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Prevalence of Anxiety and Depression during the COVID-19 Pandemic in a Sample of Houston-Based Middle Eastern and North African Residents

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Abstract: The COVID-19 pandemic has contributed to anxiety and depression in many communities across the United States. Here, we have focused on a sample of Houston-based Middle Eastern and North African (MENA) residents and assessed the prevalence of anxiety and depression in this community. The 7-item Generalized Anxiety Disorder and the 9-item Patient Health Questionnaires were used to identify the prevalence and severity of anxiety and depression, respectively. A sociodemographic, general health, and COVID-19 survey was used for a multivariable logistic regression model to determine predictors of anxiety and depression. The outcome of interest was "minimal/mild" versus "moderate/severe" anxiety and depression. A total of 368 participants completed the survey, with 24.73% reporting "moderate/severe" anxiety and 31.79% reporting "moderate/severe" depression. Male participants were less likely (OR = 0.29, 95% CI = 0.12, 0.75) to have "moderate/severe" anxiety compared to females. Respondents with self-reported depression were more likely (OR = 3.41, 95% CI = 1.33, 8.83) to have "moderate/severe" depression. Participants who reported having "Excellent/Good knowledge" about the prevention of COVID-19 spread were less likely (OR = 0.37, 95% CI = 0.15, 0.93) to have "moderate/severe" depression, and less likely (OR = 0.22, 95% CI = 0.07, 0.64) to have "moderate/severe" anxiety, compared to those who had "average/poor/terrible" knowledge. Identified predictors may be critical for designing culturally sensitive interventions to improve the healthcare of MENA Americans.

Keywords: COVID-19; anxiety; depression; MENA Americans

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1. Introduction

Mental health disorders are currently among the leading causes of the health-related burden. According to the Center for Behavioral Health Statistics and Quality, the lead Federal government agency for behavioral health data and research, an estimated 1 in 5 United States (US) adults (43.6 million) suffer from a mental illness and 1 in 23 US adults (9.8 million) suffer from a seriously debilitating mental illness [1]. The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019 revealed that depression and anxiety were the two most disabling mental health disorders, regardless of gender, age, and geographical location [2]. Although various successful interventions exist to reduce the impact of mental disorders, there has been no reduction in the global prevalence for either disorder since 1990 [3]. The coronavirus disease 2019 (COVID-19) pandemic has emerged as the most consequential global health crisis since the influenza pandemic of 1918 [4]. COVID-19 is caused by the highly infectious severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), resulting in almost 6 million deaths worldwide (WHO, February 2022).

The COVID-19 pandemic has also potentiated mental health disorders amongst millions of Americans [5].

According to the American Psychiatric Association, although ethnic/racial minorities experience mental illness at similar or lower rates than White Americans, people of color often bear a disproportionately higher burden of disability resulting from a mental disorder [6]. Continual systemic social injustice and discrimination connected to living conditions and employment environments, which add to disparities in underlying medical conditions, can further exacerbate their health problems during the COVID-19 pandemic [7,8]. Given the higher risks of mental illnesses, complex care needs, and chronic stressors, COVID-19 seems to deliver a double blow to minoritized and marginalized communities [9,10]. The Middle Eastern and North African (MENA) community is no exception. The MENA community is a historically understudied and underserved population in the US, due to their federal categorization as "white" on the US Census and other standardized surveys [11]. Consequently, health data specific to the MENA American community is limited due to the lack of a racial identifier to distinguish them in population studies [12].

It is estimated that 3.5 million MENA individuals reside in the United States [13], with approximately 281,000 residing in Texas, making it the fourth largest MENA population in the country [14,15]. About 98,300 MENA residents reside in the Houston area (Houston Chronicle), with the majority residing in the Harris and Fort Bend counties (The Texas Tribune, 2020) [16]. Therefore, our study focused on the MENA individuals residing in the Harris and Fort Bend counties of Houston, Texas. Only a handful of studies have examined the health behaviors of MENA Americans [13,17–20], emphasizing the need to conduct more specified systematic studies in this important community. To fill this gap, we aimed to assess symptoms of depression, anxiety, and their predictors among a sample of MENA individuals residing in Houston, Texas during the COVID-19 pandemic. Understanding these predictors within this minority population is the initial step in designing culturally sensitive interventions to combat depression and anxiety and improve the mental health of MENA Americans. Doing so would enable culturally sensitive strategies to be developed to help combat stigma, one of the most prevalent barriers to accessing formal mental health services among Arab Americans [20], and would also help alleviate COVID-19 vaccination hesitancy and other preventive interventions within these communities [18].

2. Materials and Methods

2.1. Study Participants

This was a cross-sectional survey-based study conducted among a sample of MENA Houston residents between July 2021 and August 2021. All methods and survey instruments used were approved by the Institutional Review Board (IRB, #STUDY00003078) Committee for the Protection of Human Subjects, University of Houston, TX, USA. The current study was carried out during the COVID-19 pandemic; therefore, all institutional guidelines were followed. After the UH-IRB Committee approved the study protocol, we distributed a digital, bilingual (English and Arabic) survey using the REDCap platform to the MENA community via the Houston-based 501(C)(3) non-profit organization Multi Cultural Center (MCC), Webster, TX, USA (http://www.multiculturalcenter.net/, accessed on 7 January 2021). The survey link was distributed via email to the MCC listserv. The MCC organization actively communicates with the Houston community, including MENA individuals. The survey link was also sent via social media to MENA individuals identified as such by the study team. When the REDCap survey was distributed, 409 individuals opened the survey. Out of the 409 individuals, 368 completed the survey at a 90–100% completion rate leading to an 89.9% response rate.

2.2. Data Collection

Participants' demographic data, general health perception, COVID-19-related questions, and mental health symptoms were evaluated using a validated survey created by Dr.

Nadia Abuelezam [15,18]. Sociodemographic and general health data collected included: gender, education, age, marital status, residency status, religion, annual income, health insurance status, smoking status, alcohol consumption status, overall health, and chronic disease comorbidities. The nine-item Patient Health Questionnaire (PHQ-9) scale was used for the assessment of depression symptoms, and the seven-item Generalized Anxiety Disorder (GAD-7) scale for the assessment of anxiety symptoms. The PHQ-9 is a nine-item self-reported instrument used to assess the prevalence and severity levels of depression symptoms experienced by participants over a two-week time period. The depression scale has been used to score each of the nine DSM-IV criteria. Participants were asked to score each item on a four-point Likert scale ranging from 0 to 3. Each item's computed score was summed by adding each item to obtain a participant's total score. The total scores range from 0 to 27 scale and are divided into five categories: minimal (1–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe depression (20–27) [21]. The GAD-7 scale is a seven-item self-reported anxiety questionnaire used in primary care and general populations. Participants were asked to score each item on a four-point Likert scale ranging from 0 to 3. Each item's computed score was summed to obtain a participant's total score. The total scores range from 0 to 21 scale and are divided into four categories: minimal (0–4), mild (5–9), moderate (10–14), and severe anxiety (15–21) [22].

2.3. Statistical Analysis

The G-power 3.1 statistical program was used to estimate the sample size. Since the MENA population in Houston is projected to be 98,300 people, a total of 242 participants were required to provide 80% power for a chi-square analysis at a 0.05-level with a 0.15 effect size. Furthermore, we determined that the minimum sample size of 308 patients would offer 80% power to detect an odds ratio of 1.5 for a two-tailed analysis at a 0.05 alpha level using logistic regression. Descriptive analysis was used to describe participants' sociodemographic, general health, and responses to COVID-19-related questions. All categorical variables had their frequencies computed and described as percentages. For categorical data, chi-square tests were used to analyze group differences.

To assess determinants of anxiety as well as depression during COVID-19, two multivariable logistic regression models were carried out. Outcome variables in these models were severity of depression as well as anxiety categorized as "moderate/severe" vs. minimal/mild" based on the GAD-7 and PHQ-9 total scores. Independent variables that were included in the model were gender, age, education, marital status, residency status, annual household income, religion, smoking status, alcohol consumption status, health insurance, general health perception, and comorbidities such as hypertension, hypercholesterolemia, obesity, and self-reported anxiety or self-reported depression. The COVID-19-related variables that were included in the model were prior infection, perceived infection risk, perceived severity of infection, perceived knowledge on preventing COVID-19 spread, nightmares about COVID-19, tried hard not to think about COVID-19, felt numb, capacity to perform errands and social activities, and reported capacity to avoid infection. SAS version 9.4 (SAS Institute, Cary, NC, USA) was used for all statistical analyses, with an a priori significance threshold of 0.05.

3. Results

3.1. Characteristics of the Study Participants

The sociodemographic characteristics, PHQ-9 scores, and GAD-7 scores of the participants are summarized in Tables 1 and 2. The sample size was 368 participants, 66.03% of them being males. The majority of the participants (n = 248, 67.39%) were within the age group 26–39 years. Most of the respondents, 73.91%, reported being married/living with a partner. The average annual income for 41.58% of the respondents (n = 153) was less than USD 45,000 a year. More than half (53.26%) of the respondents identified themselves as Muslims, 34.24% as Christians, and 12.50% as Jewish/others. Of all the participants around 39.13% reported smoking cigarettes or hookah and 31.52% reported using alcoholic

beverages. Most respondents (n = 240, 65.22%) self-reported "very good/good" general health, while some of the respondents reported the following health issues: hypertension (14.67%), high cholesterol (13.04%), and obesity (14.13%). Around one-third (28.53%) of the respondents reported having anxiety issues, and (21.20%) self-reported depression. In this sample, 69 individuals (18.96%) had COVID-19 infection. While 75.96% believed to have excellent/good information and knowledge on preventing COVID-19 spread. Only 41 individuals (11.23%) declared a high likelihood of acquiring COVID-19 infection, and 14.09% reported that avoiding COVID-19 infection is extremely/somewhat difficult. The average GAD-7 score for anxiety in this sample was 5.6 (SD = 4.9) and the average PHQ-9 score for depression was 6.9 (SD = 5.8). A strong positive significant correlation (r = 0.866, $p < 0.001$) was found between GAD-7 and PHQ-9 total scores as indicated by the Pearson correlation coefficient.

Table 1. Baseline demographic and other characteristics of the participants across anxiety levels.

Variable	Minimal/Mild	Moderate/Severe	Total (%)	*p*-Value
	N = 277 (75.27%)	**N = 91 (24.73%)**	**N = 368 (100%)**	
Gender				
Male	192 (69.31)	51 (56.04)	243 (66.03)	0.02 *
Female	85 (30.69)	40 (43.96)	125 (33.97)	
Age (Years)				
18–25	68 (24.55)	19 (20.88)	87 (23.64)	0.63
26–39	183 (66.06)	65 (71.43)	248 (67.39)	
≥40	26 (9.39)	7 (7.69)	33 (8.97)	
Education				
High school or less	38 (13.72)	12 (13.19)	50 (13.59)	0.77
Some college or associate degree	75 (27.08)	26 (28.57)	101 (27.45)	
College degree	137 (49.46)	41 (45.05)	178 (48.37)	
Graduate degree	27 (9.75)	12 (13.19)	39 (10.60)	
Marital Status				
Married/living with a partner	207 (74.73)	65 (71.43)	272 (73.91)	0.53
Never married/divorced/other	70 (25.27)	26 (28.57)	96 (26.09)	
Residency Status				
Own	198 (71.48)	55 (60.44)	253 (68.75)	0.05 *
Rent	79 (28.52)	36 (39.56)	115 (31.25)	
Annual Household Income				
less than USD 45,000	117 (42.24)	36 (39.56)	153 (41.58)	0.37
USD 45,000 to less than USD 65,000	68 (24.55)	29 (31.87)	97 (26.36)	
Equal or greater than USD 65,000	92 (33.21)	26 (28.57)	118 (32.07)	
Religion				
Christian	103 (37.18)	23 (25.27)	126 (34.24)	0.10
Muslim	142 (51.26)	54 (59.34)	196 (53.26)	
Jewish/other	32 (11.55)	14 (15.38)	46 (12.50)	

Table 1. *Cont.*

Variable	Minimal/Mild	Moderate/Severe	Total (%)	*p*-Value
	N = 277 (75.27%)	N = 91 (24.73%)	N = 368 (100%)	
Health Insurance				
Yes	221 (79.78)	72 (79.12)	293 (79.62)	0.89
No	56 (20.22)	19 (20.88)	75 (20.38)	
Overall Health				
Excellent	93 (33.57)	13 (14.29)	106 (28.80)	0.0009 **
Very good/good	171 (61.73)	69 (75.82)	240 (65.22)	
Fair/poor	13 (4.69)	9 (9.89)	22 (5.98)	
Hypertension				
Yes	36 (13)	18 (19.78)	54 (14.67)	0.25
No	234 (84.48)	70 (76.92)	304 (82.61)	
Don't know	7 (2.53)	3 (3.30)	10 (2.72)	
High Cholesterol				
Yes	33 (11.91)	20 (17.09)	48 (13.04)	0.39
No	236 (85.20)	72 (79.12)	308 (83.70)	
Don't Know	8 (2.89)	4 (4.40)	12 (3.26)	
Obesity				
Yes	41 (14.80)	11 (12.09)	52 (14.13)	0.77
No	222 (80.14)	76 (83.52)	298 (80.98)	
Don't Know	14 (5.05)	4 (4.40)	18 (4.89)	
Self-Reported Anxiety				
Yes	69 (24.91)	36 (39.56)	105 (28.53)	0.03 *
No	196 (70.76)	52 (57.14)	248 (67.39)	
Don't Know	12 (4.33)	3 (3.30)	15 (4.08)	
Smoke				
Yes	103 (37.18)	41 (45.05)	144 (39.13)	0.18
No	174 (62.82)	50 (54.95)	224 (60.87)	
Drink Alcohol				
Yes	81 (29.24)	35 (38.46)	116 (31.52)	0.10
No	196 (70.76)	56 (61.54)	252 (68.48)	
Nightmares about COVID-19	**That you had nightmares about it when you did not want to?**			
Yes	106 (38.27)	63 (69.23)	169 (45.92)	0.0001 **
No	171 (61.73)	28 (30.77)	199 (54.08)	
Tried hard not to think about COVID-19	**That you tried hard not to think about it, or avoid situations that reminded you of it?**			
Yes	95 (34.30)	61 (67.03)	156 (42.39)	0.0001 **
No	182 (65.70)	30 (32.97)	212 (57.61)	

Table 1. *Cont.*

Variable	Minimal/Mild	Moderate/Severe	Total (%)	*p*-Value
	N = 277 (75.27%)	**N = 91 (24.73%)**	**N = 368 (100%)**	
Constantly on Guard	**That you were constantly on guard, watchful, or easily startled?**			
Yes	88 (31.77)	57 (62.64)	145 (39.40)	0.0001 **
No	189 (68.23)	34 (37.36)	223 (60.60)	
Felt Numb	**That you felt numb or detached from others, activities, or your surroundings?**			
Yes	71 (25.63)	47 (51.65)	118 (32.07)	0.0001 **
No	206 (74.37)	44 (48.35)	250 (67.93)	
Difficulty doing Errands	**Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting doctors or hopping?**			
No difficulty	147 (59.04)	28 (24.35)	175 (48.08)	0.0001 **
Some difficulty	84 (33.73)	46 (40.00)	130 (35.71)	
A lot of difficulty/cannot do at all	18 (7.23)	41 (35.65)	59 (16.21)	
Difficulty Participating in Social Activities	**Because of a physical, mental, or emotional condition, do you have difficulty participating in social activities?**			
No Difficulty	155 (86.59)	24 (13.41)	179 (48.91)	0.0001 **
Some Difficulty	99 (72.26)	38 (27.74)	137 (37.43)	
A lot of Difficulty/Cannot do at all	22 (44.00)	28 (56.00)	50 (13.66)	
Infected with COVID-19				
Yes	44 (16.00)	25 (28.09)	69 (18.96)	0.01 *
No	231 (84.00)	64 (71.91)	295 (81.04)	
Knowledge how to Prevent COVID-19 Spread				
Excellent/Good	224 (81.16)	54 (60.00)	278 (75.96)	0.0001 **
Average/Poor/Terrible	52 (18.84)	36 (40.00)	88 (24.04)	
COVID-19 Infection Risk				
Extremely likely	32 (11.64)	9 (10.00)	41 (11.23)	0.71
Somewhat likely	106 (38.55)	39 (43.33)	145 (39.73)	
Neither likely nor unlikely/Somewhat/Extremely unlikely	137 (49.82)	42 (46.67)	179 (49.04)	
COVID-19 Infection Severity				
Extremely severe	58 (21.40)	10 (6.74)	64 (17.78)	0.02 *
Somewhat severe	115 (42.44)	41 (46.07)	156 (43.33)	
Neither severe nor mild	66 (69.47)	29 (32.58)	95 (26.39)	
Somewhat/Extremely mild	32 (11.81)	13 (14.61)	45 (12.50)	
Avoiding COVID-19 Infection				
Extremely/Somewhat easy	160 (58.61)	40 (44.94)	200 (55.25)	0.03 *
Neither easy nor difficult	74 (27.11)	37 (41.57)	111 (30.66)	
Somewhat/Extremely difficult	39 (14.29)	12 (13.48)	51 (14.09)	
COVID-19 Vaccination				
Yes	62 (22.46)	20 (22.22)	82 (22.40)	0.96
No	214 (77.54)	70 (77.78)	284 (77.60)	

* $p < 0.05$; ** $p < 0.001$.

Table 2. Baseline demographic and other characteristics of the participants across depression levels.

Variable	Minimal/Mild N = 251 (68.20%)	Moderate/Severe N = 117 (31.79%)	Total (%) N = 368 (100%)	*p*-Value
Gender				
Male	167 (66.53)	76 (64.96)	243 (66.03)	0.77
Female	84 (33.47)	41 (35.04)	125 (33.97)	
Age (Years)				
18–25	68 (27.09)	19 (16.24)	87 (23.64)	0.06
26–39	160 (63.75)	88 (75.21)	248 (67.39)	
≥40	23 (9.16)	10 (8.55)	33 (8.97)	
Education				
High school or less	37 (14.74)	13 (11.11)	50 (13.59)	0.58
Some college or associate degree	64 (25.50)	37 (31.62)	101 (27.45)	
College degree	123 (49)	55 (47.01)	178 (48.37)	
Graduate degree	27 (10.76)	12 (10.26)	39 (10.60)	
Marital Status				
Married/living with a partner	182 (72.51)	90 (76.92)	272 (73.91)	0.37
Never married/divorced/other	69 (27.49)	27 (23.08)	96 (26.09)	
Residency Status				
Own	182 (72.51)	71 (60.68)	253 (68.75)	0.02 *
Rent	69 (27.49)	46 (39.32)	115 (31.25)	
Annual Household Income				
less than USD 45,000	106 (42.23)	47 (40.17)	153 (41.58)	0.26
USD 45,000 to less than USD 65,000	60 (23.90)	37 (31.62)	97 (26.36)	
Equal or greater than USD 65,000	85 (33.86)	33 (28.21)	118 (32.07)	
Religion				
Christian	95 (37.85)	31 (26.50)	126 (34.24)	0.07
Muslim	129 (51.39)	67 (57.26)	196 (53.26)	
Jewish/other	27 (10.76)	19 (16.24)	46 (12.50)	
Health Insurance				
Yes	204 (81.27)	89 (76.07)	293 (79.62)	0.25
No	47 (18.73)	28 (23.93)	75 (20.38)	
Overall Health				
Excellent	95 (37.85)	11 (9.40)	106 (28.80)	0.0001 **
Very good/good	144 (57.37)	96 (82.05)	240 (65.22)	
Fair/Poor	12 (4.78)	10 (8.55)	22 (5.98)	
Hypertension				
Yes	30 (11.95)	24 (20.51)	54 (14.67)	
No	217 (86.45)	87 (74.36)	304 (82.61)	
Don't know	4 (1.59)	6 (5.13)	10 (2.72)	
High Cholesterol				
Yes	28 (11.16)	20 (17.09)	48 (13.04)	0.09
No	217 (86.45)	91 (77.78)	308 (83.70)	
Don't know	6 (2.39)	6 (5.13)	12 (3.26)	
Obesity				
Yes	35 (13.94)	17 (14.53)	52 (14.13)	0.08
No	208 (82.87)	90 (76.92)	298 (8.98)	
Don't know	8 (3.19)	10 (8.55)	18 (4.89)	
Self-Reported Depression				
Yes	36 (14.34)	42 (35.90)	78 (21.20)	0.0001 **
No	209 (83.27)	66 (56.41)	275 (74.73)	
Don't Know	6 (2.39)	9 (7.69)	15 (4.08)	
Smoke				
Yes	91 (36.25)	53 (45.30)	144 (39.13)	0.01 *
No	160 (63.75)	64 (54.70)	224 (60.87)	
Drink Alcohol				
Yes	69 (27.49)	47 (40.17)	116 (31.52)	0.01 *
No	182 (72.51)	70 (59.83)	252 (68.48)	

Table 2. *Cont.*

Variable	Minimal/Mild N = 251 (68.20%)	Moderate/Severe N = 117 (31.79%)	Total (%) N = 368 (100%)	*p*-Value
Nightmares about COVID-19	**That you had nightmares about it when you did not want to?**			
Yes	94 (37.45)	75 (64.10)	169 (45.92)	0.0001 **
No	157 (62.55)	42 (35.90)	199 (54.08)	
Tried hard not to think about COVID-19	**That you tried hard not to think about it, or went out of your way to avoid situations that reminded you of it?**			
Yes	85 (33.86)	71 (60.68)	156 (42.39)	0.0001 **
No	166 (66.14)	46 (39.32)	212 (57.61)	
Constantly on Guard	**That you were constantly on guard, watchful, or easily startled?**			
Yes	83 (33.07)	62 (52.99)	145 (39.40)	0.0003 **
No	168 (66.93)	55 (47.01)	223 (60.60)	
Felt Numb	**That you felt numb or detached from others, activities, or your surroundings?**			
Yes	63 (25.10)	55 (47.01)	118 (32.07)	0.0001 **
No	188 (74.90)	62 (52.99)	250 (67.93)	
Difficulty Doing Errands	**Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor or shopping?**			
No difficulty	147 (59.04)	28 (24.35)	175 (48.08)	0.0001 **
Some difficulty	84 (33.73)	46 (40.00)	130 (35.71)	
A lot of difficulty/cannot do at all	18 (7.23)	41 (35.65)	59 (16.21)	
Difficulty Participating in Social Activities	**Because of a physical, mental, or emotional condition, do you have difficulty participating in social activities?**			
No difficulty	147 (58.80)	32 (27.59)	179 (48.91)	0.0001 **
Some difficulty	87 (34.80)	50 (43.10)	137 (37.43)	
A lot of difficulty/cannot do at all	16 (6.40)	34 (29.31)	50 (13.66)	
Infected with COVID-19				
Yes	37 (14.92)	32 (27.59)	69 (18.96)	0.01 *
No	211 (85.08)	84 (72.41)	295 (81.04)	
Knowledge How to Prevent COVID-19 Spread				
Excellent/good	204 (81.93)	74 (63.25)	278 (75.96)	0.0001 **
Average/poor/terrible	45 (18.07)	43 (36.75)	88 (24.04)	
COVID-19 Infection Risk				
Extremely likely	29 (11.69)	12 (10.26)	41 (11.23)	0.58
Somewhat likely	94 (37.90)	51 (43.59)	145 (39.73)	
Neither likely nor unlikely/Somewhat/Extremely unlikely	125 (50.40)	54 (46.15)	179 (49.04)	
COVID-19 Infection Severity				
Extremely severe	54 (22.13)	10 (8.62)	64 (17.78)	0.02 *
Somewhat severe	101 (41.39)	55 (47.41)	156 (43.33)	
Neither severe nor mild	62 (25.41)	33 (28.45)	95 (26.39)	
Somewhat/extremely mild	27 (11.07)	18 (15.52)	45 (12.50)	
Avoiding COVID-19 Infection				
Extremely/somewhat easy	150 (60.98)	50 (43.10)	200 (55.25)	0.001 **
Neither easy nor difficult	61 (24.80)	50 (43.10)	111 (30.66)	
Somewhat/extremely difficult	35 (14.23)	16 (13.79)	51 (14.09)	
COVID-19 Vaccination				
Yes	52 (20.88)	30 (25.64)	82 (22.40)	0.30
No	197 (79.12)	87 (74.36)	284 (77.60)	

* $p < 0.05$; ** $p < 0.001$.

3.2. Predictors of Anxiety Symptoms among the Participants

The association between various sociodemographic characteristics, general health, and COVID-19 and anxiety score are presented in Table 3. Multiple logistic regression analysis revealed that male participants were less likely (OR = 0.29, 95% CI = 0.12, 0.75) to have "moderate/severe" anxiety compared to female participants. Individuals who responded "Yes" to the question "You had nightmares about COVID-19 or thought about it when you did not want to?" were more likely to have "moderate/severe" anxiety compared

to those who said "No" (OR = 2.85, 95% CI = 1.08, 7.49). Individuals who said "Yes" to the question "Has the COVID19 outbreak been so frightening/upsetting that you tried hard not to think about it or tried to avoid situations that reminded of it?" were more likely to have "moderate/severe" anxiety compared to those who said "No". (OR = 7.69, 95% CI = 2.53, 23.35). In addition, those having "no difficulty" (OR = 0.10, 95% CI = 0.02, 0.59) doing errands alone, such as visiting a doctor's office or shopping, because of a physical, mental, or emotional condition were less likely to have "moderate/severe" anxiety compared to those with "a lot of difficulty/can't do at all". Moreover, those having "some difficulty" (OR = 0.22, 95% CI = 0.06, 0.82) doing social activities were less likely to have "moderate/severe" anxiety compared to those who had "a lot of difficulty/can't do at all". Those who reported having "Excellent/Good knowledge" about the prevention of COVID-19 spread were less likely (OR = 0.22, 95% CI = 0.07, 0.64) to have "moderate/severe" anxiety compared to those who had "average/poor/terrible" knowledge.

Table 3. Multivariable logistic regression model for the association of anxiety and depression with sociodemographic characteristics, general health, and COVID-19 factors.

Variable	Moderate/Severe vs. Minimal/Mild Anxiety		Moderate/Severe vs. Minimal/Mild Depression	
	OR (95% CI)	***p*-Value**	**OR (95% CI)**	***p*-Value**
Gender				
Male	0.297 (0.118,0.752)	0.01 *	0.599 (0.250, 1.251)	0.16
Female	1	-	1	-
Age (Years)				
18–25	1.425 (0.137, 14.792)	0.77	0.685 (0.107, 4.396)	0.69
26–39	2.511 (0.339, 18.601)	0.37	1.128 (0.254, 5.012)	0.87
≥40	1	-	1	-
Education				
≤High School	3.086 (0.371, 25.628)	0.30	0.997 (0.157, 6.312)	0.10
Some college or associate degree	1.292 (0.23, 7.261)	0.77	0.741 (0.160, 3.426)	0.70
College degree	0.787 (0.153, 4.058)	0.77	0.417 (0.104, 1.674)	0.21
Graduate degree	1	-	1	-
Marital Status				
Married/living with a partner	0.432 (0.128, 1.456)	0.18	0. 0.665 (0.233, 1.903)	0.45
Never married/divorced/other	1	-	1	-
Living Status				
Own	0.784 (0.249, 2.471)	0.68	1.141 (0.428, 3.043)	0.79
Rent	1	-	1	-
Annual Household Income				
<USD 45,000	0.365 (0.101, 1.321)	0.12	0.440 (0.141, 1.370)	0.16
USD 45,000–$65,000	1.148 (0.366, 3.600)	0.81	0.900 (0.324, 2.504)	0.84
≥USD 65,000	1	-	1	-
Religion				
Christian	0.366 (0.122, 1.094)	0.07	0.424 (0.162, 1.109)	0.08
Jewish/other	1.716 (0.329, 8.952)	0.52	3.098 (0.866, 11.087)	0.08
Muslim	1	-	1	-
Health Insurance				
Yes	3.14 (0.951, 10.367)	0.06	2.64 (0.914, 7.624)	0.07
No	1	-	1	-
Overall Health				
Excellent	0.14 (0.012, 1.622)	0.12	0.174 (0.025, 1.219)	0.08
Very good, good	0.58 (0.065, 5.222)	0.63	1.668 (0.299, 9.318)	0.56
Fair, poor	1	-	1	-
Hypertension				
Yes	1.083 (0.237, 4.959)	0.92	0.860 (0.249, 2.969)	0.81
No	1	-	1	-

Table 3. *Cont.*

Variable	Moderate/Severe vs. Minimal/Mild Anxiety		Moderate/Severe vs. Minimal/Mild Depression	
	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
High Cholesterol				
Yes	0.528 (0.139, 2.009)	0.35	0.502 (0.150, 1.680)	0.26
No	1	-	1	-
Obesity				
Yes	0.404 (0.09, 1.822)	0.24	1.050 (0.309, 3.567)	0.94
No	1	-	1	-
Self-Reported Anxiety				
Yes	0.627 (0.223, 1.765)	0.38	-	-
No	1	-	-	-
Self-Reported Depression				
Yes	-	-	3.414 (1.325, 8.825)	0.01 *
No	-	-	1	-
Smoke				
Yes	1	-	1	-
No	0.505 (0.185, 1.377)	0.18	0.525 (0.225, 1.223)	0.14
Drink Alcohol				
Yes	1	-	1	-
No	0.353 (0.124, 1.007)	0.051	0.534 (0.215, 1.324)	0.18
Nightmare About COVID-19				
Yes	2.848 (1.084, 7.485)	0.03 *	1.664 (0.724, 3.822)	0.23
No	1	-	1	-
Tried Hard not to Think About COVID-19				
Yes	7.688 (2.531, 23.354)	0.0003 **	5.172 (2.029, 13.185)	0.0006 **
No	1	-	1	-
Constantly on Guard				
Yes	0.996 (0.374, 2.655)	0.10	0.667 (0.265, 1.656)	0.38
No	1	-	1	-
Felt Numb				
Yes	1.273 (0.47, 3.45)	0.64	1.564 (0.662, 3.693)	0.31
No	1	-	1	-
Difficulty Doing Errands				
No difficulty	0.101 (0.017, 0.585)	0.01 *	0.099 (0.020, 0.481)	0.0041 **
Some difficulty	0.364 (0.11, 1.198)	0.01 *	0.221 (0.073, 0.667)	0.0074 **
A lot of difficulty/cannot do at all	1	-	1	-
Difficulty Doing Social Activities				
No difficulty	0.182 (0.032, 1.024)	0.053	0.266 (0.057, 1.236)	0.09
Some difficulty	0.223 (0.06, 0.822)	0.02 *	0.580 (0.186, 1.808)	0.35
A lot of difficulty/cannot do at all	1	-	1	-
Infected with COVID-19				
Yes	1.752 (0.609, 5.043)	0.30	1.311 (0.512, 3.298)	0.56
No	1	-	1	-
COVID-19 Infection Risk				
Extremely likely	0.945 (0.087, 10.23)	0.96	2.631 (0.472, 14.652)	0.27
Somewhat likely	1.496 (0.53, 4.226)	0.45	2.113 (0.855, 5.218)	0.10
Neither likely nor unlikely/somewhat unlikely	1	-	1	-
COVID-19 infection Severity				
Extremely severe	0.331 (0.046, 2.362)	0.27	0.291 (0.052, 1.641)	0.16
Somewhat severe	1.738 (0.377, 8.019)	0.48	1.151 (0.307, 4.315)	0.83
Neither severe nor mild	1.186 (0.255, 5.524)	0.83	1.448 (0.367, 5.713)	0.56
Somewhat/Extremely Mild	1	-	1	-

Table 3. *Cont.*

Variable	Moderate/Severe vs. Minimal/Mild Anxiety		Moderate/Severe vs. Minimal/Mild Depression	
	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
Knowledge Prevent COVID-19 Spread				
Excellent/good	0.216 (0.073, 0.639)	0.006 *	0.369 (0.147, 0.925)	0.03 *
Average/poor/terrible	1	-	1	-
Avoiding COVID-19 Infection				
Extremely/somewhat easy	0.846 (0.212, 3.382)	0.81	0.630 (0.185, 2.146)	0.46
Neither easy nor difficult	3.581 (0.759, 16.888)	0.11	4.206 (1.109, 15.594)	0.03 *
Somewhat/extremely difficult	1	-	1	-
COVID-19 Vaccination				
Yes	0.741 (0.239, 2.297)	0.60	1.122 (0.410, 3.065)	0.82
No	1	-	1	-

* $p < 0.05$; ** $p < 0.001$. Note. OR: Odd Ratio; CI: Confidence Interval.

3.3. Predictors of Depression Symptoms among the Participants

The association between various sociodemographic characteristics, general health, COVID-19, and depression is presented in Table 3. Multiple logistic regression analysis showed that people with self-reported depression (OR = 3.41, 95% CI = 1.33, 8.83) were more likely to have "moderate/severe" depression compared to participants who reported no depression. Individuals who said "yes" to the question "Has the COVID-19 outbreak been so frightening/upsetting that you tried hard not to think about it or tried to avoid situations that reminded of it?" were more likely to have "moderate/severe" depression compared to those who said "no" (OR = 5.17, 95% CI = 2.03, 13.19). In addition, those having "no difficulty" (OR = 0.10, 95% CI = 0.02, 0.48) and those having "some difficulty" (OR = 0.22, 95% CI = 0.07, 0.67) doing errands alone such as visiting a doctor's office or shopping because of a physical, mental, or emotional condition were less likely to have "moderate/severe" depression compared to those with "a lot of difficulty/can't do at all." Moreover, those who reported having "Excellent/Good knowledge" about the prevention of COVID-19 spread were less likely (OR = 0.37, 95% CI = 0.15, 0.93) to have "moderate/severe" depression compared to those who had "Average/poor/terrible." Moreover, participants who responded, "Neither easy nor difficult" to the question "For me avoiding an infection with the novel coronavirus in the current situation is... " were more likely (OR = 4.21, 95% CI = 1.11, 15.59) to have "moderate/severe" depression compared to participants who reported "Somewhat difficult, extremely difficult".

4. Discussion

This study assessed depression, anxiety, and their predictors among a sample of MENA Houston residents during the COVID-19 pandemic. Previous studies have suggested a higher incidence of psychological distress among Arab Americans [23,24]. The majority of MENA individuals residing in the US are either refugees, immigrants, or first-generation Americans. A significant number of MENA individuals have faced political oppression or violent conflict in their country of origin before settling in the US, and often face cultural dispossession, and other resettlement stressors such as social exclusion and discrimination upon resettlement in the US [13]. In the sample surveyed, 28.53% of respondents self-reported anxiety, which is higher than the 12.4% prevalence of anxiety disorders among US immigrants [25]. Additionally, 21.20% of respondents self-reported depression which is also higher than the 15.6% aggregate prevalence of depression among international immigrants in the US [26]. Furthermore, our study showed a significant correlation between anxiety and depression, demonstrating the high comorbidity of the two disorders whose risk factors also overlap [27]. A landmark systematic review revealed that the prevalence of anxiety disorders is highest in North America (7.7%) and the MENA region (7.7%) when compared to other global regions such as Asia, Africa, and Europe [28].

In the present study, we observed that female participants were more likely to have anxiety during the COVID-19 pandemic compared to male participants, an observation which could be explained by the greater consistency of anxiety within the feminine gender role than a traditionally masculine role [29]. These results are also consistent with other studies conducted on anxiety symptoms and behaviors in MENA individuals, showing that immigrant MENA women have higher rates of anxiety [30,31]. Yussuf and colleagues [32] concluded that immigrant women in general, and women of MENA origin in particular, have higher rates of anxiety disorders compared to immigrant men and the general population, most likely from the additional sources of stressors they encounter on a daily basis such as acculturation issues, marital pressures, child care, household responsibilities, etc., thus increasing their susceptibility to anxiety and COVID-19-related worries [33]. A population-based study in the United States suggests that anxiety disorders are associated with a greater illness burden in women than in men [31]. Furthermore, the Anxiety and Depression Association of America (ADAA) explains that from the time a girl reaches puberty until about the age of 50, she is twice as likely to have an anxiety disorder as a man [34]. Findings of the study also showed that participants reporting "good/excellent" COVID-19 prevention knowledge were less likely to have anxiety, which underscores the importance of educational programs among immigrant populations, which can help control the anxiety around COVID-19 and promote prevention strategies and vaccine uptake. However, this present study did not assess the quality of the actual COVID-19 prevention knowledge since the data assessed were only self-reported. Therefore, future research should examine the quality of knowledge among this minority population to combat any misinformation.

Our study also suggests that self-reported depression appears to be reflective of potential depression as measured by the validated survey within the MENA American community. This is especially important since stigma around mental illness is one of the most prevalent barriers for MENA Americans [35]. Individuals specifically reported fears that other people would view them as "weak" if they sought therapy for mental illness [36]. There are many reasons why MENA individuals are hesitant to seek formal mental healthcare services. In MENA American communities, the most prevalent source of reported help-seeking is through informal sources such as family [37,38]. This is in line with a theory in the literature that MENA values are often aligned with the family rather than the individual [39]. In a study of Iraqi refugees in Texas, participants noted that family was the best suited for handling mental illnesses, but further clarified that they would only seek help from a medical doctor or other resources if the condition became too severe [40]. Therefore, since many MENA cultures regard the extended family as a significant source of social support and the primary route through which treatment is sought, when these individuals report symptoms of depression, such as in our study, there may be a need for professional help and medical attention. We suggest that our study emphasizes the need for developing culturally sensitive educational material to empower MENA individuals in seeking appropriate care and guidance leading to improved mental health outcomes among this immigrant population, particularly following COVID-19 pandemic.

Our findings also suggest that patients who had difficulty doing errands or visiting the doctor were more likely to be both anxious and depressed. This is consistent with the literature suggesting that individuals with physical disabilities or functional impairment often report depression and anxiety [41]. It is also well known that people with depression or anxiety disorders reported poorer physical functioning as compared to healthy controls [42,43]. However, based on this cross-sectional study, we cannot clarify if individuals' inability to do errands occurred before the anxiety and depression or afterwards (i.e., they became anxious and depressed because they cannot do errands). Future research should look at temporal relations between difficulties in doing errands and depression/anxiety.

There are several limitations of the study that must be recognized. Since this study consisted of a relatively small sample size of self-reported data, as a convenience sample, the results should be interpreted given this limitation. As a cross-sectional design, this study does not allow for cause-and-effect relationship analyses. Generalizability of the

findings is also limited to similar populations. We believe that the results of our study emphasize the need for adopting culturally sensitive interventions, including educational and public health endeavors tailored toward Houston's MENA community, thus enabling better mental health outcomes. Additionally, a greater focus needs to be placed on the social and health needs of the MENA group in America's existing racial and minority health landscape. This would provide a more holistic picture of immigrant health in the United States. Finally, while this study focused on the impact of COVID-19 on anxiety and depression states, resilience measures were not explored. Future studies examining stress coping strategies, resiliency, and social support within the family structure as well as the role of community support will be informative. Integration of resilience measures can serve as a protective means for future interventions targeting positive mental health outcomes within the MENA community.

5. Conclusions

This study identified predictors of depression and anxiety in a sample of the MENA population of immigrants that experiences unique stressors. Mental health can impact COVID-19 prevention strategies, such as vaccination uptake, which affect the spread of COVID-19 within this community and the overall American community. Any interventions that help MENA individuals deal with mental health issues during the pandemic should take the identified predictors of our study into consideration. Furthermore, future research should focus on developing culturally sensitive interventions that take our predictors into consideration to address mental health in MENA communities.

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References

1. Center for Behavioral Health Statistics and Quality. Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health. 2015. Available online: https://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf (accessed on 7 January 2021).
2. Vos, T.; Lim, S.S.; Abbafati, C.; Abbas, K.M.; Abbasi, M.; Abbasifard, M.; Abbasi-Kangevari, M.; Abbastabar, H.; Abd-Allah, F.; Abdelalim, A. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: A systematic analysis for the Global Burden of Disease Study 2019. *Lancet* **2020**, *396*, 1204–1222. [CrossRef]
3. Patel, V.; Chisholm, D.; Parikh, R.; Charlson, F.J.; Degenhardt, L.; Dua, T.; Ferrari, A.J.; Hyman, S.; Laxminarayan, R.; Levin, C. Addressing the burden of mental, neurological, and substance use disorders: Key messages from Disease Control Priorities. *Lancet* **2016**, *387*, 1672–1685. [CrossRef]

4. Cascella, M.; Rajnik, M.; Aleem, A.; Dulebohn, S.C.; Di Napoli, R. Features, evaluation, and treatment of coronavirus (COVID-19). In *Statpearls*; StatPearls Publishing: Treasure Island, FL, USA, 2022.
5. Czeisler, M.É.; Lane, R.I.; Petrosky, E.; Wiley, J.F.; Christensen, A.; Njai, R.; Weaver, M.D.; Robbins, R.; Facer-Childs, E.R.; Barger, L.K. Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, 24–30 June 2020. *Morbid. Mortal. Wkly. Rep.* **2020**, *69*, 1049. [CrossRef]
6. American Psychiatric Association. Mental Health Disparities: Diverse Populations. 2021. Available online: https://www.psychiatry.org/psychiatrists/cultural-competency/education/mental-health-facts (accessed on 7 January 2021).
7. Millett, G.A.; Jones, A.T.; Benkeser, D.; Baral, S.; Mercer, L.; Beyrer, C.; Honermann, B.; Lankiewicz, E.; Mena, L.; Crowley, J.S. Assessing differential impacts of COVID-19 on black communities. *Ann. Epidemiol.* **2020**, *47*, 37–44. [CrossRef] [PubMed]
8. Kim, S.J.; Bostwick, W. COVID-19 Social Vulnerability and Racial Inequality in COVID-19 Deaths in Chicago. *Health Educ. Behav.* **2020**, *47*, 509–513. [CrossRef]
9. McKnight-Eily, L.R.; Okoro, C.A.; Strine, T.W.; Verlenden, J.; Hollis, N.D.; Njai, R.; Mitchell, E.W.; Board, A.; Puddy, R.; Thomas, C. Racial and ethnic disparities in the prevalence of stress and worry, mental health conditions, and increased substance use among adults during the COVID-19 pandemic—United States, April and May 2020. *Morbid. Mortal. Wkly. Rep.* **2021**, *70*, 162. [CrossRef]
10. American Psychological Association. Fact Sheet: Health Disparities and Stress. 2022. Available online: https://www.apa.org/topics/racism-bias-discrimination/health-disparities-stress (accessed on 7 January 2021).
11. Dallo, F.J.; Kindratt, T.B. Disparities in vaccinations and cancer screening among US-and foreign-born Arab and European American non-Hispanic White women. *Women's Health Issues* **2015**, *25*, 56–62. [CrossRef]
12. Abuelezam, N.N.; El-Sayed, A.M.; Galea, S. The health of Arab Americans in the United States: An updated comprehensive literature review. *Front. Public Health* **2018**, *262*, 1804. [CrossRef]
13. Awad, G.H.; Kia-Keating, M.; Amer, M.M. A model of cumulative racial–ethnic trauma among Americans of Middle Eastern and North African (MENA) descent. *Am. Psychol.* **2019**, *74*, 76. [CrossRef]
14. Tehranian, J. *Whitewashed: America's Invisible Middle Eastern Minority*; NYU Press: New York, NY, USA, 2008.
15. Allen, J.D.; Abuelezam, N.N.; Rose, R.; Fontenot, H.B. Factors associated with the intention to obtain a COVID-19 vaccine among a racially/ethnically diverse sample of women in the USA. *Transl. Behav. Med.* **2021**, *11*, 785–792. [CrossRef]
16. Alahdal, H.; Basingab, F.; Alotaibi, R. An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. *J. Infect. Public Health* **2020**, *13*, 1446–1452. [CrossRef] [PubMed]
17. Pruitt, C.N.; Reese, C.S.; Grossardt, B.R.; Shire, A.M.; Creedon, D.J. Completion of the human papillomavirus vaccination series lags in Somali adolescents. *J. Lower Genit. Tract Dis.* **2013**, *17*, 280. [CrossRef] [PubMed]
18. Abouhala, S.; Hamidaddin, A.; Taye, M.; Glass, D.J.; Zanial, N.; Hammood, F.; Allouch, F.; Abuelezam, N.N. A National Survey Assessing COVID-19 Vaccine Hesitancy among Arab Americans. *J. Racial Ethn. Health Disparit.* **2021**, 1–9. [CrossRef] [PubMed]
19. Albqoor, M.A.; Chen, J.; Weiss, S.; Waters, C.; Choi, J. Self-rated health of middle eastern immigrants in the US: A national study. *Public Health* **2020**, *180*, 64–73. [CrossRef]
20. Aloud, N.; Rathur, A. Factors affecting attitudes toward seeking and using formal mental health and psychological services among Arab Muslim populations. *J. Muslim Mental Health* **2009**, *4*, 79–103. [CrossRef]
21. Kroenke, K.; Spitzer, R.L.; Williams, J.B. The PHQ-9: Validity of a brief depression severity measure. *J. Gen. Intern. Med.* **2001**, *16*, 606–613. [CrossRef]
22. Löwe, B.; Decker, O.; Müller, S.; Brähler, E.; Schellberg, D.; Herzog, W.; Herzberg, P.Y. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med. Care* **2008**, *46*, 266–274. [CrossRef] [PubMed]
23. Padela, A.I.; Heisler, M. The association of perceived abuse and discrimination after 11 September 2001, with psychological distress, level of happiness, and health status among Arab Americans. *Am. J. Public Health* **2010**, *100*, 284–291. [CrossRef]
24. Pampati, S.; Alattar, Z.; Cordoba, E.; Tariq, M.; Mendes de Leon, C. Mental health outcomes among Arab refugees, immigrants, and US born Arab Americans in Southeast Michigan: A cross-sectional study. *BMC Psychiatry* **2018**, *18*, 1–8. [CrossRef]
25. Szaflarski, M.; Cubbins, L.A.; Meganathan, K. Anxiety disorders among US immigrants: The role of immigrant background and social-psychological factors. *Issues Mental Health Nurs.* **2017**, *38*, 317–326. [CrossRef]
26. Foo, S.Q.; Tam, W.W.; Ho, C.S.; Tran, B.X.; Nguyen, L.H.; McIntyre, R.S.; Ho, R.C. Prevalence of depression among migrants: A systematic review and meta-analysis. *Int. J. Environ. Res. Public Health* **2018**, *15*, 1986. [CrossRef] [PubMed]
27. Pollack, M.H. Comorbid anxiety and depression. *J. Clin. Psychiatry* **2005**, *66*, 22. [PubMed]
28. Remes, O.; Brayne, C.; Van Der Linde, R.; Lafortune, L. A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain Behav.* **2016**, *6*, e00497. [CrossRef]
29. McLean, C.P.; Anderson, E.R. Brave men and timid women? A review of the gender differences in fear and anxiety. *Clin. Psychol. Rev.* **2009**, *29*, 496–505. [CrossRef] [PubMed]
30. Alosaimi, F.D.; Al-Sultan, O.A.; Alghamdi, Q.A.; Almohaimeed, I.K.; Alqannas, S.I. Gender-specific differences in depression and anxiety symptoms and help-seeking behavior among gastroenterology patients in Riyadh, Saudi Arabia. *Neurosci. J.* **2014**, *19*, 203–209.
31. McLean, C.P.; Asnaani, A.; Litz, B.T.; Hofmann, S.G. Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *J. Psychiatr. Res.* **2011**, *45*, 1027–1035. [CrossRef]
32. Yussuf, F. Immigrant Women: Risk and Protective Factors Associated with Depression and Anxiety Disorders. Master's Thesis, Wright State University, Dayton, OH, USA, 2015.

33. Awad, G.H.; Martinez, M.S.; Amer, M.M. Considerations for psychotherapy with immigrant women of Arab/Middle Eastern descent. *Women Therapy* **2013**, *36*, 163–175. [CrossRef]
34. Anxiety & Depression Association of America. Facts | Anxiety and Depression Association of America. 2019. Available online: https://adaa.org/living-with-anxiety/women/facts (accessed on 7 January 2022).
35. Eldeeb, S.Y. Understanding and addressing Arab-American mental health disparities. *Sch. Undergr. Res. J. Clark* **2017**, *3*, 1.
36. Smith, J. *Removing Barriers to Therapy with Muslim-Arab-American Clients*; Antioch University New England: London, UK, 2011. [CrossRef]
37. Abudabbeh, N. Arab families. *Ethn. Fam. Ther.* **1996**, *2*, 333–346.
38. Kulwicki, A.D.; Miller, J.; Schim, S.M. Collaborative partnership for culture care: Enhancing health services for the Arab community. *J. Transcult. Nurs.* **2000**, *11*, 31–39. [CrossRef]
39. Shalhoub-Kevorkian, N.; Braithwaite, J. Victimology between the local and the global. *Int. Rev. Victimol.* **2010**, *17*, 1–8. [CrossRef]
40. Vermette, D.; Shetgiri, R.; Al Zuheiri, H.; Flores, G. Healthcare access for Iraqi refugee children in Texas: Persistent barriers, potential solutions, and policy implications. *J. Immigr. Minor. Health* **2015**, *17*, 1526–1536. [CrossRef] [PubMed]
41. Cree, R.A.; Okoro, C.A.; Zack, M.M.; Carbone, E. Frequent mental distress among adults, by disability status, disability type, and selected characteristics—United States, 2018. *Morbid. Mortal. Wkly. Rep.* **2020**, *69*, 1238. [CrossRef] [PubMed]
42. Brenes, G.A. Anxiety, depression, and quality of life in primary care patients. Primary care companion. *J. Clin. Psychiatry* **2007**, *9*, 437.
43. Van Milligen, B.A.; Lamers, F.; Guus, T.; Smit, J.H.; Penninx, B.W. Objective physical functioning in patients with depressive and/or anxiety disorders. *J. Affect. Dis.* **2011**, *131*, 193–199. [CrossRef]