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Gender Differences in Immigrant Health: The Case of Mexican and Middle Eastern Immigrants

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Abstract

This article draws on theories of gender inequality and immigrant health to hypothesize differences among the largest immigrant population, Mexicans, and a lesser known population of Middle Easterners. Using data from the 2000-2007 National Health Interview Surveys, we compare health outcomes among immigrants to those among U.S.-born whites and assess gender differences within each group. We find an immigrant story and a gender story. Mexican and Middle Eastern immigrants are healthier than U.S.-born whites, and men report better health than women regardless of nativity or ethnicity. We identify utilization of health care as a primary mechanism that contributes to both patterns. Immigrants are less likely than U.S.-born whites to interact with the health care system, and women are more likely to do so than men. Thus, immigrant and gender health disparities may partly reflect knowledge of health status rather than actual health.

Keywords

gender, immigrant, inequality, Mexican, Middle Eastern

Research on racial and ethnic health disparities has evolved over the past decade from an almost exclusive focus on black/white differences to an increased interest in the health profiles of newer immigrant and ethnic populations (Carter-Pokras and Woo 1999; Hummer et al. 1999; Singh and Siahpush 2002). This shift tracks with the changing face of America's racial and ethnic landscape: In 2007, immigrants comprised 12.5 percent of the U.S. population (38 million), up from only 4.7 percent in 1970 (9.5 million) (U.S. Bureau of the Census 2007). During the same period, the proportion of immigrants born in Europe plummeted from 75.4 to 13.7 percent, while the proportion born in Latin American (53.3%), Asia (26.7%), and Africa continues to climb (U.S. Bureau of the Census 2004).

Such stark changes have important implications for researchers, policy makers, and public health officials because the health status of these newer immigrant groups will likely have long-term consequences for U.S. population health and the U.S. health care system. Of primary concern is the fact that most immigrant groups arrive healthier than native-born Americans but lose their health advantage over time (Antecol and Bedard 2006). This finding is usually explained by several complementary arguments related to the selective migration of healthy immigrants, healthier lifestyles in the countries of origin, increased risk-taking

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behavior in the United States, and the erosion of social and cultural protective factors with increased duration in the United States (Markides and Eschbach 2005; Palloni and Arias 2004).

To date, most research on immigrant health has not differentiated between the experiences of men and women. Studies usually either control for gender or only look at differences in health outcomes among women. The relatively few studies that pay explicit attention to differences between immigrant men and women suggest that the theories and concepts historically used to explain immigrant health (e.g., selectivity, health behaviors, etc.) may be more useful for understanding health outcomes[1] and health trajectories among immigrant men than among immigrant women. In particular, immigrant women appear to be less selected on health than their male counterparts (i.e., arrive less healthy), and they appear to lose whatever health advantage they bring with them at a faster rate than do men (Antecol and Bedard 2006; Curran et al. 2006; Lopez-Gonzalez, Aravena, and Hummer 2005).

Given these provocative findings, the current study examines how well conventional explanations of immigrant health apply to Mexican and Middle Eastern[2] immigrant men and women. The analysis draws on data from eight waves of the National Health Interview Survey (2000-2007) to answer four related questions: (1) To what extent does the well-established pattern of better health among immigrants apply to these groups? (2) To what extent do immigrant men and women differ in their self-rated health and rates of hypertension? (3) How do nativity, ethnicity, and gender interact to condition these health outcomes? and (4) To what extent do differences in immigrant men's and women's social positions explain observed health disparities? Answers to these questions will contribute to research on immigrant health in several ways. First, we add to the growing literature on gender differences in immigrant health by differentiating the health outcomes of Mexican and Middle Eastern immigrant men and women (Curran et al. 2006; Gorman, Read, and Krueger 2010; Lopez-Gonzalez et al. 2005). Second, we broaden existing research on immigrant health to examine the case of Middle Easterners, a group whose health trajectory has been shown to be contradictory to that of other immigrant groups (Dallo and Borrell 2006). This allows us to identify inconsistencies between existing theories and emergent ethnic populations. Finally, we identify a potential mechanism associated with both gender and immigrant health disparities—interaction with the health care system—and discuss the implications for population health more generally.

BACKGROUND

We draw on the literatures on immigrant health and gender disparities in health to guide the current study. The first provides the basis for understanding the better health of immigrants relative to U.S.-born groups, or the "healthy migrant" effect. The second provides a theoretical framework for understanding why health outcomes of immigrant men and women might differ by attending to the divergent processes of migration for men and women that can lead to different health outcomes on and after arrival. Together, these bodies of research allow us to hypothesize the interaction of nativity, ethnicity, and gender with respect to health.

Theories of Immigrant Health

Current research on immigrant health is borne from a vast literature on racial and ethnic health inequalities, most of which focuses on intergroup differences between U.S.-born blacks, whites, and Hispanics (Cho et al. 2004; Hummer et al. 1999; Williams 2001). Rapid demographic changes brought about by immigration have motivated a new line of inquiry to examine health disparities between and within America's newer racial/ethnic and immigrant groups. In particular, the number of Asian, Middle Eastern, and South/Central American migrants has grown rapidly in the four decades following the Immigration Act of 1965, while the proportion of European immigrants has plummeted (U.S. Bureau of the Census 2004). These newer ethnic populations not only differ from the more culturally assimilated European populations, but they also differ among themselves, emigrating from diverse political, economic, and social backgrounds.

Of all groups, the Mexican case has received the most attention because of the sheer size of the immigrant population and the unusual juxtaposition of good health on arrival despite low socioeconomic status (also known as the Hispanic paradox). The troubling trend of declining health with longer U.S. duration (Antecol and Bedard

2006; Palloni and Arias 2004) has also garnered ample scholarly attention. Explanations for the initial advantaged health status of Mexican immigrants focus on the positive selection of healthy immigrants (i.e., only those persons with good health can recoup the costs of migration), healthier lifestyles in the countries of origin, and cultural values of the sending countries that "buffer" immigrants from the adverse effects of U.S. lifestyle (Hummer et al. 1999; Landale et al. 1999). Explanations for the declining health with increased U.S. duration focus on increased risk-taking behavior, such as poor diet and exercise, and loss of protective factors, such as family support and cultural orientation (Markides and Eschbach 2005; Singh and Siahpush 2002).

While these factors are undoubtedly important in explaining declining health among immigrants over time, emerging research suggests that interaction with the health care system may serve as another potential source of such trends. For example, a recent study found that the healthier profile of recent Mexican immigrant arrivals relative to longer duration immigrants was due in part to lack of contact with the health care system and thus lack of knowledge of their medical ailments (Gorman et al. 2010). This was particularly true for men. On arrival, immigrant men were less likely than immigrant women to interact with the health care system, but over time, their likelihood of receiving medical care increased, and thus the gender gap in health closed. Importantly, these findings suggest that declining health among immigrants with increased duration in the United States may reflect limited receipt of medical care among newer immigrants.

Beyond the Mexican case, we are beginning to learn more about the health trajectories of other immigrant groups, in part due to improvements in data collection that allow for more fine-grained distinctions among larger racial/ethnic populations, such as Asians (Cho and Hummer 2001; Frisbie, Cho, and Hummer 2001), blacks (David and Collins 1997; Read and Emerson 2005), and Middle Easterners (Dallo and Borrell 2006; Read, Amick, and Donato 2005). Findings from these newer groups are not always consistent with research on Mexican immigrants. For example, research on black immigrants finds that the near-universal pattern of better health only holds for some subgroups, such as African and Caribbean blacks, but not for others, such as European and Asian blacks (Read and Emerson 2005). Further, the pattern of declining health with increased duration is inconsistent across black immigrant subgroups.

The Middle Eastern case is particularly intriguing because findings from community-based studies are often contradictory to those from national ones, thus the degree to which they fit with existing theories of immigrant health remains unclear. The majority of what we currently know derives from studies of Arab Americans[3] in Dearborn and Detroit and indicates that Middle Easterners are a population at risk of numerous negative health outcomes. Compared to the average American, many suffer from higher rates of diabetes, hypertension, obesity, smoking, and high cholesterol (Dallo, Al Snih, and Ajrouch 2009; Hassoun 1999; Hatahet, Meleis, Lipson, and Paul 1992; Khosla, and Fungwe 2002; Rice and Kulwicki 1992). Additionally, many find that Middle Eastern health improves with longer U.S. duration and attribute this pattern to decreases in poor health behaviors, such as smoking and high-fat diets (e.g., Rice and Kulwicki 1992), and increases in feelings of inclusion and integration over time (e.g., Ghaffarian 1998). For example, Jaber and colleagues (2003) found that lack of acculturation, or weak integration into American society, was a major risk factor for diabetes among Arab immigrants in southeastern Michigan. Dallo and James (2000) similarly found lower levels of acculturation to be associated with increased risk for hypertension among Chaldean women in Detroit.

However, a major drawback is that these studies are located in communities that are more likely to be comprised of newer immigrants with lower socioeconomic statuses than Middle Easterners nationally (U.S. Bureau of the Census 2000). Notably, the Arab Community Center for Economic and Social Services (ACCESS) is located in Dearborn, and immigrants lacking financial resources are drawn to this shelter. A growing segment of the population is comprised of refugees from Iraq and Yemen, many of whom have few economic resources and low levels of human capital. Thus, it is unclear whether improvements in health are related to acculturation per se or other factors tied to social status and migration, including weaker selection among refugees.

More recent, nationally representative studies suggest a more diverse and possibly polarized picture of Middle Eastern health, with some faring very well and others being more disadvantaged (Dallo and Borrell 2006; Read et al. 2005; U.S.

Bureau of the Census 2000). For example, in one of the only nationally representative studies of Middle Eastern immigrants, Dallo and Borrell (2006) found the prevalence of diabetes and hypertension lower among Middle Easterners compared to U.S.-born whites. Similarly, Read and colleagues (2005) found that Middle Eastern immigrants did not differ significantly from U.S.-born whites in their self-rated health and were less likely to report limitations in activity. However, these studies did not assess whether or how these outcomes might vary by gender, nor did they compare the health of Middle Eastern immigrants to that of other immigrant groups.

Implications of Gender for Immigrant Health

A limited number of recent studies suggest that the theories and concepts historically used to explain immigrant health (e.g., selectivity, health behaviors, etc.) may be more applicable to men than women. The majority of these studies focus on Mexican immigrants and finds that women's motivations for migrating are more likely to be based on family and less likely to be based on employment than are men's (Antecol and Bedard 2006; Gorman et al. 2010; Lopez-Gonzalez et al. 2005). Women's education and employment rates are extremely low across countries in the Middle East and Mexico, and many continue to have low employment rates and individual incomes in the United States (Hondagneu-Sotelo 1994; Kanaiaupuni 2000; Read and Oselin 2008). This suggests that the likelihood of selectively migrating based on good health is weaker among women than men.

Notably, men and women occupy different social roles that shape their experiences of health and interaction with the health care system. For men, research consistently finds that pressures to conform to hegemonic ideals of masculinity make them reluctant to seek health care (for a review, see O'Brien, Hunt, and Hart 2005). For women, some of the earliest research debated whether their roles as nurturers predisposed them to more readily assume the "sick" role than men (Gove and Hughes 1980). Evidence suggests that women's multiple role combinations have implications for their health, often in more concrete ways than suggested by psychosocial explanations alone (Pavalko and Woodbury 2000). In addition to their reproductive roles, women's domestic and familial responsibilities place them in contact with the health care system more frequently than men to seek care for themselves as well as their children and elderly family members, which in turn might make women more aware of their health problems than men (Abraido-Lanza, Chao, and Florez 2005; Lillard and Waite 1995). Thus, apparent disparities in men's and women's health may partly reflect differences in their utilization of care, which in turn affects knowledge of their health conditions.

While utilization of care is a plausible explanation for part of the gendered health gap in the United States, it may play an even greater role among immigrant groups. Migration often disrupts traditional gender dynamics and places immense pressure on immigrant women to uphold these roles after arrival in the United States (Dion and Dion 2001; Parrado and Flippen 2005; Read and Oselin 2008).

Immigrant men are often charged with the economic security of the family, leaving immigrant women responsible for other domains of social life, including the well-being of household members. In this context, obstacles such as lack of health insurance and poor language skills become less of a barrier to seeking health care for immigrant women because their status within the home and community depends, in large part, on fulfilling these duties (Hattar-Pollara and Meleis 1995).

Taken together, our review suggests that the health of Mexican and Middle Eastern immigrants likely varies by ethnicity and gender, which has implications for research on immigrant health and population health, more broadly. The analysis examines these possibilities by assessing the interrelated hypotheses that: (1) Compared to U.S.-born whites, Mexican and especially Middle Eastern immigrants will have better health outcomes; (2) the size of the immigrant health advantage will be larger among men than among women in a given immigrant group; (3) the size of the gender gap will be larger among immigrant groups than among U.S.-born whites; and (4) the nativity and gender health gaps will be explained, to varying extents, in part by social position (i.e., socioeconomic status) as well as contact with the health care system.

DATA AND METHODS

Data

To test these hypotheses, we draw on merged data from the 2000-2007 National Health Interview Survey (NHIS), an annual multipurpose health survey conducted by the National Center for Health Statistics and Centers for Disease Control and Prevention and administered by the U.S. Census Bureau. NHIS uses a multistage, stratified, cluster design to oversample the black and Hispanic populations and to obtain a nationally representative sample of the noninstitutionalized civilian population. The U.S. Census Bureau conducts face-to-face interviews in a nationally representative sample of households, collecting information about the health and other characteristics of each member of the household. The analyses are based on U.S.-born whites (n = 143,962), Mexican immigrants (n = 11,204), and Middle Eastern immigrants (n = 665) ages 18 and older, for a total sample size of 155,831. We also conducted the analyses on a random sample of whites and Mexican immigrants to equalize the sample sizes across groups, but as this did not change our substantive findings, we retained the full sample.

The NHIS is particularly appropriate for this project for several reasons. First, the 2000 questionnaire was the first to include a question on region of origin, which categorizes all respondents into 1 of 12 categories depending on their country of birth.[4] Due to the relatively small percentage of Middle Eastern immigrants residing in America, few data sets contain enough cases for analyses. By merging eight waves of data, we are able to overcome this limitation. Second, the NHIS has rich data on a variety of health and health-related variables. This is especially true of the sample adult file. In addition to information on key demographic characteristics, the core sample adult questionnaire includes items on health conditions, health limitations, injuries, health care utilization, as well as a full range of heath behaviors.

Dependent Measures

Our primary dependent variables include two measures of health status. Hypertension is coded 1 if the respondent had ever been told by a doctor or other health professional that he or she had hypertension or high blood pressure. Hypertension is a powerful independent risk factor for cardiovascular disease, the leading cause of death among U.S. adults, and has been shown to vary significantly by race/ethnicity and gender (for a review, see Read and Gorman 2007). This measure is also sensitive to contact with the health care system since it is dependent on a medical diagnosis, and thus offers an objective measure of health status.

We also include a measure of self-rated health, assessed with the question, "Would you say that [person's] health in general is excellent, very good, good, fair, or poor?" Previous research has demonstrated that self-rated health is a valid predictor of health care utilization (Sundquist, Malmstrom, and Johansson 1999), morbidity (Ferraro, Farmer, and Wybraniec 1997), morbidity-related disability (Idler and Kasl 1995), and mortality (Idler and Benyamini 1997). Yet, others have found that the validity of this measure may vary across social groups (Finch et al. 2002). Including this measure therefore offers the opportunity to examine how subjective assessments of health may differ from objective assessments among immigrant groups. We have dichotomized this variable into excellent/very good/good health and fair/poor health.[5] Odds of the latter are modeled throughout.

Independent Measures

Our key independent variables are ethnicity and gender. Ethnicity is coded as Middle Eastern–born, Mexican-born, and U.S.-born, with U.S.-born set as the reference category. Gender is coded 1 for female, with males set as the reference category. We also control for several factors known to be associated with health, including socioeconomic status, lifestyle/behavioral characteristics, acculturation, and demographics. Given the importance of socioeconomic status for explaining differences in U.S. men's and women's health, we include several measures that gauge social position. Educational attainment is coded into four categories: less than high school, high school graduate, some college, and bachelor's degree or more (reference). Employment status is measured with a dummy variable for nonemployed and captures all persons who are no longer active in the labor

market, either voluntarily or involuntarily (0 = employed, 1 = nonemployed).[6] Health care utilization is closely tied to social status, thus we include variables measuring time since last seen/ talked with a health professional: six months or less (reference); six months, not more than one year; one year, not more than two years; two years, not more than five years; more than five years. We also measure whether or not the respondent has a usual place for health care (1 = no usual place, 0 = usual place). In terms of lifestyle and health behaviors, we code alcohol consumption into never drank (reference), former drinker, and current drinker. Tobacco use is coded similarly as never smoked (reference), former smoker, and current smoker. Body mass index (BMI) is coded into three categories: under or normal weight (reference, < 25.0), overweight (25.0 < BMI < 30.0), and obese (BMI > 30.0).

To measure acculturation, we assess citizenship status and duration of residence in the United States. Citizenship status is coded 0 if a citizen and 1 if not a citizen. Duration of residence is coded such that higher values indicate longer duration.[7] For demographics, we include a continuous measure of the number of household members and a dummy variable for marital status (1 = currently married or cohabiting, 0 = all other responses). We made this decision based on the high proportion of Middle Eastern respondents who were currently married. Ancillary analyses showed no significant differences in results when alternative measures were included. We include a variable specifying which of the four census regions the respondents resided in: Northeast, Midwest, South, and West. Finally, we include age and age^2 in all models as well as dummy variables representing the survey year.

Analysis

We merged the person and sample adult files to obtain the most comprehensive data on each sample adult and then constructed descriptive statistics for the U.S.-born whites, Middle Eastern immigrants, and Mexican immigrants, separately by gender. The analysis presents chi-square tests of difference for various subgroups of the population: (a) U.S.-born whites compared to Middle Eastern immigrants, (b) Middle Eastern immigrant women compared to Middle Eastern immigrant men, (c) U.S.-born whites compared to Mexican immigrants, (d) Mexican immigrant women compared to Mexican immigrant men (Table 1). Next, using the complete sample, we conducted a series of logistic regressions estimating and comparing the immigrant health advantage in self-rated health and hypertension in Table 2. As we are assessing the presence and size of an immigrant health advantage, U.S.-born whites are the reference group for Table 2. Initial models include adjustment for survey year, age, and age squared. Covariates were then incorporated in blocks. We enter family size, marital status, and U.S region of residence as well as health behaviors in model 2; socioeconomic characteristics in model 3; and health care contact in model 4, describing the contribution of each set of variables to the immigrant health advantage for each ethnicity.

We then estimate the immigrant health advantage for men and women separately to ascertain whether it is larger for men than women in Table 3. Reference groups and covariates are the same as Table 2. Last, we replicate analyses on U.S.-born whites, Middle Eastern, and Mexican immigrants separately to more closely examine the gender gap within each immigrant group (Table 4). We use the same model building sequence as in prior tables and apply appropriate sampling weights and variance estimation techniques to address the NHIS's complex sampling design.

RESULTS

A Profile of Immigrant Health

Table 1 highlights key differences between Middle Eastern immigrants, Mexican immigrants, and U.S.-born whites separately by gender. While there are multiple comparisons that can be made in the table, we are primarily interested in how Middle Eastern and Mexican immigrants compare to the common referent group of U.S.-born whites and whether gender shapes observed differences. Compared to U.S.-born whites, Mexican and Middle Eastern immigrants do not significantly differ in terms of their self-reported health (12.96 percent and 13.03 percent report their health as "fair or poor" compared to 12.51 percent of whites),

Table 1. Percentage Distribution of Select Characteristics by Ethnicity and Gender, National Health Interview Survey 2000-2007

	U.S.-Born				Mexican Immigrants					Middle Eastern Immigrants				
	All	Men	Women	b	All	a	Men	Women	b	All	a	Men	Women	b
Health status														
Fair/poor health	12.51	11.78	13.12	+	12.96		10.61	15.21	+	13.06		9.07	17.45	***
Hypertension	27.41	27.15	27.63	+	14.02	+	10.80	17.10	+	16.17	+	13.03	19.63	**
Female	—	45.18	54.82		—		47.61	52.39		—		52.03	47.97	
Socioeconomic status														
Education level														
< High school	13.36	13.03	13.63	+	68.15	+	68.46	67.85		16.77	***	11.33	22.74	+
High school degree	29.95	29.31	30.48	+	17.92	+	18.35	17.50		19.58	+	18.70	20.56	
Some college	30.25	29.34	31.00	+	10.11	+	9.30	10.89	***	20.03	+	18.13	22.12	
Bachelor's +	26.45	28.33	24.89	+	3.82	+	3.88	3.77		43.62	+	51.84	34.58	+
Nonemployed	40.32	32.86	46.50	+	36.55	+	16.40	55.88	+	40.80		26.91	56.07	+
Access/use of care														
Time since doctor														
Six months or less	72.56	64.60	79.13	+	48.95	+	37.12	59.69	+	66.17	+	58.38	74.61	+
Six months, not more than one year	13.42	14.61	12.43	+	15.07	+	14.30	15.78	***	14.59		14.16	15.05	
One year, not more than two years	7.30	10.24	4.88	+	14.26	+	15.65	13.00	+	8.42		10.69	5.96	**
Two years, not more than five years	4.46	6.92	2.43	+	12.18	+	16.87	7.92	+	7.22	***	10.40	3.76	***
More than five years	2.26	3.63	1.13	+	9.53	+	16.05	3.61	+	3.31	***	6.36	0.63	+
No usual place for care	11.76	16.10	8.18	+	37.44	+	46.46	29.25	+	19.40	+	23.70	14.73	***
Health behaviors														
Body mass index				+										
Under/normal weight	41.45	31.77	31.77	+	32.93	+	29.53	36.01	+	47.67	***	36.71	59.56	+
Overweight	34.75	43.57	27.44	+	42.60	+	49.29	36.17	+	36.80		50.42	21.81	+
Obese	23.78	24.59	23.10	+	24.26		20.80	27.58	+	15.58	+	13.60	17.76	
Alcohol use														
Never drank	18.71	12.52	23.83	+	43.69	+	23.61	62.97	+	45.85	+	31.44	61.68	+
Former drinker	25.17	29.22	21.84	+	12.23	+	13.54	11.04	+	17.89	+	10.69	5.33	***
Current drinker	65.38	71.27	60.49	+	44.54	+	63.55	26.31	+	46.14	+	58.07	33.02	+

(continued)

Table 1. (continued)

	U.S.-Born				Mexican Immigrants					Middle Eastern Immigrants				
	All	Men	Women	b	All	a	Men	Women	b	All	a	Men	Women	b
Tobacco use														
Never smoked	51.78	45.81	56.72	+	74.31	+	61.34	86.76	+	60.24	+	45.04	76.95	+
Former smoker	15.98	16.30	15.70	+	12.42	+	18.32	7.07	+	8.12	+	22.83	12.54	***
Current smoker	23.14	25.13	21.49	+	13.62	+	21.19	6.35	+	21.81		32.01	10.59	+
Age, categories														
18 to 29	17.72	18.09	17.42	***	27.89	+	28.46	27.38		21.80	***	22.25	21.32	
30 to 39	17.80	18.33	17.36	+	32.31	+	32.41	32.21		25.26	+	24.86	25.71	
40 to 49	19.33	20.40	18.45	+	20.27	***	20.73	19.85		21.20		22.25	20.06	
50 to 59	16.89	17.54	16.36	+	10.16	+	9.71	10.56		15.19		15.90	14.42	
60 to 69	12.13	12.35	11.96	**	5.49	+	5.29	5.67		8.57	***	7.80	9.40	
70+	16.13	13.30	18.46	+	3.88	+	3.39	4.33	**	7.97	+	6.94	9.09	

a. Indicates significant differences relative to all U.S.-born whites.
b. Indicates significant differences between men and women within each ethnic group (Middle Eastern, Mexican).
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$. +$p \leq .001$.

Table 2. Odds Ratios from Logistic Regression Models Predicting Nativity Health Gap, National Health Interview Survey 2000-2007

	Self-Assessed Health				Hypertension			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
U.S.-born (reference)								
Mexican	1.715***	.809	.492***	.582**	.741***	.605***	.542***	.759
	(12.70)	(–1.069)	(–3.431)	(–2.557)	(–8.507)	(–2.699)	(–3.256)	(–1.392)
Middle Eastern	1.189	.592**	.565**	.634*	.578***	.534***	.539***	.696
	(1.085)	(–2.006)	(–2.236)	(–1.778)	(–3.676)	(–2.759)	(–2.724)	(–1.544)
Female	1.084***	1.052**	.886***	.819***	.895***	.984	.939***	.841***
	(4.232)	(2.442)	(–5.568)	(–9.124)	(–7.354)	(–1.008)	(–4.016)	(–10.65)
Overweight		1.086***	1.060***	1.044		1.741***	1.725***	1.706***
		(3.153)	(2.191)	(1.613)		(28.47)	(28.00)	(27.30)
Obese		2.194***	2.011***	1.922***		4.059***	3.938***	3.803***
		(31.20)	(27.36)	(25.43)		(70.88)	(69.08)	(66.71)
Former smoker		1.599***	1.379***	1.332***		1.138***	1.094***	1.056***
		(19.14)	(12.43)	(10.98)		(7.181)	(4.952)	(2.981)
Current smoker		2.899***	2.162***	2.234***		1.192***	1.088***	1.138***
		(39.92)	(26.93)	(27.65)		(8.718)	(4.070)	(6.178)
Former drinker		1.120***	1.202***	1.175***		1.070***	1.081***	1.057**
		(4.009)	(6.297)	(5.431)		(2.730)	(3.148)	(2.206)
Current drinker		.407***	.552***	.551***		.860***	.929***	.931***
		(–33.07)	(–21.39)	(–21.28)		(–6.987)	(–3.384)	(–3.273)
Duration in United States		1.294***	1.363***	1.311***		1.094	1.102	1.005
		(3.984)	(4.625)	(3.910)		(1.485)	(1.601)	(.0698)
Noncitizen		1.020	.841**	.906		.916	.880	.991
		(.237)	(–2.000)	(–1.158)		(–1.099)	(–1.582)	(–.104)
Nonemployed			3.723***	3.506***			1.364***	1.297***
			(53.90)	(51.32)			(16.60)	(13.89)
< High school			.564***	.551***			.939**	.919***
			(–21.07)	(–21.76)			(–2.561)	(–3.372)

(continued)

Table 2. (continued)

	Self-Assessed Health				Hypertension			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
High school			.467***	.444***			.877***	.830***
			(–25.47)	(–26.64)			(–5.268)	(–7.421)
Some college			.266***	.249***			.742***	.682***
			(–35.74)	(–37.21)			(–11.30)	(–14.31)
No usual care				1.080*				.765***
				(1.847)				(–7.707)
Six months to ≤ one year since doctor				.412***				.542***
				(–21.39)				(–23.29)
One to ≤ two years since doctor				.354***				.397***
				(–19.14)				(–23.05)
Two to ≤ five years since doctor				.333***				.307***
				(–16.12)				(–20.22)
> Five years since doctor				.342***				.216***
				(–12.99)				(–20.43)
Observations (*n*)	214,230	214,230	214,230	214,230	214,230	214,230	214,230	214,230

Note: All models control for age and survey year. Models 2 through 4 control for marital status, family size, and region of residence. Z-statistics in parentheses.
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

Table 3. Odds Ratios from Logistic Regression Models Predicting Nativity Health Gap, National Health Interview Survey 2000-2007

	Model 1		Model 2		Model 3		Model 4	
Gender	Women	Men	Women	Men	Women	Men	Women	Men
Panel A: Self-Assessed Health								
U.S. (reference)								
Mexican	1.984***	1.473***	1.057	.495**	.600*	.413***	.683	.542*
	(12.67)	(5.990)	(.208)	(–2.219)	(–1.867)	(–2.663)	(–1.368)	(–1.832)
Middle Eastern	1.574**	.863	.974	.306***	.739	.453**	.817	.545
	(2.104)	(–.710)	(–.0782)	(–3.159)	(–.862)	(–2.144)	(–.575)	(–1.620)
Overweight			1.328***	.844***	1.250***	.851***	1.231***	.834***
			(8.504)	(–4.321)	(6.558)	(–3.974)	(6.129)	(–4.401)
Obese			2.677***	1.668***	2.402***	1.554***	2.311***	1.468***
			(30.21)	(12.78)	(26.29)	(10.55)	(25.08)	(9.047)
Former smoker			1.472***	1.673***	1.324***	1.380***	1.294***	1.338***
			(11.46)	(14.20)	(8.078)	(8.282)	(7.351)	(7.509)
Current smoker			2.835***	2.943***	2.176***	2.096***	2.234***	2.188***
			(28.36)	(27.45)	(20.47)	(17.24)	(20.92)	(17.88)
Former drinker			1.031	1.292***	1.105***	1.372***	1.082**	1.348***
			(.865)	(5.214)	(2.709)	(6.163)	(2.153)	(5.666)
Current drinker			.365***	.495***	.497***	.656***	.493***	.660***
			(–29.63)	(–15.53)	(–19.92)	(–8.822)	(–20.27)	(–8.534)
Duration in United States			1.201**	1.470***	1.294***	1.395***	1.259**	1.295**
			(2.118)	(3.637)	(2.909)	(3.020)	(2.541)	(2.311)
Noncitizen			.896	1.210	.684***	1.087	.715***	1.214
			(–.991)	(1.440)	(–3.324)	(.624)	(–2.953)	(1.461)
Nonemployed					3.184***	4.322***	3.087***	3.981***
					(34.49)	(40.61)	(33.46)	(38.27)
< High school					.565***	.572***	.557***	.552***
					(–16.97)	(–13.45)	(–17.15)	(–14.13)

(continued)

Table 3. (continued)

	Model 1		Model 2		Model 3		Model 4	
Gender	Women	Men	Women	Men	Women	Men	Women	Men
High school					.468***	.467***	.450***	.440***
					(–19.91)	(–16.00)	(–20.67)	(–16.91)
Some college					.266***	.264***	.252***	.247***
					(–25.40)	(–25.67)	(–26.29)	(–26.79)
No usual care							1.066	1.089
							(1.141)	(1.416)
Six months to ≤ one year since doctor							.378***	.453***
							(–17.98)	(–13.43)
One to ≤ two years since doctor							.388***	.339***
							(–11.35)	(–14.96)
Two to ≤ five years since doctor							.346***	.331***
							(–10.02)	(–12.63)
> Five years since doctor							.358***	.329***
							(–7.325)	(–10.85)
Panel B: Hypertension								
Mexican	1.059	.522***	.773	.379***	.654*	.374***	.854	.567*
	(1.302)	(–11.39)	(–1.141)	(–3.208)	(–1.850)	(–3.238)	(–.657)	(–1.805)
Middle Eastern	.826	.417***	.803	.309***	.763	.331***	.943	.450**
	(–1.123)	(–3.800)	(–.847)	(–3.088)	(–1.030)	(–2.944)	(–.214)	(–2.087)
Overweight			1.864***	1.568***	1.823***	1.569***	1.806***	1.543***
			(23.66)	(16.00)	(22.62)	(16.00)	(22.18)	(15.05)
Obese			4.235***	3.694***	4.053***	3.627***	3.940***	3.469***
			(54.31)	(42.33)	(52.14)	(41.41)	(50.47)	(39.17)
Former smoker			1.108***	1.212***	1.071***	1.166***	1.050*	1.130***
			(4.137)	(7.192)	(2.781)	(5.646)	(1.959)	(4.476)

(continued)

Table 3. (continued)

	Model 1		Model 2		Model 3		Model 4	
Gender	Women	Men	Women	Men	Women	Men	Women	Men
Current smoker			1.214***	1.189***	1.096***	1.103***	1.137***	1.171***
			(6.371)	(5.626)	(3.018)	(3.021)	(4.207)	(4.744)
Former drinker			1.088***	1.146***	1.109***	1.144***	1.090***	1.127***
			(2.612)	(3.311)	(3.172)	(3.254)	(2.616)	(2.802)
Current drinker			.817***	.975	.902***	1.027	.895***	1.044
			(–7.391)	(–.709)	(–3.792)	(.735)	(–4.048)	(1.193)
Duration in United States			1.055	1.218**	1.072	1.207*	.996	1.076
			(.759)	(2.039)	(.969)	(1.949)	(–.0528)	(.718)
Noncitizen			1.030	.841	.960	.830	1.037	.965
			(.274)	(–1.299)	(–.378)	(–1.383)	(.329)	(–.262)
Nonemployed					1.308***	1.448***	1.278***	1.337***
					(11.21)	(12.22)	(10.11)	(9.552)
< High school					.891***	.992	.882***	.955
					(–3.581)	(–.224)	(–3.840)	(–1.210)
High school					.814***	.956	.783***	.894***
					(–6.072)	(–1.194)	(–7.124)	(–2.963)
Some college					.646***	.850***	.608***	.771***
					(–12.07)	(–4.231)	(–13.58)	(–6.696)
No usual care							.756***	.757***
							(–5.528)	(–6.057)
Six months to ≤ one year since doctor							.535***	.540***
							(–15.99)	(–16.97)
One to ≤ two years since doctor							.399***	.384***
							(–13.96)	(–18.50)

(continued)

Table 3. (continued)

	Model 1		Model 2		Model 3		Model 4	
Gender	Women	Men	Women	Men	Women	Men	Women	Men
Two to ≤ five years since doctor							.346*** (–11.42)	.287*** (–17.20)
> Five years since doctor							.210*** (–10.70)	.220*** (–15.97)
Observations (*n*)	119,703	94,500	119,703	94,500	119,703	94,500	119,703	94,500

Note: All models control for age and survey year. Models 2 through 4 control for marital status, family size, and region of residence.
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

but they are significantly less likely to have been diagnosed with hypertension (14.02 percent and 16.17 percent compared to 27.41 percent).

If we look at differences by gender, a different story emerges. Middle Eastern and Mexican immigrant women are significantly less healthy than their male counterparts on both measures of health. Middle Eastern immigrant women report slightly worse health than Mexican women, but both groups fare worse than men. For example, compared to Middle Eastern immigrant men, Middle Eastern immigrant women are nearly twice as likely to report their health as "fair or poor" (17.45 percent compared to 9.07 percent) and to report being diagnosed with hypertension (19.63 percent compared to 13.03 percent). In terms of self-rated health, Middle Eastern immigrant women report worse health than U.S.-born white men and women. Moreover, the gender gap in health is much greater for immigrants than for U.S.-born whites, where the difference between men and women is much smaller across health outcomes.

What might account for these observed differences by ethnicity, nativity, and gender? Socioeconomic status and utilization of health care are likely important, given their role in explaining gender health disparities among U.S. adults (Read and Gorman 2010) and immigrants (Gorman et al. 2010). Looking first at Middle Easterners, we see they are more highly educated on average than U.S.-born whites, which is a common finding among immigrants (Singh and Siahpush 2000). Middle Eastern immigrant women fare less well than their male counterparts, with twice as many lacking a high school education (22.74 percent compared to 11.33 percent) and far more being nonemployed (56.07 percent compared to 26.91 percent). As a group, Mexican immigrants are much more socioeconomically disadvantaged than Middle Easterners and whites, as prior research would suggest. Again, however, there is a notable gender gap with Mexican women faring less well across social status measures. Middle Eastern and Mexican immigrants, as well as men in all ethnic groups, are also more likely than their native-born and female counterparts, respectively, to report having no usual place for health care. With regard to time since last seen a doctor, immigrants and men are more likely than their native-born and female counterparts to have gone more than five years without seeing a health care professional of any kind. In analysis not presented, we find that, as expected, the vast majority (93.03 percent) of respondents reporting having seen a doctor in the last six months have a usual place for care; however, those with a usual place for care comprise less than one third (30.55 percent) of those respondents who had not been to the doctors in more than five years.

In terms of health behaviors, Middle Eastern and Mexican immigrants are less likely than U.S.-born whites to be obese, less likely to be current drinkers, and more likely to have never drank or smoked in their lifetime. Again, the picture looks quite different once gender is considered. Despite reporting poorer health than their male peers, Middle Eastern and Mexican immigrant women are largely advantaged with respect to their health behaviors: They are significantly less likely than immigrant men to be current drinkers and smokers and significantly more likely to be lifetime abstainers from alcohol and tobacco. At least from a descriptive standpoint, health behaviors alone do not appear to drive gendered health disparities.

Tables 2 through 4 examine these relationships in the multivariate context. For clarity, the tables highlight our four main variables of interest—gender, health behaviors, socioeconomic status, and contact with the health care system. All models, including model 1, include age, age-squared, and survey year. Table 2 compares Mexican and Middle Eastern immigrants to U.S.-born whites across the measures of health status to test our hypothesis that both groups of immigrants will have better health outcomes. Table 2 shows that the bivariate relationships seen in Table 1 hold once age and gender are introduced (models 1). Middle Eastern immigrants do not differ from U.S.-born whites with respect to self-rated health but do appear healthier in terms of hypertension. Mexican immigrants report higher odds of fair/poor self-rated health than U.S.-born whites but appear healthier on the more objective measure. Women have higher odds of fair/poor self-rated health than men but significantly lower odds of hypertension. Introducing health behaviors and other background characteristics reveals a health advantage for both Mexican and Middle Eastern immigrants in the

case of fair/poor self-rated health as well as hypertension, although the reduced odds among Mexican-born are not significant in the case of self-rated health. Ancillary analysis reveals that this reduction in the elevated odds among immigrants owes chiefly to the introduction of the citizenship variable. Women's higher odds of fair/poor self-rated health attenuate as do their lower odds of hypertension (to nonsignificance) between models 1 and 2. When socioeconomic status is considered, the gap closes slightly in the case of hypertension among the Middle Easterners and grows slightly among Mexicans. Women's odds of both health outcomes are reduced significantly after socioeconomic status is controlled (less than zero for both outcomes). After the health care contact variables are added, the gap closes slightly for both immigrant groups for both health outcomes, becoming nonsignificant in the case of hypertension. Adjusting for contact with the health care system also lowers women's odds of both health outcomes relative to men. Overall, Table 2 finds support for better health outcomes among immigrants relative to U.S.-born whites and suggests important differences by gender.[8]

Table 3 examines whether and how the immigrant health advantage varies by gender, comparing immigrant women to U.S.-born white women and immigrant men to U.S.-born white men for self-rated health (Panel A) and hypertension (Panel B). Middle Eastern immigrant women and Mexican immigrant men and women have significantly higher odds of fair/poor self-rated health compared to their U.S.-born counterparts, while Middle Eastern immigrant men's odds do not differ significantly from those of U.S-born men. In the case of hypertension, women's odds are not statistically different than U.S-born women's, whereas men's are significantly lower than U.S-born men's for both immigrant groups. In model 2, Mexican and Middle Eastern women's odds of poor self-rated health no longer differ statistically from those of native-born women's odds. Mexican and Middle Eastern men's odds of poor self-rated health are now significantly lower than the odds of their native-born counterparts. For hypertension, the odds ratio for women remains nonsignificant, but the lower odds among immigrants are further reduced. This shift is again driven primarily by differences in citizenship status. A similar reduction occurs between models 2 and 3 for women (producing significantly lower odds for Mexican women along both health outcomes) and for Mexican men, although Middle Eastern men's odds increase for both outcomes. After including contact with the health care system, the odds of fair/poor self-rated health and hypertension for men and women from both immigrant groups increase toward one. Mexican women's odds of both health outcomes are now no longer significantly different than U.S.-born women's odds, and Middle Eastern men's odds of poor self-rated health are no longer significantly different than U.S.-born men's odds. Controlling for the full set of covariates, Middle Eastern men's odds of hypertension and Mexican men's odds of both outcomes are significantly lower than the U.S.-born while neither Mexican nor Middle Eastern women's odds of fair/poor self-rated health or hypertension differ significantly from U.S.-born white women's. Thus, Table 3 suggests that the immigrant health advantage thesis is more applicable to immigrant men than women.

Finally, Table 4 examines gender differences in self-rated health (Panel A) and hypertension (Panel B) among U.S.-born whites, Middle Eastern immigrants, and Mexican immigrants.[9] With the exception of hypertension among U.S.-born whites, women report significantly worse health than their male peers, controlling for age and survey year (models 1). Controlling for health behaviors, duration in the United States and citizenship status attenuate the gender gap in both health outcomes for immigrants, to nonsignificance in the case of Middle Easterners and hypertension (models 2). Socioeconomic status shrinks the gender gap among both immigrant groups to nonsignificance in the case of self-rated health but does not result in any substantive changes in the case of hypertension. Contact with the health care system shrinks the gender gap in self-rated health and hypertension among Mexican and Middle Eastern immigrants, although significance levels remain the same.[10] In final models for both groups, women's odds of fair/poor self-rated health no longer differ significantly from men's, and for the Middle Eastern-born, women's odds of hypertension are also not significantly different than men's. Among the

Table 4. Odds Ratios from Logistic Regression Models Predicting Gender Health Gap, National Health Interview Survey 2000-2007

	Model 1			Model 2			Model 3			Model 4		
Region of Birth	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East
Panel A: Self-Assessed Health												
Female	1.059***	1.587***	2.191**	1.034	1.500***	1.975*	.882***	1.122	1.096	.819***	.956	.904
	(2.924)	(5.715)	(2.611)	(1.533)	(4.671)	(1.799)	(–5.529)	(1.200)	(.199)	(–8.815)	(–.472)	(–.270)
Overweight				1.085***	1.084	1.133	1.058**	1.073	1.121	1.043	1.052	.927
				(3.047)	(.820)	(.320)	(2.105)	(.708)	(.269)	(1.555)	(.503)	(–.212)
Obese				2.210***	1.873***	1.904*	2.028***	1.800***	1.484	1.940***	1.702***	1.754
				(30.64)	(6.017)	(1.697)	(26.89)	(5.651)	(.993)	(25.06)	(5.070)	(1.479)
Former smoker				1.618***	1.477***	1.611	1.382***	1.454***	1.605	1.334***	1.421***	1.801
				(19.30)	(3.073)	(1.207)	(12.26)	(2.897)	(1.193)	(10.81)	(2.715)	(1.545)
Current smoker				3.005***	1.275*	1.183	2.208***	1.221	1.044	2.280***	1.253*	1.045
				(39.89)	(1.898)	(.319)	(26.67)	(1.556)	(.0796)	(27.36)	(1.746)	(.0964)
Former drinker				1.111***	1.174	.587	1.194***	1.176	.711	1.169***	1.093	.936
				(3.627)	(1.363)	(–1.160)	(5.892)	(1.400)	(–.709)	(5.113)	(.789)	(–.142)
Current drinker				.397***	.763***	.518*	.540***	.851	.574	.539***	.839*	.456**
				(–32.58)	(–2.850)	(–1.843)	(–21.34)	(–1.645)	(–1.499)	(–21.29)	(–1.772)	(–2.124)
Duration in United States				—	1.180**	.970	—	1.225***	1.212	—	1.165**	1.202
				—	(2.384)	(–.0869)	—	(2.915)	(.482)	—	(2.167)	(.589)
Noncitizen				—	1.160*	1.201	—	.967	1.260	—	1.033	1.167
				—	(1.750)	(.406)	—	(–.379)	(.472)	—	(.373)	(.387)
Nonemployed							3.828***	2.370***	3.842***	3.613***	2.197***	2.776***
							(53.44)	(9.213)	(3.120)	(51.02)	(8.513)	(2.891)
< High school							.563***	.627***	.448**	.550***	.607***	.441**
							(–20.68)	(–4.012)	(–1.997)	(–21.23)	(–4.283)	(–2.035)
High school							.465***	.662***	.586	.442***	.604***	.444*
							(–25.04)	(–3.160)	(–1.146)	(–26.08)	(–3.837)	(–1.761)

(continued)

Table 4. (continued)

	Model 1			Model 2			Model 3			Model 4		
Region of Birth	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East
Some college							.267***	.369***	.299**	.249***	.335***	.212***
							(–34.74)	(–4.700)	(–2.146)	(–36.10)	(–5.286)	(–3.578)
No usual care										1.075	1.119	.777
										(1.589)	(1.247)	(–.474)
Six months to ≤ one year since doctor										.405***	.484***	.788
										(–20.38)	(–5.786)	(–.519)
One to ≤ two years since doctor										.338***	.468***	.632
										(–18.35)	(–5.401)	(–.656)
Two to ≤ five years since doctor										.335***	.333***	.170
										(–14.61)	(–6.679)	(–1.168)
> Five years since doctor										.354***	.281***	.888
										(–11.59)	(–6.175)	(–.124)
Panel B: Hypertension												
Female	.876***	1.643***	1.668*	.970*	1.570***	1.551	.927***	1.445***	1.332	.832***	1.209**	1.220
	(–8.673)	(6.861)	(1.782)	(–1.934)	(5.037)	(1.485)	(–4.752)	(4.029)	(.916)	(–11.15)	(2.030)	(.573)
Overweight				1.755***	1.201*	1.335	1.739***	1.207**	1.290	1.721***	1.186*	1.346
				(28.27)	(1.942)	(.973)	(27.80)	(2.010)	(.854)	(27.13)	(1.819)	(.915)
Obese				4.102***	2.621***	3.776***	3.979***	2.621***	3.374***	3.846***	2.489***	3.121**
				(70.03)	(9.942)	(2.993)	(68.21)	(9.958)	(2.727)	(65.93)	(9.266)	(2.611)
Former smoker				1.132***	1.489***	1.064	1.088***	1.496***	1.045	1.049**	1.469***	.980
				(6.781)	(3.716)	(.181)	(4.524)	(3.757)	(.128)	(2.565)	(3.520)	(–.0551)

(continued)

Table 4. (continued)

	Model 1			Model 2			Model 3			Model 4		
Region of Birth	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East
Current smoker				1.202***	.887	.849	1.095***	.885	.820	1.145***	.913	.880
				(9.049)	(–.990)	(–.494)	(4.316)	(–1.012)	(–.591)	(6.411)	(–.726)	(–.391)
Former drinker				1.072***	1.181	1.466	1.083***	1.180	1.728	1.060**	1.106	1.726
				(2.750)	(1.596)	(.725)	(3.153)	(1.587)	(.993)	(2.240)	(.951)	(.995)
Current drinker				.866***	.863	1.275	.936***	.890	1.410	.937***	.889	1.344
				(–6.486)	(–1.626)	(.624)	(–2.947)	(–1.249)	(.852)	(–2.900)	(–1.249)	(.731)
Duration in United States				—	1.102	1.032	—	1.113	1.109	—	1.025	1.089
				—	(1.366)	(.0912)	—	(1.488)	(.286)	—	(.313)	(.234)
Noncitizen				—	1.003	.749	—	.982	.766	—	1.068	.813
				—	(.428)	(–.672)	—	(–.210)	(–.603)	—	(.743)	(–.469)
Nonemployed							1.358***	1.310***	1.623	1.294***	1.213**	1.411
							(16.05)	(3.128)	(1.354)	(13.57)	(2.231)	(.898)
< High school							.935***	1.080	.570	.917***	1.033	.577
							(–2.650)	(.745)	(–1.486)	(–3.358)	(.307)	(–1.444)
High school							.874***	.847	.863	.829***	.761*	.798
							(–5.271)	(–1.212)	(–.406)	(–7.278)	(–1.944)	(–.617)
Some college							.738***	1.065	.640	.679***	.950	.619
							(–11.37)	(.273)	(–1.178)	(–14.24)	(–.213)	(–1.276)
No usual care										.763***	.796**	.834
										(–7.505)	(–2.021)	(–.403)
Six months to ≤ one year since doctor										.541***	.574***	.534
										(–22.77)	(–4.621)	(–1.469)

(continued)

Table 4. (continued)

	Model 1			Model 2			Model 3			Model 4		
Region of Birth	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East	United States	Mexico	Middle East
One to ≤ two years since doctor										.392***	.475***	.440
										(–22.50)	(–5.124)	(–1.600)
Two to ≤ five years since doctor										.301***	.416***	.281
										(–19.63)	(–4.870)	(–1.275)
> Five years since doctor										.215***	.260***	.0650**
										(–18.97)	(–6.526)	(–2.314)
Observations (*n*)	143,962	11,204	665	143,962	11,204	665	143,962	11,204	665	143,962	11,204	665

Note: All models control for age and survey year. Models 2 through 4 control for marital status, family size, and region of residence.
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

U.S.-born, controlling for health behaviors reduces women's elevated odds of fair/poor self-rated health to nonsignificance and slightly attenuates the below-zero odds of hypertension. Controlling for socioeconomic status produces significantly lower odds of poor self-rated health and further reduces the odds of hypertension among women relative to men. Introducing health care variables further reduces U.S.-born women's odds of poor self-rated health and hypertension relative to U.S.-born men. Overall, Table 4 finds that the gender gap in self-rated health and hypertension is smaller among the U.S-born than among either immigrant group.

DISCUSSION AND CONCLUSION

There has been a groundswell of attention in the past decade on the "healthy migrant effect." The fact that immigrants arrive in the United States healthier than U.S.-born Americans but appear to lose their advantage over time has perplexed and invigorated researchers to uncover the mechanisms leading to such a troubling outcome, an outcome that has dire consequences not only for immigrants in the United States but also for U.S. population health and the U.S. health care system. In this article, we add another dimension to this line of research by asking whether and how gender shapes what we know about immigrant health, using Middle Easterners and Mexicans as case studies.

Our analyses reveal both an immigrant story and a gender story. Immigrants are healthier than U.S.-born whites, as widely documented in the immigrant health literature, and this is true for both immigrant men and women. However, these averages appear to be driven by the (apparent) better health of immigrant men. Mexican and Middle Eastern immigrant women report better health than U.S.-born white women but worse health than their immigrant male peers, not unlike the gender gap found among U.S.-born whites. Moreover, the gender gap is greater among immigrants than among the native-born. We identify both established and novel mechanisms that contribute to these patterns—socioeconomic status and contact with the health care system. Consistent with prior research, the immigrant and male health advantage is reduced by the incorporation of socioeconomic status, likely reflecting the selectivity of immigrants and better socioeconomic profiles of men.

Unique to this and other recent studies, we find that contact with the health care system also contributes to these patterns, which has broader methodological and policy implications (e.g., Gorman et al. 2010). Specifically, differences in the prevalence of illness between men and women or immigrants and the native-born may partly reflect differences in *knowledge* of illness. Women likely engage with the health care system sooner and more often than their male peers given biological differences in reproduction and social differences as caregivers, and thus they may be more aware of their ailments than men. Immigrants likely engage the health care system less frequently than the U.S.-born for a variety of reasons other than health selectivity, including preoccupation with other aspects of settlement, lack of knowledge about the system, and/or lack of resources to access the system. This interpretation could be extended to explain health differences between recent immigrant arrivals compared to more established immigrants, differences often linked to changes that occur with acculturation. Rather than immigrants' health declining over time due to poorer health habits and loss of protective factors, the data may be capturing the fact that newer immigrants are less likely than more established immigrants to come into contact with the health care system and thus may be less aware of their health conditions.[11]

Moreover, the inconsistencies we find across subjective and objective measures of health may in part reflect interaction with the health care system. Mexican and Middle Eastern immigrants appear healthier in the case of hypertension but not self-rated health. Similarly, the male health advantage is larger in the case of hypertension than self-rated health. After introducing measures of contact with care, these patterns change: The immigrant health advantage narrows for both immigrant groups on both outcomes but is only significant in the case of hypertension, and the male health advantage is reduced more in the case of hypertension than in the case of self-rated health. At minimum, these findings urge for more cautious interpretations of studies on health disparities that rely solely on self-rated health. Because self-rated health is less

dependent on medical diagnoses than are specific health conditions, the gender gap among immigrants and U.S.-born whites as well as the health gap between immigrants and U.S.-born whites may be influenced by differential access to and interaction with the medical system.

This study is not without limitations. First, we are unable to disaggregate Middle Easterners by country of origin due to NHIS confidentiality concerns. Nevertheless, the major sending countries captured in the "Middle East" category share similar proportions of male and female migrants, are admitted under similar admittance categories due to restrictive immigration policies, and have similar gender gaps in health in the countries of origin (World Health Organization 2009; Yearbook of Immigration Statistics 2007). These countries also share similar religious and cultural values regarding gender roles, which may influence health in the U.S. context (Ajrouch 1999; Read and Oselin 2008). Further, the fact that we find similar gender disadvantage among Mexican immigrants suggests that important differences exist in the health of immigrant men and women. Second, reverse causation with regard to contact with the health care system is an alternative or additional explanation that we cannot rule out. Because the data are cross-sectional, the causal direction of the relationships we investigate cannot be specified definitively. However, the data do, at minimum, allow us to highlight important associations between gender, immigration, and health that can lead to further refinements in our understanding of gender and health.

NOTES

1. We use the phrase *health outcomes* to clarify and emphasize our focus on self-rated health and hypertension rather than health behaviors.
2. The National Health Interview Survey (NHIS) uses this term to categorize 19 Arab groups (Aden, Arab Palestine, Arabia, Bahrain, Gaza Strip, Iraq, Jordan, Kuwait, Syria, Lebanon, Middle East, Oman, Palestine, Qatar, Saudi Arabia, Syria, United Arab Emirates, West Bank, Yemen) and six non-Arab groups (Armenia, Cyprus, Iran, Israel, Persia, Turkey). Data from the U.S. Census Bureau and Office of Immigration Statistics reveal that the Middle East categorization is largely Arab.
3. The Census Bureau defines Arab Americans as people who trace their ancestry to Algeria, Egypt, Libya, Morocco, Sudan, Tunisia (North Africa), Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen (western Asia).
4. The categories are the United States, Mexico/Central America/Caribbean Islands, South America, Europe, Russia (USSR), Africa, Middle East, Indian subcontinent, Asia, SE Asia, Elsewhere (including Canada), and Unknown (includes refused, don't know, foreign-born but country not provided, and stopped answering).
5. We reestimated the models with ordinal logit but the models did not pass either of the two tests for proportional odds. Thus, an ordinal logit model is inappropriate for these data.
6. Changes to the income categories over the study period coupled with high rates of nonresponse resulted in substantial reductions in our sample sizes. In ancillary analyses, regressions were conducted including family income as a control variable. The substantive findings mirrored those presented here.
7. Duration of residence is treated as a conditionally relevant variable (Ross and Mirowsky 1992) and should be interpreted as the effect of years in the United States on the foreign-born only.
8. Although we are unable to identify U.S.-born Middle Eastern Americans, we replicated Table 2 omitting U.S.-born Mexicans from the reference group as a robustness check. Coefficients remain stable in significance and magnitude with this group excluded.
9. Differences in the results for U.S.-born, Mexican and Middle Eastern samples are likely to be influenced by the substantial differences in sample size. These differences, in addition to the potential for unequal residual variation across groups (Allison 1999), suggest that caution should be exercised in drawing conclusions based on a singular comparison across subgroups (i.e., nativity as well as gender groups).
10. Small cell sizes for the Middle Eastern case resulted in data separation with regard to the time since doctor variable in the final model of Table 4. As such, we have employed the penalized maximum likelihood method to produce estimates for each of the four non-omitted categories of time since doctor for this model.

11. Some research has examined this issue explicitly. McDonald and Kennedy (2004) investigated the hypothesis that immigrants' rates of health care use approximate that among the native-born much earlier than do their rates of illness. Although suggestive, this study was conducted outside of the United States and does not differentiate immigrants' region of birth, leaving the role of health care use open to debate.

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