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The effect of stress and acculturation on the self-rated health of Arab Americans

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Abstract:

BACKGROUND: The self-rated health of Arab Americans has been found to be worse than non-Hispanic whites. Psychosocial factors such as stress and acculturation may explain this disparity. As a result, we designed this survey to better understand the effects of stress and acculturation on the self-rated health of the Arab-American community.

MATERIALS AND METHODS: Using a convenience sample, we surveyed 142 self-identified Arab Americans regarding demographics, stress, acculturation, and self-rated health. Stress was measured using instruments assessing perceived stress, everyday discrimination, and acculturative stress. Acculturation was measured using a modified Vancouver Index of Acculturation. To measure self-rated health, participants were asked to rate their current health on a scale of 1 (very poor) to 5 (very good).

RESULTS: A logistic regression model adjusted for age, sex, body mass index, and education did not find that stress significantly affected the odds of having poor self-rated health in Arab Americans. Heritage identity was associated with lower odds of having poor self-rated health (odds ratio = 0.37, 95% confidence interval [CI] 0.15, 0.94, $P < 0.05$). No association was found between acculturation and poor self-rated health.

CONCLUSION: Greater levels of stress were not significantly associated with greater odds of poor self-rated health in Arab Americans. We also found that greater heritage identity significantly decreased the odds of poor self-rated health in Arab Americans. The effects of everyday discrimination, perceived stress, and acculturation on self-rated health in Arab Americans remain unclear and need to be examined further.

Keywords:

Acculturation, Arab American, detroit metropolitan area, self-rated health, stress

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Introduction

Arab Americans are a rapidly growing ethnic minority with an estimated population of 3.7 million, approximately 94% of which live in major metropolitan areas.^[1] Despite their relatively large population, very little is known of their health. What is known, however, is that Arab Americans report worse self-rated health compared to non-Hispanic whites.^[2,3] Self-rated health is a

validated measure of an individual's health based on their own perception.^[4] It has been found to be a summary of multiple factors that play a role in the health of an individual and has a well-documented association with morbidity and mortality.^[5] The disparity in self-rated health between Arab Americans and non-Hispanic whites is alarming. However, despite this disparity, no studies have attempted to identify unique etiologies associated with poor self-rated health in Arab Americans.^[2,3] In fact, emerging research in other minority groups indicates that psychosocial factors, such as stressors and acculturation, may have an effect on

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self-rated health. Therefore, stress and acculturation may partially explain the disparity in self-rated health between Arab Americans and non-Hispanic whites.^[6]

Stressors that Arab Americans face include perceived stress, stress as a result of everyday discrimination, and stress associated with acculturating to a new culture (acculturative stress). These stressors have been associated with a plethora of poor health outcomes, such as depression, hypertension, and diabetes.^[7-10] Furthermore, stress has been associated with worse self-rated health in Arab Americans and other minority groups.^[6,9] Aside from stress, acculturation, the process by which immigrants adopt the mainstream culture to become more assimilated, may also play a role in the self-rated health of Arab Americans.^[11] The effects of acculturation on health behaviors such as smoking and the use of healthcare by Arab Americans and other minorities are well-documented.^[11,12] However, less is known about the effect this has on the overall health of Arab Americans. Some studies have shown that greater acculturation (mainstream identification) is associated with better self-rated health and fewer chronic medical conditions and depressive symptoms, whereas other studies show that greater heritage identification is associated with better self-rated health.^[13,14] The effect of acculturation on self-rated health in Arab Americans, therefore, remains unclear.

The limited understanding of the psychosocial causes of worse self-rated health in Arab Americans necessitates research in this area. We surveyed Arab Americans in the Detroit Metropolitan Area (DMA) to better understand the effects of stress and acculturation on the self-rated health of the Arab-American community. We selected the DMA because it has the largest concentration of Arab Americans in the USA.^[15] In this study, we hypothesize that stressors, such as perceived stress, everyday discrimination, and acculturative stress are associated with greater odds of poor self-rated health in Arab Americans. In addition, we hypothesize that greater levels of acculturation via identification with mainstream culture are associated with lower odds of poor self-rated health, whereas greater levels of identification with heritage culture are associated with greater odds of poor self-rated health in Arab Americans.

Materials and Methods

This was a cross-sectional study with a convenience sample comprising adults aged 18 and older who self-identified as Arab American, from the DMA. Participants were recruited at the Arab Community Center for Economic and Social Services (ACCESS) facility in Dearborn, Michigan, between July 2, 2018, and July 13, 2018. ACCESS is a nonprofit 501c3 that

provides economic, social, and health services for the Arab-American community.^[9] Study personnel provided interested volunteers with a verbal and written explanation of the study in their preferred language of either English or Arabic. Participation in the study was anonymous. Upon completion of the survey, including a recording of their anthropometric measurements, participants received a \$25 gift card. The study was approved by the Institutional Review Board of Wayne State University vide letter no. 013518B3X dated 30/03/2018, and informed written consent was obtained from all the study participants.

The survey consisted of standardized questions and instruments regarding basic demographics, stressors experienced, measures of acculturation, and an item measuring self-rated health. Anthropometric measurements were also taken. The survey was translated to Modern Standard Arabic by the University of Massachusetts Amherst Translation Center. Subjects were allowed to complete the questionnaire in either English or Arabic. Assistance was provided by study personnel who spoke both Arabic and English fluently.

The primary outcomes measured were stress, acculturation, and self-rated health. To measure stress, participants filled out questions assessing the following three forms of stress: perceived stress, everyday discrimination, and acculturative stress.

Perceived stress was measured using Dr. Cohen's 14-item Perceived Stress Scale (PSS) measuring participants' perception of the stress in their lives.^[16] The PSS is a validated scale previously used in various large-scale population surveys. Scores from each item were summed into a total perceived stress score ranging from 0 to 56. The internal consistency of the PSS in our study was sufficient (Cronbach's coefficient alpha = 0.55).

Everyday discrimination was measured using Dr. William's 9-item Everyday Discrimination Scale (EDS). The EDS was designed to measure chronic day-to-day experiences with discrimination instead of more acute or structural discrimination.^[17] EDS has been validated and used previously in population surveys of the Arab-American community.^[9] An average of the scores from each item was calculated ranging from 1 to 6. The internal consistency of the EDS was excellent (Cronbach's coefficient alpha = 0.93).

Acculturative stress was measured using an adapted form by Dr. Mena and Dr. Padilla's 24-item Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE-R).^[18] SAFE-R was adapted and validated by Dr. Amer to measure acculturative stress in Arab Americans.^[18,19] Scores from each item were

summed into a total SAFE-R score ranging from 0 to 120. The internal consistency of the SAFE-R was excellent (Cronbach's coefficient alpha = 0.94).

We measured acculturation with Dr. Amer's modified 20-item Vancouver Index of Acculturation scale (VIA-A). VIA-A consists of 10 items that measure mainstream identification and 10 items that measure heritage identification in Arab Americans.^[19,20] The VIA-A has been adapted for and validated in Arab Americans.^[19] An average of the scores from each item measuring heritage identity was calculated. In addition, all items measuring mainstream identity were also averaged. Averages for both heritage and mainstream identification ranged from 1 to 5. The internal consistency of the VIA-A was strong (Cronbach's coefficient alpha = 0.92).

Self-rated health was measured by asking participants how they would rate their current health on a scale ranging from 1 (very poor) to 5 (very good). Similar to other studies on self-rated health in Arab Americans, we determined poor self-rated health as any response of 3 or lower.^[9]

The demographic variables we collected included the following: age, sex, religion, marital status, country of birth, whether participant is an immigrant or not, language spoken at home, employment status, and education level. The anthropometric measurements that we collected consisted of subject's height and weight. We measured height using a measuring tape with participants' backs against a wall. Weight was measured using a Taylor digital scale. We calculated body mass index (BMI) using the patient's height and weight that we had measured.

Data analysis was conducted using SPSS 25 (IBM SPSS: Armonk, New York, USA) for the Macintosh. Descriptive statistics were conducted on the sample. We tested the effects of stress and acculturation on self-rated health by using a binomial logistic regression analysis controlling for age, sex, BMI, and level of education.

Results

The sample consisted of 142 self-identified Arab Americans, who were predominantly immigrants. The average age of participants was 39 (standard deviation [SD] = 14.1). The sample was 70.7% women. The average BMI of participants was 29 (SD = 8.0). With regard to self-rated health, 41.2% of the participants rated their health as okay or poor. Complete descriptive statistics for demographic variables and self-rated health is shown in Table 1.

Table 1: Descriptive statistics: Demographic information and self-rated health status of American Arabs

Variable	N (%)
Age (n=140)	
>39	68 (48.6)
≤39	72 (51.4)
Sex (n=140)	
Male	41 (29.3)
Female	99 (70.7)
Religion (n=140)	
Muslim	131 (93.6)
Christian	8 (5.7)
Jewish	1 (0.7)
Marital status (n=141)	
Never married	37 (26.2)
Divorced	10 (7.1)
Separated	4 (2.8)
Widowed	14 (9.9)
Married	76 (53.9)
Country of birth (n=135)	
Iraq	47 (34.8)
USA	20 (14.8)
Lebanon	18 (13.3)
Syria	18 (13.3)
Yemen	17 (12.6)
Other	15 (11.1)
Immigrant (n=138)	
Yes	103 (74.6)
No	35 (25.4)
Language spoken at home (n=140)	
Arabic	92 (66.2)
Arabic, English	29 (20.9)
English	14 (10.1)
Other	4 (2.9)
Employment status (n=140)	
Unemployed	81 (57.9)
Employed	59 (42.1)
Education level (n=138)	
None	6 (4.3)
Grades 1-8	22 (15.9)
High school	57 (41.3)
College	47 (34.1)
Grad school	6 (4.3)
Self-rated health (n=141)	
Very good	26 (18.4)
Good	57 (40.4)
Ok	39 (27.7)
Poor	13 (9.2)
Very poor	6 (4.3)

A binomial logistic regression analysis controlling for age, sex, BMI, and education found no significant effect of stress on self-rated health in Arab Americans ($P > 0.05$). However, there was a notable trend for the effect of everyday discrimination (odds ratio [OR] = 1.66, 95% confidence interval [CI] 0.97, 2.86, $P = 0.066$) and

perceived stress (OR = 1.05, 95% CI 0.99, 1.12, $P = 0.092$) on self-rated health. Summary scores for stressors and complete analysis of stress and self-rated health are shown in Tables 2 and 3, respectively.

A binomial logistic regression analysis controlling for age, sex, BMI, and education found that heritage identity was significantly associated with lower odds of poor self-rated health (OR = 0.37, 95% CI 0.15, 0.94, $P < 0.05$). For every unit of increase in the total heritage identity score, the odds of poor self-rated health decreased by 63%. Greater acculturation (mainstream identity) was not significantly associated with greater odds of poor self-rated health in Arab Americans. However, there was a notable trend for the effect of acculturation on self-rated health (OR = 2.22, 95% CI 0.89, 5.55, $P = 0.089$). Summary scores for acculturation and complete analysis of acculturation and self-rated health are shown in Tables 2 and 4, respectively.

Table 2: Mean stressor and acculturation summary scores for American Arabs

Variable	Mean	SD
Perceived stress total score	25.6	7.46
Everyday discrimination average score	1.7	1.07
Acculturative stress total score	36.9	25.63
Heritage identity average score	3.8	0.71
Mainstream identity average score	3.6	0.70

SD=Standard deviation

Table 3: Binomial logistic regression results: Stress and self-rated health among American Arabs

Predictors	Total sample	
	OR	95% CI (lower bound-upper bound)
Perceived stress	1.05 [†]	0.99-1.12
Everyday discrimination	1.66 [†]	0.97-2.86
Acculturative stress	0.99	0.97-1.01
Age	1.04*	1.00-1.07
Sex	1.52	0.61-3.78
BMI	1.06*	1.00-1.12
Education	0.83	0.52-1.32

[†] $P < 0.1$, * $P < 0.05$. OR=Odds ratio, CI=Confidence interval, BMI=Body mass index

Table 4: Binomial logistic regression results: Acculturation and self-rated health among American Arabs

Predictors	Total sample	
	OR	95% CI (lower bound-upper bound)
Heritage identity	0.37*	0.15-0.94
Mainstream identity	2.22 [†]	0.89-5.55
Age	1.02	0.99-1.05
Sex	1.33	0.55-3.21
BMI	1.07*	1.02-1.14
Education	0.92	0.59-1.42

[†] $P < 0.1$, * $P < 0.05$. OR=Odds ratio, CI=Confidence interval, BMI=Body mass index

Discussion

The objective of our study was to better understand the impact of stress and acculturation on the self-rated health of Arab Americans. With regard to stress, we found that stress was not associated with greater odds of poor self-rated health in Arab Americans. However, we found a notable trend toward significance that suggests that everyday discrimination and perceived stress may increase the odds of poor self-rated health in Arab Americans. Regarding acculturation, we found that greater heritage identity significantly decreased the odds of poor self-rated health in Arab Americans. In addition, we found that a notable trend toward significance suggesting greater acculturation may increase the odds of poor self-rated health in Arab Americans.

The deleterious effects of stress on the self-rated health of other minority groups have been well studied. For example, higher levels of perceived stress in black adults were associated with worse self-rated health.^[6] Furthermore, black and Asian adults who have stress on account of experiences with discrimination were more likely to have worse self-rated health.^[21,22] As far as Arab Americans are concerned, however, only one study has examined the effect of stress on self-rated health. Kader *et al.*, studied the effect of discrimination on self-rated health and found that it was associated with an increase in the odds poor self-rated health in Arab Americans residing in Dearborn.^[9] Our study found no evidence of a significant increase in the odds of poor self-rated health in Arab Americans caused by everyday stress. However, we did find notable trends suggesting the need for further examination of the effects of everyday discrimination and perceived stress on Arab-American self-rated health. The differences in our findings compared to Kader *et al.*'s findings may be due to the convenience sampling in our two studies resulting in different sample characteristics.

Unique to our study as compared to Kader *et al.*'s study is the fact that we also examined whether acculturative stress increased the odds of poor self-rated health in Arab Americans. Literature regarding the effects of acculturative stress on self-rated health has been mixed. Panchang *et al.*, examined acculturative stress in Latino and Asian immigrants and found no significant effect on self-rated health.^[23] However, Panchang *et al.*'s findings contradict findings by Garcia *et al.*, that suggested that acculturative stress attenuated the cortisol awakening response potentially leading to the increased likelihood of Mexican-Americans reporting poor self-rated health.^[23,24] Interestingly, Finch and Kader found that acculturative stress associated with language barriers and discrimination did not predict poor self-rated

health. However, they found that acculturative stress as a result of the legal status did predict poor self-rated health.^[23,25] Our study is the first to look at the effects of acculturative stress on self-rated health in Arab Americans. Our finding that acculturative stress does not increase the odds of poor self-rated health in Arab Americans replicates Panchang *et al.*'s findings on Latino and Asian immigrants.^[23] The differences between our results and both Finch *et al.*, and Garcia *et al.*'s results may be due to the fact that our sample was recruited from Dearborn, Michigan, an ethnic enclave in the DMA with the largest concentration of Arab Americans in the country.^[1] As a result, Arab Americans in Dearborn may be exposed to less pressure to acculturate and therefore have lower levels of all forms of acculturative stress compared to other minorities and Arab Americans residing elsewhere.^[26]

As it relates to Arab Americans, acculturation has been associated with both better and worse self-rated health in two separate studies.^[2,27] In Abdulrahim *et al.*, the effect of acculturation on self-rated health in a sample of Arab Americans was measured by using immigrant status and language preference.^[2] They found that Arabic-speaking immigrants reported worse self-rated health compared to US-born Arab Americans and English-speaking Arab immigrants.^[2] On the other hand, Read *et al.*, used length of time in the US and citizenship status to examine the effect of acculturation on self-rated health.^[27] They found that Arab immigrants who are citizens have worse self-rated health.^[27] Our findings differ from both of these previous studies. We did not find an effect of acculturation on self-rated health. Instead, we found that greater heritage identity was associated with lower odds of poor self-rated health. The differences in our study compared to the two studies may be due to the fact that we used a validated measure of acculturation and heritage identity in the Arab Americans, whereas both the studies relied on indirect measures such as citizenship and language preference.^[2,27]

Our study has several limitations. First, our sample was recruited from Dearborn, Michigan, an ethnic enclave. Thus, our findings may not be generalizable to Arab Americans living outside ethnic enclaves. Second, our convenience sampling may introduce a selection bias as the majority of participants were looking for help for economic and health needs. Finally, we offered \$25 gift cards to participants, which may have introduced a response bias. However, it is important to note that Arab Americans in the DMA are often an economically vulnerable minority group, as evidenced by a recent study that showed that 48% of the participants were recipients of food assistance from the government.^[9] As a result, we felt it was important to reimburse our participants for the time required to complete the survey

(approximately 1 hour). A recently published article on the ethics of compensating research participants provides support for our decision.^[28]

Conclusion

We found that greater levels of stress were not significantly associated with greater odds of poor self-rated health in Arab Americans. We also found that greater heritage identity significantly decreased the odds of poor self-rated health in Arab Americans. The effects of everyday discrimination, perceived stress, and greater acculturation on self-rated health in Arab Americans remain unclear and need to be examined further. To our knowledge, this study is one of the few that has looked at the effects of stressors and acculturation on the self-rated health of Arab Americans. Our study adds to a growing body of literature examining the health of Arab Americans. We hope that our findings inspire future research into the health of Arab Americans. We also envisage that our findings can inform clinicians on the potential psychosocial determinants of poor health in their Arab-American patients.

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Conflicts of interest

There are no conflicts of interest.

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