

Prevalence of Disability among US- and Foreign-Born Arab Americans: Results from the 2000 US Census

Florence J. Dallo^a Soham Al Snih^b Kristine J. Ajrouch^c

^aUniversity of Texas, School of Public Health, Dallas Regional Campus, Dallas, Tex., ^bUniversity of Texas Medical Branch, Sealy Center on Aging, Galveston, Tex., ^cEastern Michigan University, Department of Sociology, Anthropology, and Criminology, Ypsilanti, Mich., USA

Key Words

Disability • Arab American • Nativity status • US Census • Acculturation

Abstract

Background: Although the prevalence of disability for various racial and ethnic groups has been documented, little attention has been paid to Arab Americans in the United States. **Objectives:** We estimated the age- and sex-adjusted prevalence of disability among older Arab Americans and examined the association between nativity status and self-reported physical and self-care disability before and after controlling for covariates. **Methods:** We used data from the 5% Public Use Microdata Samples of the 2000 US Census. Our sample included 4,225 individuals 65 years of age and older who identified with an Arab ancestry. Of these, 2,280 were foreign-born and 1,945 were US-born. **Results:** The age- and sex-adjusted prevalence of having a physical disability was 31.2% for foreign- and 23.4% for US-born older Arab Americans, and the age- and sex-adjusted prevalence of having a self-care disability was 13.5% for foreign- and 6.8% for US-born Arab Americans. Iraqis reported the highest estimates for both disabilities (physical, 36.2%; self-care, 19.8%) compared to other Arab ethnic groups. In the crude model, foreign-born Arab Americans were more likely (OR = 1.32; 95% CI = 1.28, 1.36) to report a physical disability compared to US-born Arab Americans. When adjusting for English language ability in the final model, the odds of hav-

ing a physical disability for foreign-born Arab Americans was protective compared to US-born Arab Americans (OR = 0.92; 95% CI = 0.88, 0.96). In the crude model, foreign-born Arab Americans were 1.82 times (95% CI = 1.74, 1.90) more likely to report a self-care disability compared to US-born Arab Americans. In the fully adjusted model, this association was slightly attenuated (OR = 1.32; 95% CI = 1.24, 1.41). **Conclusions:** These findings indicate English language ability is associated with variations in reporting a physical disability. Future studies should include better measures of acculturation. Arab Americans are heterogeneous and should be disaggregated both by subgroups and from the white category in order to reveal a more accurate health and disease status profile for these groups. These efforts will assist in tailoring more effective interventions in reducing or preventing disability among Arab Americans 65 years of age and older.

Copyright © 2008 S. Karger AG, Basel

Older age has been considered a period of life marked by gradual declines in health [1–3]. Declining health may characterize the general experience of the older person, yet not all experience health deterioration with age [1]. Of individuals 65 years of age and older in the US, 41.9% reported some type of disability [4]. These estimates varied by race and ethnicity: 52.8% of blacks, 48.5% of Hispanics, and 40.4% of non-Hispanic whites reported having a disability [4].

KARGER

Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

© 2008 S. Karger AG, Basel
0304-324X/09/0552-0153\$26.00/0

Accessible online at:
www.karger.com/ger

Florence J. Dallo, PhD, MPH
University of Texas, School of Public Health
Dallas Regional Campus, 5323 Harry Hines Blvd., V8.112
Dallas, TX 75390-9128 (USA)
Tel. +1 214 648 1070, Fax +1 214 648 1081, E-Mail Flora.Dallo@UTSouthwestern.edu

These findings highlight the importance of including foreign-born individuals in the disability discourse. While studies have shown that foreign-born individuals have lower mortality and morbidity rates, including disability [5–8], little attention has been paid to other immigrant, minority groups, such as individuals from the Middle East (hereafter referred to as Arab Americans), who are currently categorized as non-Hispanic white by the Office of Management and Budget [9]. According to the 2000 US Census, approximately 1.2 million people reported at least one Arab ancestry, and of these, 54% were foreign-born [10]. Even though studies have suggested that Arab immigrants are significantly less likely to report limitations in activity compared to US-born whites [11], and that the prevalence of chronic conditions, such as diabetes and hypertension, is lower for Arab immigrants compared to US-born whites [12], no studies using national data have compared the health status of US- versus foreign-born Arab Americans.

The analyses presented here are designed to move the field forward by documenting disability profiles among US- and foreign-born older Arab Americans. Given the paucity of data available on older Arab Americans, this study uses the 2000 Census data to first estimate the age- and sex-adjusted prevalence of physical and self-care disability among US- and foreign-born Arab American individuals 65 years of age and older, and then to examine the association between nativity status and physical and self-care disability before and after controlling for selected covariates. The analysis adds a new dimension to existing research on aging, ethnicity, and health by focusing on older Arab Americans and distinguishing between US- and foreign-born individuals, which may influence disability.

Methods

This study uses data from the 5% Public Use Microdata Samples [13] of the 2000 US Census [14, 15]. Each microdata file is a stratified sample (approximately 15.8% of all housing units) of the population which was created by subsampling the full Census sample that received Census long form questionnaires [14]. Beginning in 1980, the Census included an ancestry question, which asked 'What is this person's ancestry or ethnic origin?' The question allows respondents to provide a maximum of two attributions [14]. Based on responses to this question, 43 Arab ancestries were identified by the US 2000 Census (see Appendix [14]).

This analysis includes all of the Arab ancestries identified by the Census 2000 briefs and special reports [10, 16] in addition to other ancestries, whose individuals are from one of the countries

that comprise the Arab League of Nations [17], but were not included in the Census reports [9, 15]. Therefore, these analyses include all of the 43 categories, excluding individuals who listed an Iranian, Israeli, Armenian, or Turkish ancestry because these countries are not included in the Arab League of Nations [17]. Given this, in the 5% PUMS data, 53,874 (unweighted) individuals reported at least one Arab ancestry.

The outcome for this study is disability. The 2000 US Census asked if the respondent had any of the following disabilities: sensory, physical, mental, self-care, difficulty going outside the home, and employment disability [14]. For this study, only physical and self-care disability were examined, because of their acceptable reliability and validity estimates [18, 19]. In order to assess whether the individual had a physical disability, the following question was asked: 'Does this person have a condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying?' [14]. In order to assess whether the individual had a self-care disability, the following question was asked: 'Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in dressing, bathing, or getting around inside the home?' [14]. For the analysis, responses to each of these questions were retained as collected in the Census: yes versus no.

The main independent variable was nativity status. Individuals were asked where they were born, and this variable was coded from 1 to 556, with 1 to 56 representing individuals born in the US (5 of these categories were 'Not Used', resulting in 50 states plus Washington D.C.). This variable was dichotomized as: born in the US or Puerto Rico (hereafter referred to as US-born) or born outside of the US or Puerto Rico (hereafter referred to as foreign-born). These inclusion and exclusion criteria yielded a final sample size of 4,225 Arab Americans 65 years of age and older, where 2,280 were US-born and 1,945 were foreign-born.

Consistent with other studies that examined disability using national data [20–22], age, sex, marital status, educational level, and poverty level were included as covariates. These variables were grouped as follows: age (continuous) and sex (male/female) were retained as collected in the Census [14]. To assess marital status, individuals were given the following choices: now married, spouse present; now married, spouse absent; widowed; divorced; separated, and never married. For our analysis, and based on previous research [23], we categorized marital status as married, with spouse present versus all others. Educational status was comprised of 16 categories in the Census, and for this analysis, it was coded as: no schooling completed; less than high school; high school graduate; some college, and college degree or more. In the US Census, poverty status was a continuous variable, and for this analysis and consistent with other research [23] poverty status was categorized as 125% below the poverty level, between 125–199% and $\geq 200\%$.

Additionally, individuals were asked about their citizenship status, year of entry into the US, and the ability to speak English. All respondents were asked their citizenship status with the following options: yes, born in the US; yes, born in Puerto Rico, Guam, US Virgin Islands, American Samoa, or Northern Marianas; yes, born abroad of American parent or parents; yes, US citizen by naturalization, and no, not a citizen of the US. For these analyses, we combined the first three categories and labeled them

as 'born in the US', and we retained the fourth and fifth categories and labeled them as 'naturalized citizen', and 'not a US citizen,' respectively. For individuals who were not born in the US, mean duration in the US was calculated by subtracting the year 2000 from their year of entry into the US. This was included as a continuous variable. Finally, individuals who indicated they spoke a language other than English were asked how well they spoke English, and the choices were retained as collected by the US census: very well, well, not well, not at all [14].

Statistical Analysis

Age- and sex-adjusted disability prevalence estimates were calculated for US- and foreign-born respondents. Then, age- and sex-adjusted prevalence estimates were reported for Iraq, Syria, Lebanon, and Egypt because these four countries yielded the highest proportion of older adults who reported an Arab ancestry, and the rest of the countries were grouped as 'other.' Descriptive statistics for the characteristics of the population and for those with a disability were calculated for US- and foreign-born Arab Americans. χ^2 test, including a Bonferroni test to correct for multiple comparisons, was used to assess significant differences between the covariates and nativity status. Logistic regression models were used to estimate the strength of the association between nativity status and prevalence of physical and self-care disability. Specifically, four models were performed: model 1, only nativity status (crude ORs); in model 2, age, sex, and marital status were added; in model 3, educational status and poverty level were added, and in model 4, ability to speak English was added. All analyses were performed using the SAS System for Windows, Version 9.1 [24]. In the tables, the sample sizes were unweighted. However, proportions, and ORs with their 95% CIs were weighted.

Results

Figure 1 illustrates the age- and sex-adjusted prevalence of physical and self-care disability according to nativity status. Results show that the age- and sex-adjusted prevalence of either disability is higher for foreign- compared to US-born individuals. For example, the prevalence of hav-

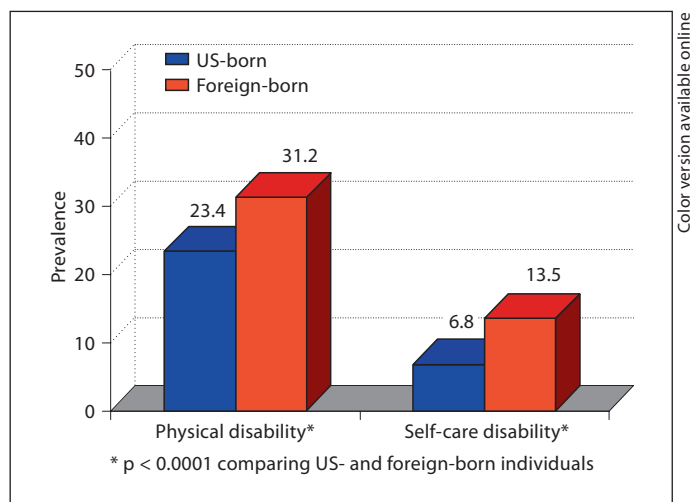


Fig. 1. Age- and sex-adjusted prevalence of disability among US- and foreign-born Arab Americans: PUMS 2000, n = 4,225.

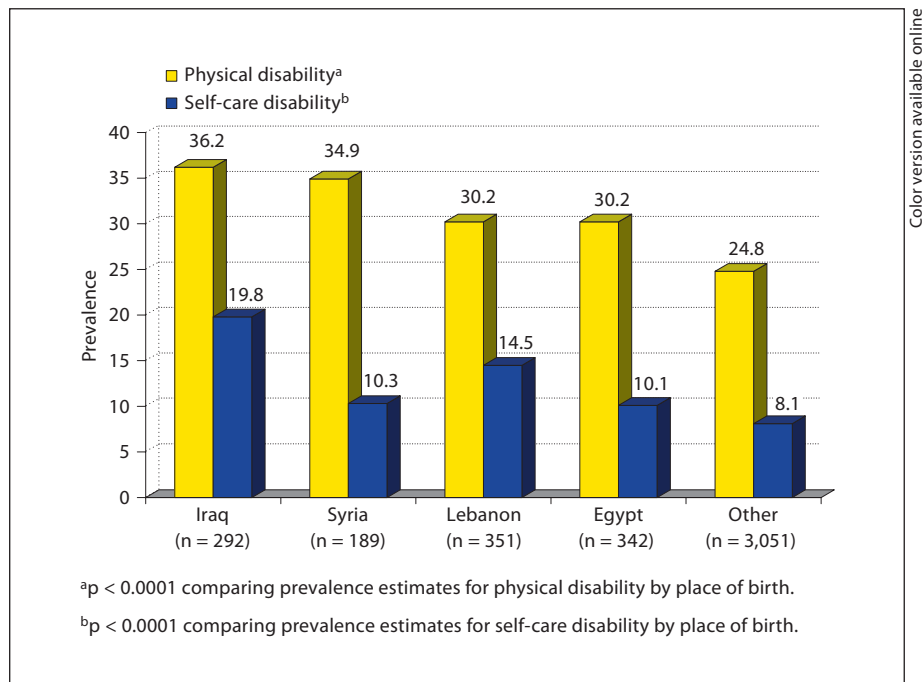


Fig. 2. Age- and sex-adjusted prevalence of physical and self-care disability among Arab Americans by place of birth: PUMS 2000, n = 4,225.

Table 1. Distribution (%) of selected characteristics for US- and foreign-born Arab Americans 65 years of age and older: PUMS 2000, n = 4,225

| Characteristic | US-born (n = 2,280) | Foreign-born (n = 1,945) | p value* |
|-----------------------------|------------------------|-----------------------------|-------------|
| Mean age (SD) | 74.3 (0.14) | 72.5 (0.15) | 0.003 |
| Female | 55.8 | 51.1 | 0.003 |
| Married with spouse present | 52.9 | 54.2 | 0.003 |
| Educational status | | | 0.003 |
| No schooling completed | 1.0 | 16.2 | |
| Less than high school | 5.4 | 16.6 | |
| High school graduate | 52.4 | 33.6 | |
| Some college | 32.0 | 21.4 | |
| College degree or more | 9.3 | 12.2 | |
| Percent below poverty level | | | 0.003 |
| <125% | 9.5 | 21.4 | |
| 125–199% | 13.7 | 15.2 | |
| ≥200% | 76.7 | 63.4 | |
| Mean duration in US (SD) | – | 21.3 (0.44) | – |
| Citizenship status | | | – |
| Born in US | 100 | – | |
| Naturalized citizen | – | 74.0 | |
| Not a US citizen | – | 26.0 | |
| Ability to speak English | | | 0.003 |
| Very well | 79.9 | 33.8 | |
| Well | 11.2 | 23.4 | |
| Not well | 7.8 | 26.2 | |
| Not at all | 1.1 | 16.6 | |

* χ^2 p value testing, using a Bonferroni adjustment for multiple comparisons, whether there is a difference between nativity status for each covariate.

ing a physical disability is 31.2% for foreign-born compared to 23.4% for US-born individuals ($p < 0.0001$).

Figure 2 presents the age- and sex-adjusted prevalence of physical and self-care disability by country of birth compared to other countries. Older adults from Iraq reported the highest estimate for both a physical (36.2%) and self-care disability (19.8%) compared to other countries. Syrians reported the second highest estimate for having a physical disability (34.9%), but the prevalence of having a self-care disability (10.3%) was comparable to Egyptians (10.1%). The prevalence of having a physical disability was 30.2% for Lebanese and Egyptians (all p values < 0.0001).

Table 1 presents the distribution of all study variables for US- and foreign-born Arab Americans. The age range of the study sample was 65–93 (results not shown). Foreign-born Arab Americans were more likely to be younger and married with their spouse present compared to US-

born Arab Americans. Foreign-born Arab Americans were less likely to be female, less likely to speak English very well, and less likely to be $\geq 200\%$ below the poverty level compared to US-born Arab Americans. Interestingly, foreign-born Arab Americans represented both ends of the spectrum for educational attainment; that is, they were more likely to have less than a high school education, but also more likely to have a college degree or more. Of foreign-born Arab Americans, 74.0% were naturalized citizens with a mean duration of 21.3 years in the US.

Table 2 shows the proportion of selected characteristics only for individuals with a physical or self-care disability. Compared to US-born, foreign-born Arab Americans who reported having a physical disability were more likely to be younger, have less than a high school education, to be $< 125\%$ below the poverty level, and less likely to report speaking English very well. The same trends were observed for those reporting a self-care disability, with two exceptions: compared to US-born, foreign-born individuals with a physical disability were more likely to be female, while those with a self-care disability were more likely to be male. Also, foreign-born individuals with a physical disability were significantly less likely to be married with a spouse present compared to US-born, but this difference was not statistically significant for those with a self-care disability.

Table 3 presents the unadjusted and adjusted ORs with their 95% CIs for the prevalence of having a physical disability by nativity status. In model 1, the odds of having a physical disability among Census 2000 foreign-born Arab American participants 65 years of age or older was 1.32 (95% CI 1.28, 1.36) times higher compared to US-born Arab Americans. In model 2, after controlling for age, sex, and marital status, the odds of having a physical disability was 1.50 (95% CI 1.45–1.54). In model 3, when further controlling for educational status and percent below the poverty level, the odds of having a physical disability was 1.20 (95% CI 1.16, 1.24). Finally, in model 4, when controlling for the ability to speak English, the odds of having a physical disability was 0.92 (95% CI 0.88, 0.96).

Table 4 presents the unadjusted and adjusted ORs with their 95% CI for the prevalence of having a self-care disability by nativity status. In model 1, the odds of having a self-care disability was 1.82 (95% CI 1.74, 1.90) times higher for foreign-born compared to US-born Arab Americans. In model 2, when controlling for age, sex, and marital status, the odds of having a self-care disability was 2.20 (95% CI 2.10, 2.30). In model 3, when further controlling for educational status and percent below the poverty level, there was still an increased risk of having a

Table 2. Proportion of selected characteristics (%) for US- and foreign-born Arab Americans 65 years of age and older with a physical or self-care disability: PUMS 2000, n = 4,225

| Characteristic | Physical disability (n = 1,137) | | | Self-care disability (n = 402) | | |
|-----------------------------|---------------------------------|---------------------------|-------------|--------------------------------|---------------------------|-------------|
| | US-born (n = 561) | foreign-born (n = 576) | p value* | US-born (n = 163) | foreign-born (n = 239) | p value* |
| Mean age (SE) | 76.2 (0.31) | 74.0 (0.29) | 0.003 | 78.2 (0.63) | 75.3 (0.51) | 0.003 |
| Female | 62.8 | 65.5 | 0.003 | 69.4 | 65.1 | 0.003 |
| Married with spouse present | 42.2 | 39.4 | 0.003 | 38.6 | 37.6 | NS |
| Educational status | | | 0.003 | | | 0.003 |
| No schooling completed | 2.1 | 24.7 | | 2.3 | 30.9 | |
| Less than high school | 8.5 | 22.8 | | 11.6 | 24.5 | |
| High school graduate | 59.8 | 32.6 | | 61.4 | 30.3 | |
| Some college | 23.8 | 15.3 | | 19.2 | 12.2 | |
| College degree or more | 5.7 | 4.5 | | 5.5 | 2.2 | |
| Percent below poverty level | | | 0.003 | | | 0.003 |
| <125% | 12.2 | 28.5 | | 12.6 | 30.4 | |
| 125–199% | 18.5 | 16.7 | | 17.1 | 17.2 | |
| ≥200% | 69.4 | 54.9 | | 70.3 | 52.4 | |
| Mean duration in US (SE) | – | 18.9 (0.73) | – | – | 19.0 (1.03) | – |
| Citizenship status | | | | | | |
| Born in US | 100 | – | – | 100 | – | – |
| Naturalized citizen | – | 69.9 | | – | 65.7 | |
| Not a US citizen | – | 30.1 | | – | 34.3 | |
| Ability to speak English | | | 0.003 | | | 0.003 |
| Very well | 80.6 | 20.3 | | 82.0 | 20.7 | |
| Well | 7.9 | 21.1 | | 7.9 | 19.7 | |
| Not well | 10.5 | 33.4 | | 7.7 | 29.3 | |
| Not at all | 1.0 | 25.2 | | 2.4 | 30.3 | |

* χ^2 p value testing, using a Bonferroni adjustment for multiple comparisons, whether there is a difference between nativity status and each covariate.

self-care disability (OR = 1.66; 95% CI 1.57, 1.75). Finally, in model 4, when controlling for the ability to speak English, the relationship remained significant (OR = 1.32; 95% CI 1.24, 1.41).

Discussion

Using 2000 US Census data, we found that foreign-born Arab Americans had a higher sex- and age-adjusted prevalence of having a physical or self-care disability compared to US-born Arab Americans. Older adults from Iraq and Syria reported the highest estimates of having a physical disability compared to individuals from other Arab countries. Individuals from Iraq and Lebanon reported the highest estimates of having a self-care disability compared to other countries. When controlling for all potential confounders, while foreign-born Arab

Americans were less likely to have a physical disability, they were more likely to have a self-care disability compared to US-born Arab Americans.

In this study, disability prevalence was higher for foreign- compared to US-born Arab Americans. This is probably due to the conflict that has and continues to occur in many Arab countries. Iraqis, Syrians, and Lebanese reported the highest estimates of disability, and this is most likely due to the fact that immigrants from these three countries are leaving homelands that have undergone an enormous amount of political strife and instability when compared to Egypt and other Arab countries. This context may contribute to heightened levels of disability due to the hardships that accompany living under such harsh conditions. In multivariate analyses, when controlling for the ability to speak English, foreign-born Arab Americans were less likely to report having a physical disability compared to US-born Arab Americans.

Table 3. Crude and adjusted ORs and 95% CIs for having a physical disability among foreign-born Arab Americans 65 years of age and older: PUMS 2000, n = 1,137

| Independent variable | OR (95% CI) | | | |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|
| | model 1 | model 2 | model 3 | model 4 |
| Foreign-born | 1.32 (1.28, 1.36) | 1.50 (1.45, 1.54) | 1.20 (1.16, 1.24) | 0.92 (0.88, 0.96) |
| US-born | 1.00 | 1.00 | 1.00 | 1.00 |
| Age (continuous) | | 1.05 (1.04, 1.05) | 1.04 (1.03, 1.04) | 1.04 (1.04, 1.05) |
| Sex | | | | |
| Female | | 1.50 (1.45, 1.55) | 1.30 (1.26, 1.35) | 1.28 (1.24, 1.33) |
| Male | | 1.00 | 1.00 | 1.00 |
| Marital status | | | | |
| Other marital status* | | 1.60 (1.55, 1.66) | 1.50 (1.45, 1.55) | 1.50 (1.45, 1.55) |
| Married with spouse present | | 1.00 | 1.00 | 1.00 |
| Educational status | | | | |
| No schooling completed | | | 3.16 (2.96, 3.37) | 2.12 (1.98, 2.28) |
| Less than high school | | | 2.19 (2.08, 2.29) | 1.86 (1.77, 1.95) |
| High school graduate | | | 1.56 (1.49, 1.64) | 1.46 (1.39, 1.53) |
| Some college | | | 1.33 (1.26, 1.41) | 1.29 (1.22, 1.37) |
| College degree or more | | | 1.00 | 1.00 |
| Percent below poverty level | | | | |
| ≥200% | | | 0.75 (0.72, 0.78) | 0.76 (0.73, 0.80) |
| 125–199% | | | 0.89 (0.84, 0.94) | 0.91 (0.86, 0.96) |
| <125% | | | 1.00 | 1.00 |
| Ability to speak English | | | | |
| Not at all | | | | 2.15 (2.00, 2.31) |
| Not well | | | | 1.90 (1.79, 2.00) |
| Well | | | | 1.29 (1.22, 1.37) |
| Very well | | | | 1.00 |

* Married, but spouse absent; divorced; separated; widowed; or never married.

This implies that English language ability may explain the relationship between nativity status and having a physical disability. English language skills may signify a higher likelihood that immigrants will integrate and develop relationships outside of co-ethnics, particularly with health care resources in the US that may enable foreign-born Arab Americans to overcome their physical disability. Compared to US-born, foreign-born Arab Americans were more likely to report having a self-care disability in the fully adjusted logistic regression model. Foreign-born Arab Americans may have developed the self-care disability in their country of origin, and continued to have it while in the US. Perhaps because self-care, compared to a physical disability, signifies a more personal form of disability, individuals may refrain from seeking such help as well as find it challenging to access resources. For example, Sengstock [25] reports that Arab Americans are often embarrassed to seek help concerning the needs of elders outside of the family unit. More-

over, it may be easier to obtain a walker to assist with walking than to locate and install necessary equipment to facilitate bathing.

One notable finding from our study is 1.1% of US-born Arab Americans reported they do not speak English at all. Further analysis suggests the majority of them were female (71.1%), not married or married with spouse absent (61.3%), had not completed school (54.8%), and 52.1% were ≥ 200% below the poverty level (all p values <0.0001). This may be because females relied on their spouses or children to speak in English for them or to translate when necessary. It is not surprising that a majority of them had lower socioeconomic status; that is, they had not completed school, and they were more likely to live ≥ 200% below the poverty level. These individuals may have lived in enclaves where speaking English was not necessary for ‘survival’, because they were able to navigate the system via other individuals or social service organizations.

Table 4. Crude and adjusted ORs and 95% CIs for having a self-care disability among foreign-born Arab Americans 65 years of age and older PUMS 2000, n = 402

| Independent variable | OR (95% CI) | | | |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|
| | model 1 | model 2 | model 3 | model 4 |
| Foreign-born | 1.82 (1.74, 1.90) | 2.20 (2.10, 2.30) | 1.66 (1.57, 1.75) | 1.32 (1.24, 1.41) |
| US-born | 1.00 | 1.00 | 1.00 | 1.00 |
| Age (continuous) | | 1.08 (1.07, 1.08) | 1.07 (1.06, 1.07) | 1.07 (1.07, 1.08) |
| Sex | | | | |
| Female | | 1.56 (1.48, 1.64) | 1.33 (1.26, 1.40) | 1.31 (1.24, 1.38) |
| Male | | 1.00 | 1.00 | 1.00 |
| Marital status | | | | |
| Other marital status* | | 1.45 (1.38, 1.53) | 1.34 (1.27, 1.41) | 1.33 (1.26, 1.40) |
| Married with spouse present | | 1.00 | 1.00 | 1.00 |
| Educational status | | | | |
| No schooling completed | | | 3.47 (3.17, 3.79) | 2.42 (2.19, 2.68) |
| Less than high school | | | 1.97 (1.82, 2.12) | 1.73 (1.60, 1.88) |
| High school graduate | | | 1.53 (1.42, 1.66) | 1.44 (1.33, 1.56) |
| Some college | | | 0.84 (0.75, 0.93) | 0.81 (0.73, 0.90) |
| College degree or more | | | 1.00 | 1.00 |
| Percent below poverty level | | | | |
| ≥200% | | | 0.77 (0.72, 0.81) | 0.77 (0.73, 0.82) |
| 125–199% | | | 0.80 (0.75, 0.87) | 0.81 (0.75, 0.87) |
| <125% | | | 1.00 | 1.00 |
| Ability to speak English | | | | |
| Not at all | | | | 2.14 (1.95, 2.35) |
| Not well | | | | 1.45 (1.34, 1.57) |
| Well | | | | 1.32 (1.22, 1.44) |
| Very well | | | | 1.00 |

* Married, but spouse absent; divorced; separated; widowed; or never married.

Comparisons between our findings and those of other studies are challenging because few studies have examined disability status in older Arab Americans. Ajrouch [26] examined physical disability on a convenience sample of older Arab Americans living in the metro-Detroit area and found that educational level is a more important influence on physical disability than sex or immigrant status. This difference may reflect that in her study, Arab American elder immigrants reported significantly lower levels of education than US-born Arab American elders. In terms of disability prevalence, our findings are similar to the study by Mutchler et al. [23] on Asian Americans. Using 2000 US Census data, they reported that 25.1% of foreign-born and 20.2% of US-born older Asians reported a physical limitation. Also, 9.8% of foreign-born and 6.5% of native-born Asians reported a self-care limitation [23]. While these estimates are much lower compared to our findings for Arab Americans, they are consistent in that the prevalence of disability is higher for foreign-born

compared to US-born older adults. However, Dey and Lucas [5] found US-born and foreign-born individuals were equally likely to report having ADL and IADL limitations. On the other hand, they found that US-born black adults were almost twice as likely to report both ADL and IADL limitations compared to foreign-born blacks. One reason our findings differed may be due to the increased social, economic, and political instability that many Arab countries have been and continue to experience compared to other countries.

Furthermore, Census data indicate that 28.6% of all individuals 65 years of age and older reported a physical disability compared to 27.0% of Arab Americans in our sample, regardless of nativity status [4]. Therefore, even though the overall prevalence of having a physical disability is higher for the US population compared to Arab Americans, the prevalence of having a physical disability for foreign-born Arab Americans is higher (31.2%) compared to the US population (28.6%). Interestingly, the

prevalence of having a physical disability for US-born Arab Americans is lower (23.4%) compared to the US population (28.6%). These comparisons stress the importance of examining disability by nativity status because even though the overall prevalence of having a physical disability is 27.0% for all Arab Americans and comparable to the US estimate (28.6%), this proportion is much higher for foreign-born Arab Americans (31.2%) compared to US-born Arab-Americans (23.4%). Finally, while it would have been important to compare our findings to those from various Arab countries, these data are scarce. A few studies from Egypt suggested women are more likely to suffer from a disability compared to men [27–29], which is comparable to our findings.

There are a few limitations to this study. First, the long form of the Census questionnaire (which contains the ancestry question) was distributed to every sixth household [14], and this fact may undercount the number of Arab Americans. Second, the assessment of physical and self-care disability was self reported, which may underestimate the prevalence of physical and self-care disability. Nevertheless, several studies have demonstrated a high concordance between self-reported data and direct observations of disability performance [30]. Despite these limitations, the strengths of this study include: First, the use of the only national source of data regarding levels of disability among the Arab American population in the US. Second, due to the large sample size, we were able to conduct regression analyses controlling for potential confounders.

These findings imply that foreign-born Arab Americans reported a higher level of both a physical and self-care disability compared to US-born Arab Americans, and that English ability may mediate the relationship between nativity status and having a physical or self-care disability. Future research should include other accultur-

ation variables beyond spoken language, such as the language in which one thinks, writes, and reads in different situations, diet preference, and socialization of children. Also, future studies should obtain objective measures for disability assessment. Finally, it is important to better understand the antecedents to foreign-born Arab Americans becoming physically disabled. Such information would allow for the development and implementation of culturally appropriate interventions to aid in preventing disability.

According to Solari [31], Arab Americans have been ‘invisible in aging research’. In order to help fill this gap, the present study examined disability status among Arab Americans. Results showed that foreign-born Arab Americans suffer more disability compared to US-born Arab Americans. Our findings provide opportunities for future research that examine how and why Arab Americans are different from other immigrant minority groups. Our study underscores the importance of unmasking hidden patterns of disability and other chronic illness distribution among the white racial category (which includes Arab Americans), within Arab American subgroups (such as Iraqis, Syrians, Lebanese, and Egyptians), and by nativity status (US- and foreign-born).

Appendix

Arab Ancestries Identified by the US 2000 Census

Aden, Algerian, Alhucemas, Arab, Arabic, Armenian, Assyrian, Assyrian/Chaldean/Syriac, Bahraini, Bedouin, Berber, Chaldean, Egyptian, Gaza Strip, Ifni, Iranian, Iraqi, Israeli, Jordanian, Kurdish, Kuria Muria Islander, Kuwaiti, Lebanese, Libyan, Mid-east, Moroccan, Muscat, North African, Omani, Palestinian, Qatar, Rio do Oro, Saudi Arabian, South Yemen, Syriac, Syrian, Transjordan, Trucial States, Tunisian, Turkish, United Arab Emirates, West Bank, Yemeni.

References

- 1 Criminis EM, Saito Y: Getting better and getting worse: transitions in functional status among older Americans. *J Aging Health* 1993;5:3–36.
- 2 Guralnik JM: Prospects for the compression of morbidity: the challenge posed by increasing disability in the years prior to death. *J Aging Health* 1991;3:138–154.
- 3 Verbrugge LM, Lepkowski JM, Imanaka Y: Comorbidity and its impact on disability. *Milbank Q* 1989;67:450–484.
- 4 Waldrop J, Stern SM: Disability Status: 2000; Census 2000 Brief. US Department of Commerce, Economics and Statistics Administration, US Census Bureau, 1–12, 2003.
- 5 Dey A, Lucas JW: Physical and Mental Health Characteristics of U.S.- and Foreign-Born Adults: United States, 1998–2003. Advance data from vital and health statistics, No 369. Hyattsville, National Center for Health Statistics, 2006.
- 6 Singh GK, Miller BA: Health, life expectancy, and mortality patterns among immigrant populations in the United States. *Canad J Publ Health* 2004;95:I14–I21.
- 7 Singh G, Siahpush M: Ethnic-immigrant differentials in health behaviors, morbidity, and cause-specific mortality in the United States: an analysis of two national data bases. *Hum Biol* 2002;74:83–109.

- 8 Singh G, Hiatt RA: Trends and disparities in socioeconomic and behavioural characteristics, life expectancy, and cause-specific mortality of native-born and foreign-born populations in the United States, 1979–2003. *Int J Epidemiol* 2006;35:903–919.
- 9 Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity: Office of Management and Budget, 1997, report 210.
- 10 Brittingham A, de la Cruz GP: We the People of Arab Ancestry in the United States: Census 2000 Special Report, CENSR-21. US Department of Commerce, Economics and Statistics Administration, 2005, pp 1–19.
- 11 Read JG, Amick B, Donato KM: Arab immigrants: a new case for ethnicity and health? *Soc Sci Med* 2005;61:77–82.
- 12 Dallo FJ, Borrell LN: Self-reported diabetes and hypertension among Arab Americans in the United States. *Ethnicity Dis* 2006;16:699–705.
- 13 Census 2000: Public Use Microdata Sample (PUMS), United States, prepared by the US Census Bureau, 2003.
- 14 Census 2000: Public Use Microdata Sample (PUMS), United States, Technical Documentation, prepared by the US Census Bureau, 2003.
- 15 US Department of Commerce, Bureau of the Census: Census of Population and Housing, 2000. Public Use Microdata Sample: 5-Percent Sample (computer file). ICPSR release. Washington, US Department of Commerce, Bureau of the Census, 2003.
- 16 Tucker KL, Falcon LM, Bianchi LA, et al: Self-reported prevalence and health correlates of functional limitation among Massachusetts elderly Puerto Ricans, Dominicans, and a Non-Hispanic Whites neighborhood comparison group. *J Gerontol Soc Sci* 2000;55A:M90–M97.
- 17 Middle East News & World Report: Accessed August 3, 2007, at <http://www.middleeast-news.com/ArabLeague.html>.
- 18 Calsyn RJ, Winter JP, Yonker RD: Should disability items in the census be used for planning services for elders? *Gerontologist* 2001;41:583–588.
- 19 Andresen EM, Fitch CA, McLendon PM, et al: Reliability and validity of disability questions for US Census 2000. *Am J Publ Health* 2000;90:1297–1299.
- 20 Fuller-Thomson E, Minkler M: Functional limitations among older American Indians and Alaska natives: findings from the Census 2000 Supplementary Survey. *Am J Publ Health* 2005;95:1945–1948.
- 21 Manton KG, Gu X: Changes in the prevalence of chronic disability in the United States black and nonblack population above age 65 from 1982 to 1999. *Proc Natl Acad Sci USA* 2001;98:6354–6359.
- 22 Ostchega Y, Harris TB, Hirsch R, et al: The prevalence of functional limitations and disability in older persons in the US: data from the National Health and Nutrition Examination Survey III. *J Am Geriatr Soc* 2000;48:1132–1135.
- 23 Mutchler JE, Prakash A, Burr JA: The demography of disability and the effects of immigrant history: older Asians in the United States. *Demography* 2007;44:251–263.
- 24 SAS/STAT User's Guide: Version 9.1. Cary, SAS Institute Inc, 2002–2003.
- 25 Sengstock MC: Care of elderly within Muslim families; in Aswad BC, Bilge B (eds): *Family and Gender among American Muslims*. Philadelphia, Temple University Press, 1996, pp 271–297.
- 26 Ajrouch KJ: Health disparities and Arab American elders: does intergenerational support buffer the inequality-health link? *J Social Issues* 2007;63:745–758.
- 27 Yount KM, Agree E: Differences in disability among older women and men in Egypt and Tunisia. *Demography* 2005;42:169–187.
- 28 Lamb VL: Gender Differences in correlates of disablement among the elderly in Egypt. *Soc Sci Med* 1997;45:127–136.
- 29 Khadr Z, Yount KM: Differences in self-reported disability among older women and men in Ismailia, Egypt. *J Biosoc Sci* 2006;38:577–603.
- 30 Reuben DB, Siu AL, Kimpau S: The predictive validity of self-reported and performance-based measures of function and health. *J Gerontol Med Sci* 1992;47:M106–M110.
- 31 Solari S: Invisible in aging research: Arab Americans, Middle Eastern Immigrants, and Muslims in the United States. *Gerontologist* 2002;42:580–588.

Copyright: S. Karger AG, Basel 2009. Reproduced with the permission of S. Karger AG, Basel.
Further reproduction or distribution (electronic or otherwise) is prohibited without permission
from the copyright holder.