Changes in Health Care Access by Race, Income, and Medicaid Expansion During the COVID-19 Pandemic

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Background: The intersecting crises of the COVID-19 pandemic, job losses, and concomitant loss of employer-sponsored health insurance may have disproportionately affected health care access within minorized and lower-socioeconomic status communities.

Objective: To describe changes in access to care during the COVID-19 pandemic, stratified by race/ethnicity, household income, and state Medicaid expansion status.

Research Design: We used interrupted time series and difference-in-differences regression models, controlling for respondent characteristics and preexisting trends.

Subjects: Data were extracted for all adults aged 18–64 surveyed in the 2015-2020 Behavioral Risk Factor Surveillance System (N = 1,731,699) from all 50 states and the District of Columbia.

Measures: Our outcomes included indicators for whether respondents had any health insurance coverage or avoided seeking care because of cost within the prior year. The primary exposure was the onset of the COVID-19 pandemic in the United States in March 2020.

Results: The pandemic was associated with a 1.2 percentage point (pp) decline in uninsurance for Medicaid expansion states (95% CI, −1.8, −0.6); these reductions were concentrated among respondents who were Black, multiracial, or low income. The rates of uninsurance were generally stable in nonexpansion states. These declines were concentrated among respondents who were Hispanic, Other Race, or low income.

Conclusions: Our findings reinforce the value of Medicaid expansion as one tool to improve access to health insurance and care for marginalized and vulnerable populations.

Key Words: access to care, Medicaid, health disparities, COVID-19

The sudden and unforeseen onset of the COVID-19 pandemic had a profound impact on the US economy and delivery of health services. State and local policy responses to the pandemic frequently included extensive mobility restrictions, and hospitals intentionally stalled most routine and elective procedures. Although these policies mitigated the spread of COVID-19, they also decreased access to routine, urgent, and emergency care. Likewise, the fear of exposure to COVID-19 led many individuals to delay care. The pandemic also triggered a recession with an unemployment rate of almost 15% in April 2020—the highest level since the Great Depression—and a corresponding rise in uninsurance because of losses in employer-sponsored health insurance coverage (ESHI). Marginalized racial and ethnic groups were disproportionately impacted by job losses, especially among women. Racial and sex disparities in unemployment rates have yet to recover with potential long-term consequences on access to health services and health outcomes.

The Affordable Care Act extended the reach of the US safety net primarily through the implementation of state-based Marketplaces for individual insurance coverage and expanded income eligibility for Medicaid coverage, which has been adopted by 38 states and the District of Columbia as of July 2022. These reforms reduced income-based and race-based disparities in health care access, and Medicaid expansion may have facilitated health insurance coverage and subsequent access to care for those who lost ESHI during the COVID-19 pandemic. Prior research found that Medicaid enrollment increased during the COVID-19 pandemic, particularly among those earning between 138% and 400% of the federal poverty level (FPL). However, these prior works relied on an experimental survey with an approximate 7% response rate. Other studies found changes in unemployment were only weakly or negatively associated with Medicaid enrollment growth.

The ability of the US health care safety net to respond to race-based/income-based disparities in health care access during the pandemic remains unclear. The intersecting crises of the pandemic, unemployment, and uninsurance may have exacerbated preexisting disparities in insurance coverage and access to care among minoritized groups. Medicaid expansion may have mitigated increased inequities through policies that have previously promoted insurance coverage...
and access to care. Accordingly, the objectives of this study were to assess if Medicaid expansion status was associated with changes in insurance status and self-reported access to care during the pandemic by race/ethnicity and household income as a percentage of the FPL.

**METHODS**

**Data and Measures**

We extracted data for all US adults aged 18–64 from the 2015 to 2020 Behavioral Risk Factor Surveillance System (BRFSS), a large national phone-based survey conducted by states in partnership with the Centers for Disease Control and Prevention. Despite the onset of the COVID-19 pandemic, the response rate was 47.4% for the 2020 survey, similar to that achieved in 2019 (49.4%). The BRFSS incorporates survey weights to ensure the weighted sample matches the sociodemographic composition (ie, age, race/ethnicity, education level, marital status, and home ownership) both nationally and for individual states. Data on state Medicaid expansion status were obtained from the Kaiser Family Foundation.

**Primary Outcomes**

Our outcomes included 2 binary measures of self-reported access to health care. The first asked respondents “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?” The second asked “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” BRFSS does not collect data on insurance type (ie, Medicaid, ESHI, etc.) or other reasons why respondents may have avoided care.

**Primary Exposure**

The primary exposure was a dummy variable taking on a value of 1 if the survey was completed between March and December 2020, zero otherwise.

**Covariates**

Other individual-level covariates included age, race/ethnicity, sex, marital status, presence of children in the household, home ownership, educational attainment, income, veteran status, employment status, and household size. Respondents’ race/ethnicity were categorized as non-Hispanic White, non-Hispanic Black, non-Hispanic multiple races, non-Hispanic other race, or Hispanic. Income measurement in the BRFSS is imprecise. Thus, after the methodology outlined by Sommers et al, we imputed household income as a percentage of the FPL, which was then categorized into 3 groups: <138%, 138%–400%, and >400% FPL. We also included a dummy variable taking on a value of 1 if the respondent resided in a state that implemented the Affordable Care Act’s Medicaid expansion by December 31, 2020, zero otherwise.

**Analytic Approach**

First, we used interrupted time series models to estimate overall changes in health care access by state Medicaid expansion status during March to December 2020, controlling for prepandemic outcome levels and respondent characteristics. Next, we estimated difference-in-differences (DID) regression models to identify whether there were varying changes in outcomes between expansion and nonexpansion states after the onset of the COVID-19 pandemic. We estimated both overall models and stratified our analyses by respondents’ race/ethnicity, household income, and state Medicaid expansion status. Given our large sample size, all regressions were estimated as linear probability models using ordinary least squares. All models included the aforementioned covariates with state and year fixed effects and standard errors clustered at the state level. We did not include employment status or COVID-19 burden (eg, infections, hospitalizations, stay-at-home orders) as these may be on the causal pathway between exposure and outcomes. For more details including regression specifications, please see the Appendix, Supplemental Digital Content 1, http://links.lww.com/MLR/C554.

**RESULTS**

Our analytic sample included 1,731,699 respondents; sample characteristics are presented were similar before and during the COVID-19 pandemic (Table 1). Before the pandemic (January 2019 to February 2020), uninsurance was higher among respondents residing in Medicaid non-expansion states (21.1%) compared with those in expansion states (12.9%) (Table 2). Avoidance of care due to cost was also higher in Medicaid nonexpansion (19.0%) than expansion states (13.7%) (Table 3). There were no significant differences in prepandemic trends between respondents in Medicaid expansion and nonexpansion states for rates of uninsurance and care avoidance, either overall or when stratified by race/ethnicity and income group (Appendix A1, Supplemental Digital Content 1, http://links.lww.com/MLR/C554 & A2, Supplemental Digital Content 1, http://links.lww.com/MLR/C554).

**Adjusted Changes in Expansion States**

Respondents in Medicaid expansion states experienced a 1.2 percentage point (pp) decrease in uninsurance during the COVID-19 pandemic (95% CI, –1.8, –0.6). The largest declines were observed in multiple race (−3.1 pp, 95% CI, −4.5 pp, −1.6), Other race (−2.3 pp, 95% CI, −4.2, −0.5), and in households with income below 138% (−1.9 pp, 95% CI, −3.2, −0.6) and 400% (−1.2 pp, 95% CI, −2.0, −0.4) FPL. Stratified results also indicate coverage gains for both White and Hispanic respondents in households earning <138% FPL (Appendix A3, Supplemental Digital Content 1, http://links.lww.com/MLR/C554).

In Medicaid expansion states, the rates of avoided care because of cost decreased by 3.5 pp overall (95% CI −3.9, −3.1); all race and income strata experienced declines in 2020 (Appendix A4, Supplemental Digital Content 1, http://links.lww.com/MLR/C554). The largest declines were observed in other race (−5.1 pp, 95% CI −6.1, −4.1), Hispanic (−5.5 pp, 95% CI −8.6, −2.5), and households earning <138% FPL (−6.1 pp, 95% CI −6.9, −5.2).
### TABLE 1. Characteristics of the Study Sample From 2015 to 2019 and 2020

| Variable                  | 2015-2019 (N = 1,508,630) |          | 2020 (N = 223,069) |          |
|---------------------------|--------------------------|----------|--------------------|----------|
|                           | Raw % Weighted *         | Weighted*| Raw % Weighted *    | Weighted*|
| Female                    | 53.9 50.2                |          | 52.5 50.3          |          |
| Married                   | 55.9 51.9                |          | 54.4 51.2          |          |
| Children in household     | 38.0 44.0                |          | 38.6 42.8          |          |
| Age group                 |                          |          |                    |          |
| 18–24                     | 9.0 15.9                 |          | 10.0 15.8          |          |
| 25–29                     | 7.6 10.3                 |          | 8.2 10.3           |          |
| 30–34                     | 8.5 11.7                 |          | 9.1 11.8           |          |
| 35–39                     | 9.1 10.1                 |          | 10.0 10.2          |          |
| 40–44                     | 9.1 10.3                 |          | 10.0 10.3          |          |
| 45–49                     | 10.5 9.2                 |          | 10.4 9.1           |          |
| 50–54                     | 13.2 11.3                |          | 12.2 11.2          |          |
| 55–59                     | 15.7 10.4                |          | 14.1 10.4          |          |
| 60–64                     | 17.4 10.7                |          | 16.0 10.8          |          |
| Race/ethnicity            |                          |          |                    |          |
| White                     | 73.3 60.2                |          | 71.9 58.4          |          |
| Black                     | 9.0 12.6                 |          | 8.4 12.4           |          |
| Multiracial               | 2.3 1.5                  |          | 2.5 1.4            |          |
| Hispanic                  | 9.7 18.0                 |          | 10.5 19.3          |          |
| Other                     | 5.7 7.8                  |          | 6.7 8.5            |          |
| College graduate          | 35.8 27.9                |          | 39.7 30.2          |          |
| Household income group    |                          |          |                    |          |
| <138% FPL                 | 23.1 26.6                |          | 23.6 25.7          |          |
| 138%–400% FPL             | 43.2 42.1                |          | 43.7 43.4          |          |
| >400% FPL                 | 33.7 31.3                |          | 32.7 30.9          |          |
| Employment status         |                          |          |                    |          |
| Employed                  | 5.6 6.4                  |          | 8.4 9.8            |          |
| Unemployed                | 68.5 68.0                |          | 69.1 67.0          |          |
| Not in labor force        | 25.9 25.6                |          | 22.4 23.2          |          |
| Homeownership status      |                          |          |                    |          |
| Renter                    | 35.4 38.3                |          | 37.1 38.5          |          |
| Homeowner                 | 64.6 61.7                |          | 62.9 61.5          |          |

*Data are adjusted for BRFSS sampling weights.

FPL indicates federal poverty level.

Source: Author’s analysis of data from the 2015 to 2020 Behavioral Risk Factor Surveillance System (BRFSS).

### Adjusted Changes in Nonexpansion States

The pandemic was not associated with significant changes in uninsurance rates for Medicaid nonexpansion states. However, uninsurance decreased by 3.7 pp for multiple race (95% CI −5.7, −1.7) and increased by 1.8 pp for other race respondents (95% CI 0.2, 3.5). Stratification revealed that Hispanic respondents in households earning <138% of the FPL experienced a significant increase in uninsurance (9.2 pp, 95% CI 1.1, 17.3), whereas White respondents earning <138% FPL experienced a significant decrease (−1.8 pp, 95% CI, −3.1, −0.4).

Overall, nonexpansion states experienced a 3.6 pp decline in avoided care because of cost (95% CI, −4.3, −2.9). The observed decline in avoided care because of cost was primarily driven by Black (−3.1 pp, 95% CI, −6.0, −0.2), other race (−5.7 pp, 95% CI, −6.7, −4.6), and White (−3.2 pp, 95% CI, −4.0, −2.4) respondents. Households earning <138% (<5.7 pp, 95% CI, −7.3, −4.2) and between 138% and 400% (<3.3 pp, −4.1, −2.6) also experienced declines in avoided care.

### Difference-in-Differences Estimates

In DID models, the COVID-19 pandemic was associated with a 1.0 pp decrease in uninsurance in Medicaid expansion relative to nonexpansion states (95% CI, −1.7, −0.3). In stratified models, the pandemic was associated with decreases in uninsurance among multiracial respondents (<4.2 pp, 95% CI, −6.6, −1.8) and in households earning <138% FPL (<2.1 pp, 95% CI, −4.1, −0.1) or between 138% and 400% FPL (<1.3 pp, 95% CI, −2.6, −0.1). There were no difference changes in avoided care because of cost between Medicaid expansion and nonexpansion states, either overall or in stratified models.

### DISCUSSION

In this cross-sectional study, we observed slight declines in the national rates of uninsurance and avoided care because of cost during the COVID-19 pandemic. Our DID results also suggest that if all states had implemented the Medicaid expansion, an additional 1.0 million adults would have access to insurance coverage.20 At a population level, a 3.5% reduction in avoided care equates to 9 million fewer US adults experiencing that outcome in 2020 compared with previous years. Given that the BRFSS question on avoided care specifically focuses on cost, it is possible and perhaps likely that pandemic fears displaced cost as the preeminent reason to skip care during the pandemic. Future researchers using the BRFSS to study health care access should account for this peculiar pandemic effect.

The COVID-19 pandemic resulted in an economic recession and subsequently, an estimated 7.3 million people lost employer-sponsored insurance coverage.19 Despite these losses, we observed a slight decline in the national uninsurance rate during 2020. Although we cannot identify coverage source in BRFSS, our results also comport with estimates from the National Health Interview Survey,20 the Current Population Survey,21 the Survey of Income and Program Participation,22 and the Health Reform Monitoring Survey,23 which all suggest that gains in public coverage may have offset losses in private coverage.8,23 Thus, we have good reason to believe uninsurance and lack of health care access was prevented for some individuals because of Medicaid expansion. All states participated in the “maintenance of effort” provisions in the Coronavirus Aid, Relief, and Economic Security Act, which offered an enhanced federal match rate to states that facilitated continuous Medicaid coverage for beneficiaries. Consequently, the increase in Medicaid enrollment is attributable to greater continuity of existing coverage in addition to an influx of new enrollees.24

We also found uninsurance rates declined for many marginalized groups in Medicaid expansion states, whereas rates in nonexpansion states remained stable or worsened slightly. Racial/ethnic minority groups face a disproportionately high risk of COVID-19 exposure and increased risk of COVID-19-related disease or death.25,26 Health insurance coverage is critical to improve access to health services, and Medicaid expansion facilitated access to care during the pandemic for these vulnerable groups.
TABLE 2. Changes in Uninsurance During the COVID-19 Pandemic by Race, Income, and State Medicaid Expansion Status

| Expansion status (%) | Yes | No |
|----------------------|-----|----|
| Overall              | 12.9| 21.1|
| Racial category      |     |    |
| Black                | 13.8| 21.6|
| Other race           | 29.1| 41.5|
| Multiple race        | 11.3| 18.8|
| Hispanic             | 10.3| 18.5|
| White                | 8.8 | 14.7|
| Household income     |     |    |
| <138% FPL            | 22.4| 36.0|
| 138%–400% FPL        | 12.5| 18.2|
| >400% FPL            | 5.8 | 9.8 |

Adjusted changes 2019–2020:

| Expansion status (%) | Yes | No | Difference |
|----------------------|-----|----|------------|
| Overall              | -1.2 (-1.8, -0.6)** | -0.2 (-0.7, 0.3) | -1.0 (-1.7, -0.3)** |
| Racial category      |     |    |            |
| Black                | -1.6 (-2.7, -0.4)** | -0.1 (-1.5, 1.2) | -1.4 (-3.1, 0.2) |
| Other race           | -2.3 (-4.2, -0.5)*  | 1.8 (0.2, 3.5)*  | -4.2 (-6.6, -1.8)** |
| Multiple race        | -3.1 (-4.5, -1.6)** | -3.7 (-5.7, -1.7)** | 0.5 (-1.7, 2.7) |
| Hispanic             | -0.9 (-2.5, 0.7)    | 2.7 (-1.9, 7.4)  | -3.6 (-8.0, 0.7) |
| White                | -0.5 (-0.9, -0.1)** | -0.5 (-1.5, 0.4) | 0.0 (-0.9, 0.9) |

<138% FPL

| Expansion status (%) | Yes | No | Difference |
|----------------------|-----|----|------------|
| <138% FPL            | -1.9 (-3.2, -0.6)** | 0.6 (-1.0, 2.3) | -2.1 (-4.1, -0.1)* |
| 138%–400% FPL        | -1.2 (-2.0, -0.4)** | 0.5 (-0.7, 1.7) | -1.3 (-2.6, -0.1)* |
| >400% FPL            | -0.3 (-1.0, 0.5)    | 0.1 (-0.9, 1.2) | -0.3 (-1.4, 0.8) |

Unadjusted rates in 2019:

| Expansion status (%) | Yes | No |
|----------------------|-----|----|
| Overall              | 13.7| 19.0|
| Racial category      |     |    |
| Black                | 15.4| 21.2|
| Other race           | 20.8| 25.9|
| Multiple race        | 11.4| 17.3|
| Hispanic             | 16.6| 23.9|
| White                | 11.8| 16.2|
| Household income     |     |    |
| <138% FPL            | 21.5| 31.1|
| 138%–400% FPL        | 13.9| 17.3|
| >400% FPL            | 7.1 | 8.7 |

Adjusted changes 2019–2020:

| Expansion status (%) | Yes | No | Difference |
|----------------------|-----|----|------------|
| Overall              | -3.5 (-3.9, -3.1)** | -3.6 (-4.3, -2.9)** | 0.1 (-0.6, 0.9) |
| Racial category      |     |    |            |
| Black                | -3.4 (-4.6, -2.1)** | -3.1 (-6.0, -0.2)* | -0.2 (-3.3, 2.7) |
| Other race           | -5.1 (-6.1, -4.1)** | -5.7 (-6.7, -4.6)** | 0.5 (-0.9, 2.0) |
| Multiple race        | -2.6 (-3.6, -1.5)** | -2.3 (-5.7, 0.9) | -0.2 (-3.1, 2.8) |
| Hispanic             | -5.5 (-8.6, -2.5)** | -1.5 (-7.2, 4.2) | -4.0 (-9.7, 1.7) |
| White                | -3.1 (-3.5, -2.8)** | -3.2 (-4.0, -2.4)** | 0.0 (-0.01, 0.1) |
| Household income     |     |    |            |
| <138% FPL            | -6.1 (-6.9, -5.2)** | -5.7 (-7.3, -4.2)** | -0.2 (-1.9, 1.5) |
| 138%–400% FPL        | -3.5 (-4.0, -2.9)** | -3.3 (-4.1, -2.6)** | 0.0 (-0.9, 0.9) |
| >400% FPL            | -1.4 (-1.9, -0.9)** | -0.8 (-1.8, 0.1) | -0.5 (-1.5, 0.4) |

The exhibit displays changes in the percentage of noninstitutionalized US adults aged 18–64 years who reported that they lacked insurance coverage. “Expansion states” are those that expanded eligibility for Medicaid by the end of 2020. Standard errors are adjusted for clustering at the state level. Weighted means using BRFSS sampling weights.

†Regression estimates adjusted for covariates described in the text. Numbers in parentheses represent 95% CIs.

‡Difference between expansion and nonexpansion states in changes over time, adjusted for covariates.

§BRFSS 3-level race/ethnicity category.

††Income group is defined as an imputed percentage of federal poverty level (FPL); see the Appendix for more details.

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CONCLUSIONS

Taken together, our findings suggest modest improvements in overall insurance coverage within Medicaid expansion states during the COVID-19 pandemic. Our results also comport with prior work suggesting a shift toward public coverage may have blunted pandemic-related losses of employer-sponsored health insurance.23,24 Moreover, these results reinforce the value of Medicaid expansion as one tool to improve access to health insurance and care for marginalized and vulnerable populations, even during intersecting public health and economic crises.

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