much does IBD affect your daily life/cause emotional stress when attending family activities/events?
8. To what extent do you experience general exhaustion due to your IBD?
9. How much does IBD affect your daily life/cause emotional stress when meeting/getting to know new people?
10. How much does IBD affect your daily life/cause emotional stress in daily life when looking for /finding a new partner?
11. How much does IBD affect your daily life/causes emotional stress in your relationship?
12. How much does IBD affect your daily life/causes emotional stress in your sex life?
13. How much does IBD affect your daily life/causes emotional stress in your self-care?

14. How much does IBD affect your daily life/causes emotional stress in planning a vacation?

Items will be rated on a Likert scale (1-5)

Section 3: Emotional stress in work life

Emotional stress in work life over the past six months

1. How much does IBD affect your daily life/cause emotional stress in your work life?
2. How much does IBD affect your daily life/cause emotional stress on your way to work?
3. How much does IBD affect your daily life/cause emotional stress when fearing to not find a restroom in time?
4. How much does IBD affect your daily life/cause emotional stress when working with your colleagues?
5. How much does IBD affect your daily life/cause emotional stress in your workflow?
6. How much does IBD affect your daily life/cause emotional stress when coordinating your work schedule?
7. How much does IBD affect your daily life/cause emotional stress when an unexpected situation arises (for example a higher workload, filling in for a colleague)?

Items will be rated on a Likert scale (1-5)

Note 1: Questions about emotional stress in work life over the past 5 years were omitted because it was deemed redundant

Section 4: Discrimination in daily/private life

Please answer the questions in the following sections with “yes” or “no” and along the provided scale [Scale (1-5; 1= not at all, 5= severe)] if indicated.

Discrimination in private life

1. Overall discrimination in the past five years (i.e. have you experienced discrimination) and how much has this affected you
2. Have you experienced discrimination by your family and how much has this affected you
3. Have you ever had to lie about or concerning something about your disease and how much has this affected you
4. Have you ever experienced discrimination in a restaurant or shop? For example: you were not permitted to use their restroom and how much has this affected you
5. Have you ever had to lie about the stress caused by your disease or your health state to other people and how much has this affected you

Items are answered with a yes or no and then scored on a Likert scale (1-5)

Discrimination at work

1. Overall discrimination at work (i.e. have you experienced discrimination) and how much has this affected you
2. Did you ever go to work, even though you were sick and how much has this affected you
3. Have you ever had to hear negative remarks concerning your disease from your superior/boss and how much has this affected you

4. Did you ever get to leave work earlier due to your disease and how much has this affected you
5. Have you ever experienced that harder work was assigned to you after a sick leave and how much has this affected you
6. Have you ever experienced that lighter/easier work was assigned to you after a sick leave and how much has this affected you
7. Have you ever experienced/heard negative/jealous remarks from your colleagues concerning your disease and how much has this affected you? For example: „I am jealous that you get xxxx“

Items are answered with a yes or no and then scored on a Likert scale (1-5)

Note 2: Section 5 of the scale was omitted because it included questions relating to the German healthcare system.

Note 3: Typos were fixed throughout all sections of this scale as this scale was originally written in German and the translation process was not perfect.

Appendix D

Mental Illness Stigma Scale (Day et al., 2007)

Please indicate the extent to which you agree or disagree with the statements listed below using the following scale:

1. There are effective medications for [mental illnesses] that allow people to return to normal and productive lives. (Treatability)
2. I don't think that it is possible to have a normal relationship with someone with [a mental illness]. (Relationship Disruption)
3. I would find it difficult to trust someone with [a mental illness]. (Relationship Disruption)
4. People with [mental illnesses] tend to neglect their appearance. (Hygiene)
5. It would be difficult to have a close meaningful relationship with someone with [a mental illness]. (Relationship Disruption)
6. I feel anxious and uncomfortable when I'm around someone with [a mental illness]. (Anxiety)
7. It is easy for me to recognize the symptoms of [mental illnesses]. (Visibility)
8. There are no effective treatments for [mental illnesses]. (Treatability; reverse-scored) *
9. I probably wouldn't know that someone has [a mental illness] unless I was told. (Visibility; reverse-scored) *
10. A close relationship with someone with [a mental illness] would be like living on an emotional roller coaster. (Relationship Disruption)

11. There is little that can be done to control the symptoms of [mental illness]. (Treatability; reverse-scored) *
12. I think that a personal relationship with someone with [a mental illness] would be too demanding. (Relationship Disruption)
13. Once someone develops [a mental illness], he or she will never be able to fully recover from it. (Recovery; reverse-scored) *
14. People with [mental illnesses] ignore their hygiene, such as bathing and using deodorant. (Hygiene)
15. [Mental illnesses] prevent people from having normal relationships with others. (Relationship Disruption)
16. I tend to feel anxious and nervous when I am around someone with [a mental illness]. (Anxiety)
17. When talking with someone with [a mental illness], I worry that I might say something that will upset him or her. (Anxiety)
18. I can tell that someone has [a mental illness] by the way he or she acts. (Visibility)
19. People with [mental illnesses] do not groom themselves properly. (Hygiene)
20. People with [mental illnesses] will remain ill for the rest of their lives. (Recovery; reverse-scored)*
21. I don't think that I can really relax and be myself when I'm around someone with [a mental illness]. (Anxiety)
22. When I am around someone with [a mental illness] I worry that he or she might harm me physically. (Anxiety)

23. Psychiatrists and psychologists have the knowledge and skills needed to effectively treat [mental illnesses]. (Professional Efficacy)
24. I would feel unsure about what to say or do if I were around someone with [a mental illness]. (Anxiety)
25. I feel nervous and uneasy when I'm near someone with [a mental illness]. (Anxiety)
26. I can tell that someone has [a mental illness] by the way he or she talks. (Visibility)
27. People with [mental illnesses] need to take better care of their grooming (bathe, clean teeth, use deodorant). (Hygiene)
28. Mental health professionals, such as psychiatrists and psychologists, can provide effective treatments for [mental illnesses]. (Professional Efficacy)

Items will be rated on a Likert scale (1-7)

Items marked with * are reverse-scored

Appendix E**Brief Acculturation Orientation Scale (Demes & Geeraert, 2014)**

It is important for me to...

1. Have [home country] friends
2. Take part in [home country] traditions
3. Hold on to my [home country] characteristics
4. Do things the way [home country] people do
5. Have [host country] friends
6. Take part in [host country] traditions
7. Develop my [host country] characteristics
8. Do things the way [host country] people do

Items will be rated on a Likert scale (1-7)

Appendix F**Illness Intrusiveness Ratings Scale (Devins, 2010)**

How much does your illness and/or its treatment interfere with your:

1. Health
2. Diet (i.e., the things you eat and drink)
3. Work
4. Active recreation (e.g., sports)
5. Passive recreation (e.g., reading, listening to music)
6. Financial situation
7. Relationship with your spouse (girlfriend or boyfriend if not married)
8. Sex life
9. Family relations
10. Other social relations
11. Self-expression/Self-improvement
12. Religious expression
13. Community and civic involvement

Items will be rated on a Likert scale (1-7)

Appendix G**Kessler Psychological Distress Scale, 10 item (Kessler et al., 2002)**

During the last 30 days, about how often did...

Depressed mood

- (c)... you feel depressed
- (d)... you feel so depressed that nothing could cheer you up?
- (e)... you feel hopeless?

Motor agitation

- (a)... you feel restless or fidgety?
- (b)... you feel so restless that you could not sit still?

Fatigue

- (a)... you feel tired out for no good reason?
- (b)... you feel that everything was an effort

Worthless guilt

- (a)... you feel worthless

Anxiety

- (b)... you feel nervous?

(c)... you feel so nervous that nothing could calm you down

Items will be rated on a Likert scale (1-5)