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Racial and Citizenship Disparities in Healthcare among Middle Eastern Americans

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Abstract

Objective: To assess differences in health access and utilization among Middle Eastern American adults by White racial identity and citizenship.

Methods: Data from the 2011 – 2018 National Health Interview Surveys (N=1,013) and survey-weighted logistic regression analyses compare Middle Eastern immigrants by race and citizenship on access and utilization of healthcare in the United States (U.S.).

Results: White respondents had 71% lower odds of delaying care (adjusted odds ratio (AOR)=0.34; 95% CI= 0.13, 0.71) and 84% lower odds of being rejected by a doctor as a new patient (AOR=0.16; 95% CI= 0.03, 0.88) compared to non-White respondents. U.S. citizens had higher odds of visiting the doctor in the past 12 months compared to non-citizens (AOR=1.76; 95% CI= 1.25, 2.76).

Conclusion: Middle Eastern immigrants who do not identify as White and who are not U.S. citizens are significantly less likely to access and utilize healthcare compared to those who identify as White and are U.S.-citizens.

Policy Implications: This study shows that racial and citizenship disparities persist among Middle Eastern Americans at a national-level, playing a critical role in access to and use of healthcare.

Introduction

Demographic shifts highlight the need to advance research on health disparities, including among the 44 million immigrants in the United States (U.S.) with immigrants arriving in the past few years being primarily from Asia and India.¹ Consequently, research on racial and ethnic health disparities has evolved from focusing on Black/White differences to a greater focus on the heterogeneity of the population.² Traditionally, racial and ethnic groups are

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Conflicts of Interest:

The authors have no financial or other conflicts of interests with regards to this manuscript.

designated as “health disparity populations”, which means they are characterized by a pattern of poorer health outcomes as compared to the U.S. general population or compared to the native-born White population.

Nearly 1.2 million immigrants from the Middle East and North Africa (MENA) region, live in the U.S., accounting for roughly 3% of the country’s immigrant population. Over 70% of MENA immigrants are from the Middle East and the rest are from North Africa. This group of immigrants represents twenty-three countries and is ethnically diverse as it includes Arabs, Iranians, Kurds, and Afghans. However, certain groups, like immigrants from the MENA region, are excluded from the aforementioned definition of a health disparity population because of their racialization as ‘White’ by the U.S. Office of Management and Budget and the U.S. Census. Thus, individuals identifying with the MENA region, are routinely categorized as “White” in social science and health research while the lived experience of MENA groups includes being perceived and treated as non-White, which has implications for health including health care access and utilization.^{3,4} Thus, because of the racial conflation with White identities, the extent and nature of disparities among MENA communities is inconclusive.⁵

Extant research in the U.S. documents that first generation immigrants, in general, report less access and utilization of health care than their U.S. born counterparts.⁶ Also, immigrants are less likely to be insured, have access to health services, and have a regular place of care/doctor than their US-born counterparts.⁷ There is limited population-level research on the health of MENA communities in the US,⁵ including studies on their health care access and utilization. The existing studies has focused on mental and physical health outcomes within specific subgroups (e.g. women) and geographic localities, like Detroit and Chicago.^{8–14} For example, immigrants from Arab countries 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.¹³ State-level research finds that while an immigrant health paradox or health advantage among immigrants may be true for certain immigrant groups, this pattern does not hold true for MENA immigrants.¹¹

Given the negative sociopolitical discourse about MENA communities^{15,16} and considerations about their inclusion in health disparities research,^{5,8} understanding their access and utilization of health care is of significant policy concern. This study assessed the patterns of health care access and utilization among U.S. adults from the Middle East. This study also examined how health care access and utilization varies for Middle Eastern immigrants by White racial identity and citizenship status.

Methods

Data

This study utilized data from the 2011–2018 National Health Interview Survey (NHIS), an annual, in-person, survey assessing the health and wellbeing of Americans of all ages. NHIS uses a multistage, stratified, cluster design to obtain a nationally representative sample of the non-institutionalized civilian population. The study sample was limited to the 1,013 adults, ages 18 and older, who were born in the Middle East. Few national data sets contain enough

cases of Middle Eastern immigrants for analyses. By merging multiple waves of NHIS data, we overcame this limitation. Consequently, 2018 was the last year that NHIS included country of origin data. Thus, this data includes the most current nationally representative health information for Middle Eastern immigrants.

Measures

Healthcare Utilization Outcomes—The seven outcome measures, based on prior research using the NHIS¹⁷ consisted of dichotomous measures (yes/no) of access and utilization of healthcare including: 1) Currently uninsured; 2) Lacking a usual source of care; 3) Visiting the emergency department (ED) at least once in the past 12 months; 4) Visiting the doctor at least once in the past 12 months; 5) Delaying health care in the past 12 months; 6) Forgoing needed medical care in the past 12 months due to costs and 7) Being rejected by a doctor as a new patient in the past 12 months. Respondents who reported the ED as their usual source of care were coded as lacking a usual source of care.

Race and Citizenship—The main independent variables of interest consisted of race (White/other race) and citizenship status (U.S. citizen/not U.S. citizen).

Covariates—Based on prior research,¹⁷ variables were included in analyses as confounders. Gender, employment status (not currently employed/currently employed), lifetime diagnosis of a chronic condition (yes/no), marital status (married or living with partner/not married or living with partner), educational attainment (less than high school, high school or equivalent and at least some college) and Patient Protection and Affordable Care Act (ACA) implementation time period (pre/post) were included as categorical variables. The “pre” period represented the years prior to the implementation of major ACA provisions (2011–2013) and the “post” period includes the time period after major ACA provisions were implemented (2014–2018). Household income was measured as a percent of the federal poverty level (FPL, <100%, 100–199% or 200% and above). Region was represented by where the respondents lived in the U.S. (Northwest, Midwest, South or West). Age was measured as a continuous variable.

Analysis

Weighted means, frequencies and standard errors were calculated for study variables. Logistic regression analyses were used to calculate Adjusted Odds Ratios (AORs) and 95% confidence intervals (95% CIs) for all outcomes, from race and nativity status. Analyses were then repeated, limiting the analyses to adults who are under age 65, to exclude those who were Medicare eligible. All analyses adjusted for confounders, and included complete cases for each model. Analyses were conducted in Stata 16, using survey weights to yield robust standard errors.

Results

Table 1 shows the weighted sample characteristics. The majority of the sample was insured, had a usual source of care and saw the doctor at least once in the past 12 months. Delaying care, forgoing care and visiting the ED were uncommon, with 11.58%, 15.64% and 16.43%

of all adults reporting these, respectively. Most respondents were White, male, in households with incomes above 200% of the FPL, not currently employed, married, U.S. citizens, and did not report a chronic disease diagnosis.

Table 2 shows the results of logistic regression analyses among all Middle Eastern immigrant adults. White respondents had 66% lower odds of delaying care (AOR=0.34; 95% CI= 0.14, 0.81) and 283% higher odds of having an ED visit (AOR=3.83; 95% CI= 1.01, 14.58), relative to non-White respondents. U.S. citizens had 76% higher odds of visiting the doctor, relative to non-citizens (AOR=1.76; 95% CI= 1.14, 2.47).

Table 3 shows the results of logistic regression analyses among working age Middle Eastern immigrants. White respondents had 66% lower odds of delaying care (AOR=0.34; 95% CI= 0.13, 0.71) and 84% lower odds of being rejected by a doctor as a new patient (AOR=0.16; 95% CI= 0.03, 0.88), relative to non-White respondents. White respondents had 279% higher odds of visiting the ED, relative to non-White respondents (AOR=3.79; 95% CI= 1.04, 13.83). U.S. citizens had 76% higher odds of visiting the doctor, relative to non-citizens (AOR=1.95; 95% CI= 1.25, 2.76).

Discussion

Middle Eastern immigrants merit increasing attention in disparities research considering their racialized experiences that increase their risk for adverse health outcomes.^{4,5,18} By comparing identification with the White category across Middle Eastern immigrants, we find evidence at a national level for racial and citizenship status-based disparities in access and utilization of healthcare. Specifically, when provided other categories to identify with, Middle Easterners who did not self-identify as White, may have unmet health care needs that are obfuscated when they are subsumed under the broader “White” category.

Middle Eastern immigrants who identify as White are noticeably less likely to delay care or be rejected by a physician as a new patient in comparison to their non-White counterparts. While racial disparities in access have declined significantly during the initial years of ACA implementation, racial disparities persist and Whites continue to fare better in patterns of access to and utilization of health care.^{19–21} Moreover, this can be worsened by the stigma and discrimination Middle Eastern immigrants face.⁵ While Middle Easterners comprise a diverse community, many are racialized/ethnicized to be Muslim and this racialization process and Islamophobia is associated with lower levels of access to healthcare and poor health.^{4,16,17} Reasons for positive engagement with the healthcare system for those who identify as White could be related to these experiences of discrimination or identity concealment.⁴ Consequently, Middle Eastern immigrants who racially identify as non-White may experience more discrimination.²² These results show that racial identification matters as a potential proxy for racism towards Middle Eastern Americans that influences their experience with the healthcare system.

Middle Easterners with U.S. citizenship also had higher levels of engagement with the healthcare system compared to non-citizens. This finding aligns with the literature that reports disparities among immigrants in terms of utilization by citizenship status.^{23–26}

Although immigrants often report more positive health outcomes than U.S.-born counterparts, they often have lower rates of access and utilization of health care. This phenomenon, widely discussed as the “immigrant health paradox,”²⁷ is increasingly being challenged (along with “acculturation”) by nuanced approaches towards understanding and improving immigrant health,^{2,27} guided by the recognition of the heterogeneity among sending contexts, cross border ties, and subgroups (e.g. refugees).^{28–30} For example, recent findings at a state-level discounted evidence of an immigrant health paradox among Arab Americans.^{11,31} Moreover, our study provides limited evidence in differences in health care access and utilization by citizenship status. These findings contribute to the growing body of work challenging a narrative that depicts uniform experiences among immigrants and reinforces the idea that immigrants’ access and utilization of healthcare varies widely by countries of origin and citizenship.¹⁷

Our study did find that non-citizens, were less likely to visit a doctor in the past 12 months, even after accounting for chronic conditions, suggesting suboptimal health care seeking behavior among non-citizens not driven by need for care. This lower rate of utilizing healthcare services, irrespective of need,³² signals a major equity issue and obstacle to large public health goals. This study shows non-citizenship has a detrimental impact on regular use of health care that may be indicative not only of the post 9/11 context that has disproportionately targeted Middle Easterners,³ but of an enduring discriminatory context that has systematically impeded immigrants’ utilization of the healthcare system. It is critical that we address the legal and social factors that limit immigrants’ access and utilization of health care including how xenophobic environments may incite fear that discourages seeking healthcare.

Limitations

There are limitations to this study. First, the data are from multiple cross-sectional surveys conducted over time, and therefore, do not permit the determination of causality and, potentially, allow the same individual to be interviewed in multiple NHIS years. Second, Middle Eastern Americans are a heterogeneous group in terms of demographics and life experiences. Moreover, the study is unable to account for pre-migration behaviors, age at migration, reasons for migration and duration of stay all of which may influence the outcomes. The duration of time in the U.S. could shape racial identity with immigrants from earlier cohorts identifying as White.³ Previous analysis of the NHIS also demonstrates Middle Eastern men report better health than Middle Eastern women.¹³ Utilization of healthcare is the mechanism that contributes to this pattern. In general, women in the U.S. tend to play a major role in healthcare-seeking behaviors. Future analysis should consider how additional characteristics (e.g. gender) relate to racial identification and engagement with the healthcare system among Middle Eastern immigrants.

Public Health Implications

This is the first national study of disparities in healthcare access and utilization for Middle Eastern immigrants, showing that how race and citizenship influence healthcare experiences. Given the heightened vulnerability of, and paucity of health research on, Middle Eastern

immigrants, these findings point to the need to disentangle Middle Eastern identity from White identity.¹⁸ Failure to do so further conflates the experiences of Middle Eastern populations, disguises health disparities, and perpetuates structural stigma. Further research is needed to better understand the healthcare needs and racial dynamics that shape Middle Eastern American healthcare experiences.

References

1. Zong J, Batalova J. Frequently requested statistics on immigrants and immigration in the United States. Migration Policy Institute. 2015;26:1–18.
2. Castañeda H, Holmes SM, Madrigal DS, Young M-ED, Beyeler N, Quesada J. Immigration as a social determinant of health. *Annual review of public health*. 2015;36:375–392.
3. Abdulrahim S. Whiteness and the Arab immigrant experience In: Jamal A, Naber N, eds. *Race and Arab Americans before and after 9/11: From invisible citizens to visible subjects*. Syracuse, New York: Syracuse University Press; 2008:131–146.
4. Samari G. Islamophobia and Public Health in the United States. *Am J Public Health*. 2016;106(11):1920–1925. [PubMed: 27631738]
5. Abulezam NN, El-Sayed AM, Galea S. Arab American Health in a Racially Charged U.S. *Am J Prev Med*. 2017;52(6):810–812. [PubMed: 28413143]
6. Ye J, Mack D, Fry-Johnson Y, Parker K. Health care access and utilization among US-born and foreign-born Asian Americans. *Journal of immigrant and minority health*. 2012;14(5):731–737. [PubMed: 22038126]
7. Pandey S, Kagotho N. Health insurance disparities among immigrants: are some legal immigrants more vulnerable than others? *Health Soc Work*. 2010;35(4):267–279. [PubMed: 21171534]
8. Ajrouch KJ, Antonucci TC. Social Relations and Health: Comparing “Invisible” Arab Americans to Blacks and Whites. *Soc Ment Health*. 2018;8(1):84–92. [PubMed: 30705780]
9. Samari G, McNall M, Lee K, Perlstadt H, Nawyn S. Socioeconomic Status and the Physical and Mental Health of Arab and Chaldean Americans in Michigan. *Journal of immigrant and minority health / Center for Minority Public Health*. 2019;21(3):497–507.
10. Padela AI, Murrar S, Adviento B, et al. Associations between religion-related factors and breast cancer screening among American Muslims. *Journal of immigrant and minority health / Center for Minority Public Health*. 2015;17(3):660–669.
11. Abulezam NN, El-Sayed AM, Galea S. Relevance of the “Immigrant Health Paradox” for the Health of Arab Americans in California. *American Journal of Public Health*. 2019:e1–e6.
12. Dallo FJ, Kindratt TB. Disparities in Vaccinations and Cancer Screening Among U.S.- and Foreign-Born Arab and European American Non-Hispanic White Women. *Women’s Health Issues*. 2015;25(1):56–62. [PubMed: 25498764]
13. Read JnG Reynolds MM. Gender Differences in Immigrant Health: The Case of Mexican and Middle Eastern Immigrants. *Journal of health and social behavior*. 2012;53(1):99–123. [PubMed: 22343940]
14. Dallo FJ, Ruterbusch JJ, Kirma JD, Schwartz K, Fakhouri M. A Health Profile of Arab Americans in Michigan: A Novel Approach to Using a Hospital Administrative Database. *Journal of immigrant and minority health / Center for Minority Public Health*. 2016;18(6):1449–1454.
15. Alcalá HE, Sharif MZ, Samari G. Social Determinants of Health, Violent Radicalization, and Terrorism: A Public Health Perspective. *Health equity*. 2017;1(1):87–95. [PubMed: 28905048]
16. Samari G, Alcalá HE, Sharif MZ. Islamophobia, Health, and Public Health: A Systematic Literature Review. *American Journal of Public Health*. 2018;108(6):e1–e9.
17. Sharif MZ, Samari G, Alcalá HE. Variations in Access to Care After the Affordable Care Act Among Different Immigrant Groups. *Journal of Community Health*. 2019.
18. Abboud S, Chebli P, Rabelais E. The Contested Whiteness of Arab Identity in the United States: Implications for Health Disparities Research. *American Journal of Public Health*. 2019;109(11):1580–1583. [PubMed: 31536397]

19. Chen J, Vargas-Bustamante A, Mortensen K, Ortega AN. Racial and Ethnic Disparities in Health Care Access and Utilization Under the Affordable Care Act. *Medical care*. 2016;54(2):140–146. [PubMed: 26595227]
20. Buchmueller TC, Levinson ZM, Levy HG, Wolfe BL. Effect of the Affordable Care Act on Racial and Ethnic Disparities in Health Insurance Coverage. *American Journal of Public Health*. 2016;106(8):1416–1421. [PubMed: 27196653]
21. Fiscella K, Sanders MR. Racial and Ethnic Disparities in the Quality of Health Care. *Annu Rev Public Health*. 2016;37:375–394. [PubMed: 26789384]
22. Abdulrahim S, James SA, Yamout R, Baker W. Discrimination and psychological distress: does Whiteness matter for Arab Americans? *Social science & medicine (1982)*. 2012;75(12):2116–2123. [PubMed: 22901668]
23. Alcalá HE, Chen J, Langellier BA, Roby DH, Ortega AN. Impact of the Affordable Care Act on health care access and utilization among Latinos. *The Journal of the American Board of Family Medicine*. 2017;30(1):52–62. [PubMed: 28062817]
24. Asad AL, Clair M. Racialized legal status as a social determinant of health. *Social Science & Medicine*. 2018;199:19–28. [PubMed: 28359580]
25. Young M-EDT, Madrigal DS. Documenting legal status: a systematic review of measurement of undocumented status in health research. *Public Health Reviews*. 2017;38(1):26. [PubMed: 29450097]
26. Martinez O, Wu E, Sandfort T, et al. Evaluating the impact of immigration policies on health status among undocumented immigrants: a systematic review. *Journal of immigrant and minority health*. 2015;17(3):947–970. [PubMed: 24375382]
27. Torres JM, Young M-ED. A life-course perspective on legal status stratification and health. *SSM-Population Health*. 2016;2:141–148. [PubMed: 29349135]
28. Samari G Cross-border ties and Arab American mental health. *Social Science & Medicine*. 2016;155:93–101. [PubMed: 26999416]
29. Abraído-Lanza AF, Echeverría SE, Flórez KR. Latino immigrants, acculturation, and health: Promising new directions in research. *Annual review of public health*. 2016;37:219–236.
30. Handley MA, Sudhinaraset M. The Important Role of Binational Studies for Migration and Health Research: A Review of US-Mexico Binational Studies and Design Considerations for Addressing Critical Issues in Migrant Health. *International Migration*. 2017;55(5):75–121.
31. Abdulrahim S, Baker W. Differences in self-rated health by immigrant status and language preference among Arab Americans in the Detroit Metropolitan Area. *Social Science & Medicine*. 2009;68(12):2097–2103. [PubMed: 19446941]
32. Jones CP. Systems of power, axes of inequity: parallels, intersections, braiding the strands. *Medical care*. 2014:S71–S75. [PubMed: 25215922]

Table 1:
Sample Characteristics for Middle Eastern Immigrants, National Health Interview Survey 2011–2018 (N=1,013)

Variable	Entire Sample (N=1,013)			Adults 18–64 (N=838)		
	Unweighted N	Mean/Frequency	Standard Error	Unweighted N	Mean/Frequency	Standard Error
Outcomes						
Uninsured						
No	878	86.52	1.43	705	84.04	1.67
Yes	135	13.48	1.43	133	15.96	1.67
No usual source of care						
No	221	20.71	1.81	215	24.31	2.05
Yes	788	79.29	1.81	620	75.69	2.05
ED visit in past 12 months						
No	831	83.57	1.51	701	86.69	1.66
Yes	170	16.43	1.51	128	15.31	1.66
Visited a doctor at least once in past 12 months						
No	360	34.52	1.95	341	39.39	2.18
Yes	642	56.48	1.95	489	60.61	2.18
Delayed care in past 12 months						
No	884	88.42	1.27	725	87.65	1.42
Yes	121	11.58	1.27	106	12.35	1.42
Didn't get needed care because unable to afford it in past 12 months						
No	832	84.36	1.69	688	84.12	1.71
Yes	172	15.64	1.69	142	15.88	1.71
Rejected by doctor as a new patient in past 12 months						
No	859	97.99	0.48	721	97.67	0.57
Yes	22	2.01	0.48	21	2.33	0.57
Independent Variables						
Race						
Non-white	56	3.95	0.69	53	4.54	0.81
White	957	96.05	0.69	785	95.46	0.81
Citizenship status						
Not US citizen	386	36.39	2.09	367	40.8	2.25

Variable	Entire Sample (N=1,013)			Adults 18–64 (N=838)		
	Unweighted N	Mean/Frequency	Standard Error	Unweighted N	Mean/Frequency	Standard Error
US citizen	624	63.61	2.09	469	59.2	2.25
Control Variables/Confounders						
Gender						
Male	575	55.04	2.13	502	57.14	2.27
Female	438	44.96	2.13	336	42.86	2.27
Age in years	1,013	46.41	0.75	838	41.3	0.61
Educational attainment						
Less than high school	90	10.16	1.33	48	6.93	1.21
High school or equivalent	174	18.94	2.03	133	18.27	2.09
At least some college	742	70.9	2.22	652	74.8	2.26
Household income as a % of federal poverty level (FPL)						
< 100% of FPL	214	20.25	1.71	48	20.25	1.92
100–199% of FPL	182	19.31	1.74	133	18.52	1.83
200% of FPL and above	540	60.44	2.27	652	61.23	2.48
Employment status						
Currently employed	477	46.03	1.87	336	38.83	2.03
Not currently employed	536	53.97	1.87	502	61.17	2.03
Marital Status						
Not married or living with a partner	437	32.36	1.76	348	30.11	1.96
Married or living with a partner	573	67.64	1.76	488	69.89	1.96
Lifetime chronic condition						
No	574	56.94	2.05	544	65	2.16
Yes	439	43.06	2.05	294	35	2.16
Region						
Northeast	165	17.75	2.07	135	18.06	2.26
Midwest	159	15.93	1.58	144	17.62	1.85
South	277	23.77	2.03	247	25.32	2.2
West	412	42.55	3.01	312	39.01	3.12
ACA implementation period						
Pre	366	35.55	2.41	307	36.16	2.41

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Variable	Entire Sample (N=1,013)				Adults 18–64 (N=838)	
	Unweighted N	Mean/Frequency	Standard Error	Unweighted N	Mean/Frequency	Standard Error
Post	647	64.45	2.41	531	63.84	2.41

Numbers in the N column represent unweighted sample sizes, numbers will not add up to the total sample due to missing data. Means, frequencies and standard errors all represent weighted statistics. The total weighted sample for analyses is approximately 1,300,000 for the entire sample and 1,090,000 for the sample of adults between 18 and 64. Abbreviations: ED – emergency department, ACA – Patient Protection and Affordable Care Act

Table 2:
Racial Disparities in Odds of Access and Utilization of Care among Middle Eastern Immigrants in the US, All Adults

	Uninsured n=928 AOR (95% CI)	No usual source of care n=925 AOR (95% CI)	ED visit in past 12 months n= 917 AOR (95% CI)	Visited a doctor at least once in past 12 months n=918 AOR (95% CI)	Delayed care in past 12 months n= 922 AOR (95% CI)	Didn't get needed care because unable to afford it in past 12 months n=921 AOR (95% CI)	Rejected by doctor as a new patient it in past 12 months n= 805 AOR (95% CI)
Race							
Non-white	Reference	Reference	Reference	Reference	Reference	Reference	Reference
White	1.99 (0.62, 6.42)	0.75 (0.29, 1.95)	3.83 (1.01, 14.58)	1.66 (0.81, 3.39)	0.34 (0.14, 0.81)	0.65 (0.22, 1.92)	0.19 (0.04, 1.01)
Citizenship status							
Not citizen	Reference	Reference	Reference	Reference	Reference	Reference	Reference
US citizen	1.07 (0.55, 2.07)	1.50 (0.88, 2.56)	0.79 (0.47, 1.32)	1.76 (1.14, 2.47)	0.75 (0.44, 1.28)	1.07 (0.66, 1.73)	1.46 (0.43, 5.00)
Gender							
Male	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Female	0.70 (0.36, 1.35)	1.98 (1.22, 3.23)	0.96 (0.60, 1.53)	1.84 (1.21, 2.80)	2.11 (1.27, 3.51)	1.40 (0.91, 2.16)	2.80 (1.13, 6.98)
Age in years	0.97 (0.95, 0.99)	1.04 (1.02, 1.06)	0.99 (0.97, 1.01)	1.02 (1.01, 1.03)	1.00 (0.99, 1.02)	1.01 (0.99, 1.02)	1.01 (0.98, 1.03)
Educational attainment							
Less than high school	Reference	Reference	Reference	Reference	Reference	Reference	Reference
High school or equivalent	2.08 (0.74, 5.89)	0.89 (0.37, 2.18)	0.57 (0.25, 1.24)	0.57 (0.28, 1.19)	1.10 (0.39, 3.12)	1.09 (0.51, 2.34)	0.39 (0.04, 3.75)
At least some college	0.88 (0.31, 2.47)	1.12 (0.47, 2.70)	0.69 (0.36, 1.34)	1.04 (0.51, 2.11)	1.04 (0.51, 2.11)	1.25 (0.59, 2.65)	0.70 (0.09, 5.17)
Household income as a % of federal poverty level (FPL)							
< 100% of FPL	Reference	Reference	Reference	Reference	Reference	Reference	Reference
100–199% of FPL	1.85 (0.88, 3.90)	0.86 (0.49, 1.53)	0.72 (0.40, 1.30)	0.95 (0.51, 1.77)	0.87 (0.44, 1.73)	1.21 (0.67, 2.18)	1.41 (0.26, 7.53)
200% of FPL and above	0.64 (0.28, 1.46)	1.48 (0.86, 2.54)	0.30 (0.17, 0.60)	1.15 (0.69, 1.91)	0.60 (0.32, 1.13)	0.27 (0.15, 0.46)	0.35 (0.07, 1.61)
Employment status							
Currently employed	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Not currently employed	0.98 (0.50, 1.90)	1.05 (0.61, 1.82)	0.63 (0.37, 1.04)	0.84 (0.56, 1.26)	1.47 (0.80, 2.71)	1.08 (0.60, 1.92)	3.36 (0.95, 11.84)
Marital Status							
Not married or living with partner	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Married or living with partner	0.88 (0.51, 1.52)	1.24 (0.79, 1.94)	0.96 (0.61, 1.50)	0.99 (0.69, 1.42)	0.79 (0.46, 1.34)	1.43 (0.89, 2.30)	0.84 (0.20, 3.59)

	Uninsured	No usual source of care	ED visit in past 12 months	Visited a doctor at least once in past 12 months	Delayed care in past 12 months	Didn't get needed care because unable to afford it in past 12 months	Rejected by doctor as a new patient it in past 12 months
	n=928	n=925	n= 917	n=918	n= 922	n=921	n= 805
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Lifetime chronic condition							
No	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Yes	0.58 (0.29, 1.17)	2.10 (1.23, 3.60)	2.31 (1.33, 3.99)	2.73 (1.79, 4.18)	1.00 (0.51, 1.97)	1.55 (0.98, 2.44)	1.18 (0.43, 3.24)
Region							
Northeast	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Midwest	1.21 (0.48, 3.03)	0.68 (0.33, 1.38)	0.72 (0.33, 1.58)	1.29 (0.70, 2.37)	0.82 (0.31, 2.13)	0.64 (0.27, 1.53)	0.92 (0.14, 6.09)
South	1.54 (0.65, 3.65)	1.01 (0.52, 1.97)	1.07 (0.57, 2.04)	1.09 (0.59, 2.01)	1.29 (0.54, 3.07)	1.99 (0.89, 4.43)	1.54 (0.31, 7.51)
West	1.05 (0.46, 2.36)	0.58 (0.29, 1.14)	0.66 (0.36, 1.20)	1.32 (0.76, 2.30)	1.53 (0.71, 3.27)	1.78 (0.82, 3.88)	1.50 (0.31, 7.26)
ACA implementation period							
Pre	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Post	0.59 (0.34, 1.02)	1.30 (0.82, 2.08)	1.06 (0.66, 1.71)	1.19 (0.84, 1.69)	1.08 (0.62, 1.87)	0.58 (0.37, 0.90)	2.83 (0.64, 12.54)

Significant associations in bold. Abbreviations: ED – emergency department, ACA – Patient Protection and Affordable Care Act

Table 3. Racial Disparities in Odds of Access and Utilization of Care among Middle Eastern Immigrants in the US, Adults 18–64

	Uninsured n=774 AOR (95% CI)	No usual source of care n=771 AOR (95% CI)	ED visit in past 12 months n=765 AOR (95% CI)	Visited a doctor at least once in past 12 months n=766 AOR (95% CI)	Delayed care in past 12 months n=768 AOR (95% CI)	Didn't get needed care because unable to afford it in past 12 months n=767 AOR (95% CI)	Rejected by doctor as a new patient it in past 12 months n=675 AOR (95% CI)
Race							
Non-white	Reference	Reference	Reference	Reference	Reference	Reference	Reference
White	1.97 (0.60, 6.50)	0.76 (0.30, 1.91)	3.79 (1.04, 13.82)	1.65 (0.80, 3.41)	0.34 (0.13, 0.71)	0.72 (0.24, 2.20)	0.16 (0.03, 0.88)
Citizenship status							
Not citizen	Reference	Reference	Reference	Reference	Reference	Reference	Reference
US citizen	1.03 (0.52, 2.03)	2.12 (0.90, 2.64)	0.83 (0.47, 1.48)	1.76 (1.25, 2.76)	0.75 (0.42, 1.32)	0.88 (0.51, 1.51)	1.61 (0.46, 5.72)
Gender							
Male	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Female	0.71 (0.37, 1.38)	2.05 (1.25, 3.37)	0.96 (0.56, 1.64)	1.85 (1.19, 2.89)	1.77 (1.04, 3.04)	1.88 (1.19, 2.96)	2.73 (1.05, 7.08)
Age in years	0.98 (0.96, 1.01)	1.03 (1.01, 1.06)	0.98 (0.95, 1.00)	1.02 (1.01, 1.03)	1.04 (1.01, 1.06)	1.03 (1.01, 1.05)	1.04 (0.99, 1.10)
Educational attainment							
Less than high school	Reference	Reference	Reference	Reference	Reference	Reference	Reference
High school or equivalent	1.99 (0.65, 6.12)	1.03 (0.40, 2.65)	0.58 (0.22, 1.52)	0.76 (0.34, 1.69)	0.53 (0.19, 1.47)	0.84 (0.37, 1.91)	0.33 (0.04, 3.05)
At least some college	0.84 (0.29, 2.47)	1.31 (0.53, 3.25)	0.74 (0.32, 1.69)	1.39 (0.66, 2.95)	0.73 (0.30, 1.80)	0.86 (0.39, 1.86)	0.52 (0.09, 3.05)
Household income as a % of federal poverty level (FPL)							
< 100% of FPL	Reference	Reference	Reference	Reference	Reference	Reference	Reference
100–199% of FPL	1.89 (0.87, 4.10)	0.83 (0.46, 1.50)	0.79 (0.39, 1.57)	0.97 (0.51, 1.84)	0.90 (0.42, 1.92)	1.20 (0.57, 2.53)	1.16 (0.21, 6.52)
200% of FPL and above	0.64 (0.28, 1.48)	1.45 (0.84, 2.51)	0.28 (0.13, 0.60)	1.11 (0.66, 1.87)	0.60 (0.30, 1.21)	0.23 (0.12, 0.45)	0.33 (0.06, 1.76)
Employment status							
Currently employed	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Not currently employed	0.80 (0.40, 1.60)	1.23 (0.69, 2.20)	0.76 (0.42, 1.35)	0.93 (0.60, 1.45)	0.95 (0.49, 1.85)	1.00 (0.55, 1.80)	1.94 (0.58, 6.52)
Marital Status							
Not married or living with partner	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Married or living with partner	0.77 (0.44, 1.35)	1.40 (0.90, 2.19)	1.12 (0.64, 1.95)	1.17 (0.79, 1.73)	0.53 (0.31, 0.93)	0.87 (0.51, 1.49)	0.58 (0.13, 2.56)

	Uninsured	No usual source of care	ED visit in past 12 months	Visited a doctor at least once in past 12 months	Delayed care in past 12 months	Didn't get needed care because unable to afford it in past 12 months	Rejected by doctor as a new patient it in past 12 months
	n=774	n=771	n=765	n=766	n=768	n=767	n=675
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Lifetime chronic condition							
No	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Yes	0.58 (0.29, 1.13)	2.12 (1.25, 3.61)	2.43 (1.33, 4.43)	2.77 (1.78, 4.29)	0.87 (0.44, 1.71)	1.46 (0.92, 2.31)	1.13 (0.45, 2.83)
Region							
Northeast	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Midwest	1.32 (0.52, 3.34)	0.63 (0.31, 1.30)	0.71 (0.32, 1.55)	1.23 (0.68, 2.24)	0.86 (0.30, 2.41)	0.67 (0.26, 1.74)	1.18 (0.15, 9.17)
South	1.60 (0.67, 3.84)	0.99 (0.50, 1.94)	1.04 (0.51, 2.15)	1.21 (0.66, 2.20)	1.29 (0.45, 2.78)	2.08 (0.93, 4.69)	1.45 (0.29, 7.25)
West	1.15 (0.51, 2.60)	0.54 (0.27, 1.06)	0.74 (0.37, 1.48)	1.24 (0.72, 2.15)	1.54 (0.68, 3.52)	2.17 (1.00, 4.68)	1.43 (0.26, 7.86)
ACA implementation period							
Pre	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Post	0.61 (0.35, 1.07)	1.24 (0.77, 2.00)	1.24 (0.72, 2.12)	1.14 (0.80, 1.62)	1.31 (0.68, 2.24)	0.55 (0.32, 0.92)	3.76 (0.71, 19.97)

Significant associations in bold. Abbreviations: ED – emergency department, ACA – Patient Protection and Affordable Care Act