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Examining the Differences in Mental Health Distress Coping Mechanisms between Male and Female Muslim Young Adults in the Atlanta Metropolitan Area: An Exploratory Study

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Abstract
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Introduction:
Mental health disorders among young adults have become more prevalent in the United States and research has highlighted consistent gender differences. It is important to further analyze these sex differences as they relate to the prevention and treatment of mental health disorders. One factor that impacts mental health is religious background. One religion that caters to the psychological needs differently of men and women in Islam. The Muslim population's experience with mental health may be impacted by their religious practices. This research presents a unique opportunity to analyze the gap in the literature regarding mental health among young adult Muslims living in the U.S. and to gauge how to approach mental health disorders more effectively in this group.

Aims:
To examine whether there are any significant sex differences in coping mechanisms for mental health distress and self-reported mental health status as well as whether religion may serve as a protective factor for mental health among Muslim young adults living in Atlanta, GA.

Methods and Analysis:
This is an exploratory study. Qualitative and quantitative data was collected from participants using an online survey tool called 'Qualtrics'. Participants had to identify as Muslim, living in the Metropolitan Atlanta area, and between 18-25 years old. A combination of chi-square analyses and logistic regressions were conducted to determine whether coping mechanisms and mental health status are dependent on sex and whether Islam is related to positive mental health. All analyses were conducted using SAS 9.4.

Results:
There was no significant relationship between any of the coping mechanisms and sex nor any significant relationship between sex and mental health status. However, there was a significant relationship between using a therapist and mental health status [p=0.0116] controlling for sex.

Discussion:
Although significant sex differences were not seen in this study, emerging patterns were notable. Sex differences should be further explored in future studies studying the young adult Muslim population in the United States. Additional coping mechanisms should be included in these studies as well as a larger sample that spans all age groups for comparative analysis. More qualitative data, perhaps using focus groups or interviews, may help to understand individual differences when it comes to coping with mental health, and how Muslims view Islam's role on their mental health. The end goal would be for mosques and religious leaders to learn how to effectively tackle mental health illnesses in their communities and create safe spaces at the mosque.

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APPROVAL PAGE

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Author's Statement Page

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Aruba Muhammad

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Chapter I
Introduction

1.1 Characterizing Young Adult Mental Health in the United States

In recent times, health organizations and physicians are shedding light on the high rates of poor mental health in the United States among young adults. The NIH (2022) reported that "Young adults aged 18-25 years had the highest prevalence of AMI (any mental illness) (30.6%) compared to adults aged 26-49 years (25.3%) and aged 50 and older (14.5%)". Additionally, an article written by the American Psychological Association (2019, para. 2) stated that "More U.S. adolescents and young adults in the late 2010s, versus the mid-2000s, experienced serious psychological distress, major depression or suicidal thoughts, and more attempted suicide" and that "These trends are weak or non-existent among adults 26 years and over." Researchers have suggested that one reason for this is due to increased social media usage and digital communications which impacts the modes of social interaction causing a rise in mood disorders (APA, 2019). There is a cultural shift in which in-person interaction has decreased and this can impact healthy behaviors such as a proper sleep schedule (APA, 2019). This shift can be extremely detrimental because young adulthood is when long-term health behaviors are matured (Massetti, 2017). These health behaviors play a pivotal role in whether chronic diseases, such as cancer or diabetes, are exhibited in the future. Inconsistent sleep schedules, poor nutrition, and lack of exercise are all examples of behaviors that stem from mental health disorders and can cause chronic health issues at an older age (Massetti, 2017). The writers of the APA article (2019) believe that genetic and economic factors are not likely causing the greatest impact on mental health among young adults in this generation. This provides an easier target for

interventions to focus on rectifying poor health behaviors that result from digital media and communications, since genetic and economic predisposition are not easily changed (APA, 2019).

Research has also highlighted the gender differences in the prevalence of mental health disorders. According to the NIH (2022), the "prevalence of AMI was higher among females (25.8%) than males (15.8%)". The reasons for the higher prevalence of mental health disorders among females include social, biological, psychological, and genetic factors (Kvrgic, 2013). For instance, one study found that the disruption in social life can greatly impact a female's mental health as compared to males (Prowse et al., 2021). However, females are also more likely to use mental health services and are therefore more likely to report mental health conditions compared to males (Kvrgic, 2013). The underreporting of male mental health conditions may be why a difference in the prevalence is observed in the current data. It is also seen in the literature that there are tendencies for males and females to cope with mental health disorders differently from each other. One example of this phenomenon is found in a study conducted by Prowse et al. (2021) in which the findings stated that females used social media sites more often than males to cope with the social isolation that resulted from the COVID-19 pandemic. Additionally, prior research found that "…women are more into religiousness and religious/spiritual practices and more frequently use R/S coping strategies than men" (Rassoulian et al., 2021, p. 468) and that this phenomenon was noted worldwide across several studies.

1.2 The American-Muslim Social Context

The Muslim population in the United States continues to grow and very limited research has been conducted focusing on mental health disorders among this minority group. For context, Pew research (2018) wrote in an article that "... the U.S. Muslim population will grow much

faster than the country's Jewish population…by 2050, the U.S. Muslim population is projected to reach 8.1 million, or 2.1% of the nation's total population — nearly twice the share of today." Muslim populations in the U.S. tend to be comprised of minorities (South Asians, Middle Easterners, African Americans, etc.). Most minority groups in the U.S., however, tend to be Christian--approximately 19%--(PRRI, 2020). Compared to their non-Muslim minority counterparts, a Muslim's routine life differs in many aspects. That is to say, for instance, that the religious practices of Islam will inherently cause lifestyle differences for an African American Muslim vs. an African American Christian or a Middle Eastern American Muslim versus a Middle Eastern American Christian.

Islam is not merely a religion that is practiced for spiritual purposes. It serves as a way of life for Muslims (Hankir et al., 2015). This religion is one that uniquely caters to the psychological needs of men and women which are embedded in its religious practices. (Haque, 2004). One example is that during a woman's menstrual cycle, certain religious activities are no longer mandatory, and rest is emphasized. Men are encouraged to be the providers for their families as this produces feelings of accomplishment in a Muslim man (Walid, 2022). That isn't to say a woman cannot provide for her family, but the effect of it is greater in men. Likewise, all activities such as eating, sleeping, drinking, social interaction, spirituality, etc. comprise a Muslim's well-being (Walid, 2022). For instance, while it may be acceptable by most medical professionals to consume small amounts of alcohol with no serious health repercussions, a Muslim is forbidden from doing so at all. Another example is the normalcy of free mixing between men and women in the US. Although it is acceptable in most societies, this is not allowed according to Islamic principles.

As a Muslim, being surrounded by social norms that contradict one's own may have negative mental health impacts (Haque, 2004). Especially since 9/11, Muslims are particularly susceptible to more severe discrimination from society, which can garner feelings of alienation and isolation (Ciftci et al., 2012). Muslims are constantly grappling with an internal dilemma to adhere to their religious practices while living in a society that makes it extremely difficult to do so. Failing to adhere to these Islamic principles can have drastic impacts on their mental health (Hankir et al., 2015). Therefore, grouping Muslims in minority research studies with other non-Muslim minorities may not accurately highlight the mental health issues prevalent among Muslims (Ciftci et al., 2012).

1.3 Islam as a Protective Factor for Mental Health

Research conducted in other Western countries with Muslim populations has suggested that Islam does serve as a protective factor against several mental health disorders including depression, suicide, anxiety, grief, etc. (Sabry & Vohra, 2013). The attachment theory suggests that a more secure attachment to something can result in better mental health outcomes (Sabry & Vohra, 2013). Therefore, "…having a "healthy attachment" to God would also be linked to better psychological functioning" (Sabry & Vohra, 2013, p. 206). The Islamic way of life seeks to establish this attachment to God by encouraging Muslims to meet with one another, celebrate, grieve, and pray with each other, and always be there for their fellow Muslims. These customs garner a strong attachment to one another and to the religion itself, ultimately leading to loving God and are seen to therefore have positive impacts on mental health for Muslims (Hankir et al., 2015). The various religious practices of Islam such as prayer and supplication have been noted to produce feelings of internal peace leading to mental health stability (Hankir et al., 2015).

Therefore, it is important to study how Muslim young adults have been able to use Islam to help with their mental health well-being.

1.4 Research Objectives

This research serves as an opportunity to study the relationship between sex and an individual's self-reported mental health status and their ranking of mental health coping mechanisms among male and female Muslim young adults in the Metropolitan Atlanta area. The primary objective is to determine whether the proportion of the sample differs in the ranking of each coping mechanism, the participants' self-reported mental health status, and their willingness to seek out help from mental health professionals and religious leaders between males and females. The second objective of this study is to examine the relationship between religion mental health status controlling for sex to discover any patterns of religion serving as a protective factor for mental health. The hypothesis is that participants who report better mental health will be more likely to reach out to religious leaders and utilize religious coping mechanisms which is in line with literature that suggests Islam can be a protective factor against mental health illnesses. The results from this analysis can be used to further investigate the effects of religion on mental health among Muslim young adults in the United States and to determine whether separate models of therapy would be more effective between males and females suffering from mental health illnesses.

Chapter II

Literature Review

2.1 Common Coping Mechanisms Among Young Adults

As stated by clinical therapist Virginia Satir, “Problems are not the problem, coping is the problem.” (Thompson et al., 2010, p.2), highlighting the importance of healthy coping strategies. Coping mechanisms have been defined as “thoughts and behaviors mobilized to manage internal and external stressful situations” (Algorani & Gupta, 2022, p.10). These mechanisms can be either adaptive or maladaptive. Some examples of adaptive coping mechanisms include acceptance, positive reframing, emotional support, and religion (Dewa et al., 2020). Examples of maladaptive coping mechanisms include avoidant behaviors (i.e., ignoring calls, staying away from social settings, and media consumption) and substance use (Dewa et al., 2020).

One study conducted by Dewa et al. (2020) analyzed the coping strategies of young people (aged 16-24) in the UK in a post-Covid-19 context. They found that the most used coping strategy was “…eating-related, followed by acceptance and self-distraction” and the least common were “religion, substance use, and denial.” (Dewa et al., 2020, p. 670). They did not find a significant difference between those with and without poor mental health when it came to using religion as a coping strategy. Similarly, in a study conducted by Prowse et al. (2021), the coping mechanisms used by both genders to counter the negative impacts of the COVID-19 pandemic were social media, sleeping, and eating fast food/sweets.

Another study conducted in San Diego, California explored the risk factors of mental health among a community of Somali young adults (Alemi et al., 2021). Researchers interviewed participants between the ages of 16-25 years. The interviews covered questions to encompass

three themes. One of the themes was analyzing the coping strategies noted by the participants in helping their mental health. The most common coping mechanisms included religious activities, recreational activities (primarily playing soccer), and social support systems. The researcher also noted that "... many expressed the comfort their Islamic faith provides during episodes of distress." (Alemi et al., 2021, p. 1510). In addition, the researchers found that very few Somali young adults participated in gangs, used drugs, or resorted to drinking alcohol. This study highlights the potential that religion has in ameliorating the impacts of poor mental health. As quoted by the author, "participants endorsed utilizing the religious and community leaders, trusted clinicians, and incorporating parents and elders to assist with mental health advocacy in the community." (Alemi et al., 2021, p. 1512). Coupled with professional therapy, religion and culture may prove to be a vital link to combatting high rates of mental health disorders among young adults today.

It is important to note that mental health disorders manifest distinctively across different groups of people. Therefore, coping mechanisms will also vary from person to person. Some coping mechanisms may be healthy for others but harmful for someone else. However, having background knowledge of common coping mechanisms among young adults helps guide preventative efforts for community leaders, therapists, and public health researchers.

2.2 Sex Differences in Young Adult Mental Health

In a study conducted by Prowse et al. (2021), researchers looked at the impact of the COVID-19 pandemic on the mental health of undergraduate university students in Ottawa, Ontario. They noted that young adults, especially university students, are at a vulnerable period in life for developing mental health disorders. Therefore, COVID-19 may have exacerbated these

issues by causing prolonged social isolation, which is a major disruption to the norm of life in young adulthood years. This study analyzed whether there were any gender differences in how the study participants coped with their mental health due to the pandemic and if gender differences were exhibited in the mental health outcomes as well.

The results of the analysis conducted by Prowse et al. (2021) showed that social media use, online technologies, video-chat platforms, sleep, and eating fast food/sweets were seen to differ significantly by gender. Females used the above-mentioned coping mechanisms more often than males. For males, "…the negative impact of COVID-19 on stress and mental health was more strongly associated with increased coping through the use of cannabis, alcohol, and vaping nicotine..." (Prowse et al., 2021, p. 8). Only exercise as a coping mechanism did not differ significantly by gender. Regarding mental health outcomes, "more female students reported social isolation being difficult/very difficult compared to males" as well as "females were more likely to report the negative impacts of COVID-19 on stress levels to be very much or an extreme amount compared to males…" (Prowse et al., 2021, p.5). The study concluded that these coping mechanisms, regardless of gender, negatively impacted mental health and stress levels, except for exercise as a coping mechanism. Exercise was not seen to have any significant impact on mental health or stress levels. This highlights the need to procure healthy coping methods for mental health among young adults.

This study helped in highlighting a potential trend on how men and women may cope with mental health differently. Specifically, females seem to use a variety of coping mechanisms and are more negatively impacted by a disruption to their routine life. This study also noted that the coping mechanisms measured had resulted in negative impacts on the participants' mental

health status. Therefore, it gives reason to further explore how religious coping mechanisms may serve to improve mental health and to analyze any sex differences.

2.3 Mental Health from an Islamic Lens

One of the core beliefs in Islam is that all things, good or bad, are a test from God and that these tests are not permanent. The belief in an afterlife and the hope of salvation from the difficulties of this world is what shapes the mindset of a practicing Muslim (Haque, 2004). Therefore, having poor mental health, which usually stems from the various challenges that an individual faces in life, is not viewed as a common phenomenon among Muslims. Instead, hardship is viewed with a positive outlook. It is seen as an avenue to improve one's soul and spirituality to help you become closer to God.

The tenets of Islam encompass mental health and encourages mindfulness. As described by a researcher, "Islam views mental health not only as the absence of pathology but presence of virtues that can lead man to his own well-being. The Qur'an is explicit about the virtues that preserve mental health and vices that can bring various mental health problems" (Haque, 2004, p. 49). That is why Islam has strict commands on what is permissible and what is forbidden. All your actions, big or small, shape your internal well-being. Choosing to adhere to positive qualities to prevent mental health issues and refraining from negative qualities that would otherwise lead to mental health problems is how Islam approaches mental health (Haque, 2004). However, a key element to these commands is that ultimately humans possess free will and must choose to become disciplined. As quoted in a paper by Haque (2004) "Happiness in Islam relates to the present world as well as the hereafter; the latter being more meaningful and permanent and a *gift of God to those who spend their lives in submitting to His commands*." (p. 49).

There has also been research conducted measuring the benefit of spirituality and religion for adults with mental health issues, regardless of which religious belief they adhere to. A study carried out in Brazil recruited just over a thousand Brazilian adults to assess how different levels of spirituality impact "quality of life, depressive symptoms, anxiety, optimism and happiness" (Vitorino et al., 2018, p.1). Vitorino et al. (2018) found that lower levels of spirituality and religiousness were associated with worse mental health outcomes. They concluded that the participants who were spiritual/religious were able to "...develop internal and external mechanisms that help them cope with the adversities on life course." (Vitorino et al., 2018, p. 3). This study provides further evidence to suggest that religion can be a protective factor against mental health disorders and be used as a healthy coping mechanism.

2.4 Barriers to Mental Health Help Among Muslims

Help-seeking in simple terms is defined as "…communicating distress to others with the goal of receiving aid" (Noorwali et al., 2022). However, mental health well-being is still considered a taboo discussion among Muslim communities across the globe. Efforts by religious leaders are underway to gradually bring light to the dialogue on mental health issues at the mosque and at home. Nevertheless, hesitation still exists, and this disrupts mental health help-seeking, especially among adolescents and young adults.

As much as Islam may serve as a protective factor for mental health, it may also be the cause of mental health stigmas in Muslim communities. For instance, some Muslims believe that mental health disorders are caused by low spirituality, or the presence of metaphysical beings and that the solution is only a religious one (Ciftci et al., 2012). Therefore, Muslim young adults find it difficult to approach their parents or older community members for therapy or other

avenues of cure due to the fear of being mislabeled and judged (Ciftci et al., 2012). Along with religious roots, mental health stigmas are also a result of social pressure and norms (Noorwali et al., 2022). Muslim men may face more hesitancy than Muslim women to seek out mental health services because they may feel that it negatively impacts their sense of masculinity, which contrasts with how Islam defines masculinity and appropriate displays of emotion (Noorwali et al., 2022). Individuals may also feel a personal dilemma in reaching out for help because of label avoidance, which is not just seen among Muslims, but many groups of people (Noorwali et al., 2022). In a study conducted among a group of young adult university students in Saudi Arabia, the researcher found that "Misconceptions based on religious beliefs were a vital factor that prevented help-seeking." (Noorwali et al., 2022, pg. 9).

Studies have shown that effective treatment and therapy for mental health disorders among Muslims should include synthesizing culturally and religiously competent components (Hankir et al., 2015). This is especially important since Haque (2004) notes that "Muslims perceive scientific development as a successive or cumulative effort leading towards discovering the laws of God; *they believe that science can be flawed if not based on faith*." (p. 50). This sentiment is also agreed upon by (Sabry & Vohra, 2013, p. 206) in which they state that "…Muslims may be less trusting of secular models of mental health therapy" due to a "lack of understanding…of Islamic values in their treatment modalities". Because of this underlying mistrust Muslims do not want to risk going to therapy which may contrast with their religious beliefs (Sabry & Vohra, 2013). Due to a lack of qualified Muslim therapists, access to professional mental health assistance is a systemic issue which bars help-seeking among Muslims.

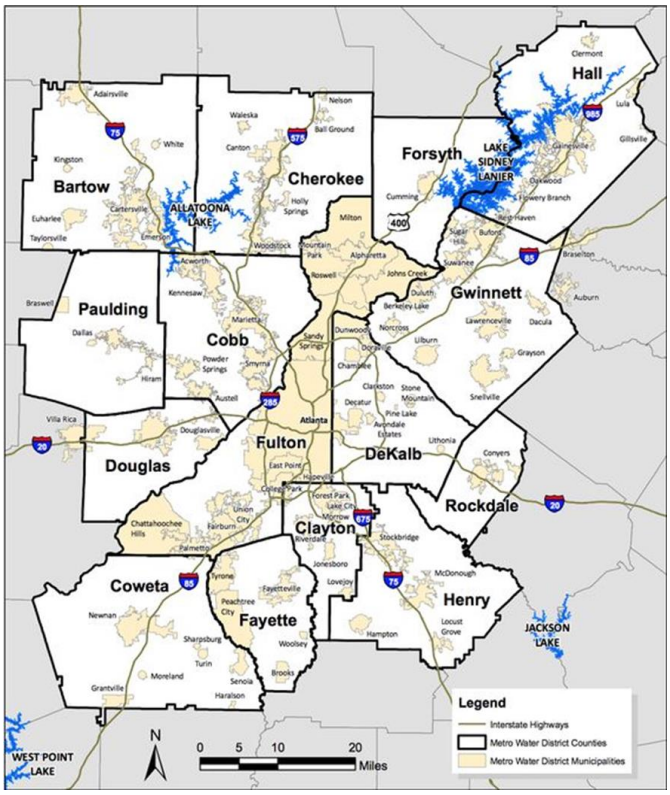
Chapter III

Methods and Procedures

3.1 Primary Data Collection

This research was an exploratory study in which data was collected from participants through the online survey tool ‘Qualtrics’. The survey was open for 4 weeks. The survey was distributed as a link to various group chats and messaging platforms associated with local Atlanta mosques and MSA organizations (Muslim Student Associations on Atlanta campuses), as well as promoted on the student principal investigator’s Instagram page. To be deemed eligible to take the survey, participants had to identify as Muslim, be living in the Metropolitan Atlanta area (Figure 1) at the time of the survey and had to be between 18-25 years old. The sample size was aimed to be approximately equal for male and female respondents. However, at the end of the data collection period, a total of 21 male participants and 44 female participants completed the survey. There was no power analysis done before data collection. The stopping criteria for data collection was the total number of respondents at the close of the survey (no additional responses were collected after the 4-week period). The 4-week limit was placed due to the time constraint of this research.

Figure 1: Metropolitan Atlanta Map



3.2 Measurements and Variables

The survey collected demographic data which included age, sex, occupation, and whether the respondent considered themselves to be a practicing Muslim. Age was typed in by the respondents as a number. Sex included two options: male or female. Occupation included 4 options: Student, employed, both student and employed, or neither student nor employed. Proceeding the demographic data questions, the survey then asked the following: Likelihood of choosing certain coping mechanisms, whether they had ever been to a licensed therapist or not, whether they had ever spoken to a religious leader/Imam about their mental health issues, the likelihood of using mental health services provided by your mosque, and their self-reported mental health status. The questions concerning the likelihood of choosing a coping mechanism or

utilizing mosque mental health services were rated on a 4-point Likert scale (very likely, somewhat likely, somewhat unlikely, very unlikely). A 'neutral' option was avoided due to a potentially small sample size and being unable to gather sufficient data for each category. The coping mechanisms measured in the survey included: Social media usage, eating/drinking sugary food/drinks, spending time with friends on a video call or in person, substance use (cannabis, alcohol, vaping, etc.), and two religious coping mechanisms (worship and religious lectures). Worship as a coping mechanism included acts such as recite the Qur'an, prayer/salaah and supplication/dua'. The coping mechanism 'religious lectures' was worded in the survey as either listening to one online or attending a lecture at the mosque. The questions on ever having been to a licensed therapist or a religious leader about their mental health issues had two response options, yes or no. Mental health status was rated as either 'Excellent, Moderate, Fair, or Poor'. Respondents were only able to select/type one response for each question.

The dependent variables that were measured included mental health coping mechanisms, the likelihood of talking to a religious leader about your mental health issues, the likelihood of using mental health services provided by your mosque, and therapist utilization. The independent variables collected were sex, and whether the individual was a practicing Muslim or not (religiosity). Depending on the analysis, self-reported mental health status was treated as either an independent or dependent variable.

3.3 Data Analysis Plan

The data file was downloaded from Qualtrics and then imported into SAS 9.4 for analysis. To test whether the proportion of the sample differed in their self-reported mental health status between males and females, a Pearson chi-square test of independence was performed for the variables 'MHStatus' and sex. Furthermore, separate Pearson chi-square tests

of independence were performed for analyzing the sex differences in the endorsement of the coping mechanisms which included social media use, phone/video call, substance use, and sugary food/drink consumption, worship, and religious lectures. A Bonferroni adjustment was done since there were comparisons between genders for 6 coping mechanisms. The adjusted p-value was .05/6=.0083. The categories "Very likely" and "Somewhat likely" were combined as one group called "Likely" and the categories "Very unlikely" and "Somewhat unlikely" were combined as one group called "Unlikely". This was done due to the small cell sizes (<5) for some of the response choices for each question. To analyze whether the proportion of the sample differed in their willingness to seek out help from mental health professionals/therapists and religious leaders/Imam between males and females, Pearson chi-square tests of independence were performed. Since there were 2 comparisons (the variables 'Therapist' and 'Imam'), the Bonferroni-adjusted significance level used for each test was .05/2=.025. Lastly, to analyze whether the proportion of the sample differed in their willingness to use mental health services provided by a mosque ('MHServices') between males and females, a Pearson chi-square test of independence was done at a significance level of .05 (note: this variable was not considered to be a coping mechanism in the survey). Again, the categories "Very likely" and "Somewhat likely" were combined as one group called "Likely" and the categories "Very unlikely" and "Somewhat unlikely" were combined as one group called "Unlikely" due to the small cell sizes (<5) for some of the response choices for each question. For this research question a follow-up chi-square test of homogeneity was performed at a .05 significance level to determine whether there was a significant difference in the responses between 'religious lecture' and 'MHServices'.

For the second objective, five logistic regression models were analyzed to determine whether the explanatory variables likelihood of using worship as a coping mechanism

('worship'), likelihood of using religious lectures as a coping mechanism ('religious lecture'), seeking help from a mental health professional/therapist ('Therapist', seeking help from a religious leader/imam ('Imam'), and 'ever use mental health services provided by a mosque ('MHServices') were related to self-reported mental health status and sex. Forward selection was done to determine whether to include an interaction term between mental health status and sex. The results yielded no significant effect with the addition of the interaction term; therefore, it was not included in the models. An additional predictor, religiosity level, was planned to be added to these models. To test for the impact of religiosity level of a person on the choice of coping mechanism the survey asked the question, "Do you consider yourself to be a practicing Muslim, yes or no?". All the respondents said, 'yes' to this question. Due to the uniform response, this predictor was not included in the models. Because 5 models were being compared, a Bonferroni correction was done as follows: .05/5=.01.

The models for 'worship', 'religious lectures', and 'MHservices' considered 'Very Likely' and 'Somewhat Likely' for each explanatory variable recoded as '1', while 'Somewhat Unlikely' and 'Very Unlikely were recoded as '0'. The "seeking help" questions were recoded so that 'yes'=1 and 'no'=0, considering the 'yes' responses for those questions. The sex variable was recoded so that 'males'=1 and 'females'=0. Follow-up analysis was also done for this objective by creating logistic regression models for each of the non-religious coping mechanisms with mental health status as a predictor controlling for sex. All analyses were conducted using SAS 9.4.

3.4 Ethical Considerations

The survey was designed so that participants could complete it independently of the study investigators' presence. Additionally, there was no identifying information collected from the survey respondents. The only demographic information collected was age and gender. Furthermore, the 'Anonymize Responses' option was turned on in the Qualtrics system for the survey. This protected the IP addresses of all individuals who took the survey blocking any access to track where it was taken from. Access to the data was only given to the principal investigator and the student principal investigator. Having received the IRB approval of exempt research, the survey also included an informed consent on the first page to allow participants the opportunity to understand the nature of the study and to opt out of the survey at any point in time before they decide to submit their responses.

Chapter IV

Results

4.1 Demographic Characteristics of the Study Participants

As shown in Table 1 below, there was a total of 65 respondents from the survey. Approximately 68% of the respondents were female and 32% were male. The study population's age range was between 18-26 years, with an average age of 21.5 years. Although the study plan initially proposed limiting the age cutoff to 25 years, the three participants who were 26 years old were not excluded from the analysis since they were few and are still classified as "young adults". In terms of religious devotion, 100% of respondents said they considered themselves to be practicing Muslims. There was a fairly even distribution of the participants' occupation status (student, employed, both student and employed). The exception was three participants who were neither a student nor employed. Most female participants reported being a student and most male participants were either both a student and employed or just employed.

Table 1: Demographic Characteristics

Category		**Participants**
Sex		
	Females	44 (67.69)
	Males	21 (32.31)
Religious Devotion		
	Yes	65 (100)
	No	0 (0)
Age (years), n (%)		
	18	6 (9.23)
	19	6 (9.23)
	20	12 (18.46)
	21	8 (12.31)
	22	11 (16.92)
	23	9 (13.85)
	24	8 (12.31)
	25	2 (3.08)
	26	3 (4.62)
Mean Age (years)	Overall	21.52
	Females	21.57
	Males	21.43
Occupation (n, %)	Females	Males
In school/student	13 (20)	7 (10.77)
Working/employed	18 (27.69)	6 (9.23)
Both a student and employed	2 (3.08)	1 (1.54)
Neither a student nor employed	11 (16.92)	7 (10.77)

4.2 Analyzing General Sex Differences in Response Variables (Chi-Squares Tests)- Objective One

4.2.1 Does self-reported mental health status differ between young adult Muslim men and women?

The self-reported mental health status of the respondents did not significantly differ between males and females. Therefore, sex is independent of one's self-reported mental health status. Alternate tests are presented in Table 3 for comparison. Majority of the respondents, approximately 51%, stated that their mental health was "moderate".

Table 2: Frequency Table- Sex by Mental Health Status

Table of Sex by Mental Health Status					
Sex n (row %)	**Mental Health Status**				
	Excellent	Fair	Moderate	Poor	Total
Female	6 (13.6)	12 (27.3)	21 (47.7)	5 (11.4)	44
Male	5 (23.8)	2 (9.5)	12(57.1)	2 (9.5)	21
Total	11	14	33	7	65
% Total	16.92	21.54	50.77	10.77	100

Table 3: Chi-Square Test of Independence- Sex by Mental Health Status

Chi-Square Test for Sex by Mental Health Status	
Chi-Square/prob	3.2414/.3559
Likelihood Ratio Chi-Square/prob	3.5127/.3191
Mantel-Haenszel Chi-Square/prob	.0344/.8528

4.2.2 Does the proportion in likeliness of choosing coping behaviors differ between young adult Muslim men and women?

A chi-square test of independence was performed for each coping mechanism listed in the survey. A Bonferroni adjustment was made for multiple testing as follows;.05/6=.0083. Against this significance level, there were no significant differences between men and women in their rating of each coping mechanism. Therefore, sex is independent of the likeliness in choosing mental health coping mechanisms. Alternate chi-square tests are presented in Table 5 for comparison. In Table 4, the frequency of responses is presented for males and females for each coping mechanism. The table presents row percentages for each response (likely and unlikely). Among all the coping mechanisms, ‘Social Media Use’ had the highest percentage of responses in the ‘Likely’ category (over 95%) for both males and females. A higher percentage of females (82%) among all female participants said that they were unlikely to use substances as a coping mechanism as compared to 67% of males that said they were unlikely to do so. Additionally, a higher percentage of females responded that they were likely to consume sugary

food/drinks as a coping mechanism as compared to males. Among the female and male respondents respectively, approximately 80% of females and 85% of males said that they were likely to use worship as a coping mechanism.

Table 4: Frequency Table- Sex by Coping Mechanism

Frequency Table-Sex by Coping Mechanism							
n (row %)		**Social Media Use**	**Phone/Video Call**	**Sugary Food/Drinks**	**Substance Use**	**Worship**	**Religious Lecture**
Females (n=44)	**Likely**	43 (97.73)	30 (68.18)	32 (72.73)	8 (18.18)	35 (79.55)	28 (63.64)
	Unlikely	1 (2.27)	14 (31.82)	12 (27.27)	36 (81.82)	9 (20.45)	16 (36.36)
Males (n=21)	**Likely**	20 (95.24)	16 (76.19)	11 (52.38)	7 (33.33)	18 (85.71)	11 (52.38)
	Unlikely	1 (4.76)	5 (23.81)	10 (47.62)	12 (66.67)	3 (14.29)	10 (47.62)

Table 5: Chi-Square Tests of Independence- Sex by Coping Mechanisms

Chi-Square Tests for Coping Mechanisms						
	Social Media Use	**Phone/ Video Call**	**Sugary Food/Drinks**	**Substance Use**	**Worship**	**Religious Lecture**
Chi-Square/prob	.2953/ .5868	.4408/ .5068	2.6282/ .1050	1.8384/ .1751	.3594/ .5489	.7504/ .3864
Likelihood Ratio Chi-Square/prob	.2767/ .5989	.4507/ .5020	2.5729/ .1087	1.7587/ .1835	.3725/ .5417	.7446/ .3882
Mantel-Haenszel Chi-Square/prob	.2908/ .5897	.4340/ .5100	2.5878/ .1077	1.8101/ .1785	.3538/ .5520	.7388/ .3900

4.2.3 Does the proportion seeking out help from mental health professionals or from religious leaders differ between young adult Muslim men and women?

Chi-square tests of independence were performed for each method of seeking help for mental health distress: therapist and religious leader/imam. Since two comparisons were made, a Bonferroni adjustment was made to the significance level as follows:.05/2=.025. Against this

significance level, there were no significant differences between men and women in their choice of seeking help. Therefore, sex is independent of how likely you are to choose either a therapist or imam. The chi-square value for the relationship between the variables ‘therapist’ and ‘sex’ was .0149 (p=.9028). The chi-square value for the relationship between the variables ‘imam’ and ‘sex’ was 1.6915 (p=.1934). Alternate chi-square tests are presented in the Table 6 below for comparison. The frequency table for the responses among these variables in presented in Table 7.

Table 6: Frequency Tables- Therapist and Imam by Sex

Frequency Tables				
n (row%)	**Mental Health Professional/Therapist**		**Religious leader/Imam**	
	No	Yes	No	Yes
Females	30 (68.18)	14 (31.82)	39 (88.64)	5 (11.36)
Males	14 (66.67)	7 (33.33)	16 (76.19)	5 (23.81)

Table 7: Chi-Square Tests of Independence- Therapist and Imam by Sex

Chi-Square Tests		
	Mental Health Professional/Therapist	**Religious leader/Imam**
Chi-Square/prob	0.0149/.9028	1.6915/.1934
Likelihood Ratio Chi-Square/prob	0.0149/.9029	1.6028/.2055
Mantel-Haenszel Chi-Square/prob	0.0147/.9035	1.6655/.1969

4.2.4 Does the proportion in likeliness of using mosque mental health services differ between young adult Muslim men and women?

At a significance level of .05, there was nearly a significant difference in the responses between males and females in their likeliness of choosing to use mosque mental health services in the future (p-value-.057). Table 16 shows the frequency distribution between males and females for their response to this question and there is a greater percentage of females (43%)

than males (19%) stating they would be likely to use mental health services provided by a mosque.

Table 8: Chi-Square Test of Independence- Sex by Mental Health Services

Chi-Square Test	
	Sex by Mental Health Services Provided by a Mosque
Chi-Square/prob	3.6214/.0570
Likelihood Ratio Chi-Square/prob	3.8468/.0498
Mantel-Haenszel Chi-Square/prob	3.5657/.0590

Follow-Up Analysis: Chi-Square Test of Independence- Mental Health Services by Religious Lecture

After conducting the various chi-square tests on sex differences between response variables and seeing no significant dependence on sex for the responses, the sample was analyzed without regard to sex. A chi-square test of independence was done between mental health services provided by a mosque and using religious lectures as a coping mechanism against a significance level of .05. This was done because both these variables implied visiting a mosque. Therefore, it was predicted that all those who responded ‘likely’ for the question on attending a religious lecture would have also responded ‘likely’ for using mental health services provided by a mosque, regardless of their sex. Since the p-value was high (.09), there was not enough evidence to reject the null. Therefore, the distribution of responses was considered independent of each other.

Table 9: Chi Square Test of Independence Mental Health Services by Religious Lecture

Chi-Square Test	
	Mental Health Services by Religious Lecture
Chi-Square/prob	2.8709/.0902
Likelihood Ratio Chi-Square/prob	2.9601/.0853
Mantel-Haenszel Chi-Square/prob	2.0439/.1528

Table 10: Frequency Table-Mental Health Services by Religious Lecture

Religious Lecture by Mental Health Services		
n	**Mental Health Services**	
Religious Lecture	Likely	Unlikely
Likely	17	22
Unlikely	6	20

4.3 Logistic Regression Models: Religion as a Protective Factor for Mental Health-Objective Two

In order to analyze the association between religion and mental health, the following logistic regression models included ‘mental health status’ and ‘sex’ as the explanatory variables. The response variables were ‘ever seek help from a therapist’, ‘ever seek help from an imam’, ‘willingness to use worship as a coping mechanism’ ‘willingness to use religious lectures as a coping mechanism’, and ‘willingness to use mental health services provided by a mosque’ in separate logistic regression models. Initially, the models included an interaction between ‘mental health status’ and ‘sex’, however, both ‘sex’ and the interaction variable were not significant. Therefore, the interaction term was removed from the analysis and the models tested the impact

of mental health status controlling for sex. The results from these models would analyze whether an individual who rated their mental health positively has any relation to the endorsement of the explanatory variables. It is predicted that an individual with worse mental health would be more willing to reach out for help from a therapist and that those with better mental health would be more likely to seek help from a religious leader/imam, more likely to use mosque mental health services, and more likely to use either one of the religious coping mechanisms. If a significant correlation exists between the endorsement of religious coping mechanisms and seeking help from an Imam or using mosque mental health services among those who rated having better mental health, then a pattern can be assumed of religion potentially having a protective effect on an individual's mental health.

4.3.1 Are the odds of seeking help from a mental health professional or a religious leader/imam related to self-reported mental health status controlling for sex?

Against a significance level of .01, it is less likely for someone with better mental health to reach out for help from a mental health professional/therapist [p-value-.0016]. As seen in Table 11 below, for every unit increase in mental health status, there is an expected .8767 decrease in the log odds of using a therapist. The odds ratio for using a therapist for every unit increase in mental health status on the scale=.416. This would mean that someone with worse mental health would be more likely to reach out to a mental health professional/therapist. However, as displayed in Table 11, there was not a significant relationship between mental health status and an individual's response to seeking help from a religious leader/Imam [p-value=.1063]. There is not sufficient data to say that someone with better mental health would reach out to a religious leader/imam. As seen in the frequency table (Table 13) below, it

important to note that this sample only had 10 responses for ‘Imam’ among both male and female participants and 21 responses went towards ‘Therapist’.

Table 11: Analysis of Maximum Likelihood and Odds Ratio Estimates-Therapist/Mental Health Professional

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	1.4605	0.9191	2.5251	0.112
Mental Health Status	1	-0.8767	0.3473	6.3719	0.0116
Sex	1	0.3719	0.6149	0.3659	0.5452

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Mental Health Status	0.416	0.211	0.822
Sex	1.451	0.435	4.841

Table 12: Analysis of Maximum Likelihood and Odds Ratio Estimates-Religious Leader/Imam

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-4.3654	1.6014	7.4307	0.0064
Mental Health Status	1	0.8114	0.5024	2.6079	0.1063
Sex	1	0.6909	0.7227	0.9139	0.3391

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Mental_Health_Status	2.251	0.841	6.026
Sex	1.996	0.484	8.227

Table 13: Frequency Tables for Therapist and Imam

Have you ever been to a therapist or mental health professional to help with your mental health wellbeing?			Have you ever been to an Imam/religious leader about your mental health?	
Response	Frequency	Percent	Frequency	Percent
No	44	67.69	55	84.62
Yes	21	32.31	10	15.38

4.3.2 Are the odds of using 'worship' and 'religious lectures' as a coping mechanism related to self-reported mental health status controlling for sex?

Against a significance level of .01, there was not a significant relationship between either 'worship'[p-value=.1843] or 'religious lectures'[p-value=.2721] and self-reported mental health status controlling for sex. Therefore, there is not sufficient data to say that an individual with better mental health would be more likely to choose religious coping mechanisms.

Table 14: Analysis of Maximum Likelihood and Odds Ratio Estimates -Worship

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	0.1145	0.9765	0.0137	0.9067
Mental Health Status	1	0.4911	0.3699	1.7624	0.1843
Sex	1	0.2897	0.7437	0.1517	0.6969

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Mental Health Status	1.634	0.791	3.374
Sex	1.336	0.311	5.74

Table 15: Analysis of Maximum Likelihood and Odds Ratio Estimates- Religious Lectures

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.3111	0.8453	0.1354	0.7129
Mental Health Status	1	0.3342	0.3043	1.2062	0.2721
Sex	1	-0.5801	0.5551	1.0924	0.2959

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.3111	0.8453	0.1354	0.7129
Mental Health Status	1	0.3342	0.3043	1.2062	0.2721
Sex	1	-0.5801	0.5551	1.0924	0.2959

4.3.4 Are the odds of using mental health services provided by a mosque related to self-reported mental health status controlling for sex?

At a significance level of .01 using Bonferroni correction, controlling for mental health status, there was not a significant relationship between willingness to use mental health services provided by a mosque and an individual's self-reported mental health status [p-value-.51]. In frequency table below (Table 16), it is seen that more women were willing to use mosque mental health services as compared to men. Approximately 43% of the female responded said they would be somewhat or very likely in using these services as compared to 19% of men who said they were somewhat or very likely to do so [OR=.288].

Table 16: Analysis of Maximum Likelihood and Odds Ratio Estimates -Mental Health Services

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.8302	0.905	0.8416	0.359
Mental Health Status	1	0.2099	0.3204	0.4294	0.5123
Sex	1	-1.2461	0.647	3.7088	0.0541

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Menta Health Status	1.234	0.658	2.311
Sex	0.288	0.081	1.022

Table 17: Frequency Table- Sex by Mental Health Services

Table of Sex by Mental Health Services		
Sex **n (row %)**	Very and somewhat likely	Very and somewhat unlikely
Female	19 (43.18)	25 (56.82)
Male	4 (19.05)	17 (80.95)
Total	23	42

4.3.5 Follow-Up Analysis: Are the odds of using non-religious coping mechanisms related to self-reported mental health status controlling for sex?

Since mental health status was seen to be a better predictor of coping mechanisms as compared to sex, logistic regression models were also run for each of the non-religious coping mechanisms controlling for sex. The model considered the responses ‘Very Likely’ and ‘Somewhat Likely’ recoded as ‘1’. Against a Bonferroni correction of .0125 (.05/4), there were no models that rendered any significant results.

Chapter V

Discussion

5.1 Interpretation of Findings

The purpose of this study was to highlight any significant sex differences in mental health coping mechanisms and mental health status in a sample of young adult American Muslims living in Atlanta, Georgia. Culture and religion differ vastly across the United States, a country continually becoming more diverse. Previous research highlighted the importance of studying mental health among minority groups separately from each other, especially among Muslim samples (Ciftci et al., 2012). This study differed from previous ones by specifically analyzing sex differences in an all-Muslim sample, whereas other studies analyzed samples of various ethnicities and religious denominations (Ciftci et al., 2012). Additionally, this study sought to examine whether religion was associated with positive mental health conditions and whether it was used as a coping mechanism among Muslims. As prior research suggested, religion is classified as a positive/healthy coping mechanism (Dewa et al., 2020). Ciftci et al. (2012) briefly highlighted the importance of not undermining the "strengths of Muslim attitudes toward mental illness" (p. 27). This research used the opportunity to further explore the impact that Islam may have on mental health among young adult Muslims.

The sample had an uneven distribution between male and female respondents. The goal was to have an equal number of male and female respondents to maximize power for analyses. It is possible that due to this discrepancy, there were no significant sex differences seen for any of the coping mechanisms. However, there were notable patterns in the frequency of responses between male and female participants. For example, more females than males responded that

they were very unlikely to use substances as a coping mechanism. This was similar to the study conducted by Prowse et al. (2021) in which he concluded that for men, "…the negative impact of COVID-19 on stress and mental health was more strongly associated with increased coping through the use of cannabis, alcohol, and vaping nicotine**.**.." (p. 8). Therefore, our data is consistent with the fact that it is not as likely for females to resort to substance use as a mental health coping mechanism. There was also a noticeable pattern of females saying that they were likely to use social media as a coping mechanism. Prowse et al. (2021) reported that "more female students reported social isolation being difficult/very difficult compared to males" (p. 5). In order to combat social isolation, it is possible that females resort to using social media to feel connected to friends or family.

Additionally, there was no significant sex difference in mental health status. According to the NIH (2022), females tended to show a higher prevalence of mental health illnesses compared to males. The frequency table showed that men and women had a generally even distribution between all responses. One notable pattern was that a slightly higher percentage of male respondents said they had excellent and moderate overall mental health as compared to female respondents.

There were also no significant sex differences in the choice of seeking help between a therapist or religious leader/imam. These results differed from previous research studies on sex differences regarding mental health. Other studies concluded that females tended to reach out to therapists more so than males (Ciftci et al., 2012). However, our sample also had more female participants than males which could account for the lack of significance. The sample comprising of more female respondents follows a theme presented by Rassoulian et al. (2021) in which she states that "women more easily talk about their emotions and are more used to sharing their

feelings and worries with others, whereas men tend to avoid disclosure of their disease and talking about their emotions" (p. 468). It is possible that the survey stood out to female respondents more than male respondents because it provided a forum to communicate their experience with mental health since the topic of mental health was mentioned in the title survey. Males may feel hindered due to societal pressure from reaching out for help regarding their mental health as suggested by Noorwali et al., (2022), and could account for avoiding participation in this research. Noorwali et al., (2022) also described the difficulty of acquiring male participants in their study.

There were no significant relationships between mental health status and religious coping mechanisms controlling for sex. It should be noted however, that there was a higher percentage between both males and females who responded that they would be likely to use worship as compared to religious lectures and that a higher percentage of men chose worship. This could potentially be signaling to the private nature of worship being less anxiety-inducing, whereas, attending a religious lecture, typically a public event, requires visiting the mosque and could be a source of stress or anxiety. This is also consistent with the response to the question of utilizing mental health services at the mosque in which 65% of the survey respondents said that were somewhat unlikely or very unlikely to do so. It should be noted, however, that the data showed more females than males would utilize mental health services provided by a mosque and that there was nearly a significant relationship between sex and 'UseMHservices' controlling for an individual's mental health status. In the follow-up test of independence between 'UseMHservices' and 'religious lecture', the high p-value (.09) indicated that there was no dependence between this two variables. Further research can also be done to examine whether American Muslims view their local mosque as a safe space or not in regard to whether it benefits

or harms their mental health. Research can explore if this is different for males and females or if other factors are involved such as domestic/familial situation, economic stability, educational background, and whether an individual is an immigrant or American-born, etc.

Follow-up analysis was also done to test the relationship between the non-religious coping mechanisms and mental health status controlling for sex. There were no significant relationships resulting from the models. However, using phone/video calls to connect with friends or visiting friends in person and an individual's mental health status had the closest p-value (.0384) against the significance level (.0125). This is consistent with mental health research in which social interaction is seen to be a protective factor (Oliveros et al., 2022). There may be sex differences in using online platforms vs. seeing friends in person which may be worth looking into for future research. This question posed both forms of social interaction making it unclear to decipher whether there was a preference between the two.

There was a significant relationship between mental health status and seeking help from a therapist/mental health professional controlling for sex. This differed from previous studies in which Ciftci et al. (2012, p. 26) highlighted that "In… a study of Muslim Americans…, significantly greater numbers of participants reported willingness to seek help from family members (21%) or a religious leader (19%) than from mental health professionals (11%). The results from this study showed that approximately 15% of the respondents had reached out to an imam/religious leader in regard to their mental health compared to 32% of respondents who had reached out to a mental health professional/therapist. One potential explanation for these results is that mental health is viewed as a taboo topic among different Muslim cultures (Ciftci et al., 2012) and this may be the source of hesitancy for Muslim young adults in reaching out to religious leaders or visiting mosques for help regarding their mental health. Additionally, the

models testing this relationship was limited due to the inability of adding the predictor on religiosity level. The purpose of asking whether an individual considered themselves to be *practicing* or not was because there are some Muslims who do not adhere to all Islamic guidelines and there are some Muslims who do adhere to Islamic guidelines. It is possible that this question was not worded accurately enough. Therefore, a person who may not have been practicing as defined by the researcher's standard, also answered 'yes' to this question because they still considered themselves to be Muslim by title.

5.2 Study Limitations

Some limitations should be considered when interpreting the findings from this study. Due to the nature of this study being an exploratory analysis, causation cannot be established. Correlations and general patterns were explicated to guide future research on this topic. Additionally, the scales used for the coping mechanisms were a 4-point Likert scale with no neutral option, potentially distorting the respondents' true opinion of the question. Similarly, the question for mental health status included four options and may not accurately represent the respondents' rating of their mental health. Furthermore, the uneven distribution between male and female responses should be considered when analyzing the results as well as the limitation to gathering responses from only one U.S. city. These patterns may potentially not be generalizable to other U.S. cities with a significant Muslim population.

5.3 Suggestions for Future Research

Considering these limitations, studies of this nature may benefit from gathering a larger sample ensuring an even distribution of men and women and to establish a higher power for more accurate analysis. Additionally, a broader sample should be considered in terms of location

and the age range. It would be beneficial to study several different metropolitan cities in the U.S, with large Muslim populations as well as look at other age ranges for comparison. It would also be advisable to add more coping mechanisms in the non-religious categories such as exercise, sleeping, reading, and watching tv shows, and to separate the different acts of worship as separate religious coping mechanisms.

5.4 Conclusion

The goal of this research activity was to explore the nature of religious beliefs and practices as it related to the coping mechanisms for mental health distress and mental health status among a sample of young adult Muslims living in Atlanta and whether there were any sex differences. The results showed that there may be a possible disconnect between Islamic religious leaders and Islamic places of worship utilizing the tenets of Islam correctly in relation to serving as a support system for young adults regarding their mental health. The analysis offered an insight that there exists a variation in how individuals cope with their mental health, even among the same religious background and same level of religiosity and that not all favor using religious coping mechanisms. Although this sample was small, certain sex differences in coping mechanisms were also noted and should be further explored.

Future efforts should focus on coupling mental health therapy with the preventative approaches as explained by Islamic concepts when dealing with Muslim patients and whether there needs to be a different appeal to male vs. female patients. These Islamic concepts include building positive qualities and avoiding negative qualities which can be achieved through “Faith, prayer, hope, patience, and taking responsibility” (Haque, 2004, p.55). This data should signal to local mosques and religious leaders that fluency and awareness of the mental health problems

afflicting adolescents and young adults in their respective communities is essential. Receiving training by qualified therapists and ensuring the implementation of the abovementioned Islamic concepts would serve to couple mental health therapy and Islam. The religious community should be the source of healthy coping mechanisms not the reason why people resort to harmful ones and should seek to harness the potential of bolstering the positive impact that Islam can have on mental health. Mosques and Islamic centers need to strive to become safe spaces and eliminate the taboo surrounding mental health and integrate the community with awareness. Organizations have already been established for the purposes of providing health and wellness to the Muslim community. Examples include the Islamic Health and Human Services in Detroit, Michigan and the Islamic Social Services Association in Virginia (Haque, 2004). These models serve as a template to be followed and implemented across the United States.

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