

**Impact of Religiosity, Stigma Attitudes, and Knowledge on Choices of Psychological  
Intervention for Pain Among Muslims**

**By**

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## **Abstract**

Research reveals that Muslims living in the United States face unique factors that impact the underutilization of formal mental health services (Aloud & Rathur, 2009). These factors include but are not limited to stigma, lack of familiarity with services, religious beliefs, and discrimination in the healthcare setting. Although there is a body of research addressing minority experiences with seeking formal mental health services, there is still very limited research examining the barriers to utilizing formal mental health services for the care of pain among Muslims. This is despite ethnic minority groups tending to report greater pain severity and more frequent daily pain, compared to the general population (De Luca et al., 2016; Gagnon et al., 2013; Meghani & Cho, 2009) which results in greater odds of using over the counter and prescription pain medications (Meghani & Cho, 2009). This exploratory study sought to examine predictors of the utilization of psychological intervention for pain care among a sample of 414 adult, American Arab, Middle Eastern, and North African (AMENA), Muslims, in the United States. The relationship between the utilization of psychological intervention for pain and variables including religious attitudes about health, attitudes about medication for pain, stigma regarding use of psychological services for mental health problems, and regarding use of psychological services for pain, perceptions of chronic illness, and knowledge of psychological interventions for pain care were examined. Many of the perceived barriers to treatment demonstrated significantly predicted the likelihood to utilize psychological intervention for pain care including religious health fatalism, attitudes toward pain medication, and all three forms of

stigma. This study emphasizes the importance of gaining a better understanding of what cultural and knowledge-based barriers AMENA Muslim individuals face when seeking alternative treatments for pain management. The information gleaned from this study promotes future research on alternative interventions for chronic pain patients, among AMENA Muslims who as a minority group may be more likely to suffer from poor mental health outcomes which may be exacerbated by experiences with pain. Furthermore, healthcare providers can use this information to inform treatment recommendations and increase awareness in the AMENA Muslim community of the barriers to utilizing psychological intervention for pain care and the benefits of psychological approaches.

## **Chapter One**

### **Introduction**

Treatment for chronic pain is one of the most common reasons adults in the United States seek medical attention (Dahlhamer et al., 2018). Although chronic pain is a shared experience among many individuals, research shows that biological, psychological, and social factors all play a significant role in determining individual pain experiences (Gagnon et al., 2013). These factors can vary significantly for ethnic minorities (Meghani & Cho, 2009), such as Arab Muslims who encounter a variety of unique stressors related to being an ethnic and religious minority group within the United States (Aloud & Rathur, 2009). These complex factors in addition to stigma and lack of familiarity with services can influence the underutilization of formal mental health services among Muslims (Aloud & Rathur, 2009, Ciftci et al., 2013). The intent of this review is to examine information on chronic pain, chronic pain prevalence in the United States, Muslims' experiences with chronic pain, and types of treatment available. Additionally, this work examines how these perceptions coupled with stigma, religiosity, and attitudes on pain medication influence the underutilization of psychological interventions for pain among Muslims.

### **Chronic Pain**

Chronic pain is a multifaceted experience that stems from a variety of etiological factors including comorbid disorders such as fibromyalgia, rheumatoid arthritis, multiple sclerosis, as well as injury and disability (Dahlhamer et al., 2018). High impact chronic pain was defined by the United States National Pain Strategy as pain that results in significant interference with life activities such as work, self-care activities, or social life (Pitcher et al., 2019). This definition

was created to better address severity of pain among patients (Pitcher et al., 2019). However, for the purpose of the current study, the term “chronic pain” will encompass high impact chronic pain as well. Dasgupt et al. (2018) addressed a report by the Institute of Medicine which attributed five factors to the rise in chronic pain prevalence in the 1990’s. These factors included obesity, increased patient expectations for pain relief, increased rates of survival after cancer or physical injury, musculoskeletal disorders in the elderly, as well as increased frequency and complexity of surgery (Dasgupta et al., 2018).

### **Chronic Pain in the United States**

The Center of Disease Control and Prevention (CDC) estimated the prevalence of chronic pain and high impact chronic pain among adult Americans by analyzing 2016 data from the National Health Interview Survey (NHIS). The NHIS serves as a cross-sectional survey of households conducted by the National Center for Health Statistics (NCHS) to assess pain experiences. The report did not include individuals who were serving in the military or incarcerated; these populations could have had potentially higher rates of chronic pain compared to the general United States population. An estimate of roughly 20.4% of adult Americans (50 million) suffer from chronic pain and an estimated 8% of adult Americans (19.6 million) suffer from high impact chronic pain (Pitcher et al., 2019). Both forms of pain were reported to have higher rates of prevalence among adults without a high school education, those who lived in poverty and those who had public health insurance (Dahlhamer et al., 2018). These same macroenvironmental factors that correlate with a higher rate of chronic pain prevalence among adults are also known to be barriers to accessing healthcare services in the United States among Arab Muslims (Jaber et al., 2011).

## **Opioid Intervention for Chronic Pain**

Opioid analgesics are among the most frequently utilized treatments for pain, even though research has found that long-term use of opioids can result in changes to the brain (Aytur et al., 2010). Such changes to the brain include opioid-induced hyperalgesia, marked by a decrease in opioid tolerance and an increase in pain sensitivity (Aytur et al., 2021; Größ et al., 2019). Thus, long term use of opioids often requires increased dosage to properly maintain pain tolerance. In addition to neurological changes, opioids have not been found to effectively treat complex psychological symptoms that are often associated with pain including emotional responses, pain catastrophizing, and beliefs about pain (Aytur et al., 2021). Such psychological symptoms are commonly identified as greater burdens among ethnic minorities (Tanhan & Francisco, 2019).

Comerci et al. (2018) addressed how the opioid crisis within the United States directly impacted chronic pain patients and individuals who have depended on prescription opioids as a form of intervention for their daily chronic pain. With sudden changes in healthcare legislation from federal agencies such as the CDC and medical boards to taper opioid prescribing, many chronic pain patients were deferred by their primary care physicians and experienced limited access to opioid treatment. Many primary care physicians enforced no-opioid-prescribing policies and, because of the lack of knowledge regarding nonopioid treatments for chronic pain, patients were left with limited options for alternative treatments (Comerci et al., 2018; Dahlhamer et al., 2018; Stumbo et al., 2017).

## **Psychological Intervention for Chronic Pain**

Assessment of the implications for use of psychological pain treatment as an alternative, non-opioid treatment has prompted researchers to gauge which cognitive and emotional

mechanisms contribute to pain, and which mechanisms aid in recovery. Chronic pain is often accompanied by depression, anxiety, maladaptive thought processes, and pain catastrophizing (Songer, 2005) which is not addressed with the use of opioid analgesics (Aytur et al., 2021). Psychological interventions that have been found to be effective in pain management include operant behavioral therapy. Cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), mindfulness-based stress reduction, and hypnosis . Because knowledge on alternative non-opioid treatment modalities for chronic pain is lacking (Comerci et al., 2018) psychological intervention is commonly underutilized especially among minority groups such as the AMENA Muslim population (Ali et al., 2021; Aloud & Rathur, 2009).

Operant behavioral therapy utilizes reinforcement schedules to either increase or decrease particular behaviors. The utilization of operant behavioral therapy for individuals with chronic pain has demonstrated a decrease in negative affect and pain behaviors, and an increase in pain control, activity tolerance, and effective pain coping (van Eek et al., 1999). CBT has been utilized to treat pain by targeting negative cognitions about pain, teaching how to self-manage pain and how to still engage in valued activities while accepting the presence of pain (Simons et al., 2014). Flor (2014) discussed the cognitive skills developed from CBT treatment to help manage pain including cognitive distraction, attention diversion and reappraisal. Cognitive distraction was defined by the ability to take one's focus off their pain experience. Proper implementation of cognitive distractions has demonstrated reductions in pain intensity. Attention diversion was defined by the ability to consciously divert attention from pain stimuli, it is the first step in cognitive distraction. Reappraisal was defined as an effort to view pain stimuli with a different perspective to diminish the adverse effects of the pain stimuli. These cognitive skills play a significant role in restructuring negative cognitive schemas surrounding pain, creating

more accurate appraisals of pain, and minimizing cognitive distortions such as pain catastrophizing (Songer, 2005). Songer highlighted how these same techniques have proven effective in improving symptoms of depression in addition to pain. If an individual has already been experiencing depression, pain may exacerbate that depression and thus create a feedback loop where the increased depression also increases the perception of pain (Songer, 2005).

According to Songer (2005), relaxation training is often utilized as a component of CBT to address chronic pain. Such trainings include progressive muscle relaxation, and deep breathing. Psychological intervention promotes autonomy for individuals with pain, allowing them to challenge feelings of hopelessness and instill the sense of control over their pain. Progressive muscle relaxation focuses on the sensation of tensed versus relaxed muscle. The provider would walk the patient through a series of tensing and releasing muscles and ask the patient to be mindful of the differences in sensations. Deep breathing focuses on controlled breathing within the abdomen. The provider would walk the patient through how to breathe deep into their abdomen and ask the patient to be mindful of the sensation of slow, controlled breathing. Abdominal breathing activates the parasympathetic nervous system, telling the body to “rest and digest” (Songer, 2005).

Aytur et al. (2021) argued that the use of CBT alone does not address several important factors that are needed for long-term improvement in function for individuals living with chronic pain such as psychological flexibility, the ability to adapt to situational cues and recognize social repertoire. They stated that ACT has also been found to be successful in treating many chronic pain conditions. Studies have shown that ACT can improve pain-related disability and physical functioning while simultaneously decreasing emotional distress regardless of an individual’s level or perceived pain (Aytur et al., 2021; Hann & McCracken, 2014). As addressed by Songer

(2005), ACT intervention promotes the acceptance of pain sensations, addresses cognitive inflexibilities that may be increasing pain perceptions and incorporates mindfulness-based stress reduction exercises such as meditation, guided imagery, and hypnosis. Meditation or hypnosis coupled with deep breathing allows individuals to develop awareness in the present moment, passively attend to pain sensations, and permit their nervous system to relax and accept the presence of pain. Hypnosis shares a similar goal with CBT to effectively teach individuals how to live with their daily pain, rather than suggesting that treatment will *cure* the pain. By increasing pain tolerance, these therapies allow patients to decrease the need for opioid analgesics while simultaneously decreasing the burden of side effects that arise from use of pain medication (Songer, 2005).

The utilization of psychological intervention to address pain is critical to reducing opioid dependence (Songer, 2005), treats complex psychological symptoms that are often associated with pain (Aytur et al., 2021) and increases functional autonomy for individuals living with pain (Aytur et al. 2021; Hann & McCracken, 2014; Songer, 2005; van Eek et al., 1999).

### **Medical Intervention for Chronic Pain**

There are also a variety of different medical interventions that are specific to diagnoses that present with the factor of chronic pain. Commonly utilized medical interventions include surgery, weight management, or biofeedback. A common example of surgery that may be needed to address pain is spinal surgery. Undergoing spinal surgery such as spinal fusion can greatly improve individual functioning and quality of life (Marek et al., 2021). However, even after surgical correction many patients report unfavorable outcomes or indicate the need for additional operations (Marek et al., 2021). Moreover, there is a need for understanding preoperative pain experiences to allow medical professionals to assess bodily activities and gauge the degree of

change in postoperative pain (Joelsson et al., 2010). Additionally, research has shown that psychosocial implications such as pain sensitivity and maladaptive cognitions contribute to poorer surgical outcomes (Abbott et al., 2011).

Biofeedback utilizes monitoring devices which provide measurements of galvanic skin response, muscle tension, and heart rate (Songer, 2005). While this method allows for physiological responses to be recorded, it does not consider the psychological processes that may be exacerbating pain experiences. Furthermore, there are several factors that may limit minority groups such as Muslims from accessing these services such as socioeconomic standing, and access to public health insurance (Jaber et al., 2011). Seeking medical intervention for Muslim individuals presents the challenge of overcoming discrimination in the healthcare setting, finding a provider that attends to religious and spiritual needs, and finding a provider that is familiar with Muslim culture so that they may share in informed decision-making with the patient (Boucher et al., 2017).

### **Chronic Pain Among Muslims**

Although Muslims who experience chronic pain have a unique psychosocial experience that is framed by culture and religious beliefs (Al-Obaidi et al., 2011), they are often excluded due to small sample sizes (Gagnon et al., 2013), or lumped into the “other” category in many ethnic/minority studies of pain (e.g., De Luca et al., 2015; Gagnon et al., 2013; Meghani & Cho, 2009). However, there are fundamental parts of Muslim practice, as described below, which may be uniquely impacted by pain and related activity limitations, and fundamental beliefs and attitudes which may impact treatment choices and/or create treatment barriers for individuals with strong Muslim faith.

Chronic pain can hinder an individual's quality of life by limiting social activities and hindering physical ability (Pitcher et al., 2019). Because living with pain disrupts physical abilities, it is important to address how chronic pain can impact Muslims' ability to perform their daily Islamic prayers (Al-Obaidi et al., 2011). The inability to accurately perform the required five daily prayers can decrease self-confidence (Al-Obaidi et al., 2011), or lead to furthered shame (Ciftci et al., 2013). Al-Obaidi et al. (2011) assessed the reliability of the Islamic Prayer-Based Self-efficacy Scale (IpbSeS) to measure self-confidence in relation to preparing and performing Islamic prayer, on a sample of 60 Muslims living with low back pain. Participants were administered the IpbSeS after completing the Visual Analogue Scale (VAS) to measure their pain. Participants returned to the testing facility 24 to 48 hours after their first visit to complete a global patient rating scale to assess any changes in their pain experience since their first visit. The results of the study showed that although individuals were able to perform the five daily prayers, they demonstrated deep concern about the presence of pain coupled with for their ability to maintain the appropriate positions to carry out their daily prayers (Al-Obaidi et al., 2011).

In addition to lower back pain, participants in Al-Obaidi et al. (2011) presented with a variety of comorbid chronic illnesses including asthma, diabetes, gastrointestinal disorders, and high blood pressure. The notable diversity of medical difficulties within the sample aligns with minority groups having higher rates of comorbid diagnosis including chronic illness and pain compared to the general population. The factors of impact on prayer, self-confidence, and higher comorbidity rates highlight the biopsychosocial implications of pain and pain experiences among Muslims. Given concerns about the shame surrounding the inability to perform daily activities such as prayer, coupled with the unique barriers experienced by the Muslim population to

seeking formal mental health services, it is important to examine and address possible underutilization of psychological intervention for pain care.

### **Barriers to Mental Health Services**

There are several studies that evaluate the unique barriers to mental health services experienced by the Muslim population (e.g., Alhomaizi et al. 2018; Ali et al. 2021; Aloud & Rathur, 2009; Awaad et al., 2019; Ciftci, 2013; Clemente et al., 2015; Lumley et al., 2015; Martin, 2015; Tanhan & Fransisco, 2019). Barriers identified within the current literature are a lack of understanding or familiarity with available services; religious beliefs about mental health; stigma associated with utilizing formal mental health services (Ali et al., 2021; Aloud & Rathur, 2009); and discrimination in health care settings (Martin, 2015). These barriers to mental health services further exacerbate the unique mental health risk factors experienced by Muslims, including racial and religious discrimination at disproportionately higher levels than other minority populations (Ali et al., 2021). The combination of these psychosocial factors has contributed to the underutilization of formal mental health services among Muslims in the United States (Tanhan & Francisco, 2019). Despite the increase in research surrounding minority experiences with seeking formal mental health services, there is still very limited research on the likelihood of utilizing formal mental health services *for the care of pain* among a Muslim sample.

Ali et al. (2021) utilized data from a sample of 1,222 American Muslim women to predict rejection attitudes toward utilizing formal mental health services. Participants were administered the Muslims' Perceptions and Attitudes to Mental Health (M-PAMH) survey to complete anonymously. They found that greater rejection attitudes were correlated with lower familiarity of services and higher societal stigma, religion, and cultural beliefs. Between the factors of

cultural and religious mental health beliefs, stigma associated with mental health and individual familiarity with mental health services, *stigma associated with mental health* accounted for the most variance in seeking formal mental health services (12.3%). Religious and cultural beliefs about mental health accounted for the second most variance (6%) and mental health service familiarity accounted for the least amount of variance (2.7%). The findings within the study suggested that future research should explore additional variables that may better account for predicting rejection attitudes toward utilizing formal mental health services among Muslim women (Ali et al., 2021).

### **Knowledge of mental health services**

Reluctance to seek formal mental health help and distrust in Western psychology (Ali et al., 2019) are contributing factors to the lack of knowledge or familiarity of formal mental health services. (Aloud & Rathur, 2009). Additionally, due to the lack of knowledge from primary care physicians regarding nonopioid treatments for chronic pain, as previously mentioned, options for alternative pain care have been limited (Comerci et al., 2018; Dahlhamer et al., 2018; Stumbo et al., 2017).

The help-seeking pathways of Arab Muslims (HSPAM) model proposed by Aloud & Rathur (2009), identified knowledge pertaining to formal mental health services, or a lack of, as a factor closely linked to predicting rejection attitudes towards utilizing formal mental health services among Arab Muslims (Ali et al., 2021; Aloud & Rathur, 2009; Awaad et al., 2019; Tanhan & Francisco, 2019). As discussed by Aloud & Rathur (2009), Arab Muslims commonly utilize informal treatment methods to address health concerns that are more aligned with traditional Islamic beliefs and values. The M-PAMH (Awaad et al., 2019) encompasses three items that load onto the factor of familiarity with formal mental health services. For example,

one of the items is “Familiarity with the Muslim professionals who practice mental or psychological counseling within your local community.” This is necessary to assess as having available practitioners of the same faith is important to addressing the unique barriers to seeking formal mental health care among Muslim individuals (Ali et al., 2019).

### **Stigma regarding mental health services**

Stigma occurs when one or more characteristics of oneself creates social disapproval and simultaneously invalidates individuality (Vogel et al., 2017). Although cross-cultural research of internalized stigma on Muslim samples is limited (Zia & Mackenzie, 2021), several articles have addressed the multidimensional concept of stigma and its role in creating a barrier to formal mental health services among the Muslim population (Alhomaizi et al., 2018; Ali et al., 2021; Awaad et al., 2019; Ciftci et al., 2013; Lumley et al., 2015; Zia & Mackenzie, 2021). Among the Muslim population it is not uncommon for an individual to experience isolation from their family or community due to shame associated with the use of psychological services (Ciftci et al., 2013). Additionally, research has shown that individuals who are marginalized through multiple identities, including ethnic and religious, such as Arab Muslims, the role of stigma may have a greater impact on wellbeing (Ciftci et al., 2013). The differing types of stigmas experienced by Muslim individuals regarding the use of psychological intervention include societal/public stigma and internalized/self-stigma (Ali et al., 2021; Ciftci et al., 2013). The same macroenvironmental factors that are barriers to accessing healthcare services for Muslims within the United States, (e.g., socioeconomic standing, education, and access to public health insurance) are also indicators of the degree to which minority groups may experience stigma related to mental health (Ciftci et al., 2013).

Zia & Mackenzie (2021) stated that societal or public stigma reflects an individual's perception of how people who seek psychological intervention are perceived by the public. Public stigma is a form of external stigma that can dictate how society views individual traits as socially desirable or undesirable (Vogel et al., 2017). Individuals suffering from chronic illness such as multiple sclerosis, often compounded with chronic pain, can experience public stigma due to inability to function with daily pain (Molina et al., 2013). Minority groups including Arab individuals have been found to be more affected by stigma, and because of this, have been disproportionately negated from seeking psychological help (Clement et al., 2015). Ali et al. (2021) addressed how public stigma associated with discrimination increased when Muslim women were identifiable by wearing their hijab. These findings were consistent with the HSPAM model that was proposed by Aloud & Rathur (2009), which recognized perceived societal stigma as one of the predictive barriers to seeking formal mental health services among Muslims.

Internalized or self-stigma refers to individual's negative views of their own treatment seeking, which is influenced by the internalization of public stigma (Zia & Mackenzie, 2021). An internal stigma model posed by Vogel et al. (2007) suggests a relationship between the internalization of public stigma and the likelihood of seeking psychological intervention. In particular, they suggest that negative perceptions of seeking psychological care are a result of internalized stigma, and negative perspectives of seeking psychological care are associated with negative help-seeking attitudes. Stereotypes that are often associated with seeking formal mental health care such as shame, rejection, or discrimination, are commonly experienced among Muslim individuals (Ciftci et al., 2013) and can result in individuals hiding their symptoms and avoiding seeking formal help (Clemente et al., 2015). Research has shown a relationship between

fears of seeking treatment due to public stigma, self-stigma, and underutilization of seeking formal help (Clemente et al., 2015). Furthermore, self-stigma has shown mediation effects between attitudes towards seeking formal mental health services in the United States and public stigma (Vogel et al., 2007).

### **Religiosity beliefs related to health and mental health**

With Islam being the fastest growing religion in the United States according to the Pew Research Center (Mohamed, 2016), there is an increased need for understanding the psychosocial implications of Islamic views on mental health and seeking formal mental health services (Tanhan & Francisco, 2019). The HSPAM model suggests that definitions and perceptions of psychological problems are attributed to religion and cultural beliefs (Aloud & Rathur, 2009). Al-Adawi et al. (2002) stated that mental illness among Muslims is often attributed to causes that are supernatural, such as that of *Hasad* (the evil eye) or *Jinn* (demons). Aloud & Rathur (2009) stated that many Muslims often believe that mental illness is cast upon an individual as a test from God. This sort of fatalism, or belief that God controls or predetermines health outcomes, is a common view among Muslim populations and has been reported to significantly impact choices about seeking therapeutic intervention (Nageeb et al., 2018).

Religious beliefs may also impact attitudes about health problems, health related practices, and potential outcomes. Nageeb et al. (2018) constructed the Religious Health Fatalism Questionnaire for a Muslim population (RHFQ-M) to better assess Islamic views of fatalism. The intention of the study was to provide a first-of-its-kind questionnaire to assess the impact of religious health fatalism on a Muslim sample. Although findings have not been consistent across all areas of health, research has supported a relationship between religious

fatalism and poorer health outcomes. Higher reports of fatalism have also been associated with chronic disease, passivity in health-related decisions and lower perceptions of both the efficiency and quality of healthcare treatment. The study also indicated that individuals with fatalistic views were less likely to engage in preventative health measures such as breast cancer screenings. Utilization of the RHFQ-M within future research would allow for the ability to assess the role of religious health fatalism on health behaviors among Muslims, which in turn would create a basis for mental health professionals to create behavioral interventions targeted to enhance health behaviors and outcomes (Nageeb et al., 2018).

### **Summary and Study Aims**

Much of the current literature on Arab Muslim's treatment seeking behaviors has focused on barriers to seeking formal mental health services (Aloud & Rathur, 2009; Awaad et al., 2019; Ciftci et al., 2013; Tanhan & Fransisco, 2019) including psychological interventions such as psychotherapy (e.g., cognitive behavioral therapy, motivational interviewing, acceptance and commitment therapy), and mindfulness techniques (e.g., meditation, muscle relaxation, guided imagery). However, the literature is lacking in regard to barriers to seeking formal mental health services *for the treatment of pain*. As the Muslim population continues to grow within the United States, projected to be the nation's second largest religious group by 2040 (Mohamed, 2016), and with Islam being projected as the largest religion in the world by 2050 (Mohamed, 2016) it is imperative that research address the need to alleviate barriers to formal mental healthcare and behavioral health interventions among Muslims (Al-Obaidi et al. 2011; Aloud & Rathur, 2009; Ali et al. 2021; Awaad et al. 2019; Zia & Mackenzie, 2021) and gain a better understanding of the likelihood to utilize psychological intervention to manage chronic pain.

Multiple studies have found that ethnic minority groups such as Arab Muslims tend to report greater pain severity and more frequent daily pain, compared to the general population (De Luca et al., 2016; Gagnon et al., 2013; Meghani & Cho, 2009) which in turn results in greater odds of using over the counter and prescription pain medications (Meghani & Cho, 2009). Although opioid analgesics are among one of the most frequently utilized treatments for pain, research has found that long-term use of opioids can result in changes to the brain (Aytur et al., 2010). Such changes to the brain include opioid-induced hyperalgesia, marked by a decrease in opioid tolerance and an increase in pain sensitivity (Aytur et al., 2021; Gruß et al., 2019). In addition to neurological changes, opioids have *not* been found to effectively treat complex psychological symptoms that are often associated with pain including emotional responses, pain catastrophizing, and beliefs about pain (Aytur et al., 2021), which are often greater burdens for ethnic minorities living with pain (Gagnon et al., 2013).

The current literature highlights the need for accessible, and culturally sensitive interdisciplinary approaches to treating chronic pain with the utilization of psychological intervention. Based on available literature on the psychological mechanisms that play a role in chronic pain and the psychosocial barriers to pain care, it appears that future research could help determine how minority populations such as Arab Muslims may benefit from the differing psychological interventions (Ong et al., 2018). The ability to determine who would profit the most from psychological intervention to treat pain, coupled with understanding the unique psychosocial barriers Muslims face regarding seeking formal mental health care could promote the use of alternative treatment modalities to potentially alleviate the psychological symptoms associated with pain (Ong et al., 2018; Wen et al., 2017) and enhance the quality of life for a

minority group who are increasingly suffering from poor mental health outcomes (Ong, et al., 2018).

The present study will seek to identify the relationship between relevant factors including religious attitudes about health, attitudes about medication for pain, stigma regarding use of psychological services for mental health problems, use of psychological services for pain, and perceptions of chronic illness. Additionally, this study seeks to examine how in combination these factors impact the likelihood of utilizing psychological intervention for pain among an adult AMENA Muslim sample in the United States.

### **Hypotheses**

It is predicted that:

1. Religious fatalism will positively predict stigma associated with psychological intervention for mental health difficulties and stigma associated with psychological intervention for pain.
2. Religious fatalism will negatively predict likelihood to utilize psychological intervention for pain.
3. Both stigma regarding psychological intervention for mental health difficulties and stigma regarding psychological intervention for pain will negatively predict likelihood to utilize psychological intervention for pain treatment.
4. Stigma regarding perceptions of chronic illness will negatively predict likelihood to utilize psychological interventions for pain.
5. Positive perceptions of medication for pain will negatively predict likelihood to utilize psychological intervention for pain.

6. The combination of the predictor variables will enhance prediction of utilization of psychological intervention for pain.
7. The group that is provided knowledge on psychological interventions for pain will endorse greater utilization of psychological intervention for pain than the control group, who were provided with knowledge on different types of pain.

## **Chapter Two**

### **Methods**

#### **Participants**

Individuals were able to participate in the study if they met the intended criteria for inclusion i.e., they were eighteen years of age or older, reside in the United States and identify as (AMENA) and Muslim. Participants were recruited electronically through the Arab Community Center for Economic and Social Services (ACCESS). Of the 891 participants that attempted the study, 414 were included in the data based on the exclusion criteria described above. As can be observed in Table 1, approximately 99.3% of the 414 participants chose to take the study in English (n=408) rather than Arabic (n=3). Participant age varied from 19 to 65, with a mean age of 33.4 years old with a standard deviation of 7.6. The majority of participants identified as male (55.1%, n=228), reported living in the United States for over 10 years (78.3%, n=324), were married (83.6%, n=346), and reported having at least some college or technical school experience (41.1%, n=170).

#### **Measures**

##### **Demographics (Appendix A)**

Eligible participants completed a demographics questionnaire which collected data pertaining to age, gender, race/ethnicity, marital status, level of education, and time spent in the United States. This data was collected to ensure eligibility for participation. All demographic data was examined for normalcy and deemed an overall adequate sample.

## Stigma

**Muslims' perceptions and attitudes to mental health (M-PAMH; Awaad et al., 2019) (Appendix B).** This scale measures stigma regarding utilizing psychological services for mental health difficulties. The M-PAMH was administered to measure stigma regarding the use of psychological services for mental health difficulties. The 18-item scale addresses four factors impacting the use of mental health services: stigma, rejection attitudes, religious beliefs, and familiarity with services. Items 1-15 are measured using a four-point Likert scale ranging from 1 “strongly disagree” to 4 “strongly agree”. Items 16-18 measure familiarity with psychological services for mental health difficulties and are measured using a three-point Likert scale ranging from 0 “not at all familiar” to 3 “very familiar”.

The M-PAMH (Awaad et al., 2019) was standardized on a sample of 1,279 English speaking Muslim women where half of the responses (n=623) were entered into an exploratory factor analysis, and factor loadings greater than .40 were retained. The other half of responses (n=656) were entered into a confirmatory factor analysis with results of  $p < .001$ . The lowest value able to be obtained on this scale is 15, which indicates lower perception of stigma associated with utilizing formal mental health services for psychological difficulties. The highest value able to be obtained on this scale is 60, which indicates more perceptions of stigma associated with utilizing formal mental health services for psychological difficulties. The coefficient alpha for the M-PAMH in the present study was deemed adequate ( $\alpha = .64$ ).

**Muslims' perceptions and attitudes to mental health (M-PAMH; Awaad et al., 2019; revised) (Appendix C).** As part of the present study the M-PAMH was revised by the author and corresponding committee to measure stigma regarding the use of psychological services *for pain*. The revised M-PAMH replaced the terms of “mental health and psychological” with “pain” for

each item. For example, item one in the scale was changed from “Most mental health and psychological problems can be solved by oneself without the assistance of professionals” to “Most *pain* problems can be solved by oneself without the assistance of *mental health* professionals”, “mental health” was added in front of “professionals” to clarify. All items are rated the same way as the original M-PAMH scale. Items 1-15 are measured using a four-point Likert scale ranging from 1 “strongly disagree” to 4 “strongly agree”. Items 16-18 measure familiarity with psychological services for pain and are measured using a three-point Likert scale ranging from 0 “not at all familiar” to 3 “very familiar”. The lowest value able to be obtained on this scale is 15, which indicates lower perception of stigma associated with utilizing formal mental health services for pain. The highest value able to be obtained on this scale is 60, which indicates higher perception of stigma associated with utilizing formal mental health services for pain. The coefficient alpha of the revised M-PAMH in the present study was deemed adequate ( $\alpha = .68$ ).

**Stigma Scale for Chronic Illness (SSCI; Choi et al., 2009; revised) (Appendix D).**

The SSCI was reworded by the authors to assess the two factor loadings of *perceptions* of self-stigma and enacted stigma towards individuals with chronic illness, as opposed to individual *experiences* with stigma. For example, item one was changed from “Because of my illness, some people avoided me” which is directed at personal experience, to “People with chronic illness are avoided” which is directed at perceptions of *others* with chronic illness. This revision was required because the study is not limited to pain patients. Responses for the 24-items were measured using a five-point Likert scale ranging from 0 “never” to 4 “always”. Before completing this portion of the study, participants were prompted with the clarification, “In the following statements the term “chronic illness” is referring to diseases such as cancer, diabetes,

chronic pain, etc.”, to ensure that participants understand chronic illness encompasses pain as well.

The original SSCI scale had two factor loadings, self/internalized stigma, and enacted stigma. The two factors were found to account for 70% of the total variance and were considerably correlated ( $r = 0.81$ ) (Choi et al., 2009). The lowest value able to be obtained on this scale is 24, which indicates lower perception of stigma associated with chronic illness. The highest value able to be obtained on this scale is 120, which indicates greater perception of stigma associated with chronic illness. The coefficient alpha of the revised SSCI was clearly adequate ( $\alpha = .78$ ), based on the current study.

**Religious Health Fatalism Questionnaire-Muslim Version (RHFQ-M; Nageeb et al., 2018) (Appendix E).** The RHFQ-M was administered to participants in this study to assess religious beliefs about health and their relationship to the likelihood of utilizing formal mental health services. The RHFQ-M measures its 9 items on a five-point Likert scale ranging from 1 “completely disagree” to 5 “completely agree”. There were two factor loadings found by Nageeb et al. (2018) within the scale, divine provision ( $\alpha = .69$ ) and destined plan ( $\alpha = .75$ ). Each item was found to be moderately correlated ( $r \geq .30$ ) (Nageeb et al., 2018). The overall Cronbach’s of the scale was found to be acceptable ( $\alpha = 0.79$ ) (Nageeb et al., 2018). An example of an item that loaded onto subscale one “divine provision” is item two “If I am sick, I have to wait until it is Allah’s time for me to be healed”, and an example of an item that loaded onto subscale two “destined plan” is item three “When I have a health problem, I pray for Allah’s will to be done” (Nageeb et al., 2018). This measure allowed the current research team to analyze the role of fatalistic views on treatment seeking behaviors and its relationship to utilizing psychological intervention for pain among Muslims. The lowest value able to be obtained on this scale is nine,

which indicates higher degree of religiosity and fatalistic views. The highest value able to be obtained on this scale is 45, which indicates lower religiosity and fatalistic views. The overall coefficient alpha of the RHFQ-M was deemed adequate ( $\alpha = .68$ ) during the present study.

**Pain Treatment Satisfaction Survey (PTSS; Evans et al., 2004, revised) (Appendix F).** Part of the PTSS has been adapted by the authors to be administered to participants to assess attitudes about medication for pain. The original survey consisted of five factors with reliability coefficients ranging from 0.83 to 0.92. Items 17-24 which assess current pain medication in the original measure were reworded to encompass attitudes about the use of medication for pain among the general population as opposed to *individual* experiences with pain medication. Participants were only administered items 17-24, and these were measured on a five-point Likert scale ranging from 1 “strongly agree” to 5 “strongly disagree,” with a low score indicating a more positive attitude about medication use. The lowest value able to be obtained on this scale is eight, which indicates a more positive attitude toward pain medication. The highest value able to be obtained on this scale is 40, which indicates a more negative attitude toward pain medication. The coefficient alpha of the revised scale in the present study was clearly adequate ( $\alpha = .77$ ). This measure was selected for use in the current study to evaluate the differences in attitudes about pain management through the medical intervention of pain medication, and attitudes about pain management through psychological intervention.

**Knowledge about alternative psychological interventions for pain treatment (Appendix G).** As part of an experimental manipulation carried out within the study, approximately half of the participants were presented with knowledge about alternative psychological interventions for pain treatment prior to being assessed on the likelihood of utilizing psychological intervention for pain. Participants were administered a short

informational summary to read regarding psychotherapeutic approaches in the treatment of pain with information provided from Songer (2005). The information provided within the educational piece highlighted several different psychotherapeutic modalities including cognitive behavioral therapy, operant behavioral therapy, biofeedback, and hypnosis. The control group was presented with knowledge about different types of pain in general in the form of an informational piece (Appendix H) paralleling the format of the informational piece on psychotherapeutic modalities for pain, but without mention of interventions.

**Likelihood to utilize psychological intervention for pain (Appendix I).** The outcome questionnaire was developed by the authors to identify the likelihood of engaging in treatment seeking behaviors that would guide an individual towards utilizing psychological intervention for pain. Participants are prompted with the instructions of “Please rate from 0-100 how likely it is that you would engage in these treatment seeking behaviors for psychological intervention for pain”. The five responses will be measured on a sliding scale ranging from 0-100 with 0 being no indication to engage and 100 being an extreme likelihood to engage.

## **Procedure**

Due to the COVID-19 pandemic, all data was collected online. The entirety of participation should have taken participants approximately 10 to 15 minutes. When clicking on the link to the study, participants were given the choice to participate in English or Arabic. The entirety of the material presented in the study including the recruitment flyer, consent form, questionnaire, and compensation survey were translated into Arabic by a professional bilingual translator and back translated from Arabic into English by a professor of Arab American studies and Director of an Arabic translation certificate program.

After obtaining approval from the University of Michigan-Dearborn's Institutional Review Board (IRB) for Health sciences and Behavioral Sciences, two electronic recruitment flyers one in English and one in Arabic, were provided to the ACCESS research team with a corresponding URL link to the study. The ACCESS research team administered the electronic recruitment flyers to their respected social media outlets including Instagram and WhatsApp. The electronic recruitment flyers were also made available to the AMENA Psychological Association for distribution. The online survey was administered through Qualtrics which participants were able to complete anonymously.

After language selection participants were presented with the informed consent document. The informed consent included information pertaining to the purpose of the study, description of participant involvement, eligibility requirements, benefits, risks and discomforts, compensation, and faculty advisor, and IRB exemption. The last section in the informed consent stated, "By continuing with the study, you acknowledge that your participation in the study is voluntary, you meet all the eligibility requirements above, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason". Demographic data was then collected to ensure eligibility requirements were met. After demographic data were collected, participants were randomly presented with either the experimental informational piece pertaining to psychotherapeutic approaches to pain management, or the control informational piece pertaining to different types of pain prior to answering any questions within the study. The informational pieces were coded within Qualtrics to evenly present to participants at a 1:1 ratio.

After successfully answering all of the questionnaires related to stigma, religiosity and attitudes about treatment, participants were presented with the dependent variable "Please rate from 0-100 how likely it is that you would engage in these treatment seeking behaviors for

psychological intervention for pain” and a sliding scale to input their answers for five separate responses beginning with “I would use a mindfulness app to address pain” to “I would attend an appointment with a psychologist to address pain”. Upon completion of the study individuals were redirected with a URL to a separate study to provide their email address, first and last name, and home address, so that their compensation could be mailed directly to them through the Office of Research Administration at the University of Michigan-Dearborn. Participants were compensated \$10 if they met the appropriate demographic inclusion criteria, completed the study within the appropriate time frame of no less than five minutes, and provided the required compensation information including first and last name, email, and mailing address. Participant data was removed, and compensation was not administered if they did not meet inclusion criteria, they did not complete the study, they completed the study within less than five minutes, they did not provide the appropriate information for compensation, or if they did not have any variation in response indicating that they were likely invalid cases generated by a computerized system.

## **Chapter Three**

### **Results**

Data analysis occurred through IBM SPSS 27. Demographic, descriptive statistics and bivariate correlations were computed. Multiple regression analyses were conducted to assess the strength of the relationship between the outcome variable of likelihood to utilize psychological intervention for pain and the predictor variables of chronic illness stigma, stigma associated with the use of psychological intervention for mental health difficulties and for pain care, religious health fatalism, attitudes toward pain medication, and knowledge about psychotherapeutic interventions for pain care.

#### **Descriptive Statistics**

Basic descriptive statistics were run for all the variables used within the analysis. Table 2 details the means, standard deviations, skewness, kurtosis, and minimum/maximum values for each of the study variables. Additionally, the Cronbach alpha values are provided to reflect the internal reliabilities for the scales within this sample. All the study variables demonstrated adequate coefficient alphas ( $\alpha > .60$ ). The SSCI scale scores ranged from 28 to 105 with a mean score of 70.36 ( $SD = 10.01$ ). Higher scores on the SSCI indicate greater perception of stigma associated with chronic illness. The M-PAMH scale scores ranged from 23 to 56 with a mean score of 42.24 ( $SD = 5.62$ ) this was somewhat higher than the potential response midpoint of 38 on the overall scale. Higher scores on the M-PAMH indicate greater perception of stigma associated with utilizing formal mental health services for psychological difficulties. The M-PAMH revised scale scores ranged from 20 to 53 with a mean score of 39.36 ( $SD = 5.36$ ).

Higher scores on the M-PAMH revised scale indicates greater perception of stigma associated with utilizing formal mental health services for pain. The PTSS scale scores ranged from 8 to 35 with a mean score of 20.6 ( $SD= 5.37$ ) this was somewhat lower than the potential response midpoint of 24 on the overall scale. Higher scores on the PTSS indicate more negative attitudes toward pain medication. The RHFQ-M scale scores ranged from 9 to 41 with a mean score of 27.52 ( $SD= 5.24$ ). Higher scores on the RHFQ-M indicate greater religiosity and fatalistic views. No significant issues were found within the distribution of data.

### **Bivariate Correlations**

Bivariate Pearson correlations for all predictor variables are detailed in Table 3. As expected, religious health fatalism was significantly correlated with stigma associated with utilizing mental health services for psychological difficulties ( $r= .521, n=414, p<.01$ ), and stigma associated with utilizing mental health services for pain care ( $r= .567, n=414, p<.01$ ). This means that as the degree of religiosity increased so did reports of stigma associated with utilizing formal mental health services for both psychological difficulties and pain. Religious health fatalism was also significantly negatively correlated with perceptions of pain medication, meaning that a higher degree of health fatalism was related to a higher acceptance of pain medication ( $r= -.188, n=414, p<.01$ ). While there is a significant relationship here, the size of the correlation renders it rather meaningless. Additionally, analysis of the bivariate correlations between the study variables demonstrated significant correlations between stigma associated with utilizing mental health services for psychological difficulties and stigma associated with utilizing mental health services for pain care ( $r=.264, n=414, p<.01$ ), perceptions of chronic illness stigma ( $r=.235, n=414, p<.01$ ), stigma associated with utilizing mental health services for pain care ( $r= .650, n=414, p<.01$ ), and with perceptions of pain medication ( $r=-.158, n=414, p<.01$ ). This suggests

that greater perceptions of stigma associated with utilizing formal mental health services for psychological difficulties were related to more positive attitudes toward pain medication. While there was a significant correlation it was rather small to render them trivial. Furthermore, stigma associated with utilizing mental health services for pain care was also significantly correlated with perceptions of chronic illness stigma ( $r=.264, n=414, p<.01$ ). ) and significantly negatively correlated with perceptions of pain medication ( $r=-.100, n=414, p<.05$ ). This suggests that greater perceptions of stigma associated with utilizing formal mental health services for pain care were related to more positive attitudes toward pain medication. As can be observed in Table 6, the intervention condition regarding information on psychotherapeutic interventions available for pain care did not yield any significant mean differences between the predictor variables.

Bivariate Pearson correlations for the predictor variables in relation to the outcome variables are detailed in Table 4. As expected, the study's primary outcome variables, which assessed likelihood to utilize psychological intervention for pain, specifically the likelihood to attend an appointment with a psychologist for pain, was significantly correlated with perceptions of pain medication ( $r=-.34, n=414, p<.01$ ), and significantly negatively correlated with religious health fatalism ( $r= -.24 n= 414, p<.01$ ), stigma associated with mental health services for psychological difficulties ( $r=-.32, n=414, p<.01$ ) and stigma associated with mental health services for pain care ( $r=-.24, n=414, p<.01$ ). These findings suggest that when people are satisfied with pain medication they are also looking to utilize alternative therapies. However, stigma associated with chronic illness was only significantly negatively correlated with the likelihood to accept a referral from a doctor to see a psychologist to address pain ( $r=-.123, n=414, p<.05$ ). This indicates that reports of more negative attitudes associated with pain medication were related to increased likelihood to utilize psychological intervention for pain.

Additionally, reports of more religiosity, and stigma associated with chronic illness and utilization of formal mental health services for both psychological difficulties and pain were related to lesser likelihood to utilize psychological intervention for pain.

### **Ancillary Analysis**

When conducting a paired-samples T-test between the stigma associated with utilizing mental health services for psychological difficulties (M-PAMH) ( $M= 42.18, SD= 5.63$ ) and stigma associated with utilizing mental health services for pain care (M-PAMH revised version) ( $M= 39.39, SD= 5.37$ ), there was a significant difference between the two variables ( $t=12.07, p<.01$ ). This indicates that individuals reported being less willing or experience more perceptions of stigma when considering utilizing formal mental health services for the treatment of pain as opposed to considering treatment for psychological difficulties.

### **Multiple Regression**

As observed in Table 5, a multiple regression analysis was conducted to examine which factors predict likelihood to utilize psychological intervention for pain. It was predicted that the combination of the predictor variables would significantly enhance prediction of utilization of psychological intervention for pain. The analysis revealed that prediction of the first outcome variable “I would use a mindfulness app to address pain” was most significantly inversely enhanced by perceptions of stigma for utilizing formal mental health services for psychological difficulties ( $\beta = -.203, p<.005$ ). Meaning, as stigma associated with utilizing formal mental health services for psychological difficulties increased, likelihood to use a mindfulness app decreased. Additionally, the first outcome variable was significantly enhanced by attitudes toward pain medication ( $\beta = -.222, p<.001$ ), perceptions of stigma associated with chronic illness ( $\beta = .109, p<.05$ ) and religious health fatalism ( $\beta = .166, p<.05$ ). Meaning, as chronic illness

stigma, attitudes toward pain medication, and religiosity increased, so did likelihood to utilize a mindfulness app. Furthermore, the first outcome variable was significantly inversely enhanced by perceptions of stigma for utilizing formal mental health services for pain ( $\beta = -.148, p < .05$ ). Meaning, as stigma associated with utilizing formal mental health services for pain increased, likelihood to use a mindfulness app decreased. Combination of all the predictor variables accounted for approximately 10% of the variance in the outcome variable. In sum, the combination of predictors was more effective in predicting the use of a mindfulness app than any of the individual predictors ( $F(5, 370) = 8.42, p < .001, R^2 = .102, R = .32$ ).

Prediction of the second outcome variable “I would accept a referral from my doctor to see a psychologist to address pain” was significantly enhanced in an inverse direction by perceptions of stigma for utilizing formal mental health services for pain ( $\beta = -.182, p < .05$ ). Meaning, as perceptions of stigma increased, the likelihood to accept a referral decreased. Additionally, the second variable was significantly enhanced by attitudes toward pain medication ( $\beta = -.422, p < .001$ ) meaning as positive attitudes toward pain medication increased, so did the likelihood to accept a referral. Combination of all the predictor variables accounted for approximately 21% of the variance in the outcome variable. In total, the combination of predictors was more effective in predicting accepting a referral from a doctor to see a psychologist to address pain ( $F(5, 372) = 20.18, p < .001, R^2 = .213, R = .46$ ).

Prediction of the third outcome variable “I would ask for a referral from my doctor to see a psychologist to address pain” was most significantly enhanced by attitudes toward pain medication ( $\beta = -.148, p < .005$ ), and perceptions of chronic illness stigma ( $\beta = .113, p < .05$ ). The third outcome variable was significantly enhanced in an inverse direction by perceptions of stigma toward utilizing formal mental health services for pain ( $\beta = -.170, p < .05$ ), and

perceptions of stigma toward utilizing formal mental health services for psychological difficulties ( $\beta = -.149, p < .05$ ). This means that as stigma associated with utilizing formal mental health services for psychological difficulties and for pain care increased, the likelihood to ask for a referral decreased. In sum, the combination of predictors was more effective in predicting the likelihood to ask for a referral from a doctor to see a psychologist to address pain ( $F(5, 360) = 11.23, p < .001, R^2 = .135, R = .36$ ). Combination of all the predictor variables accounted for approximately 13.5% of the total variance of the outcome variable.

Prediction of the fourth outcome variable “I would schedule an appointment with a psychologist to address pain” was most significantly enhanced in an inverse direction by attitudes toward pain medication ( $\beta = -.289, p < .001$ ). Additionally, the fourth outcome variable was significantly enhanced in an inverse direction by perceptions of stigma toward utilizing formal mental health services for psychological difficulties ( $\beta = -.182, p < .05$ ), perceptions of stigma toward utilizing formal mental health services for pain ( $\beta = -.151, p < .05$ ), and religious health fatalism ( $\beta = -.144, p < .05$ ). This means that as stigma attitudes and religiosity increased, the likelihood to schedule an appointment with a psychologist decreased. Combination of all the predictor variables accounted for approximately 20% of the total variance of the outcome variable. In total, the combination of predictors was more effective in predicting the likelihood to schedule an appointment with a psychologist to address pain ( $F(5, 372) = 18.27, p < .001, R^2 = .197, R = .44$ ).

Prediction of the fifth and final outcome variable “I would attend an appointment with a psychologist to address pain” was significantly enhanced by perceptions of chronic illness stigma ( $\beta = .103, p < .05$ ), and attitudes toward pain medication ( $\beta = -.367, p < .001$ ), and significantly enhanced in an inverse direction by stigma associated with utilization of formal mental health

service for psychological difficulties ( $\beta = -.134, p < .05$ ), and for pain ( $\beta = -.222, p < .001$ ). As predicted, combination of all the predictor variables accounted for additional variance with a total of approximately 24% of the outcome variable. In sum, the combination of predictors was more effective in predicting the likelihood to attend an appointment with a psychologist to address pain ( $F(5, 359) = 22.47, p < .001, R^2 = .238, R = .48$ ).

## **Chapter Four**

### **Discussion**

This study sought to explore the influences that religious health fatalism, attitudes on pain medication, and stigma associated with chronic illness, utilization of formal mental health services for the treatment of psychological difficulties and for pain have on the likelihood to utilize psychological intervention specifically for pain care among an adult, AMENA, Muslims sample in the United States. With Islam being estimated to be the largest religion in the world by 2050 (Mohamed, 2016) and chronic pain being one of the most common reasons adults in the United States seek medical care (Dahlhamer et al., 2018), it was imperative that this research addressed the need to alleviate barriers to formal mental healthcare and behavioral health interventions among Muslims (Al-Obaidi et al. 2011; Aloud & Rathur, 2009; Ali et al. 2021; Awaad et al. 2019; Zia & Mackenzie, 2021) specifically in terms of seeking pain care.

#### **Hypothesis 1**

To test the first hypothesis, that religious fatalism will positively predict stigma associated with psychological intervention for mental health difficulties and stigma associated with psychological intervention for pain, relationships between the RHFQ-M, M-PAMH, and M-PAMH (revised) were examined. Examination of these scales revealed that religious health fatalism was significantly correlated with both stigma associated with utilizing mental health services for psychological difficulties and stigma associated with utilizing mental health services for pain care. These findings indicated that individuals who held more fatalistic views endorsed greater perceptions of stigma when asked about utilizing formal mental health services for both

psychological difficulties and pain care. These outcomes are commensurate with previous research which suggests that in Muslim populations it is not uncommon for an individual to experience isolation from their family or community due to shame associated with the use of psychological services (Ciftci et al., 2013). Additionally, the result of the current study supports findings by Aloud & Rathur (2009) which concluded that many Muslims often believe mental illness is a test from God and findings by Nageeb et al. (2018) which suggested that these fatalistic views have significantly impacted choices about seeking therapeutic intervention among a Muslim sample.

### **Hypothesis 2**

To test the second hypothesis, that religious fatalism will negatively predict likelihood to utilize psychological intervention for pain, the relationship between responses on the RHFQ-M and the outcome variables were examined. Examination of this relationship revealed that religious health fatalism significantly negatively correlated with likelihood to utilize psychological intervention for pain. These findings suggest that greater reports of religious health fatalism made it less likely an individual would utilize psychological services for pain care. Specifically, asking for a referral and accepting a referral from a doctor to see a psychologist to address pain, and scheduling and attending an appointment with a psychologist to address pain were all significantly negatively correlated with This indicated that both the M-PAMH and M-PAMH revised significantly predicted four of the five outcome variables.

### **Hypothesis 3**

To test the third hypothesis, that both stigma regarding psychological intervention for mental health difficulties and stigma regarding psychological intervention for pain will be negatively correlated with likelihood to utilize psychological intervention for pain treatment, the

relationship between responses on the M-PAMH, M-PAMH (revised), and the outcome variables were examined. The examination of the bivariate correlations demonstrated that both stigma regarding psychological intervention for mental health difficulties and stigma regarding psychological intervention for pain significantly negatively predicted likelihood to utilize psychological intervention for pain treatment. Specifically, both predictor variables significantly negatively predicted likelihood to utilize a mindfulness app, ask for a referral from a doctor to see a psychologist, schedule an appointment with a psychologist, or attend an appointment with a psychologist to address pain. These findings suggest that both stigma associated with utilizing formal mental health services for psychological difficulties and utilizing psychological interventions for pain were perceived to be significant barriers to seeking psychological intervention for pain. This is supported by previous study findings indicating stigma to be a barrier to seeking formal mental health care among Muslim individuals (Alhomaizi et al., 2018; Ali et al., 2021; Awaad et al., 2019; Ciftci et al., 2013; Lumley et al., 2015; Zia & Mackenzie, 2021). The results of the current study may suggest that the degree of reported stigma associated with utilizing psychological services in general predicts decisions about using psychological services for pain in the same way as reported attitudes about utilization of psychological services for pain management. This indicated that both the M-PAMH and M-PAMH revised significantly predicted four of the five outcome variables.

While it was not predicted, it should be noted that overall item responses on the M-PAMH (revised) scale were somewhat lower than on the original M-PAMH, demonstrating a significant difference between the two scales. These findings suggest that individuals may be less willing and experience more barriers when seeking formal mental health services for the treatment of pain rather than for psychological difficulties. While the results on the present study

suggest that the impact of stigma toward mental health services in general is similar when predicting utilization of psychological intervention for both psychological difficulties and for pain care, the significant difference between the scores on the M-PAMH and the M-PAMH (revised), with the pain related version being lower, suggest that an alternative factor may be working as a barrier to utilizing psychological intervention for pain care among an AMENA Muslim sample.

#### **Hypothesis 4**

To test the fourth hypothesis, that stigma regarding perceptions of chronic illness will be negatively correlated with the likelihood to utilize psychological interventions for pain, the relationship between responses on the SSCI (revised) and the outcome variable was examined. The examination of this relationship demonstrated that reported stigma regarding perceptions of chronic illness was unrelated to utilizing psychological interventions. It did however negatively predict the likelihood that they would accept a referral from a doctor to see a psychologist to address pain. This suggests that while stigma regarding utilization of formal mental health services for psychological difficulties, and for pain care increased, the likelihood to utilize psychological intervention for pain significantly decreased. However, as stigma associated with perceptions of chronic illness stigma increased, the overall likelihood to utilize psychological intervention for pain did not increase for most variables. These findings are incommensurate with previous research suggesting that individuals with chronic illness compounded with pain can experience public stigma due to inability to function with daily pain (Molina et al., 2013) and how minority groups including Arab individuals have been found to be more affected by stigma, negatively impacting treatment seeking behaviors (Clement et al., 2015). Additionally, these findings were inconsistent with the HSPAM model that was proposed by Aloud & Rathur

(2009), which recognized perceived societal stigma and stigma associated with utilizing formal mental health services for psychological difficulties as predictive barriers to seeking formal mental health services among Muslims.

### **Hypothesis 5**

To test the fifth hypothesis, that positive perceptions of medication for pain will be negatively correlated with the likelihood to utilize psychological intervention for pain, the relationship between responses on the PTSS and the outcome variable were examined. The examination of this relationship demonstrated that positive perceptions of medication for pain significantly positively predicted likelihood to utilize psychological intervention for pain. This suggests somewhat more positive perceptions of pain medication, suggesting agreement with the necessity of medication for the treatment of pain.. These findings indicate that the more individuals positively perceived pain medication, the more likely they are to utilize psychological intervention. This is commensurate with findings that suggest opioid analgesics are among the most frequently utilized treatments for pain, (Aytur et al., 2010) even if individuals are aware of or open to alternative treatment modalities. These results demonstrate further support for findings suggesting that while the use of opioid medications may not address complex psychological factors that often accompany pain (Aytur et al., 2021 ), greater pain severity and more frequent daily pain is often reported by ethnic minority groups, compared to the general population (De Luca et al., 2016; Gagnon et al., 2013; Meghani & Cho, 2009) which then results in greater utilization of over the counter and prescription pain medications (Meghani & Cho, 2009). Additionally, positive perceptions of pain medication may be associated with immediate pain reduction while simultaneously increasing mobility and decreasing perceptions

of shame associated with physical limitations such as the ability to carry out daily Islamic prayer (Al-Obaidi et al., 2011).

### **Hypothesis 6**

To test the sixth hypothesis, that the combination of the predictor variables will enhance prediction of utilization of psychological intervention for pain, the examination of the relationship between the combined predictor variables and the outcome variables were examined, Examination of this relationship demonstrated a significant increase in the prediction of utilization of psychological intervention for pain when religious health fatalism, attitudes toward pain medication, and stigma associated with chronic illness, and attitudes toward utilization of formal mental health services for psychological difficulties and for pain care were entered into the equation. Specifically, when all predictor variables were entered into the equation, prediction of likelihood to use a mindfulness app, ask for a referral from a doctor to see a psychologist, accept a referral from a doctor to see a psychologist, schedule an appointment to see a psychologist and attend an appointment to see a psychologist to address pain were all significant. These findings are commensurate with previous research that has found a significant relationship between perceptions of stigma, religious beliefs, attitudes toward formal mental health services, and attitudes toward pain medication as barriers to seeking formal mental health services among Muslim individuals (Alhomaizi et al. 2018; Ali et al. 2021; Aloud & Rathur, 2009; Awaad et al., 2019; Ciftci, 2013; Clemente et al., 2015; Lumley et al., 2015; Martin, 2015; Tanhan & Fransisco, 2019). These findings address a gap in the current literature which suggests that there is significant overlap between the barriers to seeking formal mental health services in general whether it is for the treatment of psychological difficulties or for pain care among an AMENA Muslim sample.

## **Hypothesis 7**

To test the seventh hypothesis, the group that is provided knowledge on psychological interventions for pain will endorse greater utilization of psychological intervention for pain than the group that is provided knowledge on different types of pain, the differences between the experimental group and the control group were examined. The experimental group, which was provided an information piece on psychotherapeutic approaches to pain (50.7%, n=210) and the control group which was provided an informational piece on different types of pain (44.9%, n=186) demonstrated no significant differences between predicting likelihood to utilize psychological interventions for pain. These findings are inconsistent with past research, and may have been impacted by some methodological problems, including failure to thoroughly read the informational material, and the nature of the control condition, as described below. Prior research found that knowledge pertaining to formal mental health services, or a lack of, is a factor closely linked to predicting rejection attitudes towards utilizing formal mental health services among Arab Muslims (Ali et al., 2021; Aloud & Rathur, 2009; Awaad et al., 2019; Tanhan & Francisco, 2019). This includes familiarity with treatment options as well with Muslim professionals that may have shared beliefs with the individual seeking treatment, which can promote shared decision making while considering the cultural and religious needs of the patient. This is important to recognize and address, as Arab Muslims commonly utilize informal treatment methods to address health concerns that are more aligned with traditional Islamic beliefs and values (Aloud & Rathur, 2009).

## **Limitations**

Several limitations of this study must be noted. To begin, of the 414 participants included in the data analysis, only 59 indicated having equal to or less than a high school diploma or GED

(14.3%) suggesting that the sample consisted of somewhat well-educated individuals who may have more existing knowledge on mental health resources and psychological interventions available for pain care. Having a sample with a higher educational background may have skewed survey choices to be more in favor of utilizing psychological interventions for pain. Additionally, the necessity of conducting the study solely in an electronic format is a significant limitation as this limited the sample demographics only to individuals who have means of internet access. Furthermore, the presentation of the informational piece in the electronic format could have allowed for participants to only skim the information and not fully read the piece in its entirety, providing an inaccurate indication of the impact on knowledge predicting likelihood to utilize psychological intervention for pain care. Also, with regard to the control condition, providing knowledge of different types of pain may not have served as a true “control”, as it provided pain related knowledge which might have influenced their perception about the need for intervention.

### **Implications of Research**

Given the psychosocial barriers that AMENA Muslims face when seeking pain care, coupled with the overuse of opioids in the general population, it is critical that research examine how AMENA Muslims may benefit from psychological interventions (Ong et al., 2018) to potentially alleviate these barriers. Acquisition of this knowledge could promote the use of alternative treatment modalities among members of the AMENA Muslim communities that live with chronic pain and potentially alleviate the psychological symptoms associated with pain (Ong et al., 2018; Wen et al., 2017) to enhance quality of life and decrease perceptions of shame (Ong, et al., 2018).

The findings from the present study are applicable to the clinical setting as both medical and psychological practitioners may benefit from the knowledge gleaned regarding religious

health fatalism, attitudes toward pain medication, perceptions of stigma. It is vital that practitioners understand how these factors may impact trust in alternative treatment modalities such as Western psychology (Ali et al., 2019) and underutilization of such therapeutic resources that have been found to effectively manage pain (Aloud & Rathur, 2009, Ciftci et al., 2013). Although the intervention in the present study had no significant impact on predicting likelihood to utilize psychological intervention for pain, given the previous significant findings regarding familiarity and utilization of formal mental health services (Aloud & Rathur, 2009), further research is warranted to examine the relationship between knowledge or familiarity of services and utilization of psychotherapeutic treatment specifically for pain care. Such knowledge may be presented in an alternative format where an administrator might read the informational piece aloud to ensure the participant is exposed to all of the information. Further research may promote alternative care and alleviate dependence on opioid medications.

Given the significant difference in responses between the M-PAMH and the M-PAMH (revised) future examination of the relationship between barriers when seeking formal mental health services for psychological difficulties and for pain care should be explored further. Further examination of the scales is warranted to better understand what additional barriers may be hindering AMENA Muslim individuals from utilizing formal mental health services for the treatment of pain. Given the limitations within the current study regarding the knowledge intervention, coupled with previous findings from Aloud & Rathur (2009) which suggested knowledge was a barrier to utilizing formal mental health services for psychological difficulties, it is possible that lack of knowledge may be acting as a barrier to utilizing formal mental health services for pain. Furthermore, future research may also seek to assess primary care physician's knowledge pertaining to nonopioid treatments for chronic pain and cross compare their

knowledge with prescribing patterns among their Muslim patients as practitioner knowledge has previously been found to impact patient awareness of alternative options available for pain care (Comerci et al., 2018; Dahlhamer et al., 2018; Stumbo et al., 2017).

If replicated, future research may benefit from providing the study in both a paper and electronic format. Utilization of paper format would allow for data collection to reach individuals who do not have internet access or technical savvy and could be done in heavily Muslim populated areas such as Mosques, which may offer a wider demographic range in terms of age and education.

## Tables

**Table 1**

*Demographic Statistics*

		N	%
Language	English	408	98.6%
	Arabic	3	.7%
	Missing	3	.7%
Ethnic Origin	Arab, Middle Eastern, North African (AMENA)	414	100%
	Identify as Muslim		
	Yes	412	99.5%
	Missing	2	.5%
Age	19-29	100	24.7%
	30-40	260	62.7%
	41-51	49	12.1%
	52-62	2	.4%
	63-65	1	.2%
Gender	Female	186	44.9%
	Male	228	55.1%
Years in the United States	0-5	6	1.4%
	5-10	84	20.3%
	10+	324	78.3%
Marital Status	Single	46	11.1%
	Married	346	83.6%
	Divorced	14	3.4%
	Widowed	2	.5%
	Missing	6	1.4%
Education	Below high school	4	1.0%
	High school graduate or GED	55	13.3%
	Some college or technical school	170	41.1%
	Bachelor's degree	156	37.7%

**Graduate degree**

**29**

**7.0%**

---

**Table 2***Descriptive Statistics*

	Mean (SD)	Minimum	Maximum	Skew	Kurtosis	Cronbach's $\alpha$
SSCI	70.36 (10.01)	28	105	.264	1.306	.78
M-PAMH	42.24 (5.62)	23	56	-.456	.650	.64
M-PAMH (R)	39.36 (5.36)	20	53	-.313	.649	.68
PTSS	20.65 (5.37)	8	35	.127	-.091	.77
RHFQ-M	27.52 (5.24)	9	41	-.201	.932	.68

*Note.* SSCI = *Stigma scale of chronic illness.*

M-PAMH = *Muslims' perceptions and attitudes toward mental health.*

M-PAMH (R) = *Muslims' perceptions and attitudes toward mental health (revised).*

PTSS = *Pain treatment satisfaction survey.*

RHFQ-M = *Religious health fatalism questionnaire Muslim version.*

**Table 3***Bivariate Correlations Between Study Variables*

Variables	1	2	3	4	5	6
1. Intervention Condition	-	-.058	-.037	-.068	-.038	.017
2. SSCI	-.058	-	.235**	.264**	.043	.154**
3. M-PAMH	-.037	.235**	-	.650**	-.158**	.521**
4. M-PAMH (R)	-.068	.264**	.650**	-	-.100*	.567**
5. PTSS	-.038	.043	-.158**	-.100**	-	-.188*
6. RHFQ-M	.017	.154**	.521**	.567**	-.118*	-

Note. SSCI = Stigma scale of chronic illness.

M-PAMH = Muslims' perceptions and attitudes toward mental health.

M-PAMH (R) = Muslims' perceptions and attitudes toward mental health (revised).

PTSS = Pain treatment satisfaction survey.

RHFQ-M = Religious health fatalism questionnaire Muslim version.

\* $p < .05$ .

\*\* $p < .01$ .

**Table 4***Bivariate Correlations Between Study Variables and Outcome Variables*

Variables	SSCI	M-PAMH	M-PAMH (R)	PTSS	RHFQ-M
Mindfulness app	.027	-.142**	-.146**	-.236**	.013
Accept referral	-.123*	-.121*	-.198**	-.409**	-.118*
Ask for referral	-.010	-.260**	-.291**	-.156**	-.223**
Schedule appointment	-.044	-.273**	-.303**	-.262**	-.256**
Attend appointment	-.034	-.241**	-.321**	-.343**	-.238**

*Note.* Mindfulness app = *I would use a mindfulness app to address pain.*

Accept referral = *I would accept a referral from my doctor to see a psychologist to address pain.*

Ask for referral = *I would ask for a referral from my doctor to see a psychologist to address pain.*

Schedule appointment = *I would schedule an appointment with a psychologist to address pain.*

Attend appointment = *I would attend an appointment with a psychologist to address pain.*

SSCI = *Stigma scale of chronic illness.*

M-PAMH = *Muslims' perceptions and attitudes toward mental health.*

M-PAMH (R) = *Muslims' perceptions and attitudes toward mental health (revised).*

PTSS = *Pain treatment satisfaction survey.*

RHFQ-M = *Religious health fatalism questionnaire Muslim version.*

\* $p < .05$ .

\*\* $p < .01$ .

**Table 5***Predicting Likelihood to Utilize Psychological Intervention for Pain*

Outcome and predictors	<i>B</i>	SE <i>B</i>	Beta	<i>t</i>	Significance
<b>Mindfulness app</b>					
SSCI	.220	.104	.109	2.114	.035*
M-PAMH	-.730	.250	-.203	-2.916	.004**
M-PAMH (R)	-.562	.273	-.148	-2.060	.040*
PTSS	-.857	.193	-.222	-4.428	<.001**
RHFQ-M	.643	.241	.166	2.666	.008**
<b>Accept referral</b>					
SSCI	-.067	.103	-.031	-.650	.516
M-PAMH	-.153	.244	-.041	-.627	.531
M-PAMH (R)	-.721	.264	-.182	-2.730	.007**
PTSS	-1.712	.190	-.422	-8.987	<.001**
RHFQ-M	-.175	.236	-.043	-.740	.460*
<b>Ask for referral</b>					
SSCI	.253	.116	.113	2.190	.029*
M-PAMH	-.603	.284	-.149	-2.122	.034*
M-PAMH (R)	-.708	.302	-.170	-2.346	.020*
PTSS	-.650	.218	-.148	-2.984	.003**
RHFQ-M	-.500	.267	-.116	-1.868	.063

**Schedule appointment**

SSCI	.168	.097	.085	1.741	.083
M-PAMH	-.635	.228	-.182	-2.782	.006**
M-PAMH (R)	-.553	.247	-.151	-2.240	.026*
PTSS	-1.085	.178	-.289	-6.090	<.001**
RHFQ-M	-.543	.220	-.144	-2.470	.014*

**Attend appointment**

SSCI	.201	.095	.103	2.123	.034*
M-PAMH	-.473	.231	-.134	-2.049	.041*
M-PAMH (R)	-.818	.248	-.222	-3.299	.001**
PTSS	-1.375	.176	-.367	-7.809	<.001*
RHFQ-M	-.416	.218	-.111	-1.909	.057

Note. Mindfulness app<sup>a</sup> = *I would use a mindfulness app to address pain.*

Accept referral<sup>b</sup> = *I would accept a referral from my doctor to see a psychologist to address pain.*

Ask for referral<sup>c</sup> = *I would ask for a referral from my doctor to see a psychologist to address pain.*

Schedule appointment<sup>d</sup> = *I would schedule an appointment with a psychologist to address pain.*

Attend appointment<sup>e</sup> = *I would attend an appointment with a psychologist to address pain.*

SSCI = *Stigma scale of chronic illness.*

M-PAMH = *Muslims' perceptions and attitudes toward mental health.*

M-PAMH (R) = *Muslims' perceptions and attitudes toward mental health (revised).*

PTSS = *Pain treatment satisfaction survey.*

RHFQ-M = *Religious health fatalism questionnaire Muslim version.*

\* $p < .05$ .

\*\* $p < .01$ .

**Table 6***Group Statistics on Intervention Conditions*

<b>Outcome Variable</b>	<b>Intervention Condition</b>	<b>Mean</b>	<b>t</b>	<b>Two-sided p</b>
Mindfulness app	Control	50.20	-.069	.945
	Experimental	50.34		
Accept referral	Control	48.32	-.386	.700
	Experimental	49.15		
Ask for referral	Control	53.26	-.110	.913
	Experimental	53.51		
Schedule appointment	Control	52.80	.460	.646
	Experimental	51.89		
Attend appointment	Control	53.47	-1.155	.249
	Experimental	55.84		

*Note.* Mindfulness app = *I would use a mindfulness app to address pain.*

Accept referral = *I would accept a referral from my doctor to see a psychologist to address pain.*

Ask for referral = *I would ask for a referral from my doctor to see a psychologist to address pain.*

Schedule appointment = *I would schedule an appointment with a psychologist to address pain.*

Attend appointment = *I would attend an appointment with a psychologist to address pain.*

Control = *Given general information on pain.*

Experimental = *Given informational piece on therapeutic interventions for pain.*

## Appendix A: Demographics

Do you identify as Muslim?

Yes

No

---

What is your ethnic origin/race?

White

Black

Hispanic

Asian

Native Hawaiian or Pacific Islander

Arab, Middle Eastern, North African (AMENA)

Other

---

I am 18 years of age or older

Yes

No

How old are you?

---

Do you live in the United States?

No

Yes

How many years have you lived in the United States?

0-5

5-10

10+

What is your marital status?

Single

Married

Divorced

Widowed

What is your current level of education?

- Below high school
  - High school graduate or GED
  - Some college or technical school
  - Bachelor's degree
  - Graduate degree
- 

What is your gender identity?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

### **Appendix B: Muslims' Perceptions and Attitudes to Mental Health (M-PAMH)**

Most mental health and psychological problems can be solved by oneself without the assistance of professionals.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I admire an individual who is willing to cope with his/ her conflicts without resorting to professional mental health care.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Mental health and psychological difficulties, like many things, tend to go away on their own.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

The idea of talking about my problems with a mental health professional is a poor way to solve mental health difficulties.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Seeking psychological and mental health services should be the last resort after trying all other options (e.g., self-help, Shaykh, or friend counseling).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Mental health or psychological problems can be caused by Jinn (spirits).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Mental health or psychological problems can be caused by Ayn (evil eye).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Mental health or psychological problems can be treated using Ruqya (Quranic Recitation).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Even if I sought professional mental health care, I would also still seek help from a religious figure (e.g., Shaykh) for a psychological difficulty I was facing.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

There are certain mental health or psychological problems that CANNOT be treated using mental health or psychological treatment; rather they require Ruqya (Quranic Recitation).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Mental health or psychological problems can be treated using traditional medicine (e.g., black seed).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Mental health or psychological problems are the result of Qadar (fate).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I would feel embarrassed to seek mental health or psychological services because of others' negative opinions.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Using mental health or psychological services is more difficult than using other medical services because of the shame (societal stigma).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I would be comfortable contacting a mental health care professional or using psychological services in the future.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Familiarity with the availability of mental health and psychological services in your community (e.g., location, phone #, type of services provided).

- Not at all familiar
- Somewhat familiar
- Very familiar

---

Familiarity with the type of conditions that can be treated by professional mental health or psychological treatment (e.g., mental instability, depression, etc.).

- Not at all familiar
  - Somewhat familiar
  - Very familiar
- 

Familiarity with the Muslim professionals who practice mental health or psychological counseling within your local community.

- Not at all familiar
- Somewhat familiar
- Very familiar

### **Appendix C: Muslims' Perceptions and Attitudes to Mental Health (Revised)**

Most pain problems can be solved by oneself without the assistance of mental health professionals

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I admire an individual who is willing to cope with his/her pain without resorting to professional mental health care.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Pain, like many things, tends to go away on its own.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

The idea of talking about my problems with a mental health professional is a poor way to solve difficulties with pain.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Seeking psychological and mental health services should be the last resort for pain after trying all other options (e.g., self-help, Shaykh, or friend counseling).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Pain can be caused by Jinn (spirits).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
  - Extremely professional
- 

Pain can be caused by Ayn (evil eye).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Pain can be treated using Ruqya (Quranic Recitation).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Even if I sought professional mental health care, I would also still seek help from a religious figure (e.g., Shaykh) for pain I was facing.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

There are certain types of pain that CANNOT be treated using mental health or psychological treatment; rather they require Ruqya (Quranic Recitation)

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Pain can be treated using traditional medicine (e.g., black seed).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

Pain is the result of Qadar (fate).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I would feel embarrassed to seek mental health or psychological services for pain because of others' negative opinions.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

---

Using mental health or psychological services to manage pain is more difficult than using other medical services because of the shame (societal stigma).

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
- 

I would be comfortable contacting a mental health care professional or using psychological services to treat pain in the future.

- Strongly Disagree
  - Disagree
  - Agree
  - Strongly Agree
-

Familiarity with the availability of mental health and psychological services for pain treatment in your community (e.g., location, phone #, type of services provided).

- Not at all familiar
  - Somewhat familiar
  - Very familiar
- 

Familiarity with the type of pain conditions that can be treated by professional mental health or psychological treatment (e.g., mental instability, depression, etc.).

- Not at all familiar
  - Somewhat familiar
  - Very familiar
- 

Familiarity with the Muslim professionals who practice pain management within your local community.

- Not at all familiar
- Somewhat familiar
- Very familiar

## Appendix D: Stigma Scale for Chronic Illness (SSCI)

In the following statements the term “chronic illness” is referring to diseases such as cancer, diabetes, chronic pain, etc.

---

People with chronic illness are avoided.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness are left out of things.

- Never
- Sometimes
- About half the time
- Most of the time
- Always

---

People often avoid looking at people with chronic illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

I would feel embarrassed if I had a chronic illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People often seem uncomfortable around people who have a chronic illness

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

If I had physical limitations from chronic illness, I would feel embarrassed.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People are unkind to individuals who have a chronic illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People often act as if it is the individual's fault that they have a chronic illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People with chronic illness are often embarrassed in social situations.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

Individuals with chronic illness are often emotionally distant from other people

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People with chronic illness often have their good points ignored.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness are often treated unfairly by others.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People with chronic illness often feel different from others.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness have worries about other's attitudes towards them.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

People with chronic illness have worries about being a burden to others.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness are made fun of by others.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

If I had a chronic illness, I would be unhappy if it affected my appearance.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People tend to stare at individuals who have a chronic illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

If I had a chronic illness, I would lose friends if I told them about it.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness have a hard time staying neat and clean.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

If I had a chronic illness, I may feel embarrassed about my speech.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

If I had a chronic illness, I would avoid making new friends to avoid telling others about my illness.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
-

If I had a chronic illness, I would tend to blame myself for my condition.

- Never
  - Sometimes
  - About half the time
  - Most of the time
  - Always
- 

People with chronic illness often lose their jobs if their employers find out about it.

- Never
- Sometimes
- About half the time
- Most of the time
- Always

### **Appendix E: Religious Health fatalism Questionnaire-Muslim Version**

I don't worry about my health because it's in Allah's hands.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
- 

If I am sick, I have to wait until it is Allah's time for me to be healed.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
-

When I have a health problem, I pray for Allah's will to be done.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
- 

As long as I stay focused in prayer, I will be healed of any sickness.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
-

I trust Allah, not man to heal me.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
- 

If a person has enough faith, healing will occur without doctors having to do anything.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
-

Sometimes Allah allows people to be sick for a reason.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
- 

If I become ill, Allah intended that to happen.

- Completely disagree
  - Somewhat disagree
  - Neutral
  - Somewhat agree
  - Completely agree
-

Whatever illness I have, Allah has already planned it.

- Completely disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Completely agree

## **Appendix F: Pain Treatment satisfaction Survey (Revised)**

Pain medication has a positive effect on physical health.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
- 

Pain medication helps people to have a better outlook on life.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
-

Pain medication allows people to perform their daily activities more easily

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
- 

Pain medication allows people to participate in leisure activities more often.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
-

Pain medication helps people do things independently.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
- 

Pain medication allows people to have better relationships with others.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
-

Pain medication improves mood.

- Strongly agree
  - Somewhat agree
  - Neither agree nor disagree
  - Somewhat disagree
  - Strongly disagree
- 

Pain medication allows people to concentrate better.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

## Appendix G: Knowledge About Alternative Psychological Interventions for Pain Treatment

Please take a few minutes to review the informational piece below.

**Psychotherapeutic Approaches in the Treatment of Pain**

“The underlying presumption in cognitive behavioral therapy, biofeedback, operant therapy, hypnosis, and meditation is that it is possible to attenuate the effects of pain through the use of the mind.” – Songer (2005).

**Cognitive-Behavioral Therapy**

- Cognitive behavioral therapy has been shown to be effective in reducing symptoms of chronic pain, such as cancer patients or those with back pain.
- Cognitive behavioral therapy teaches a variety of skills including:
  - **Relaxation training**
    - **Progressive muscle relaxation**
      - Tensing and relaxing of the muscles to bring awareness to how the two sensations differ
    - **Deep breathing**
      - Slow, abdominal breathing that activates the parasympathetic nervous system and tells the body to rest
    - **Guided Imagery**
      - Individuals are guided through a relaxing scene
      - This approach may ask individuals to focus on their pain paying attention to any sensations and allowing them to be there

**Operant Behavioral therapy**

- Reinforce healthy behaviors/choice
- Ignore pain behaviors
- Behaviors associated with pain may be reinforced if an individual is able to escape undesirable activities

**Yoga**

- Yoga is a form of movement meditation
- Yoga can help alleviate pain symptoms by engaging the body in a variety of stretches and movements

**Biofeedback**

- Offers the ability to track physiological sensations such as heartbeat, skin response and muscle tension during experiences of pain
- Has been used to treat several pain disorders including fibromyalgia and headaches

**Hypnosis**

- Using relaxation techniques and imagery, individuals can be put into a state of selective attention
- Can allow patients to turn their attention to something other than their pain
- Individuals can learn *self-hypnosis* to increase their sense of control over their pain

**Meditation**

- Individuals may be taught several different types of mediation, including:
- **Mindfulness**
  - Developing awareness of the present moment.
- **Concentration**
  - Teaches passive attention to change the relationship with pain sensations

## Appendix H: Knowledge About Different Types of Pain

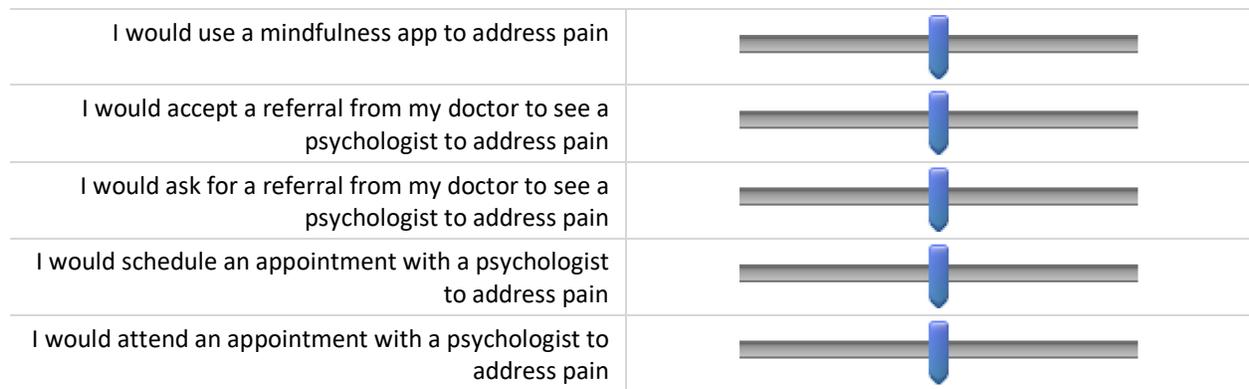
Please take a few minutes to review the informational piece below.

<b><u>Different Types of Pain</u></b>		
<p>Pain is a biopsychosocial sensation that can manifest in several different ways leading to several different types of pain experiences (Gruß et al., 2019).</p>		
<p style="text-align: center;"><b><u>Chronic Pain</u></b></p> <ul style="list-style-type: none"><li>• Chronic pain lasts longer than six months and can continue after an injury or illness is cured. Chronic pain experiences can vary in terms of severity, duration, and onset.</li><li>• Chronic pain stems from a variety of etiological factors including comorbid disorders including fibromyalgia, Rheumatoid Arthritis and Multiple Sclerosis, as well as injury and disability (Dahlhamer et al., 2018).</li></ul> <p style="text-align: center;"><b><u>High impact chronic pain</u></b></p> <ul style="list-style-type: none"><li>• High impact chronic pain was defined by the United States National Pain Strategy as pain that results in significant interference with life activities such as work, self-care activities or social life (Pitcher et al., 2019).</li><li>• Individuals living with high impact chronic pain are often unable to do labor intensive tasks due to physical limitations from the pain.</li></ul>		
<p style="text-align: center;"><b><u>Neuropathic Pain</u></b></p> <ul style="list-style-type: none"><li>• Neuropathic pain occurs when damage occurs to parts of the nervous system.</li><li>• Pain sensations may come and go intermittently</li><li>• This pain can interfere with quality of life as it is often reported as a shooting, burning, or</li></ul>	<p style="text-align: center;"><b><u>Nociceptive Pain</u></b></p> <ul style="list-style-type: none"><li>• Nociceptive pain occurs when there has been damage to body tissue.</li><li>• This is commonly the result of an external physical injury</li><li>• This pain is reportedly felt in the skin, muscles, joints, and bones</li></ul>	
<p style="text-align: center;"><b><u>Acute Pain</u></b></p> <ul style="list-style-type: none"><li>• Acute pain is relatively short in duration</li><li>• Can last several minutes up to six months</li><li>• Usually this is the result of an illness or injury</li><li>• Pain typically subsides after illness or injury are healed.</li></ul>	<p style="text-align: center;"><b><u>Visceral</u></b></p> <ul style="list-style-type: none"><li>• Pain that occurs within the abdomen</li><li>• Related to organs such as the stomach and pancreas</li><li>• This is commonly reported as a deep aching sensation.</li></ul>	<p style="text-align: center;"><b><u>Radicular</u></b></p> <ul style="list-style-type: none"><li>• Radicular pain comes from compression of the spinal nerve.</li><li>• This is often referred to as sciatica</li><li>• This pain is often felt in the lower back, butt, and/or the back of the thighs.</li></ul>

### Appendix I: Likelihood to Utilize Psychological Interventions for Pain

Please rate from 0-100 how likely it is that you would engage in these treatment seeking behaviors for psychological intervention for pain.

0 10 20 30 40 50 60 70 80 90 100



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