Health Care Utilization among Middle Eastern, Hispanic, and Asian Immigrants in the US: An Analysis of Andersen's Behavioral Model

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Introduction

Over the past several decades, studies have shown that racial/ethnic minorities, and immigrants in particular, are a distinct disadvantage when it comes to health care utilization. For example, research has demonstrated that Mexican immigrants are less likely to utilize health care compared to US-born Mexican-Americans, non-Mexican Latinos and non-Latino Whites (Ortega et al, 2008). Despite extensive findings on health care utilization of Latinos, very few studies have incorporated Asian and Middle Eastern (ME) populations.

According to a model developed by Andersen and colleagues (Andersen, 1968, 1995), several factors predict health care utilization, including predisposing characteristics (e.g. demographic, social structure, health beliefs), enabling resources (personal, family, & community support), and need factors (perceived and evaluated). Although Anderson behavioral model of health care utilization has been examined by many scholars (Aday and Anderson, 1974; Aday et al., 1980; Wolinsky, 1982; Wolinsky et al., 1983) since its development in the 1960's, only a handful of studies have applied it to immigrant population in the US (Portes, Kyle, and Eaton, 1992; LaClere et al., 1994, Akresh, 2009, Ku and Matani, 2001), and again, these studies have largely been limited to Latino immigrants.

The purpose of the study

While the U.S. is home to over 3 million immigrants from the Middle East (American Community Survey, 2012), they have received very little attention in public health research (Read and Reynolds, 2012; Dallo et al., 2013; Shafeek Amin, 2014). Thus, the current study extends the previous literature by using 16 years of nationally representative data to apply Anderson's framework to three groups of U.S. immigrants (ME, Hispanic, and Asian). Similar to LaClere et al. (1994) and Akresh (2009), we are modeling the likelihood of visiting the doctor in the last 12 months and time since their last doctor's visit. Further, the current study examines gender differences among the three immigrant groups with regard to health care utilization. We hypothesize that immigrant women will have more access to health care compared to their male counterparts regardless of their race/ethnicity.

This study makes a substantial contribution to the literature as the first study to 1) examine health care utilization patterns among Middle Eastern immigrants; 2) compare these patterns to those of other

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U.S. immigrants; and 3) examine gender differences in health care utilization among all three immigrant groups.

Gender Differences-Access to health care

For decades, studies have shown that, in the U.S., women tend to utilize health care services more than men (Muller, 1990; Owens, 2008). Data from the National Health Interview Survey has shown that women are more likely than men to have a usual source of care, to have visited a doctor within the last 12 months, and more likely to have been tested for HIV (Schiller, Lucas, & Peregoy, 2012). Women are also more likely to receive preventative treatments, including blood pressure and cholesterol checks, dental checks, and flu shots (Vaidya, Partha, & Karmakar, 2012). Despite this, little is known about gender differences among various immigrant groups, particularly non-Latino groups. We hope to fill this gap in the literature.

Methods

This study uses pooled data from the 2002-2017 National Health Interview Survey (NHIS). The NHIS is a multipurpose health survey conducted annually since 1957 by the National Center for Health Statistics and Centers for Disease Control and Prevention, and administered by the U.S. Census Bureau. The NHIS is a multi-stage, stratified, cluster sample that is designed to manage information on the non-institutionalized, civilian population in the U.S (National Center for Health Statistics 2002-2017). The analyses mainly draw data from the sample adult files and then link them with corresponding person, household, and family files when necessary. The analyses are based on Middle Eastern immigrants (n= 904), Mexican immigrants (n= 32,771), and Asian immigrants (n=7,717) ages 18 and older for a total sample size of 41,392.

Measures

Dependent Measures

Our primary dependent variables include two measures: whether individuals saw or talked to a doctor in the past 12 months and time since they last saw/talked to a health professional.

Independent Measures

Our independent variables are drawn from Andersen's model of health care utilization and include: predisposing, enabling, and need variables. Our predisposing variables include age, gender, race/ethnicity, and marital Status. Our enabling variables include health insurance coverage, duration of residence in the US, level of education, income, and homeownership. Our needs variables include health status (Fair/Poor Health) and doctor-diagnosed condition (any chronic disease).

Analyses

Our analysis includes two parts. We first present a descriptive analysis of basic gender differences by nativity and ethnicity (ME immigrants vs. Hispanic and Asian immigrants) (Table 1).

Then, we present a series of binomial logistic regressions predicting any doctor's visits in the past 12 months (Table 2). The analyses are adjusted for sampling design, which includes using the weighted estimates and taking strata and clusters into account when calculating the standard errors (U.S. Dept. of Health and Human Services, National Center for Health Statistics 2002-2017). Data analyses are carried out using SAS 9.4.

Results

Descriptive Analysis

Table 1 demonstrates key differences among ME, Hispanic, and Asian immigrants, when compared separately by gender. With no exceptions, all of the predisposing, enabling, and need factors significantly differ across the three groups. As shown, both ME immigrant men (55.47%) and women (68.54%) are significantly more likely to report a doctor's visit in the past 12 months compared to their Hispanic and Asian counterparts. Additionally, both ME immigrant men and women are significantly more likely to report that they saw or talked to a health professional in the past 6 months compared to their Hispanic and Asian counterparts. Although ME immigrant men and women are significantly more likely to be insured compared to Hispanics, they are less likely to be insured compared to their Asian counterparts.

Asian immigrant men and women have the highest average age compared to ME and Hispanic immigrants. For each group, the majority of the sample has been in the US for 15 or more years. With respect to health status, whereas ME immigrant men are significantly more likely to have good health (90.69%) compared to Asian (82.05%) and Hispanic men (88.73%), Asian immigrant women (89.86%) are significantly more likely to have good health compared to ME (82.68%) and Hispanic (82.05%) women. In terms of chronic conditions, Hispanic men are slightly less likely to have been diagnosed with any chronic conditions compared to ME immigrant men but both groups fare better than Asian men (31.43% and 31.94% compared to 37.79%). Asian immigrant women are slightly less likely to have been diagnosed with any chronic conditions compared to ME immigrant women; however, both groups fare better than Hispanic women (38.77% and 39.27% compared to 42.10%).

Predicting Doctor's Visits in the past 12 months by Gender

Table 2 shows a series of binary logistic regression models comparing ME immigrant men to Hispanic and Asian men and ME immigrant women to Hispanic and Asian women with respect to any doctor's visits in the past 12 months. As shown in Model 1, although Asian immigrant men do not differ from ME immigrant men with respect to their doctor's visits, Asian immigrant women have significantly lower odds of reporting doctor's visits in the past 12 months compared to ME women. Hispanic men and women are significantly less likely than their ME counterparts to report visiting a doctor in the past 12 months when controlling for the predisposing variables, age and marital status. Introducing the enabling

variables in Model 2, particularly education, income, and homeownership, eliminates the significant difference between ME immigrant men and Hispanic men, while the odds ratio for Asian immigrant men remains nonsignificant. In addition, introducing the enabling variables increases the odds ratio for Hispanic women by 13% but reduces the level of significance.

Adjusting for health insurance coverage in Model 3 results in substantive changes. First, the odds ratio for Asian immigrant men is reduced by 5% and becomes significantly different from that of ME immigrant men, whereas the odds ratio for Hispanic men increases, but remains nonsignificant. For women, although the odds ratio of reporting any doctor's visits for Asian women remains significantly different from that of ME immigrant women, the odds ratio for Hispanic immigrant women no longer differs significantly from those of ME immigrant women. These findings highlight the substantial influence of health insurance coverage on reporting doctor's visits among these groups. The same pattern holds in Model 4 after adjusting for duration of time in the U.S. In the final model, introducing the need variables, self-rated health and having any chronic condition, reduces the odds ratio for Asian men and Hispanic men, but increases the odds ratio for Asian women by 3%.

Overall, results from Table 2 show that ME immigrants, regardless of their gender, have higher odds of reporting any doctor's visits in the past 12 months compared to Hispanic and Asian counterparts. Finally, results show that Andersen's behavioral model of health care utilization is well suited to predict immigrants' doctor visits in the past 12 months.

In addition, we also examined within ethnic group differences by gender (table not shown). We find that immigrant women, regardless of their ethnicity, are significantly more likely to report any doctor's visits in the past 12 months than their male counterparts. However, the gender gap is clearly much wider for Hispanic immigrants than for ME and Asian immigrants

Table 1. Characteristics of ME, Hispanic, Asian Immigrant Adults Aged 18 and above by Gender, NHIS 2002-2017

	ME immigrants		Hispanic immigrants		Asian immigrants	
	Men (n=494)	Women (n=410)	Men (n=14,998)	Women (n=17,773)	Men (n=3,353)	Women (n=4,364)
Outcome Variables						
Seen/Talked to a Doctor, past 12 months%						
Yes	55.47	68.54	43.59	59.56	54.22	64.62***a
No	44.53	31.46	56.41	40.44	45.78	35.38***
Time since last seen/talked to health professional%						
Never	1.82	1.71	7.11	3.56	3.10	2.27***
6 months or less	57.49	72.68	41.22	63.06	50.40	64.25***
More than 6 months- 1 Yr	15.38	14.88	13.87	15.28	18.04	16.96***
More than 1 Yr- 2 Yrs	11.74	6.59	12.92	9.52	12.62	8.80***
More than 2 Yrs-More than 5 Yrs	13.56	4.15	24.88	8.59	15.84	7.72***
Disposing Variables						
Mean age	43.53	46.50	43.03	44.68	45.73	48.07
Marital Status %						
Widowed/divorced/separated/never married	44.13	39.02	41.73	49.94	37.79	43.26***
Married	55.87	60.98	58.27	50.06	62.21	56.74***
Enabling Variables						
Education %						
Less than high school/no diploma	10.93	17.56	50.49	48.08	10.20	13.34***
High school graduate/ some college/AA	40.69	40.00	38.82	48.08	41.43	40.97***
College degree and advanced degree	48.38	42.44	10.69	11.03	48.37	45.69***
Family Income %						
≤ $34.999	50.61	48.54	62.43	67.94	41.07	41.68***
$35,000-$74,999	24.49	23.66	28.06	23.80	29.23	28.14***
$75,000 and over	24.90	27.80	9.51	8.26	29.70	30.18***
Homeownership %						
Rent and other arrangement	52.23	46.34	60.08	59.15	47.39	44.27***
Own	47.77	53.66	39.92	40.85	52.61	55.73***
Health Insurance %						
Covered	75.10	82.93	50.57	60.51	82.37	85.70***
Not covered	24.90	17.07	49.43	39.49	17.63	14.30***
Duration %						
<1 to < 5 Yrs	18.90	15.85	12.34	9.38	13.48	12.55***
5 Yrs to <10 Yrs	12.60	12.20	15.72	15.44	11.20	12.78***
10 Yrs to <15 Yrs	11.99	13.17	15.72	15.96	11.86	12.06***
15 Yrs or more	56.50	58.78	56.23	59.21	63.45	62.61***

Need Variables						
Self-Rated Health %						
Excellent/very good/good	90.69	82.68	87.19	82.05	89.86	88.73***
Fair/poor	9.31	17.32	12.81	17.95	10.14	11.27***
Chronic Health Conditions %						
No chronic conditions	68.02	60.73	68.57	57.90	62.21	61.23***
At least one chronic condition	31.98	39.27	31.43	42.10	37.79	38.77***

a Refers to significant differences by gender across group

Significance: *†p < 0.10; *p<0.05; **p<0.01; ***p<0.001*

Table 2. logistic Regression Predicting Any Doctor's Visit in the Past 12 months, NHIS 2002-2017

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Middle Eastern Immigrants (ref.)										
Hispanic Immigrants	0.63***	0.69***	0.87	0.82†	1.01	0.96	1.01	0.93	0.96	0.92
Asian Immigrants	0.89	0.79*	0.85	0.77**	0.80*	0.76*	0.80*	0.76*	0.76**	0.79*
Predisposing Variables										
Age	1.04***	1.03***	1.04***	1.03***	1.03***	1.02***	1.03***	1.02***	1.02***	1.01***
Married	1.16***	0.97	1.05	0.87***	1.03	0.93*	1.04	0.94†	1.10*	0.97
Enabling Variables										
Education										
Less than high school/no diploma (ref.)										
High school graduate/ some college/AA			1.60***	1.19***	1.41***	1.06†	1.41***	1.06†	1.42***	1.10**
College degree and advanced degree			1.87***	1.30***	1.51***	1.08	1.54***	1.10†	1.60***	1.17**
Family Income										
≤ $34.999 (ref.)										
$35,000-$74,999			1.34***	1.18***	1.14***	1.02	1.12**	1.01	1.17***	1.05
$75,000 and over			1.64***	1.54***	1.25***	1.19**	1.22***	1.15**	1.26***	1.22***
Homeownership										
Own			1.28***	1.20***	1.75***	1.17***	1.14***	1.13***	1.18***	1.16***
Health Insurance										
Covered					3.48***	3.04***	3.41***	2.97***	3.32***	2.88***
Duration										
<1 to < 5 Yrs (ref.)										
5 Yrs to <10 Yrs							1.04	1.12*	1.06	1.13*
10 Yrs to <15 Yrs							1.11	1.28***	1.11	1.29***
15 Yrs or more							1.25***	1.33***	1.20**	1.29***
Need Variables										
Self-Rated Health										
Fair/poor									1.74***	1.56***
Chronic Health Conditions										
At least one chronic condition									2.54***	1.88***
Observations (n)	18,845	22,547	18,845	22,547	18,845	22,547	18,845	22,547	18,845	22,547
–2 log likelihood	24,062.8	28,925.2	23,444.1	28,670.4	22,233.9	27,461.2	22,007.3	27,246.5	21,201.1	26,720.6

Significance: *†p < 0.10; *p<0.05; **p<0.01; ***p<0.001*

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Significance: *†p < 0.10; *p<0.05; **p<0.01; ***p<0.001*