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RESEARCH ARTICLE

Racial/Ethnic and Gender Disparities in Health Care Use and Access

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Objective. To document racial/ethnic and gender differences in health service use and access after the Affordable Care Act went into effect.

Data Source. Secondary data from the 2006–2014 National Health Interview Survey.

Study Design. Linear probability models were used to estimate changes in health service use and access (i.e., unmet medical need) in two separate analyses using data from 2006 to 2014 and 2012 to 2014.

Data Extraction. Adult respondents aged 18 years and older ($N = 257,560$).

Principal Findings. Results from the 2006–2014 and 2012–2014 analyses show differential patterns in health service use and access by race/ethnicity and gender. Non-Hispanic whites had the greatest gains in health service use and access across both analyses. While there was significant progress among Hispanic respondents from 2012 to 2014, no significant changes were found pre–post-health care reform, suggesting access may have worsened before improving for this group. Asian men had the largest increase in office visits between 2006 and 2014, and although not statistically significant, the increase continued 2012–2014. Black women and men fared the worst with respect to changes in health care access.

Conclusions. Ongoing research is needed to track patterns of health service use and access, especially among vulnerable racial/ethnic and gender groups, to determine whether existing efforts under health care reform reduce long-standing disparities.

Key Words. Utilization/access of services, race/ethnicity, gender, disparities

An overarching goal of Healthy People 2020 is to promote health equity and eliminate disparities in vulnerable groups. However, achieving this goal is an ongoing struggle (Office of Disease Prevention and Health Promotion 2010; Koh, Blakey, and Roper 2014). A health disparity is a difference or inequality that occurs in health status or in the provision of and access to health care that is often linked with social, economic, and environmental disadvantage. Health disparities have an adverse impact on groups of people who experience significant and systematic obstacles to accessing health care services on the basis of

their race/ethnicity, gender, age, socioeconomic status, sexual orientation, disability status, or other dimensions that are often linked to discrimination (Office of Disease Prevention and Health Promotion 2010). Racial/ethnic and gender-related health care disparities represent two of five significant dimensions that Healthy People 2020 intends to track (Office of Disease Prevention and Health Promotion 2010).

The existence of racial/ethnic disparities in health service use and access is well established. Studies consistently show a lower likelihood of having a usual source of care, fewer physician visits, and fewer health expenditures among racial/ethnic minority groups (Gallo et al. 1995; Swartz et al. 1998; Wells et al. 2001; Young et al. 2001; Alegría et al. 2002; Fiscella et al. 2002; Husaini et al. 2002). Among specific racial/ethnic minority groups, research suggests that Hispanic and black individuals are less likely to initiate or receive outpatient mental health care than whites (Broman 2012; Le Cook et al. 2014). Several studies suggest that Hispanics have lower health care use than whites and blacks, including fewer physician and emergency care visits and less frequent use of outpatient mental health care (Alegría et al. 2002; Fiscella et al. 2002; Broman 2012). Other research suggests that, compared to white respondents, Hispanic and Asian respondents were the least likely to have a usual primary care provider, followed by black respondents (Richardson and Norris 2010).

Racial/ethnic disparities in health care have been explained by differences in access to care measures. For example, black and Hispanic individuals are more likely to be impoverished and uninsured, which impedes their ability to obtain health services (Ashton et al. 2003). However, even when access to care, level of need, and sociodemographic factors are similar, racial/ethnic minority groups have lower rates of health service use than whites, suggesting other factors related to culture, language, and discrimination are at play (Sealy-Jefferson et al. 2015).

With respect to gender, the majority of population-based studies report a higher rate of health service use among women than men (Green and Pope 1999; Bertakis et al. 2000; Ladwig et al. 2000; Xu and Borders 2003; Keene and Li 2005; Koopmans and Lamers 2007). Other studies report gender differences in the type of health services used. For example, women have a greater likelihood of using primary care services (Ayanian and Epstein 1991; Giles et al. 1995; Franks and Clancy 1997; Bertakis et al. 2000; Xu and

Borders 2003; Koopmans and Lamers 2007), while men are more likely to use emergency and hospital services (Giles et al. 1995; Bertakis et al. 2000). Studies on gender differences in health services for mental health needs have been mixed. For example, women are more likely to see their primary care providers, while men use more specialty mental health services (Vasiliadis et al. 2007; Fleury et al. 2012). Greater service use among women, however, does not mean their needs are being met. Indeed, several studies suggest that, despite greater service use, women have an increased risk for unmet health care needs compared to men (Socias et al., 2016; Bryant, Leaver, & Dunn, 2009; Kasman & Badley, 2004; Levesque et al., 2012).

Gender differences in health service use may be related to reproductive biology and conditions specific to one's gender (Gijsbers van Wijk et al. 1992; Mustard et al. 1998; Bertakis et al. 2000). Prior research has also found greater morbidity among women (Green and Pope 1999; Bertakis et al. 2000; Merzel 2000; Albizu-Garcia et al. 2001), suggesting a greater need for services among women than men. The tendency for women to use more services may reflect differences in health perceptions and attitudes (Bertakis et al. 2000). Other scholars suggest that gender differences in health care are not uniformly expressed and vary by health and mental health conditions (Merzel 2000), socioeconomic status (Adler and Newman 2002; Salganicoff et al. 2014), insurance coverage (Salganicoff et al. 2014), and race/ethnicity (Salganicoff et al. 2014).

The 2008 Mental Health Parity and Addiction Equity Act (MHPAEA) and the 2010 Patient Protection and Affordable Care Act (ACA) provide opportunities to improve the quality of care, reduce costs, and increase access to health care with a goal of reducing racial/ethnic and gender disparities (Clemons-Cope et al. 2012; Gettens, Henry, and Himmelstein 2012). Provisions relevant to reducing racial/ethnic and gender disparities include Medicaid expansion; health care exchanges to ensure low-income people have affordable and equitable options; investment in culturally competent training to improve the quality of care for diverse populations; expanded coverage of preventive services for women; and a ban on gender rating, which prevents charging women more than men for the same insurance plan (Andrulis 2010; Salganicoff et al. 2014). However, concerns exist about whether these provisions will translate to better access for underserved populations. For example, experts question whether health care providers have sufficient capacity to handle the increased demand of new Medicaid patients (DeVoe et al. 2011; Sabik and Gandhi 2013); hence, newly insured patients, especially racial/ethnic

minority groups, may continue to be at risk for unmet needs and less access to health services.

Most health care studies to date have explored racial/ethnic and gender differences separately. Few studies have examined the intersection of race/ethnicity and gender in the context of health service use and access. One such study found mental health service disparities among black and Hispanic women compared to white women and among black men compared to white men (Ojeda and McGuire 2006), but this research precedes the MHPAEA and ACA. A more recent study examined the intersection of racial/ethnic and gender disparities in receiving mental health care from 2010 to 2012 and found that, among people with depression, Hispanic men and black and Asian men and women had a reduced likelihood of receiving mental health care compared to white respondents (Hahm et al., 2015). However, this research did not examine changes in mental health care before and after the implementation of the MHPAEA and ACA. In addition, the study focused on a specific health care system in the northeast United States and thus may not be representative of other geographical locations.

Using data from the National Health Interview Survey (NHIS), this study examined health service use and access by race/ethnicity and gender between 2006 and 2014, during which time the MHPAEA and ACA were fully implemented. Specifically, the primary aim of this study was to examine rates of health service use and access among racial/ethnic and gender subgroups prior to health care reform in 2006 and after full implementation of health care reform in 2014. This time frame was selected because of significant health care and economic changes between 2006 and 2014. For example, the housing market boom came to an end in 2006, and both economic and job growth declined from previous years. In addition, consumer debt was soaring, leaving little disposable income available for household and health care expenditures. The slowdown in 2006 preceded the economic recession in 2007–2009, which led to even larger numbers of impoverished and uninsured Americans (Holahan, 2011). While reductions in racial/ethnic and gender disparities in service use and access are expected because of health care reform, the extent of changes during this period is unclear especially given the economic turmoil in the years preceding the MHPAEA and ACA.

A secondary aim of this study was to conduct a subanalysis of data comparing rates of service use and access among racial/ethnic and gender subgroups in 2014 compared to 2012. The subanalysis provides a more refined understanding of the impact of health care reform on service use and access,

especially given the uncertainty and rapid changing health care environment during the initial years of health care reform. These changes included the supreme court decision to uphold the ACA on June 28, 2012; the increasing State participation in Medicaid expansion; and full implementation of ACA's fundamental provisions (e.g., guaranteed essential health benefits, the individual mandate, and tax credits and cost-sharing subsidies) that went to effect as of January 1, 2014 (McDonough and Adashi, 2014). Whereas the main analysis examines the estimated change from 2006, prior to the economic recession and the MHPAEA and ACA, to 2014, after full implementation of these policies, the subanalysis examined changes from 2012 to 2014 since these policies went into effect. Findings from the subanalysis provide important information about the short-term progress of health care reform on reducing racial/ethnic and gender disparities in the initial years of implementation and after full implementation of the ACA in 2014.

METHODS

Data Source and Study Population

This analysis used 2006–2014 data from the NHIS, a nationally representative annual survey of the civilian noninstitutionalized population in the United States (Centers for Disease Control and Prevention 2015). The NHIS uses a multistage area probability sampling design to select approximately 35,000 households including about 87,500 persons each year. Excluded from the survey are persons in long-term care institutions, correctional facilities, active-duty military personnel, and U.S. citizens living in foreign countries. For this study, the sample is limited to randomly sampled adults who participated in the Sample Adult survey. The 9-year average response rate was 79.4 percent, ranging from 74.2 to 81.7 percent. The final sample comprised 257,560 adults aged 18 years and older, which excludes 5,570 respondents whose race/ethnicity is categorized as “other.” Further explanation of this exclusion is described below.

Dependent Variables

Respondents were asked whether they received the following health and mental health services in the past 12 months (yes/no): physician office visits, mental health visits, and emergency room visits. To measure service access, an unmet medical needs indicator identified respondents who reported whether,

in the past 12 months, they needed medical care but did not receive it because they could not afford it (yes/no).

Primary Independent Variables

The primary independent variables included gender (female and male) and race/ethnicity. Race/ethnicity was classified as non-Hispanic white, non-Hispanic black, Hispanic, and non-Hispanic Asian based on self-reports. The race category of "other" comprised an unknown mixture of races and thus was excluded from the analysis (5,570 respondents). Race/ethnicity and gender were further grouped into the following categories: white male, white female, Hispanic male, Hispanic female, black male, black female, Asian male, and Asian female.

Covariates

This study is informed by the Andersen–Newman behavioral model, which posits that use of services is a function of one's predisposition to services, such as demographic and historical variables, one's need for services, and factors that impede or facilitate service use, such as health insurance and income (Andersen 1995).

The predisposing variables included in the analysis were age, education (less than a high school degree versus high school degree or equivalent or higher), U.S. citizenship, and marital status (married, widowed, divorced or separated, living with partner, or never married).

Key enabling factors included work status, household income, health insurance, and usual source of care. Work status (employed, unemployed, not working-retired, not working-disability, and not working-other) was defined based on the following questions: (1) "Which of the following (was the person) doing last week?" and (2) "What is the main reason (the person) did not have a job or business last week?" Employed respondents included those who were "working for pay at a job or business"; "with a job or business but not at work"; "looking for work"; working but "on a planned vacation from work"; and "on family or maternity leave," "temporarily unable to work for health reasons," or "have job/contract and off-season." Respondents categorized as unemployed were "not working and looking for work." Other respondents were categorized as those not working because they reported being "disabled," "retired," or other ("taking care of the house or family," "going to school," "on layoff," or other).

Household income was operationalized as a dichotomous variable: respondents earning less than \$20,000 per year versus those earning \$20,000 or more per year.

Because respondents in the NHIS may report more than one type of insurance coverage, a hierarchy was used to group people into mutually exclusive coverage groups. Respondents were grouped using the following hierarchy of coverage types: (1) Medicaid coverage, including those dually eligible for Medicare; (2) Medicare; (3) Other public coverage, which included state-sponsored health plans, other government programs, and military health plans; (4) Indian health insurance; and (5) Uninsured.

Usual source of care (yes/no) was measured by asking respondents whether they had a place that they usually go for health care when sick (yes/no). Only usual sources of care related to outpatient services (e.g., clinic or health center, doctor's office, hospital outpatient department) was included; usual source of care related to hospital emergency room visits was excluded.

Need-related factors included health status, psychological distress, and alcohol use. Self-reported health status was measured on a 5-point scale from poor to excellent. For this analysis, health status was dichotomized into "fair to poor" (fair and poor) and "good to excellent" (excellent, very good, and good).

The National Institute on Alcohol Abuse and Alcoholism has reported a risk for alcohol use problems among women if their alcohol use is greater than seven drinks per week and among men if their alcohol use is greater than 14 drinks per week (NIAAA 2005). The NHIS collects the quantity and frequency of typical alcohol use in the previous 12 months (Schoenborn and Adams 2002). A recoded variable for alcohol use that was included as part of the NHIS public datasets was used. Specifically, female respondents who engaged in seven or more drinks per week and male respondents who engaged in 14 or more drinks per week were identified as heavier alcohol users; female respondents who engaged in less than seven drinks per week and male respondents who engaged in less than 14 drinks per week in the past year were defined as low to moderate alcohol users; and respondents who reported no alcohol drinks in the past year were nonusers.

Psychological distress was measured using Kessler's 6-Question Scale (K6), which assesses the non-disease-specific symptoms of psychological distress in the general population over the past 30 days (Kessler et al. 2002, 2003). The K6 scale uses a 5-point scale (none of the time, a little of the time, some of the time, most of the time, and all the time) and includes the following questions: "During the past 30 days, how often did you feel (1) so sad that

nothing could cheer you up? (2) nervous? (3) restless or fidgety? (4) hopeless? (5) that everything was an effort? (6) worthless?” Based on weighted response values from the scale’s six items, a sum of the response value of 13 or higher indicates serious psychological distress (Kessler et al. 2003). The K6 scale is one of the most widely used screening measures used in major health surveys, including the NHIS and the National Survey on Drug Use and Health to estimate serious mental illness in the general population (Caldwell et al. 2002; Kessler et al. 2002, 2003; Baigent 2005).

Ethics

This study was considered exempt by the New York University Institutional Review Board.

Statistical Analysis

To evaluate changes in health service use and access by race/ethnicity and gender, eight subgroups were created that combined race/ethnicity and gender, including white males (reference), white females, Hispanic males, Hispanic females, black males, black females, Asian males, and Asian females. First, predisposing, enabling and need characteristics were pooled across the 2006–2014 study period and summarized by race/ethnicity and gender using descriptive statistics.

Next, unadjusted and adjusted linear probability models were used to estimate the probability of health care use and access for all respondents and each racial/ethnic and gender analytic group under health care reform. The primary outcomes included four measures of service use (i.e., office visits, mental health visits, and emergency room visits) and access (i.e., unmet need). The multivariate models controlled for predisposing factors (age, education, U.S. citizenship, marital status), enabling factors (work status, household income, health insurance, and usual source of care), and need factors (health status, psychological distress, and alcohol use). All study outcome data and covariates were assessed in each year of the study period and included in the analysis. To estimate changes in health service use and access, the main analysis compared the difference between 2006 and 2014. All years of data were included as categorical time variables in each model, with 2006 as the reference year. Differences between each year and the starting year were calculated for the models, but only the difference between the reference year (2006) and ACA indicator year (2014) are reported.

The subanalysis examined the change in health care use and access between 2012 and 2014. The same outcome variables and covariates that were part of the main analysis were included in the subanalysis. The primary difference is the time frame. For the subanalysis, all years of data from 2012 to 2014 were included in the model as categorical time variables, with 2012 serving as the reference year. The subanalysis made comparisons between the ACA indicator year (2014) and the reference year (2012).

Linear probability models were used to estimate the changes in probability of each outcome. This approach has been used in previous health care reform studies to produce estimates that are policy relevant and easily interpreted as the change in outcomes in percentage points (Cantor et al. 2012; Kenney et al. 2012; Chen et al. 2016). Linear probability models may lead to incorrect statistical inference due to heteroskedasticity. This limitation was addressed by estimating the linear probability models using robust jackknife standard errors. A sensitivity analysis was conducted using logistic regression and yielded similar results. The sensitivity models were identical to the main analysis and subanalysis except for the use of logistic regression.

Analyses used survey weights to produce nationally representative estimates of the target population. A weight adjustment procedure recommended by the National Center for Health Statistics was used to correct for pooling together 9 years of data by dividing the weight variable by the number of years of data pooled (Centers for Disease Control and Prevention 2015). All means and percentages reported are weighted by these survey weights. To further adjust for survey design elements, the analyses used Taylor series linearization method for variance estimation to account for the complex, multistage sampling design of the NHIS. An alpha value of $p < .05$ was used to assess statistical significance. *Stata/MP* version 14.0 was used for all statistical analyses (Stata Statistical Software: Release 14. College Station, TX: StataCorp LP).

RESULTS

Descriptive Results

Table 1 shows the demographic characteristics for the total sample and each racial/ethnic group by gender. Compared to white respondents, regardless of gender, fewer Hispanic respondents had a high school degree, were a U.S. citizen, were married, and had a usual source of care. The percentage

Table 1: Sample Characteristics of the Study Sample, National Health Interview Survey, 2006–2014, by Total Sample and Racial/Ethnic and Gender Group

	Women (n = 143,231)				Men (n = 114,329)				
	Total (N = 257,560)	White (n = 85,490)	Hispanic (n = 25,510)	Black (n = 24,078)	Asian (n = 8,153)	White (n = 71,040)	Hispanic (n = 20,631)	Black (n = 15,614)	Asian (n = 7,044)
Age (years), mean ± SE	46.4 ± .11	49.1 ± .14	41.1 ± .18	44.3 ± .22	44.5 ± .26	47.5 ± .14	39.4 ± .16	42.8 ± .20	43.4 ± .28
Education (%)									
Less than high school	14.7	9.5	35.8	17.6	11.6	10.5	38.0	17.5	7.7
High school education	27.2	27.2	25.8	28.4	16.8	27.8	27.2	33.8	15.8
Some college or GED	30.2	32.9	25.8	35.2	22.3	29.8	23.1	30.5	23.2
Graduate degree	27.9	30.3	12.6	18.8	49.4	31.9	11.8	18.2	53.2
U.S. citizen (%)	91.6	98.5	66.2	96.0	69.0	98.3	60.7	94.6	69.3
Marital status (%)									
Married	54.5	55.8	51.9	29.1	62.9	59.2	54.7	41.3	65.8
Widowed	6.1	10.3	5.4	9.2	7.0	3.0	1.3	2.8	1.4
Divorced or separated	11.3	12.1	13.1	17.9	7.1	9.9	8.0	12.9	4.1
Living with partner	6.9	6.6	8.2	5.9	4.0	6.8	8.9	8.9	2.6
Never married	21.3	15.2	21.4	37.9	19.1	21.2	27.2	34.1	26.3

Continued

Table 1. Continued

	Women (n = 143,231)				Men (n = 114,329)				
	Total (N = 257,560)	White (n = 85,490)	Hispanic (n = 25,510)	Black (n = 24,078)	Asian (n = 8,153)	White (n = 71,040)	Hispanic (n = 20,631)	Black (n = 15,614)	Asian (n = 7,044)
Work status, past week (%)									
Employed	61.5	55.8	53.1	57.0	56.7	66.9	75.6	61.7	71.5
Unemployed	5.1	3.5	6.6	8.2	4.2	4.6	7.1	10.2	5.5
Not working-retired	15.7	20.1	8.1	11.9	11.8	16.9	6.2	10.5	10.4
Not working-disability	6.0	5.9	4.5	10.5	2.6	5.7	4.3	10.1	2.3
Not working-other	11.8	14.7	27.7	12.5	24.8	5.9	6.8	7.6	10.3
Household income < \$20,000 (%)	17.0	15.4	25.7	32.9	15.0	12.3	20.7	23.9	13.9
Health insurance (%)									
Private	55.4	58.4	37.8	43.7	64.5	61.2	40.1	49.2	65.3
Medicaid	8.5	7.3	17.4	21.6	9.1	4.5	9.6	12.0	7.2
Medicare	17.7	22.5	7.8	13.7	10.7	19.7	6.6	12.5	10.0
Other	1.5	1.3	2.9	2.6	1.9	1.0	1.6	1.8	1.7
government Indian health insurance	<1.0	<1.0	<1.0	<1.0	0.0	<1.0	<1.0	0.0	<1.0
Uninsured	16.6	10.6	34.0	18.4	13.9	13.6	42.1	24.5	15.6
Usual source of care—outpatient (%)	84.5	91.1	78.6	88.6	86.8	83.7	63.3	78.2	79.5

Continued

Table 1. Continued

	Women (n = 143,231)				Men (n = 114,329)				
	Total (N = 257,560)	White (n = 85,490)	Hispanic (n = 25,510)	Black (n = 24,078)	Asian (n = 8,153)	White (n = 71,040)	Hispanic (n = 20,637)	Black (n = 15,614)	Asian (n = 7,044)
Fair to poor health status (%)	12.9	12.4	15.6	20.1	9.6	11.5	12.6	16.3	8.8
Serious psychological distress (%)	3.2	3.6	4.6	4.0	1.9	2.6	2.5	3.0	1.3
Alcohol use (%)									
None	36.0	35.3	55.3	53.1	62.4	27.0	32.9	39.3	40.7
Low to moderate use	58.9	59.0	42.8	44.0	36.1	66.4	62.7	56.3	57.4
Heavier use	5.2	5.7	1.9	2.9	1.4	6.5	4.4	4.4	1.9
Service use and access (%)									
Any physician office visits	80.6	89.5	77.6	86.5	80.8	78.1	57.4	70.9	70.1
Any mental health visits	7.3	9.5	6.3	6.7	3.4	7.0	4.0	6.2	2.9
Any emergency room visits	19.9	21.3	20.7	30.1	11.7	18.3	14.9	23.4	10.2
Any unmet need	8.1	8.1	10.7	12.3	4.1	6.8	9.6	9.6	4.1

Table 2: Changes in Office Visits among Adults, by Total Sample and Race/Ethnicity and Gender Group, 2006–2014

				2014 vs. 2006		2014 vs. 2012	
	2006	2012	2014	Unadjusted	Adjusted	Unadjusted	Adjusted
	%	%	%	% Points	% Points	% Points	% Points
Total sample	79.0	80.3	81.8	2.8***	0.9	1.5***	0.0
White men	74.6	78.0	79.2	4.6***	2.2**	1.2	0.3
White women	89.0	89.5	89.9	0.9	-0.4	0.4	-0.7
Hispanic men	54.3	55.3	63.5	9.2***	1.6	8.2***	3.3*
Hispanic women	74.8	77.9	77.3	2.5	-1.2	-0.6	-2.7*
Black men	70.4	70.8	72.5	2.1	0.5	1.7	0.2
Black women	86.0	86.6	87.9	1.9	-0.3	1.3	-0.3
Asian men	66.2	70.2	76.6	10.4***	7.2**	6.4**	3.7
Asian women	81.0	78.1	82.6	1.6	-0.3	4.5	2.6

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Percentages and percentage change estimates refer to each group having 1 or more office visits in the past year. The controls for the regression-adjusted differences include age, education, citizenship, marital status, work status, health insurance, self-reported health status, serious psychological distress, alcohol use, and usual source of care.

of respondents who reported being a U.S. citizen was the lowest among Hispanic and Asian respondents. Hispanic and black respondents, regardless of gender, had substantially higher percentages of uninsurance and earning an income of less than \$20,000 in the previous year. Hispanic and Asian men had the highest rates of employment, while black men and women had the highest rates of unemployment. Regardless of gender, white respondents had the highest percentages of heavier alcohol use and fair to poor health was more prevalent among black respondents. Hispanic and black women had the highest rates of serious psychological distress than any other group. White respondents, regardless of gender, had higher rates of heavy alcohol use than other groups.

Changes in Office Visits, 2006–2014 and 2012–2014

Table 2 presents the unadjusted and adjusted models showing changes in office visits for the total sample and each racial/ethnic and gender group. Between 2006 and 2014, the unadjusted model revealed that office visits increased for all respondents by 2.8 percentage points in 2014 compared to 2006. Stratified by race/ethnicity and gender, the unadjusted models showed significant increases in office visits by 10.4, 9.2, and 4.6 percentage points for Asian, Hispanic, and white men, respectively. After adjusting for covariates,

significant increases in office visits remained for Asian and white men by 7.2 and 2.2 percentage points, although the magnitude of these differences was smaller.

The subanalysis from 2012 and 2014 revealed fewer changes in office visits. The percentage of office visits for all respondents increased by 1.5 percent in the unadjusted model but not the adjusted model. Whereas office visits increased by 6.4 and 8.2 percentage points for Asian and Hispanic men in the unadjusted models, the percentage of office visits increased by 3.3 percent for Hispanic men and decreased by 2.7 percent for Hispanic women after full adjustment.

Changes in Mental Health Visits, 2006–2014 and 2012–2014

Results from the unadjusted and adjusted models of mental health visits are presented in Table 3. Overall, there was limited change in mental health visits. For all respondents, the percentage of mental health visits increased by .7 percent in 2014 compared to 2006. Although Hispanic women experienced an increase in the percentage of mental health visits from 2006 to 2014 in the unadjusted model, the magnitude of this difference was lower and not significant in the regression-adjusted model.

Table 3: Changes in Mental Health Visits among Adults, by Total Sample and Race/Ethnicity and Gender Group, 2006–2014

				2014 vs. 2006		2014 vs. 2012	
	2006	2012	2014	Unadjusted	Adjusted	Unadjusted	Adjusted
	%	%	%	Difference % Points	Difference % Points	Difference % Points	Difference % Points
Total sample	6.5	7.7	7.2	0.7*	0.3	-0.5	-0.7*
White men	5.9	7.5	6.7	0.8	0.3	-0.8	-0.9
White women	8.5	9.8	9.2	0.7	0.4	-0.6	-0.6
Hispanic men	4.0	4.5	4.7	0.7	-0.3	0.2	-0.4
Hispanic women	4.3	6.2	6.3	2.0**	0.7	0.1	-0.3
Black men	4.8	5.7	5.7	0.9	0.7	0.0	-0.5
Black women	6.0	7.4	7.5	1.5	0.9	0.1	0.2
Asian men	2.2	3.7	1.6	-0.6	-0.9	-2.1*	-2.4*
Asian women	4.0	3.9	3.5	-0.5	-0.8	-0.4	-0.3

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Percentages and percentage change estimates refer to each group having 1 or more mental health visits in the past year. The controls for the regression-adjusted differences include age, education, citizenship, marital status, work status, health insurance, self-reported health status, serious psychological distress, alcohol use, and usual source of care.

Compared to 2012, the subanalysis revealed a significant albeit small decline by 0.7 percentage points in 2014. During this period, mental health visits also declined among Asian men by 2.1 and 2.4 percent in the unadjusted and adjusted models, respectively.

Changes in Emergency Room Visits, 2006–2014 and 2012–2014

Table 4 shows the unadjusted and adjusted results for emergency room visits. Between 2006 and 2014, there were significant declines in emergency room visits among the total sample by 1.9 and 1.8 percentage points in the unadjusted and adjusted models, respectively. During this period, the unadjusted models indicated significant declines by 2 percent and 3 percent for white men and women, respectively. These declines remained significant in the adjusted models. The adjusted models showed a significant increase in emergency room visits by 3 percent among black women.

The subanalysis from 2012 to 2014 revealed significant declines in emergency room visits by 1.9 and 1.5 percentage points for white women in unadjusted and adjusted models, respectively. In addition, after full adjustment, emergency room visits fell by 2.3 percentage points for Hispanic women.

Table 4: Changes in Emergency Room Visits among Adults, by Total Sample and Race/Ethnicity and Gender Group, 2006–2014

				2014 vs. 2006		2014 vs. 2012	
	2006 %	2012 %	2014 %	Unadjusted Difference % Points	Adjusted Difference % Points	Unadjusted Difference % Points	Adjusted Difference % Points
Total sample	20.4	19.3	18.5	-1.9***	-1.8***	-0.8	-0.7
White men	19.2	17.2	17.2	-2.0**	-2.2**	0.0	-0.1
White women	22.1	21.0	19.1	-3.0***	-2.3***	-1.9*	-1.5*
Hispanic men	14.8	13.6	13.6	-1.2	-2.7	0.0	-0.5
Hispanic women	19.0	21.0	19.2	0.2	-0.8	-1.8	-2.3*
Black men	23.4	21.3	22.2	-1.2	-0.5	0.9	1.5
Black women	27.4	30.5	30.1	2.7	3.0*	-0.4	-0.7
Asian men	11.1	10.6	10.0	-1.1	-2.0	-0.6	-0.3
Asian women	13.0	10.4	10.8	-2.2	-3.5	0.4	-0.4

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Percentages and percentage change estimates refer to each group having 1 or more emergency room visits in the past year. The controls for the regression-adjusted differences include age, education, citizenship, marital status, work status, health insurance, self-reported health status, serious psychological distress, alcohol use, and usual source of care.

Table 5: Changes in Unmet Medical Need among Adults, by Total Sample and Race/Ethnicity and Gender Group, 2006–2014

	2006 %	2012 %	2014 %	2014 vs. 2006		2014 vs. 2012	
				Unadjusted Difference % Points	Adjusted Difference % Points	Unadjusted Difference % Points	Adjusted Difference % Points
Total sample	7.4	8.4	6.9	-0.5	0.4	-1.5***	-0.5
White men	6.4	7.0	5.5	-0.9	-0.1	-1.5***	-0.9*
White women	7.7	8.2	7.4	-0.3	0.6	-0.8	0.2
Hispanic men	8.3	10.4	7.8	-0.5	0.3	-2.6**	-1.4
Hispanic women	9.6	11.1	8.2	-1.4	-0.4	-2.9***	-2.1**
Black men	6.9	11.4	8.0	1.1	2.1*	-3.4**	-1.7
Black women	10.9	11.7	11.3	0.4	2.5*	-0.4	1.8
Asian men	2.5	4.2	2.9	0.4	1.2	-1.3	-0.5
Asian women	2.3	4.7	3.1	0.8	1.0	-1.6	-0.9

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Percentages and percentage change estimates refer to each group reporting that they needed medical care but did not receive it because they could not afford it in the past year. The controls for the regression-adjusted differences include age, education, citizenship, marital status, work status, health insurance, self-reported health status, serious psychological distress, alcohol use, and usual source of care.

Changes in Unmet Medical Need, 2006–2014 and 2012–2014

Based on models of unmet medical need (Table 5), the percentage of respondents who reported unmet need increased significantly by 2.1 and 2.5 percentage points in adjusted models for black men and women, respectively.

In the subanalysis of data from 2012 to 2014, the unadjusted models showed significant declines among all respondents who reported unmet need by 1.5 percent, including white women by 1.5 percent, Hispanic men by 2.6 percent, Hispanic women by 2.9 percent, and black men by 3.4 percent. However, most of these differences disappeared in the regression-adjusted models. Although the magnitudes of the adjusted differences were smaller, changes among white men and Hispanic women remained significant.

DISCUSSION

This study examined changes in health service use and access by race/ethnicity and gender from 2006 to 2014, during which time health care reform was implemented. Whereas the main analysis examined changes in health service use and access from 2006, prior to the economic recession and health care

reform, to post-reform in 2014, the subanalysis provides important information on the short-term progress of the initial years of health care reform from 2012 to 2014. The goal of this comparison is to provide an overall understanding of progress in reducing racial/ethnic and gender disparities under health care reform.

Compared to 2006, results suggest significant gains in service use and access in 2014, especially for white respondents, regardless of gender, and Asian men. Notably, Asian men had a significant increase of about 7 percent, suggesting potential gains in this group under the health care reform since the recession. Research on health service use and access among Asians post-health care reform is limited, making comparisons difficult. However, uninsurance rates among Asians in the current sample dropped from 15 percent in 2006 to 11 percent in 2014, which may partly account for the increase.

During this time frame, black women fared the worst with respect to emergency room visits and unmet need compared to other groups. Rates of emergency room visits and unmet need increased significantly for black women in 2014 compared to 2006. Respondent reports for perceive unmet need among black women were already poor in 2006, and the fact that these reports increased over the 9-year study period is concerning. Reports of unmet need also increased significantly for black men between 2006 and 2014. Black respondents were among the most disadvantaged groups in this sample, with a greater percentage who were impoverished, not working but looking for work, and in poor to fair health, compared to other racial/ethnic groups.

The most recent changes from 2012 to 2014 revealed significant improvements in service use and access primarily among white and Hispanic men and women. Notably, there was an increase in office visits among Hispanic men, decreases in emergency room visits among white and Hispanic women, and reductions in unmet medical need for white men and Hispanic women. Reductions in unmet need and emergency room visits among Hispanic women may be related to a decline in office visits for this group. Indeed, based on a post hoc analysis, both unmet need and emergency room visits were positively correlated with office visits among Hispanic women. While these results suggest improvement in service access, the progress is tempered given that racial/ethnic minority groups continue to lag behind their white counterparts (Ortega, Rodriguez, and Vargas Bustamante 2015; Chen et al. 2016).

The 2012–2014 results also show significant declines in mental health visits among the total sample and Asian men after full adjustment, including

serious psychological distress. Asian men had the lowest rate of mental health visits than any other group, which is consistent with prior research (Sue et al. 2012). Studies on help-seeking behaviors report that Asians often seek help from nonprofessional sources or general medical providers (Chu, Hsieh, and Tokars 2011). Indeed, Asian men reported higher rates of office visits in this study. Whether the increase in office visits pre–post-reform is related to the decrease in mental health visits would be worth exploring in future research.

In summary, the 2006–2014 and 2012–2014 results show differential patterns in health service use and access by race/ethnicity and gender. Non-Hispanic whites had the most consistent gains in health service use and access in both analyses. While there was significant progress in health service use and access among Hispanic respondents from 2012 to 2014, limited changes were found pre–post-health care reform, suggesting that access may have worsened before improving for this group. However, it is important to note that while the probability of having an emergency room visit decreased among Hispanic women in 2014 versus 2012, the absolute differences in 2006 compared to 2014 were minimal. Asian men had the largest increase in office visits from 2006 to 2014, but no significant change was found in 2012–2014. Black women and men fared the worst with respect to changes in health care access, especially pre–post-reform. No significant changes were found in 2012–2014 among black respondents, suggesting that access worsened initially but never recovered in the initial years of health care reform.

Limitations

This study has several limitations. First, although respondents self-identified their race/ethnicity, no additional information was collected on their group identity. Any conclusions drawn about race/ethnicity and their service use and access should be tempered by the definition of the racial/ethnic groups used in this study and the variation that exists within these groups. Second, causal inferences cannot be drawn due to the cross-sectional design of this study. Third, these data rely on respondents' ability to accurately recall their service history. Fourth, it is likely that 2014 provides insufficient time for assessing the full impact of the ACA, given that for many new insurers it takes time to identify service providers. Finally, measures of health care utilization are crude measures of use and do not capture visits based on necessity. In addition, unmet medical need is narrowly defined in terms of cost. Other barriers

to care (e.g., transportation, cultural fit, stigma, perceived benefit) were not assessed.

CONCLUSION

Despite some progress in increasing health service use and access, racial/ethnic and gender disparities remain post-health care reform. Ongoing research is needed to track racial/ethnic and gender disparities to determine whether existing efforts under the ACA, such as insurance coverage, provider training, integrated care, care coordination, and other initiatives, lead to reduction in these disparities over time. Studies are also needed to explore the quality of health care services from the perspectives of service users to inform strategies to reduce long-standing disparities.

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