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M. A. Lumley, C. L. Broadbridge &
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D. Elsouhag · B. Arnetz · H. Jamil ·
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Abstract Arab migrants—both immigrants and refugees—are exposed to pre- and post- migration stressors increasing their risk for health problems. Little is known, however, about rates of, or factors associated with, healthcare utilization among these two groups. A sample of 590 participants were interviewed approximately 1 year post-migration to the United States. Factors associated with healthcare utilization, including active and passive coping strategies, were examined using logistic regressions. Compared to national healthcare utilization data, immigrants had significantly lower, and refugees had significantly higher rates of healthcare utilization. Being a refugee, being married, and having health insurance were significantly associated with medical service utilization. Among refugees, less use of psychological services was associated with the use of medications and having problem-focused (active) strategies for dealing with stress. Healthcare utilization was significantly higher among refugees, who also reported a greater need for services than did immigrants.

Keywords Immigrants · Refugees · Healthcare · Stress

Background

The U.S. Citizenship and Immigration Services (USCIS) reports that Michigan is home to about 95,000 Arab immigrants and refugees. Indeed, approximately 85,000 Iraqi refugees entered the U.S. from 2007 to 2013, about 35 % of them settling in Michigan [1]. Migrants, including both immigrants and refugees, are considered vulnerable populations, at increased risk for physical [2] and psychological [3] health problems. Arab migrants are exposed to pre- and post- migration stressors [4]. Pre-migration stressors, due largely to unrest in the Middle East, include exposure to prolonged war and political conflict. Post-migration stressors include language and cultural barriers.

Research indicates that Arab migrants have relatively poor self-rated health [5], but there is a lack of research examining the extent to which Arab migrants in the U.S.

D. Elsouhag (✉)
Department of Biomedical Sciences, School of Dentistry,
University of Detroit Mercy, 2700 Martin Luther King Jr Blvd,
Detroit, MI 48208, USA
e-mail: daliaelsouhag@gmail.com

D. Elsouhag
Department of Health Sciences, Baker College,
Clinton Township, MI, USA

B. Arnetz · H. Jamil · J. Arnetz
Department of Family Medicine and Public Health Sciences,
Wayne State University School of Medicine, Detroit, MI, USA

B. Arnetz · H. Jamil · J. Arnetz
Institute for Environmental Health Sciences, Wayne State
University, Detroit, MI, USA

B. Arnetz
Institute for Cardiovascular Research, Wayne State University,
Detroit, MI, USA

B. Arnetz · J. Arnetz
Department of Public Health and Caring Sciences, Uppsala
University, Uppsala, Sweden

M. A. Lumley
Department of Psychology, Wayne State University, Detroit, MI,
USA

C. L. Broadbridge
Division of Social Sciences, Kentucky Wesleyan College,
Owensboro, KY, USA

utilize medical and psychological services, as well as the factors associated with that utilization.

The Center for Disease Control's (CDC) Division of Global Migration and Quarantine mandates refugees to undergo a medical examination within 1 year of arrival [6]. Therefore, rates of healthcare utilization among refugees in the U.S. are higher than that of the general population; yet, health disparities exist between the two groups [7]. Language barriers, lack of insurance, and problems with transportation are identified as reasons for these disparities. Limited English proficiency not only affects migrants' access to healthcare but also the quality of healthcare provided [8, 9]. In a Canadian study comparing healthcare utilization among refugees, immigrants, and the general population, refugees were found to use services more than immigrants but less than the general population [10]. It is unknown, however, whether these differences are due to characteristics of the migrants, the host countries, or the healthcare systems. Research conducted in the U.S. and focusing specifically on Arab migrants is needed.

Conceptual Framework

Stress, ranging from traumatic events to daily hassles, contributes to numerous health problems and also appears to drive healthcare utilization [11]. Previous research shows a dynamic relationship between stressor, the coping strategies used to deal with the stressor, and the final outcome of the situation [12, 13]. Stress and its effects are modulated by coping strategies, which can be categorized into passive "avoidance-coping" strategies and active "problem-focused" strategies [14, 15]. Peisker and Tilbury [15] proposed that refugees approached their resettlement as either active "achievers and consumers" or passive "endurers and victims" (p. 61), where endurers and victims were less likely to successfully integrate into the society of their new country. Using their proposed framework as a foundation, we hypothesized that post-migration stressors would negatively impact the health of Arab migrants leading to higher rates of healthcare utilization. We further hypothesized that those reporting active "problem-focused" strategies would report lower healthcare utilization, whereas passive "avoidance-focused" coping would be associated with increased utilization.

The aims of this study were to: (1) compare rates of healthcare utilization of Arab migrants 1 year after migration to that of the general U.S. population; (2) compare Arab refugees and immigrants on utilization; (3) identify factors associated with medical healthcare utilization among the study population; and (4) identify specific stress coping strategies associated with psychological healthcare utilization among the study population.

Methods

Participants

The legal definitions set by the USCIS for immigrants and refugees were utilized. The USCIS defines an immigrant as "an alien admitted to the United States as a lawful permanent resident," whereas a refugee is "any person who is outside his or her country of nationality who is unable or unwilling to return to that country because of persecution or a well-founded fear of persecution" [16]. In the United States, refugees receive short term health insurance, Refugee Medical Assistance, for up to 8 months [17]. There is no corresponding insurance for immigrants.

This cohort study was conducted in the Detroit metropolitan area. Recruitment occurred between October 2010 and August 2011. Recruitment criteria included being at least 18 years of age, having verifiable refugee or immigrant status, and residing in the U.S. for approximately 1 year. Iraqi refugees were recruited via local resettlement agencies. Non-Iraqi, non-refugee immigrants were recruited via the same community organizations among others. Approval for the study was obtained from the Institutional Review Board at Wayne State University, Detroit, MI.

Data Collection

A total of 590 participants (291 Iraqi refugees and 299 non-Iraqi Arab immigrants) were interviewed. In 2010, a baseline structured interview was conducted, followed by a 1 year follow-up interview in 2011. The data used for this study are from the one-year follow up interview. Interviews were conducted in Arabic by trained bilingual research assistants, and the interview items were translated from English into Arabic and back-translated into English for confirmation of acceptable translation. The interview assessed the following variables.

Sociodemographic Variables

Age, gender, marital status, employment status, highest level of education, and health insurance.

Medical Condition Score

Participants reported the absence or presence of 15 medical conditions (and one "other" category; coded as "0" or "1" for each condition). The scores were summed giving each participant a total number of medical conditions, ranging from 0 to 16; higher scores indicated more medical conditions.

Healthcare Utilization

Participants reported their awareness, need, use, and helpfulness of both medical and psychological services with response alternatives “Yes or No”. The national rate of healthcare utilization was obtained from 2011 data from the National Health Interview Survey (NHIS) [18].

Transportation Problems and Language Problems

Based on a daily hassles scale [19], we presented two items, which participants rated on a 5-point scale (1 = “almost never”; 5 = “almost always”): how often do you have “transportation problems” and “language problems”?

Problem-Focused Stress Coping

This scale was comprised of nine stress coping strategies which were rated from 1 = “Strongly agree” to 5 = “Strongly disagree.” Items included both problem-focused strategies (e.g., “When I experience stress, I try to solve the problem that is causing it”) and avoidance coping strategies (e.g., “I used medications to deal with stress”). The former were reverse scored, and all nine items were totaled; higher scores indicate more use of problem-focused, positive, and adaptive stress coping strategies. The internal consistency of this measure (Cronbach’s alpha) for the entire sample was 0.70.

Analysis

Refugees and immigrants were compared on all sociodemographic variables, medical conditions, problem-focused stress coping, problems with transportation and language, and healthcare utilization. Chi square tests were utilized for categorical/ordinal variables and *t* tests for continuous variables. A one sample *z* test was used to compare the healthcare utilization study data in this sample to the national rates.

Factors associated with utilization of medical services were assessed using binary logistic regression for the whole sample. For psychological services, however, none of the immigrants reported utilization of such services, so these analyses were conducted solely among the refugees. For both regressions, the dependent variable was self-reported utilization of the service. Independent variables were sociodemographic factors, the medical condition score, problems with transportation and language, and the stress coping score. The health insurance variable was excluded from the model examining psychological healthcare utilization among refugees since all refugees had health

insurance. In both regressions all variables were forced to enter the model in one block using the enter mode. Data were analyzed using the IBM SPSS statistical program (version 21). A significance level of 0.05 was used for all analyses. Pair wise deletion was used to deal with the missing data, which ranged from 1 to 3 % for all analyses.

Results

Background characteristics and study variables are summarized and compared between refugees and immigrants in Table 1. The groups did not differ with regard to gender, age, or employment status. All refugees (excluding the missing data from four refugees) reported having health insurance, compared to 58 % of immigrants (missing data from 7, $p < 0.001$). Compared to immigrants, a greater proportion of refugees had less than 12 years of education ($p < 0.001$) and were unmarried ($p < 0.001$). Refugees reported having significantly more problems with transportation and language, more medical conditions, and lower problem-focused stress coping scores than immigrants.

The U.S. national rate of healthcare utilization in 2011 was 84.8 %, while that of the combined study population was 71.6 %. When compared to the national rate for the same calendar year, immigrants (58.6 %) had significantly lower utilization rates, whereas refugees (92.1 %) had significantly higher utilization rates than that of the U.S. population ($p < 0.001$ for both).

Table 2 illustrates the results of the Chi square tests comparing refugees’ and immigrants’ awareness, need, use and perceived helpfulness of medical and psychological healthcare services. All refugees reported being aware of and needing medical services; 92 % utilized them and 89 % found them to be helpful. Among immigrants, 99 % were aware of medical services; 93 % needed them; 59 % utilized them and 85 % of those who utilized the services, found them to be helpful. Reported need ($p < 0.001$) and use ($p < 0.01$) of medical healthcare services was significantly higher among refugees. Regarding psychological services, approximately 33 % of immigrants were aware that such services were offered, with 2 % reporting a need, and none reporting utilization of these services. Nevertheless, 15 % of immigrants reported that psychological services were not helpful. These results are significantly lower than those reported by refugees ($p < 0.05$). Among refugees, 50 % were aware of psychological services; 12 % reported needing them; 9 % utilized them, and 7 % considered them helpful.

Table 3 illustrates the results of the binary logistic regression examining utilization of medical services among the combined sample. The final model was significant ($p < 0.001$) and explained 51 % of the variance in

Table 1 Characteristics of questionnaire respondents, immigrants versus refugees

Variable	Immigrants (N = 299)		Refugees (N = 291)		
	N	%	N	%	
Gender					
Male	172	57.5	158	54.3	
Female	127	42.5	133	45.7	
Health insurance**					
Yes	170	58.2	287	100	
No	122	41.8	0	0	
Education**					
≤12 Y	158	53.2	202	69.4	
>12 Y	139	46.8	89	30.6	
Employment status					
Employed	165	55.2	144	49.5	
Unemployed	134	44.8	147	50.5	
Marital status**					
Married	214	71.6	155	53.3	
Single, divorced	85	28.4	136	46.7	
		Mean	SD	Mean	SD
Age in years		33.86	11.58	34.30	11.37
Transportation problems (scale 1–5)*		2.36	1.16	2.54	1.10
Language problems (scale 1–5)**		3.06	0.90	3.52	0.80
Medical condition score (scale 0–16)**		0.51	0.90	1.54	1.97
Problem-focused stress coping score (scale 945)**		35.78	4.15	34.29	2.63

Missing data for health insurance (n=7 immigrants and n=4 refugees) and education (n=2 immigrants)

SD Standard deviation

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

(Nagelkerke $R^2 = 0.51$). Being a refugee, having health insurance, being married, and experiencing more problems with transportation were significant factors associated with the utilization of medical services.

Table 4 illustrates the results of the binary logistic regression examining utilization of psychological services among refugees. The final model was significant ($p < 0.001$) and explained 58 % of the variance (Nagelkerke $R^2 = 0.580$). Utilization was significantly higher among refugees with more medical conditions and significantly lower among refugees with higher levels of problem-focused stress coping strategies. Hence, a third regression was performed to identify specific problem-focused stress coping strategies associated with utilization of psychological services. Results are summarized in Table 5. The final model was significant ($p < 0.001$) and explained 70 % of the variance (Nagelkerke $R^2 = 0.702$). Using psychological services was predicted by not having effective strategies to deal with stress, and not using medications to deal with stress.

Discussion

In our study population, the rate of utilization of medical services among refugees was significantly higher than that of the U.S. population, which is consistent with the results of a Canadian study of refugees [7]; the rate of utilization in our immigrant sample was significantly lower than the national rate. The mandatory medical examination required of refugees [6] and short term medical insurance [17] may in part explain these findings.

Refugees utilized medical services significantly more than immigrants, which is in contrast to a previous study that found no differences between Iraqi refugees and Yemeni immigrants [20], although that study excluded women, and female refugees have been reported to have higher healthcare utilization rates than males [21]. The findings in the current study were likely explained by the fact that data collection for this study occurred around the refugees' first year of arrival where a physical exam is mandatory. Moreover, having health insurance was the strongest determinant of medical service utilization. However,

Table 2 Healthcare services, immigrants versus refugees

Variable		Immigrants (N = 299)		Refugees (N = 291)	
		N	%	N	%
Medical healthcare services	Aware				
	Yes	290	98.6	291	100
	No	4	1.4	0	0
	Need*				
	Yes	272	92.5	291	100
	No	22	7.5	0	0
	Use*				
	Yes	170	58.6	268	92.1
	No	120	41.4	23	7.9
	Helpful				
Psychological healthcare services	Yes	158	85.4	259	89
	No	27	14.6	32	11
	Aware*				
	Yes	96	32.8	146	50.2
	No	197	67.2	145	49.8
	Need*				
	Yes	5	1.7	36	12.4
	No	287	98.3	255	87.6
	Use*				
	Yes	0	0	25	8.6
	No	292	100	266	91.4
	Helpful				
	Yes	0	0	20	6.9
	No	45	15.1	271	93.1

Due to missing data, some numbers are not equal to N

$p < 0.001$

* Variables where significant differences were found between immigrants and refugees

refugees also reported significantly more medical conditions, compared to immigrants, although medical conditions were associated with utilization of psychological, not medical services. The question remains whether refugees utilized more medical healthcare services because they were, in fact, in greater need of them than immigrants; or whether utilization was due to accessibility. “Immigrant” and “refugee” are legal entities; being labeled as one as opposed to the other does not necessarily reflect a true pre-migration difference between these entities. Differences may become apparent post-migration where migrant status entitles them to different services according to their legal categorization. This might partially explain refugees’ higher utilization of medical services; alternatively, refugees may have been more aware of medical conditions as a result of their medical service utilization.

Being a refugee, being married, having health insurance, and transportation problems were significantly associated with utilization of medical services among our study

Table 3 Factors associated with utilization of medical services in the combined sample (n = 590)

Variable	β	OR	95 % CI
Migrant status	1.19**	3.28	1.62–6.62
Gender	0.43	1.53	0.80–2.91
Age	−0.01	0.99	0.96–1.02
Health insurance	2.62***	13.70	7.23–25.93
Medical condition score	0.15	1.16	0.91–1.49
Problem-focused stress coping	0.06	1.06	0.98–1.15
Education	−0.28	0.76	0.43–1.34
Employment	−0.42	0.66	0.34–1.27
Marital status	0.69*	1.99	1.02–3.90
Transportation problems	0.49**	1.64	1.22–2.21
Language problems	−0.19	0.83	0.58–1.20

References are: being an immigrant, male, without health insurance, having at least 12 years of education, unemployed and not being married. Transportation problems, language problems, the medical condition score and problem-focused stress coping scores were entered as continuous variables

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

population. Refugees reported significantly more problems with transportation compared to immigrants in this study. Transportation problems are a potential proxy for unemployment [22], but unemployment rates did not differ significantly between groups. One might anticipate that having transportation problems predicts less utilization, but “transportation problems” is fairly general, and we did not specify whether this meant not having a driver’s license, not owning a car, or needing someone to drive you [23], nor whether and how such transportation problems were obstacles to obtaining healthcare. A study [24] showed that refugees with established social networks are quite able to access material support including healthcare services, so our refugees may have overcome transportation problems to obtain care, thanks to their network. Refugees also reported significantly more language difficulties than immigrants, which might be explained by their significantly lower levels of education. However, language problems were not associated with healthcare utilization in the current study. The study was performed in Michigan where Arabic-speaking physicians are often available, which might not be the case elsewhere. Thus, caution should be used when generalizing this finding.

Among refugees, having more medical conditions was associated with using psychological services. This is in agreement with the results of a Canadian study where the number of somatic symptoms was significantly associated with healthcare utilization for mental health disorders [21]. In addition, having medical problems might increase entry into the medical system, which makes it more likely that psychological services will also be recommended, provided

Table 4 Factors associated with utilization of psychological health-care services among refugees (n = 291)

Variable	β	OR	95 % CI
Gender	0.89	2.45	0.65–9.25
Age	0.02	1.03	0.96–1.10
Medical condition score	0.39*	1.48	1.08–2.02
Problem-focused stress coping score	−0.62**	0.54	0.40–0.72
Education	−0.09	0.92	0.17–4.94
Employment	−1.97	0.14	0.02–1.28
Marital status	−0.12	0.89	0.24–3.32
Transportation problems	0.07	1.07	0.59–1.96
Language problems	0.26	1.30	0.51–3.27

References are: male, with at least 12 years of education, unemployed and not being married. Transportation problems, language problems, the medical condition score and problem-focused stress coping were entered as continuous variables

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

Table 5 Stress coping strategy predictors of psychological health care utilization among refugees (n = 291)

Question	β	OR	95 % CI
I have effective strategies that help me recover from stress	−1.31*	0.27	0.08–0.86
Talking with someone helps me manage stress	−0.23	0.80	0.24–2.67
I use medications to deal with stress	−1.81**	0.16	0.08–0.33
Spending time with friends and/or family helps me to recover from every day stress	0.52	1.69	0.39–7.26
I manage stress by expressing how I feel	0.18	1.20	0.38–3.79
When I experience stress, I try to solve the problem that is causing it	−1.80	0.17	0.03–1.11
I deal with stress by trying not to think about it	0.71	2.02	0.71–5.78
My religious/spiritual beliefs help me to manage every day stress	−0.42	0.66	0.15–2.97
Engaging in pleasant/fun activities help me recover from stress	−0.39	0.68	0.27–1.69

The independent variables were continuous variables where higher scores indicate more positive stress coping strategies

OR Odds ratio

CI Confidence interval

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

and used. Somatization, which is well documented in the literature [25] and significantly increases the use of mental health services [26], could have affected the rates. Nevertheless, a relatively small proportion of refugees reported seeking psychological services. This is in line with research indicating a general reluctance toward seeking mental

health services among Arab Americans [27]. This reluctance has cultural, religious, and historical roots, ranging from a fear of being labeled “majnun”, or crazy, to a cultural stigma associated with discussing one’s personal issues with someone outside the family [27]. These psychosociocultural factors [27] would have likely played a similar role among the immigrants in this study, 15 % of whom reported that psychological services were not helpful, although none reported using such services.

As hypothesized, refugees with lower utilization of psychological services reported higher levels of problem-focused coping strategies. Previous research reported similar results among both refugees [28] and immigrants [29]. Peisker and Tilbury [15] reported that refugees who adopt active coping strategies adapt better socially and emotionally when compared to those who adopt passive coping strategies. Another study comparing Mexican immigrants to non-Hispanic non-immigrant whites showed that immigrants were more likely to use positive reframing to combat stress [29]. The finding that refugees taking medications for stress utilize psychological healthcare less than those who do not, however, is a controversial finding. Data regarding the types of medications are unavailable, nor is it known whether any refugees were undergoing therapy in conjunction with use of medication. It is likely that medications for stress were prescribed by medical practitioners without referrals for psychological services from other mental health professionals.

Nevertheless, the study suggests that using active problem-focused strategies may be effective in relieving stress and consequently may be able to improve the quality of utilization of psychological services by refugees. This information can be utilized by organizations providing social support to refugees by formulating a list of potential problems commonly confronted by refugees (e.g., unemployment and language problems) with information about resources and methods to overcome these problems; thereby giving them a plan to deal with these stressors.

New Contribution to the Literature

This study identified factors associated with utilization of healthcare services among Arab migrants to the U.S. Healthcare utilization was significantly higher among refugees, who also reported a greater need for both medical and psychological services than immigrants. Being a refugee and having health insurance were the strongest determinants of utilization of medical services. Active “problem-focused” strategies were associated with less utilization of psychological services among refugees. The findings of this study also raise interesting questions relevant to the ongoing political discussions concerning healthcare services for undocumented immigrants. Having

health insurance was a key factor in medical service utilization. This would suggest that healthcare utilization and its direct costs would initially increase in countries offering universal coverage for documented as well as undocumented immigrants, although as the public health status of the country improves, costs would likely decrease. Although utilization of psychological services was substantially lower in this study population, they were utilized solely by those with health insurance (refugees). Immigrants, both documented and undocumented, may be suffering from mental health issues related to their migrant experiences for which they are not receiving treatment. The public health implications of this issue are substantial.

Limitations and Strengths

This study was conducted on a large sample of migrants with a low proportion of missing data. Nevertheless, generalizing the results should be done with caution. Their settlement in metro Detroit with a large Arab American population could be considered an asset that assisted them socially and psychologically. This might not be an available asset to Arab migrants in other cities. Selection and non-response biases are also potential limitations; it is unknown how those who chose not to participate in the study would have impacted the results.

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