The ACA's Dependent Coverage Expansion and Out-of-Pocket Spending by Young Adults With Behavioral Health Conditions

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Objective: Young adults with behavioral health conditions (mental or substance use disorders) often lack access to care. In 2010, the Affordable Care Act (ACA) extended eligibility for dependent coverage under private health insurance, allowing young adults to continue on family plans until age 26. The objective of this study was to analyze out-of-pocket (OOP) spending as a share of total health care expenditures for young adults with behavioral health conditions before and after the implementation of the ACA dependent care provision. The study examined the population of young adults with behavioral health conditions overall and by race and ethnicity.

Methods: The study analyzed 2008–2009 and 2011–2012 nationally representative data from the Medical Expenditure Panel Survey with zero-or-one inflated beta regression models in a difference-in-differences framework to estimate the impact of the ACA's dependent coverage expansion. OOP spending was examined as a share of total health care expenditures among young adults with behavioral health disorders. The study compared the treatment group of individuals ages 19–25 (unweighted N=1,158) with a group ages 27–29 (unweighted N=668).

Results: Young adults ages 19–25 with behavioral health disorders were significantly less likely than the older group to have high levels of OOP spending after the implementation of the ACA's dependent coverage expansion. The reduction was pronounced among young adults from racial-ethnic minority groups.

Conclusions: The extension of health insurance coverage to young adults with behavioral health disorders has provided them with additional financial protection, which can be important given the low incomes and high debt burden that characterize the age group.

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Before the implementation of the Patient Protection and Affordable Care Act (ACA), young adults in the United States were estimated to have lower levels of insurance coverage compared with other age groups. Almost 30% of young adults between the ages of 19 and 30 lacked health insurance coverage (1), and the transition from adolescence to young adulthood was often associated with the loss of health insurance (2). Young adults without health insurance had higher rates of not receiving needed care, were more likely than other age groups to report that their health worsened as a result of not getting necessary care, and had greater difficulty paying medical bills than their same-age counterparts with health insurance (3). Given the low rates of health insurance coverage among young adults, it is expected that the ACA will have a substantial impact (4) by allowing young adults to remain on their parents' health insurance as dependents. Although the full enactment of the ACA began in 2014, the dependent coverage provision went into effect in September 2010.

Before the ACA's enactment, dependent coverage frequently ended by age 19 (5). Estimates show that the dependent coverage provision has reduced the number of uninsured young adults by at least three million (6). The expansions in insurance coverage under the ACA are also expected to result in an increase in the number of users of mental health and substance abuse treatment services (7), although noninsurance factors, such as perceived need for treatment, also play a role in whether individuals seek behavioral health services (8). Expansions in insurance coverage may be particularly important for young adults not only because their insurance coverage rates were low but also because behavioral health conditions (mental or substance use disorders) often emerge for the first time in this age range (9–11). The literature also documents that individuals with a comorbid behavioral health disorder experience higher health care costs (12). For example, one study found that monthly costs for a patient with a chronic disease and depression are $560 more than for a person with a

chronic disease without depression (13). Individuals with behavioral health disorders are more likely to have lower socioeconomic status, be unemployed, and have lower educational attainment (14–17). Hence, the presence of behavioral health disorders and lack of health coverage can be related to higher total health care expenditures and out-of-pocket (OOP) payments.

A number of studies have examined the impact of the dependent care provision of the ACA, and the literature has reported evidence of increased rates of insurance coverage and higher health services utilization (18–22). Studies specifically examining behavioral health services have, however, focused mostly on mental illness and have reported evidence of an increase in overall mental health services utilization (18) and hospital-based mental health care (20,22). Although the literature shows an increase in private insurance payment for mental health services (19), no studies to date have examined the impact of the ACA's dependent coverage provision on health care spending of young adults with behavioral health disorders. This is an important omission from the literature in that one of the primary objectives of the ACA is to protect individuals from large and unexpected OOP health care expenses (21). Given the relatively low incomes of young adults compared with older adults, OOP expenses can have serious consequences for young adults' finances (19). Recent evidence from the Oregon Health Insurance Experiment and the health reform in Massachusetts has shown that newly insured individuals have benefited from having fewer unpaid bills, less past-due debt, and improved credit scores (23–25). As the full enactment of the ACA continues, focus will increasingly shift to understanding impacts on patients, including effects on their finances (26,27).

Assessing the impact of the ACA's dependent care provision on the health care expenses of young adults by their race and ethnicity, especially among those with behavioral health disorders, is important from a policy perspective. More than 50% of Latino and 33% of African-American young adults ages 20–29 were uninsured in 2008–2009, compared with 25% of non-Latino white young adults (26,28). Lack of health insurance coverage across racial and ethnic groups has been associated with uncertainty over family health expenditures, large OOP expenses, and lower health care access and utilization (22). The ACA expansion of dependent coverage applies only to young adults whose parents have either employer-sponsored health insurance or health insurance purchased through the exchanges. Compared with whites, African Americans and Latinos are less likely to have employer-provided private coverage because of income, immigration status, or both (1). In fact, the literature has documented that the ACA's dependent coverage expansion has resulted in an increase in private insurance coverage for non-Latino whites by over 5 percentage points, whereas for Latinos and African Americans the increase has been a little over 3 percentage points (29). Although there has been some analysis, by race and ethnicity, of the provision's impact on clinical conditions, such analyses have not been extended to the subpopulation of young adults with behavioral health conditions.

Our study contributes to the literature on the ACA's dependent coverage mandate in two important ways. First, using large nationally representative data, we examined the mandate's impact on OOP spending share of total health care expenses (behavioral health and all other types of health care expenses) of young adults with a behavioral health disorder, which has not been done previously (16–18). Second, this is the first study we are aware of that examined by race and ethnicity the impact of the ACA's expansion of dependent coverage on health care spending among young adults with behavioral health disorders. It is important to understand the provision's impact by race and ethnicity to improve the equity and affordability of the behavioral health care delivery system given that clinical needs and utilization patterns can differ significantly by race and ethnicity (1).

METHODS

Data

We analyzed Medical Expenditure Panel Survey (MEPS) data from 2008–2009 and 2011–2012. MEPS is a nationally representative survey of the U.S. civilian, noninstitutionalized population. It provides information about respondents' medical expenditures during the survey year, as well as their demographic characteristics, socioeconomic characteristics, health status, and health insurance status. The MEPS consolidated files were merged to the medical condition files to obtain information on respondents' diagnosed disorders, validated by the respondents' physicians through the medical provider component file. This file contains data from providers who provided medical care to the respondents and contains data on dates of visits, use of medical care services, charges, sources of payments and amounts, and diagnosis and procedure codes.

We applied the Agency for Healthcare Research and Quality's Clinical Classification Software to MEPS data to identify young adults with any diagnosed behavioral health disorder. [A list of the behavioral health disorders included in this study is presented in the online supplement to this article.] We parsed the young adult population into two groups: the targeted group for expansion of ACA coverage of dependents (ages 19–25, N=1,158, representing 24 million young adults) and the comparison group (ages 27–29, N=618, representing 9.4 million young adults). We used young adults ages 27–29 years as the reference group to be consistent with previous studies (19,22). Also, consistent with prior literature, we used 2008–2009 and 2011–2012 as the pre- and postimplementation periods to examine the trends in health care expenditures resulting from the implementation of ACA (1,19).

Our primary outcome variable was total OOP payments as a share of total health care spending (1). This expenditure measure was self-reported but was validated by respondents' physicians and pharmacists and adjusted to

constant dollars with the 2012 Medical Care Component of the Consumer Price Index. It is important to note that the total health care expenditure variable in MEPS is defined as the sum of direct payments for care provided during the year, including OOP spending and payments by private insurance, Medicaid, Medicare, and other sources. The total expenditure variable sums all amounts paid OOP and by third-party payers and is verified by the MEPS medical component file. Similarly, OOP measures are expenses that have been paid for health care services by the respondents, including copayments and coinsurance.

We controlled for variables widely used in the health care expenditure literature, including race and ethnicity, gender, marital status, self-reported general health and mental health, education, family income, urbanicity, and U.S. census region (28,30). We also controlled for being interviewed for the MEPS in English.

TABLE 1. Summary statistics for young adults with behavioral health disorders with out-of-pocket (OOP) expenses[a]

Measure	Ages 19–25 (N=1,158) M	Ages 19–25 (N=1,158) SD	Ages 27–29 (N=618) M	Ages 27–29 (N=618) SD	p
OOP share ($)	.29	.32	.32	.33	.05
Total OOP ($)	646.05	1,453.81	817.23	1,980.49	<.05
Total health care expenditure ($)	4,214.41	7,293.04	4,378.07	7,003.76	ns
Race-ethnicity					ns
White	.61	.49	.62	.49	
Latino	.15	.35	.13	.33	
African American	.20	.40	.20	.40	
Other	.05	.21	.05	.22	
Female	.64	.48	.71	.46	ns
Married	.09	.29	.32	.47	<.001
Interviewed in English	.93	.25	.95	.22	ns
Education					
<12 years	.60	.49	.41	.49	<.001
12–16 years	.38	.49	.53	.50	<.001
>16 years	.01	.12	.06	.24	<.001
Family income[b]					
<100% FPL	.32	.47	.25	.43	<.001
100%–200% FPL	.24	.42	.23	.42	
>200% FPL	.44	.50	.52	.50	<.01
Urban dweller	.87	.34	.87	.34	ns
U.S. census region					ns
Northeast	.15	.36	.17	.38	
Midwest	.27	.45	.26	.44	
South	.34	.47	.32	.47	
West	.24	.43	.25	.43	
Self-reported health					ns
Poor or fair	.16	.37	.18	.38	
Good	.29	.45	.31	.46	
Excellent or very good	.55	.50	.51	.50	
Self-reported mental health					ns
Poor or fair	.21	.41	.20	.40	
Good	.31	.46	.32	.47	
Excellent or very good	.48	.50	.48	.50	

[a] Source: Medical Expenditure Panel Survey, 2008–2009 and 2011–2012
[b] FPL, federal poverty level

Analysis

As a result of the ACA, since September 23, 2010, young adults have been able to join or to remain on their parents' private health insurance plan, regardless of whether the young adults are married, attending school, financially dependent on parents, or eligible for employer-provided health insurance coverage (4,6). We used a difference-in-differences approach to capture the impact of this insurance expansion natural experiment. We identified changes in OOP share of total health expenditures for young adults ages 19–25 years (the target population) from the ACA preimplementation (2008–2009) and post-implementation (2011–2012) periods relative to changes in the OOP share of total health care expenditures among young adults ages 27–29 (the comparison group).

We used zero-or-one inflated beta (ZOIB) regression models (31,32) and adopted different model specifications to test the robustness of our findings. Specifically, in model 1, the basic model, we controlled for age, race and ethnicity, gender, marital status, interview language, family income, education, whether the participant resided in an urban area, and U.S. census region. In model 2, we added self-reported general medical health and mental health to the factors controlled for in model 1. ZOIB models were appropriate in this study because the dependent variables used were proportions (values range between 0 and 1, including 0 and 1). ZOIB models can estimate the probabilities of having the value 0, 1, or both values as a separate process, which was important for our purposes because individuals with OOP equal to 0 or 1 could be different from individuals with OOP between 0 and 1. For example, individuals with OOP equal to 1 could remain uninsured or have high-deductible plans. Furthermore, to examine whether the association between the ACA dependent coverage and OOP share differed by race and ethnicity, we assessed the interaction between the post-ACA implementation period indicator (2011–2012) with race and ethnicity by age group. All results were nationally representative and generated by using the survey weights provided by the MEPS. Stata 12 MP was used to conduct the analysis.

RESULTS

Table 1 presents descriptive statistics on the study sample and the variables used in the analysis.

Table 2 presents difference-in-differences estimates based on ZOIB models that indicate that the ACA's

TABLE 2. Estimated out-of-pocket (OOP) share of the total health care expenditures for young adults with behavioral disorders[a]

	Model 1		Model 2	
ZOIB regression[b]	Coefficient	p	Coefficient	p
0<OOP share<1				
Ages 19–25 × year 2011–2012	−.03	.81	−.04	.73
Year 2011–2012	.01	.93	.00	.97
Ages 19–25	.10	.26	.10	.30
OOP share=1				
Ages 19–25 × year 2011–2012	−1.07	.04	−1.05	.05
Year 2011–2012	1.11	.01	1.11	.01
Ages 19–25	.79	.06	.76	.08
OOP share=0				
Ages 19–25 × year 2011–2012	.47	.41	.38	.51
Year 2011–2012	−.27	.59	−.22	.67
Ages 19–25	.27	.55	.32	.49

[a] Results are from difference-in-differences models for data from the Medical Expenditure Panel Survey, 2008–2009 and 2011–2012. Model 1 accounted for age, gender, marital status, education, family income, being interviewed in English, living in an urban area, and U.S. census region; model 2 accounted for those variables plus health. Statistics are nationally representative (representing N=3.7 million young adults ages 19–25 and N=1.9 million young adults ages 27–29 with behavioral health disorders).

[b] ZOIB, zero-or-one inflated beta

dependent coverage expansion had a significant impact on reducing the OOP share when it was 100% of the total health care cost for the target group across all model specifications. Specifically, in model 1, the interaction term for adults ages 19–25 and years 2011–2012 was statistically significant and negative (coefficient=−1.07, $p<.05$) when OOP share was equal to 1 (that is, OOP expense as a share of total health care expenditure was 100%). This implies that persons ages 19–25 with a behavioral health disorder after the implementation of the dependent coverage mandate were less likely than the comparison group to have to pay 100% of their health care costs as an OOP expense (exp[−1.07]=.34 odds ratio). After respondents' health status was controlled for (model 2), the coefficient of this interaction term was still negative and significant (coefficient=−1.05, $p<.05$). Although the ZOIB results did not indicate a reduction in OOP share at all levels, the reduction in OOP share at the highest level implies that young adults ages 19–25 with behavioral health disorders were less likely than others to bear a significant financial burden for their health care expenses following the implementation of the ACA's dependent coverage expansion.

The results from the two model specifications consistently showed a statistically significant impact of the ACA on racial-ethnic minority populations. Specifically, Latinos, African Americans, and young adults from other racial-ethnic minority groups who had behavioral health disorders and were ages 19–25 had lower odds of having a 100% OOP share of total health care expenditures after the dependent coverage mandate (Table 3). To check the robustness of our estimates that young adults with behavioral health conditions are less likely to have higher levels of OOP as a share of health care expenditures after the dependent coverage mandate, we estimated logit models where the dependent variable was defined as having OOP share ≥75% (Table 4). Consistent with the estimates from the ZOIB models, the results indicated decreased odds of having OOP of ≥75% as a share of total health care expenditures for young adults eligible to remain on their parents' health insurance policy after the implementation of the ACA's dependent coverage expansion. Consistent with the ZOIB estimates, these results were also significant for young adults from racial-ethnic minority groups, providing further evidence of a reduction in financial burden that the minority young adult population with a behavioral health disorder might have experienced as a result of the ACA expansion. As a further robustness check, we used linear regressions to reestimate all of our models and found results consistent with the ones presented here. These results are available from the authors on request.

DISCUSSION

This study used a nationally representative data set to estimate the impact of the ACA's dependent coverage expansion on OOP health care expenses for young adults with behavioral health disorders. Our results show evidence of a decline in high levels of OOP expenses between 2008–2009 and 2011–2012 as a share of total health care expenses for the targeted age group (age 19–25) compared with the group of individuals who are in a close age range (age 27–29) but who were not specific beneficiaries of the ACA's dependent coverage provision. In addition, our study shows that the impact of the ACA expansion on health care expenditures differed by race and ethnicity among individuals with behavioral health conditions. Specifically, our findings indicate a significant reduction in 100% OOP share of health care expenditures among young adult Latinos, African Americans, and young adults from other racial and ethnic backgrounds who had a behavioral health disorder. This is an important finding and shows that the ACA has potentially reduced the financial burden of health care in a demographic group with higher rates of unemployment and lower salaries. Given that the unemployment rate among the racial-ethnic minority groups remained mostly unchanged (26,27) during 2008–2012, this reduction in OOP share likely occurred as a result of access to insurance. In other words, access to insurance might have resulted in reduced medical expenses for those seeking care.

Despite its strong quasi-experimental design, our study had several limitations that are worth noting. First, we were unable to conduct separate analysis for the populations with mental and substance use disorders. The literature documents utilization of services to be quite different for mental illness

and substance abuse (7,9), and substance abuse treatment benefits, in particular, have been restricted in many private insurance plans despite the 2008 Mental Health Parity and Addiction Equity Act (33). It is unclear whether the dependent coverage provision had a differential impact on individuals with mental disorders or substance use disorders. Examining whether there was a differential impact by type of condition could be an important avenue for future research.

Second, we were unable to analyze other measures of financial protection beyond OOP as a share of total health care expenditures. Examining other measures of financial insecurity, such as unpaid bills and past-due debt, could make an important contribution to the literature. Third, our study did not identify what types of behavioral health expenditures changed and whether they changed through reductions in payments to providers or treatment types or quantities. More research is needed to understand the significant categories of spending pre- and post-ACA for each age cohort. Fourth, prior to the implementation of the ACA's dependent coverage expansion, 37 states had laws that expanded dependent coverage for young adults. The laws differed in their age cutoffs, the young adult populations covered (for example, full-time students and unmarried individuals), and the types of policies covered (2). The existence of these dependent coverage laws in the preperiod of our analysis imparts a conservative bias to our findings.

TABLE 3. Estimated out-of-pocket (OOP) share of health care costs for young adults with behavioral health disorders, by race-ethnicity[a]

	Model 1		Model 2	
ZOIB regression[b]	Coefficient	p	Coefficient	p
0<OOP share<1				
Whites ages 19–25 × year 2011–2012	−.08	.60	−.08	.58
Latinos ages 19–25 × year 2011–2012	−.32	.20	−.28	.27
African Americans ages 19–25 × year 2011–2012	−.29	.18	−.26	.24
Others ages 19–25 × year 2011–2012	.21	.53	.21	.54
Selection equation: OOP share=1				
Whites ages 19–25 × year 2011–2012	−1.15	.11	−1.12	.12
Latinos ages 19–25 × year 2011–2012	−1.75	.03	−1.73	.04
African Americans ages 19–25 × year 2011–2012	−2.03	.03	−2.01	.03
Others ages 19–25 × year 2011–2012	−3.81	.01	−3.63	.02
Selection equation: OOP share=0				
Whites ages 19–25 × year 2011–2012	.59	.47	.51	.53
Latinos ages 19–25 × year 2011–2012	.97	.25	.86	.31
African Americans ages 19–25 × year 2011–2012	−.14	.88	−.13	.89
Others ages 19–25 × year 2011–2012	1.07	.38	1.06	.37

[a] Results are from difference-in-differences models for data from the Medical Expenditure Panel Survey, 2008–2009 and 2011–2012. Only coefficients of the interaction terms between the year 2011–2012 indicator and the treatment groups (adults ages 19–25) by race and ethnicity are presented. Analyses controlled for all the other covariates. Results are available on request. Model 1 accounted for age, gender, marital status, education, family income, being interviewed in English, living in an urban area, and U.S. census region; model 2 accounted for those variables plus health. Statistics are nationally representative (representing N=3.7 million young adults ages 19–25 and N=1.9 million young adults ages 27–29 with behavioral health disorders).
[b] ZOIB, zero-or-one inflated beta

CONCLUSIONS

Our findings contribute to the emerging literature on the impact of ACA's dependent coverage provision among young adults, where the consensus is that access to health insurance has increased utilization and lowered costs for health services (4,6). Our findings are consistent with this, in that we found that young adults with behavioral health disorders generally were less likely to have high levels of OOP costs as a share of their total health care spending after the ACA expansion of dependent coverage. This result is also consistent with the literature examining the Oregon Health Insurance Experiment and Massachusetts health reform, which has shown evidence of more financial security among the newly insured (24,25). The extension of health insurance coverage to young adults with behavioral health disorders provided them with additional financial protection, especially given the low incomes and high debt burden in this age group. As the ACA's coverage expansion continues through the implementation of the legislation's other provisions, further reductions in OOP spending by young adults with behavioral health conditions may occur.

TABLE 4. Estimates of large (≥75%) out-of-pocket share of health care costs among full sample of young adults with behavioral health disorders and by race-ethnicity[a]

	Model 1		Model 2	
Regression	OR	p	OR	p
Logit regression				
Ages 19–25 × year 2011–2012	.54	.04	.55	.04
Year 2011–2012	1.58	.06	1.57	.06
Ages 19–25	1.19	.41	1.17	.46
Logit regression by race and ethnicity				
Whites ages 19–25 × year 2011–2012	.42	.03	.43	.03
Latinos ages 19–25 × year 2011–2012	.23	<.01	.23	<.01
African Americans ages 19–25 × year 2011–2012	.34	.06	.35	.06
Others ages 19–25 × year 2011–2012	.09	.01	.09	.01

[a] Results are from difference-in-differences models for data from the Medical Expenditure Panel Survey, 2008–2009 and 2011–2012. Only coefficients of the interaction terms between the year 2011–2012 indicator and the treatment groups (adults ages 19–25) by race and ethnicity are presented. The reference group is young adults ages 27–29. Analyses controlled for all the other covariates. Results are available on request. Model 1 accounted for age, gender, marital status, education, family income, being interviewed in English, living in an urban area, and U.S. census region; model 2 accounted for those variables plus health. Statistics are nationally representative (representing N=3.7 million young adults ages 19–25 and N=1.9 million young adults ages 27–29 with behavioral health disorders).

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