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Health care access among young adults with hypertension

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Abstract

Introduction: The Patient Protection and Affordable Care Act provision implemented policies to improve coverage to young adults. It is not known if it affected access to care among young adults with hypertension.

Methods: National Health Interview Survey data from 2006–2009 and 2011–2014 were used. Young adults aged 19–25 years were assessed for potential barriers to access to health care. We compared the percentage of each indicator of barriers to access to health care among young adults in general, as well as those with hypertension in the two time periods and estimated the adjusted odds ratios. All data were self-reported. The analyses were conducted in 2016.

Results: Among young adults, the frequencies of barrier indicators were significant lower in 2011–2014 than 2006–2009, except “did not see doctor in past 12 months”. Among those with hypertension, the percentage reporting “no health insurance” (31.3% vs 23.3%, p=0.037), “no place to see a doctor when needed” (30.5% vs 21.6%, p=0.031) or “cannot afford prescribed medicine” (23.0% vs 15.3%, p=0.023) were significantly lower in 2011–2014 compared to that of 2006–2009. The differences maintained statistical significance after adjusting for sex, race/ethnicity and level of education.

Conclusions: Significant differences in select access to care measures were found among young adults with hypertension between 2006–2009 and 2011–2014, as was found among young adults generally. Changes in extension of dependent insurance coverage in 2010 may have led to improvements in access to care among this group.

Hypertension affects one-third of the adult population in the US[1] and is a major risk factor for heart disease and stroke.[2] Although hypertension prevalence is lower among young adults compared to the general adult population, young adults have lower rates of hypertension awareness and control.[3] Poor blood pressure management and control during young adulthood has also been associated with an increased likelihood of future cardiovascular events.[4] In addition, previous studies among those with hypertension found that those with limited access to health care services were less likely to be aware of their high blood pressure condition, as well as less likely to have their blood pressure under control.[5, 6] Lack of health insurance has been found to be the single most important barrier among adults with hypertension.[7]

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Historically, young adults have been less likely to have health insurance coverage than other age groups.[8] Not having health insurance has been associated with a clustering of other barriers to health care among young adults, including a lack of a medical home to visit when ill or whether recent healthcare provider visits occurred.[9] As of September 23, 2010, the Patient Protection and Affordable Care Act (ACA) requires health insurance plans and issuers that offer dependent child coverage to extend that coverage to adult children up to age 26 years.[10, 11] It has been estimated that from September 2010 to December 2011 about 3 million young adults (19–25 years) had obtained private insurance coverage after this provision was implemented in September 2010, increasing those reporting health insurance among this group from 64.4% (2010) to 74.8% (2011).[121314] Most prior research has noted significant changes in utilization of health care services among young adults after 2010, including increased use of preventative services (routine examination, hypertension and high cholesterol screening, and routine dental visits),[15] receipt of the human papillomavirus vaccine,[16] use of mental health care,[17, 18] routine healthcare provider visits,[19] as well as coverage for prescription drugs.[20] In addition, during this period, the emergency department visits among young adults decreased.[21, 22] However, a prior study found mixed impacts among young adults - while the dependent coverage provision increased the probability of reported health insurance, having a primary care doctor, and excellent self-assessed health, there was also an increased reporting of risky alcohol consumption and no significant improvements in preventive care service use.[23]

The objective of this report is to assess whether the ACA provision extending existing dependent coverage to children under age 26, as well as additional provisions that took effect in 2014, was accompanied by improved access to care among young adults with hypertension similar to all young adults under 26 years. Using selected access to care indicators, we assessed the changes of the indicators among young adults, as well as those with hypertension before and after implementation of the ACA's dependent coverage provision in September 2010 (2006–2009 and 2011–2014), using a nationally representative dataset.

Methods

Data Source

The National Health Interview Survey (NHIS) is a nationally representative health survey that has been conducted continuously since 1957 by the National Center for Health Statistics of the Centers for Disease Control and Prevention. It is the principal source of information on the health of the civilian, non-institutionalized population of the U.S. The survey contains four main modules: Household, Family, Sample Adult, and Sample Child. Data from the Household, Family, and Sample Adult sections were used in this analysis. The response rates for the Sample Adult component from 2006 to 2015 ranged from 58.9% to 70.8%. Detailed information on the survey design and methods can be found here: http://www.cdc.gov/nchs/nhis.htm.

In this report, we included respondents aged 19–25 years. Those with self-reported hypertension were defined by affirmative answers to both of the following questions: 1) "Have you ever been told by a doctor or other health professional that you had hypertension,

also called high blood pressure?", and 2) "Were you told on two or more different visits to a health professional that you had hypertension, also called high blood pressure?". We assessed 6 indicators of barriers to access to care: 1) "no health insurance" was assessed using, "Are you covered by any kind of health insurance or some other kind of health care plan (include health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide Medical care or help pay medical bills)?"; 2) "no place to see a doctor when needed" was assessed using, "Is there a place that you usually go to when you are sick or need advice about your health?"; 3) "cannot afford prescribed medicine" was assessed using, "During the past 12 months, was there any time when you needed prescription medicines, but didn't get it because you couldn't afford it?"; 4) "did not see doctor in past 12 months" was assessed using, "During the past 12 months, have you seen or talked to any of general doctor about your own health?"; 5) "delayed care due to cost" was assessed using, "During the past 12 months, have you delayed seeking medical care because of worry about the cost?"; and 6) "did not get care due to cost" was assessed using, "During the past 12 months, was there any time when you needed medical care, but did not get it because you couldn't afford it?".

Demographic characteristics included sex, race/ethnicity (non-Hispanic white, non-Hispanic black, non-Hispanic other, and Hispanic), and level of education (less than high school graduate, high school graduate, some college, and college graduate or above).

Statistical analysis

The analyses were conducted in 2016. We compared the percentage of individuals with barriers to access to care indicators between two periods (2006–2009 vs 2011–2014) among total young adult and among those with hypertension. We then used logistic regression to determine the odds ratio of each poor access to care indicator in 2006–2009, using 2011–2014 as the referent, adjusting for sex, race/ethnicity and level of education.

Among total young adult population, we further stratified analyses by sex and race/ethnicity. Due to small number, stratified analyses were not conducted among those with hypertension.

Sampling weights were used to produce national estimates that are representative of the young adult, civilian, noninstitutionalized U.S. population.[24] These weights included design, ratio, non-response and post-stratification adjustments. The analyses were performed using SAS version 9.3 and SAS-callable SUDAAN version 11 (Research Triangle Institute, Research Triangle Park, North Carolina), which accounted for the complex sample design of NHIS. All statistical tests were 2-tailed, and statistical significance was defined at $P < 0.05$.

Results

During 2006–2009 and 2011–2014, there were 10,490 and 14,028 participants aged 19–25 years, respectively. Among these young adults, there were 353 (3.20%) and 505 (3.45%) participants with self-reported hypertension, respectively (p=0.4173). Among all young adults, no difference was noted in the sex distribution between 2006–2009 and 2011–2014. However, the 2011–2014 sample had significantly higher proportions of Hispanics and those with college education than the 2006–2009 sample. Among those with hypertension, there

was no statistical significant difference in distribution by sex, race/ethnicity and level of education between the two periods (Table 1).

Compared to estimates from 2011–2014, young adults with hypertension from 2006–2009 were significantly more likely to report, “no health insurance,” “no place to see doctor when needed,” and “cannot afford prescribed medicine.” However, no significant differences were found in responses assessing: “did not see doctor in past 12 months,” “delayed care due to cost,” and “did not get care due to cost” between the two periods (Table 2). The odds ratios of barriers to access to care in 2006–2009 compared with 2011–2014, after adjusting for sex, race/ethnicity and level of education, showed that compared to estimates from 2011–2014, young adults with hypertension in 2006–2009 were 49% more likely to have no health insurance, 74% more likely to have no place to see a doctor when sick and 63% more likely to be unable to afford prescribed medicine when needed. No significant differences were noted for other poor health care access indicators in the two periods.

Among total young adults, table 3 shows declines in barriers to care from 2006–2009 to 2011–2014, except for “did not see doctor in the past 12 months.” Further stratifying young adults by sex and race/ethnicity (Table 4) revealed some heterogeneity among different barriers. Compared to 2006–2009, the proportion reporting “no health insurance” and “cannot afford prescribed medication” decreased significantly in 2011–2014 for both men and women of all race/ethnic groups. However, the proportion reporting “having no place to see doctor when needed”, “delayed care due to cost” and “did not get care due to cost,” decreased significantly from 2006–2009 to 2011–2014 for non-Hispanics whites, with variations among men and women. No change in the measure “did not see doctor in past 12 months” was noted between the two time periods across all sex and race/ethnic groups.

Discussion

Significant differences in access to care were found among all young adults, as well as those with hypertension, between 2006–2009 and 2011–2014. The extension of existing dependent health insurance coverage to children up to age 26 in 2010 may have contributed to the improvements in access. The improvements in access to care included a higher proportion reporting health insurance coverage, having a place to visit when ill, and improvements in access to affordable prescription medication among all young adults and among those with young adults with hypertension. In addition, the percentages with delayed care due to cost in past 12 months and did not get needed care due to cost in the past 12 months were significantly reduced in 2011–2014 comparing to 2006–2009 among all young adults.

Our findings are generally consistent with the comparable reports on improved health care access following the extension of dependent health insurance coverage.[15, 19, 20] However, not all perceived barriers show improvements. For example, we did not find improvements in those reporting visiting a doctor in the past 12 months in either young adults in general, or young adults with hypertension. For those with hypertension, the percentages with delayed care due to cost or did not get needed care due to cost didn’t decline among young adults with hypertension; although there was a significant reduction in these barriers among young adults in general. As the odds ratios for these two indicators were comparable for

hypertensive young adults and total young adults, it is likely that the difference was due to the small sample size for young adults with hypertension. A comparable study also found mixed impacts of the ACA dependent coverage provision on health-related outcomes among young adults.[23]

With the limited number of young hypertensive adults, we were unable to assess the impact of extended dependent health insurance coverage by demographic characteristics. Using all adults aged 19–25 years, we assessed the difference of poor access to care before and after 2010 by sex and race/ethnicity. The findings among descriptive characteristics were mixed. Implementation of the ACA dependent coverage provision coincided with a reduction in the proportion with “no health insurance” and “cannot afford prescribed medicine” for all sex and race/ethnic groups. However, there was no change in the proportion reporting “did not see doctor in the past 12 months” in all sex and race/ethnic groups. Some improvements were reported for “no place to see doctor when needed”, “delayed care due to cost” and “did not get care due to cost”, but the findings were not consistent by sex and race/ethnic groups.

It is possible that even with health insurance, young adults with hypertension could be facing challenges such as being “underinsured” or have misperceptions about their long-term risk.[25, 26] Previous research has found that 1 in 4 adults with hypertension reported their insurance coverage to be inadequate,[27] which may lead to delaying or forgoing needed care due to cost. In addition, young adults with hypertension have been shown to be less likely to consider themselves at increased risk for cardiovascular events compared to older adults with hypertension.[28] Interventions to improve access and perception of risk are critical needs among young adults. Improvements in proxy measures such as hypertension awareness and treatment, which is currently low for young adults compared to older adults (awareness: 59 % vs. 84 %; treatment: 40 % vs. 77 %) should be targeted for intervention.[28, 29] Poor access to care has also been found to be an important factor related to low awareness and treatment among young adults,[15, 28, 30] furthering the need for addressing barriers to care among this age group.

Several limitations were identified in this study. First, the NHIS is conducted among non-institutionalized US residents, and those young adults outside of this population were not included in the survey. Second, all data were self-reported and subject to recall biases. Third, the survey does not provide information on hypertension treatment and control. Therefore, we were unable to assess whether the extension of existing dependent coverage to children up to age 26 in 2010 changed the hypertension treatment and control estimates among this population. Fourth, in 2014, under the ACA, Medicaid expansion and establishment of Marketplace Exchanges were implemented. These provisions also increased insurance coverage for young adults. Fifth, the period included the great recession (December 2007 – June 2009), when job loss could have negatively affected insurance coverage. Therefore, we can’t exclude the possibility that some of the improvement in access in the period 2011 to 2014 could be accounted for by increasing employment during the recovery from the recession. Finally, due to the low proportion of young adults with hypertension, multiple years of data had to be used to create estimates for comparison to have adequate power to estimate differences. Due to sample size limitations, we were unable to assess the disparities by demographic characteristics among young adults with hypertension.

In conclusion, significant changes in access to care were found among young adults with hypertension after the ACA required that existing dependent health insurance coverage be extended to children under age 26, as in generally the case in the young adult population. In comparing periods before and after the extension of dependent coverage, barriers to perceived access to care among young adults with hypertension were reduced, which may translate into improved cardiovascular health among this population as they age. While improvements in access to care were noted, some barriers showed little to no improvement. Developing interventions to improve access to care, coupled with activities supporting increased awareness and treatment of those with hypertension, could reduce the long-term cardiovascular risk among young adults.

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Table 1.

Descriptive characteristics of young adults (19–25 years) and those with hypertension before (2006–2009) and after (2011–2014) the ACA extension of existing dependent insurance coverage to young adults under age 26, National Health Interview Survey

	2006–2009	2011–2014	
Survey participants (19–25 years)	10490	14028	p-value
Self-reported hypertension	353	505	
Percentage of hypertension and 95% confidence interval	3.20 (2.77–3.69)	3.45 (3.08–3.87)	0.4173
Sex (percentage and standard error)			
Total			
Men	49.7 (0.76)	49.7 (0.58)	0.9626
Women	50.3 (0.76)	50.3 (0.58)	
Hypertension			
Men	49.0 (3.33)	49.1 (2.99)	0.9838
Women	51.0 (3.33)	50.9 (2.99)	
Race/ethnicity (percentage and standard error)			
Total			
Non-Hispanic-white	62.2 (0.82)	58.9 (0.76)	0.0027
Non-Hispanic-black	14.0 (0.59)	14.6 (0.46)	
Non-Hispanic-Other	5.9 (0.31)	6.1 (0.30)	
Hispanic	17.9 (0.61)	20.4 (0.55)	
Hypertension			
Non-Hispanic-white	63.0 (3.15)	60.5 (2.98)	0.6492
Non-Hispanic-black	18.2 (2.39)	20.0 (2.29)	
Non-Hispanic-Other	3.0 (1.30)	5.5 (1.88)	
Hispanic	15.8 (2.10)	14.1 (1.80)	
Education (percentage and standard error)			
Total			
<High school	16.7 (0.59)	14.2 (0.48)	0.0007
High School	24.7 (0.63)	24.4 (0.59)	
Some College	44.6 (0.84)	46.1 (0.77)	
≥College	14.0 (0.49)	15.3 (0.49)	
Hypertension			
<High school	21.9 (2.71)	24.4 (2.66)	0.6984
High School	27.4 (3.38)	26.2 (2.70)	
Some College	41.9 (3.30)	38.5 (3.02)	
≥College	8.9 (1.87)	10.9 (1.88)	

Table 2.

Percentage (standard error) and odds ratio (95% confidence interval) of young adults with hypertension who reported barriers in access to care before (2006–2009) ACA extension of existing dependent insurance coverage to young adults under age 26 and after (2011–2014), National Health Interview Survey.

	Percentage			Odds Ratio*
	2006–2009	2011–2014	p-value	
Self-reported hypertension	353	505		
No health insurance	31.30 (2.94)	23.30 (18.96)	0.0367	1.49 (1.01–2.21)
No place to see doctor when sick	30.49 (3.14)	21.55 (2.60)	0.0314	1.74 (1.14–2.66)
Cannot afford prescription medicine in past 12 months	23.01 (2.92)	15.29 (2.07)	0.0227	1.63 (1.05–2.53)
Did not see doctor in past 12 months	35.01 (3.25)	33.61 (2.70)	0.7181	1.08 (0.78–1.51)
Delayed care due to cost in past 12 months	22.84 (2.93)	18.90 (2.47)	0.2870	1.26 (0.80–1.96)
Did not get needed care due to cost in past 12 months	17.62 (2.43)	16.26 (2.29)	0.6844	1.10 (0.68–1.78)

*Odds ratio of 2006–2009, using 2011–2014 as referent, adjusted by sex, race and education.

Table 3.

Percentage (standard errors) and odds ratio (95% confidence interval) of barriers in access to care among young adults 19–25 years, 2006–2009 and 2011–2014, National Health Interview Survey

	Percentage			Odds Ratio*
	2006–2009	**2011–2014**	**p-value**	
Total number	10490	14028		
No health insurance	32.02 (0.70)	24.76 (0.58)	<0.001	1.48 (1.36–1.61)
No place to see doctor when needed	29.55 (0.68)	27.36 (0.53)	0.0078	1.12 (1.03–1.21)
Cannot afford prescribed medicine	10.78 (0.42)	7.63 (0.35)	<0.001	1.43 (1.27–1.62)
Did not see doctor in past 12 months	48.01 (0.64)	46.54 (0.66)	0.1165	1.06 (0.99–1.14)
Delayed care due to cost	12.47 (0.40)	10.73 (0.38)	<0.001	1.17 (1.06–1.30)
Did not get care due to cost	9.67 (0.35)	8.30 (0.35)	0.0031	1.16 (1.04–1.30)

*Odds ratio of 2006–2009, using 2011–2014 as referent, adjusted by sex, race, education

Table 4.

Percentage (standard errors) and odds ratio (95% confidence interval) of barriers in access to care among young adults 19–25 years, 2006–2009 and 2011–2014, by sex and race/ethnicity, National Health Interview Survey

		Percentage			Odds Ratios*
		2006–2009	2011–2014	p	
No health insurance	Sex				
	Men	32.02 (0.70)	24.76 (0.58)	<0.001	1.52 (1.35–1.70)
	Women	27.85 (0.83)	21.73 (0.72)	<0.001	1.44 (1.29–1.60)
	Race/ethnicity#				
	NH-White	25.93 (0.87)	17.60 (0.69)	<0.001	1.63 (1.44–1.85)
	NH-Black	34.23 (1.30)	28.90 (1.19)	0.0016	1.30 (1.12–1.53)
	NH-other	28.46 (2.44)	21.23 (1.69)	0.0103	1.56 (1.16–2.10)
	Hispanic	52.68 (1.42)	43.56 (1.19)	<0.001	1.30 (1.12–1.50)
No place to see doctor when needed	Sex				
	Men	29.55 (0.68)	27.36 (0.53)	0.0078	1.16 (1.04–1.30)
	Women	22.11 (0.70)	21.16 (0.69)	0.3233	1.06 (0.95–1.19)
	Race/ethnicity				
	NH-White	26.42 (0.84)	23.59 (0.75)	0.0082	1.15 (1.03–1.29)
	NH-Black	27.26 (1.35)	26.71 (1.39)	0.7728	1.05 (0.86–1.26)
	NH-other	27.78 (2.29)	28.34 (1.76)	0.8433	0.99 (0.75–1.31)
	Hispanic	42.85 (1.49)	38.42 (1.00)	0.0129	1.09 (0.95–1.25)
Cannot to afford prescribed medicine	Sex				
	Men	10.78 (0.42)	7.63 (0.35)	<0.001	1.37 (1.14–1.65)
	Women	13.61 (0.59)	9.64 (0.57)	<0.001	1.46 (1.24–1.72)
	Race/ethnicity				
	NH-White	10.65 (0.59)	7.28 (0.53)	<0.001	1.49 (1.24–1.79)
	NH-Black	12.95 (1.03)	9.72 (0.80)	0.0146	1.37 (1.06–1.77)
	NH-other	6.14 (1.03)	3.66 (0.77)	0.0425	1.76 (1.03–3.00)
	Hispanic	11.07 (0.83)	8.35 (0.65)	0.0082	1.32 (1.04–1.67)
Did not see doctor in past 12 months	Sex				
	Men	48.01 (0.64)	46.54 (0.66)	0.1165	1.08 (0.97–1.20)
	Women	40.45 (0.78)	39.37 (0.90)	0.3682	1.05 (0.95–1.16)
	Race/ethnicity				
	NH-White	44.42 (0.80)	42.69 (0.93)	0.1594	1.06 (0.96–1.17)
	NH-Black	51.33 (1.44)	49.00 (1.46)	0.2842	1.11 (0.94–1.32)
	NH-other	46.92 (2.38)	50.68 (2.00)	0.2475	0.88 (0.68–1.12)
	Hispanic	58.26 (1.41)	54.66 (1.07)	0.0532	1.10 (0.94–1.28)
Delayed care due to cost	Sex				

		Percentage			Odds Ratios*
		2006–2009	2011–2014	p	
	Men	12.47 (0.40)	10.73 (0.38)	<0.001	1.08 (0.92–1.27)
	Women	13.82 (0.56)	11.38 (0.52)	0.001	1.25 (1.10–1.43)
	Race/ethnicity				
	NH-White	13.29 (0.55)	10.91 (0.52)	<0.001	1.24 (1.09–1.42)
	NH-Black	13.22 (0.86)	11.26 (0.88)	0.1084	1.19 (0.95–1.50)
	NH-other	6.26 (1.24)	4.88 (0.66)	0.341	1.30 (0.76–2.22)
	Hispanic	11.07 (0.79)	11.57 (0.72)	0.6605	0.95 (0.76–1.18)
Did not get care due to cost	Sex				
	Men	9.67 (0.35)	8.30 (0.35)	0.0031	1.09 (0.91–1.31)
	Women	11.07 (0.49)	9.25 (0.48)	0.0063	1.22 (1.05–1.41)
	Race/ethnicity				
	NH-White	9.55 (0.46)	8.02 (0.48)	0.0151	1.19 (1.02–1.39)
	NH-Black	11.73 (0.86)	9.69 (0.76)	0.0633	1.23 (0.99–1.54)
	NH-other	6.57 (1.36)	5.09 (0.84)	0.3508	1.32 (0.75–2.33)
	Hispanic	9.49 (0.70)	9.07 (0.64)	0.6737	1.02 (0.81–1.29)

*Using 2011–2014 as reference, adjusting for sex (when race/ethnicity was specified), race (when sex was specified) and education.

#NH – Non-Hispanic