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The impact of the Affordable Care Act on health insurance coverage in the Gulf Coast and the Rest of the United States by rural and urban areas

Hosik MIN[1], Kenneth HUDSON[1]

Affiliations:

[1] 1 PhD., Associate Professor, Department of Sociology, Anthropology, and Social Work, University of South Alabama, Mobile, Alabama, USA.

Corresponding author:

Dr Hosik Min, Department of Sociology, Anthropology, and Social Work, University of South Alabama, Mobile, Alabama 36695, USA. Email: hmin@southalabama.edu.

Abstract

Introduction: This study examines the effects of the Affordable Care Act (ACA) on rural and urban health insurance coverage in the Gulf Coast region of the United States, which includes five states: Alabama (AL), Florida (FL), Mississippi (MS), Louisiana (LA), and Texas (TX).
Methods: Data from the 2009 and 2015 American Community survey micro-sample was used to examine the effects of ACA policy on health insurance coverage in the Gulf Coast states and the rest of the nation. Health insurance coverage rates were presented before and after the implementation of the ACA for rural and urban areas in the Gulf Coast states region and for the rest of the nation. Multivariate logistic regression was used to estimate the likelihood of coverage net of relevant socio-demographic and labor market variables.
Results: Our results show the implementation of the ACA increased health insurance coverage nationwide but was still less in the Gulf Coast states than rest of the nation, and less in rural than urban areas. Within the Gulf Coast states region, the increase in coverage varied by state and by rural and urban areas. In Alabama and Mississippi, the net increase in rural areas was 26.2% but in Florida, Texas, and Louisiana, it was only 0.8%. Coverage increased in urban areas in all of the Gulf Coast (28% for AL and MS, 54% in FL, LA, and TX) but less than the rest of the nation (85%). The health insurance coverage for the rural area compared to urban area after the ACA implementation was higher by 17% in Alabama and Mississippi, yet lower by 23% in Florida, Louisiana, and Texas.
Discussion and Conclusions: Although the Gulf Coast states did not expand their Medicaid programs, each of the states showed some increase in health insurance coverage after the implementation of the ACA. Future research should examine the health insurance area boundaries on insurance coverage and the effects of the Medicaid Waiver program and in each state.

Riassunto

Introduzione: Questo studio esamina gli effetti dell'Affordable Care Act (ACA) sulla copertura assicurativa sanitaria nei centri rurali ed urbani nella regione della Costa del Golfo negli Stati Uniti d'America, che include cinque stati: Alabama (AL), Florida (FL), Mississippi (MS), Louisiana (LA) e Texas (TX).
Methods: Sono stati usati i dati dal 2009 al 2015 del microcampione dell'American Community survey per esaminare gli effetti della ACA sulla copertura assicurativa sanitaria nei Paesi del Golfo e nel resto degli Stati Uniti d'America. I tassi di copertura assicurativa sanitaria sono stati presentati prima e dopo l'implementazione dell'ACA nelle aree rurali ed urbane degli Stati del Golfo e nel resto della nazione. E' stata usata la regressione logistica multivariata per stimare la probabilità di copertura al netto di rilevanti variabili socio-demografiche e del mercato del lavoro.
Results: I nostri risultati dimostrano che l'implementazione dell'ACA ha incrementato la copertura assicurativa sanitaria in tutta la nazione, ma ciò si è verificato di meno negli Stati del Golfo che nel resto della nazione e di meno nelle aree rurali rispetto a quelle urbane. All'interno della regione degli Stati del Golfo, l'incremento nella copertura variava in base allo stato ed al tipo di area (urbana o rurale). In Alabama e Mississippi, l'incremento netto nelle aree rurali è stato del 26.2% ma in Florida, Texas e Louisiana, solo dello 0.8%. La copertura è aumentata nelle aree urbane in tutti gli Stati del Golfo (28% per AL e MS, 54% in FL, LA e TX) ma meno che nel resto della nazione (85%). La copertura assicurativa sanitaria per le aree rurali rispetto a quelle urbane dopo l'implementazione dell'ACA è stata più alta del 17% in Alabama e Mississippi, ma più bassa del 23% in Florida, Louisiana e Texas.
Discussione e Conclusioni: Sebbene gli Stati del Golfo non abbiano aumentato i loro programmi Medicaid, è stato evidenziato per ciascuno di essi un incremento nella copertura assicurativa sanitaria dopo l'implementazione dell'ACA. In futuro gli studiosi dovrebbero esaminare le aree di confine dell'assicurazione sanitaria sulla copertura e gli effetti del programma Medicaid in ciascun stato.

TAKE-HOME MESSAGE

In the U.S., the implementation of the 'Affordable Care Act' increased health insurance coverage nationwide, but it was still less in the Gulf Coast states than rest of the nation, and less in rural than urban areas. The policy factors, such as Medicaid expansion and insurance coverage boundary, rather than socio-demographic ones, might have a decisive role in contrasting disparities.

Competing interests - none declared.

INTRODUCTION

The disparity between rural and urban access to health care has long been an important public health issue in the United States [1, 2]. Rural deficits in the availability and utilization of medical services have resulted in significant regional variation in mortality and morbidity. One of the major factors contributing to the urban-rural disparity is health insurance coverage. Individuals without health insurance are less likely to seek and receive medical attention when they are ill, and they are also less likely to receive preventative care on a routine basis [1, 2]. Because of the high cost of health care, most Americans cannot afford to pay for healthcare 'out of pocket' and rely on insurance to access care. Individual and families who are not covered by government programs, such as Medicare or Medicaid, typically obtain health insurance coverage either through their employer or they purchase it privately. Finally, many others are covered by the health insurance of a family member. In spite of the numerous ways Americans obtain coverage, a large segment of the population has no health insurance from any source [3, 4].

The absence of universal health insurance coverage has had a negative effect on life expectancy in the United States. Although average per capita health care costs in the U.S. are some of the highest in the world, American life expectancy is ranked in the middle among developed countries [5]. Until the implementation of the Patient Protection and Affordable Care Act (referred to hereafter as the ACA), more than one out of six Americans did not have health insurance from any source. The ACA was signed into effect in the U.S. in 2010 for providing better coverage of health insurance for Americans and lowering the overall cost of healthcare [6]. Although the ACA has greatly reduced the percentage of American without coverage, in 2015 about one of ten Americans still did not have health insurance [7].

Although the ACA is not a universal healthcare system, such as we find in other developed countries [5], it significantly increased health insurance coverage in the United States [3, 8, 9]. Between its implementation in 2014 and early 2016, about 20.0 million American obtained health insurance for the first time [10]. As more states have decided to join those that have expanded their Medicaid program, insurance coverage nationwide has continued to increase. However, at this time, there are still 21 states that have not expanded their Medicaid program [11, 12]. One of the benefits of the ACA for public health has been the increase in health insurance coverage among rural residents. Prior to its implementation, rural residents had a much lower percentage of health insurance coverage than their urban counterparts [13–15]. Although the ACA increased health insurance coverage for all Americans, nationwide rural residents benefitted more [13, 16]. The benefit to rural communities, however, has varied by region and state. This variation is the focus of this paper. In this study, we examine the effect of the ACA on rural and urban health insurance coverage in the Gulf Coast region, which includes five states: Alabama, Florida, Mississippi, Louisiana, and Texas. In addition to their geographical proximity, these states share many social and demographic characteristics [9]. Compared to the rest of the nation, the Gulf Coast states have a higher proportion of residents that are minorities, who are poor, and that have lower levels of educational attainment. The Gulf Coast states also have a greater percentage of residents that are uninsured [9]. When the Patient Protection and Affordable Care Act (PPACA) was implemented in 2014, all of the Gulf Coast states refused to participate in the Medicaid expansion. Although Louisiana expanded its Medicaid program in 2017, this occurred after the collection of the data used in this study [17]. Within the Gulf Coast region, there is substantial variation in both demography and insurance coverage. In Florida and Texas, Hispanics are the largest minority, but in the other Gulf Coast states, African Americans are the largest minority. Alabama, Louisiana, and Mississippi are also more rural than Florida and Texas [9, 18]. Although the ACA has increased health insurance coverage in

all the Gulf Coast states, the impact on rural and urban areas has varied by state. The aim of this study is to examine the pattern of this difference in the Gulf Coast states, the United States (all States) and the Rest of the Nation and assess whether the state differences in rural and urban coverage persist when controlling for relevant individual-level demographic and socio-economic characteristics based on prior studies [2, 4, 10, 16, 19–22].

METHODS

Study procedures and data collection

In this study, data from the American Community Survey (ACS) were used to examine the impact of ACA on rural and urban areas in the Gulf Coast states and the Rest of the Nation. The ACS is an annual survey of about three million U.S. households. It also collects information from people living in institutional or group quarters [23]. The ACS was created by the Census Bureau to replace the Decennial Census 'long-form', which collected information in addition to the usual data obtained from everyone participating in the census. Unlike the Decennial Census, the ACS collects data every year. The ACS samples include households from 3,141 U.S. counties (or county equivalents). ACS is also a 'sequential mixed-mode survey.' First, the Census Bureau mails all households in the sample the ACS questionnaire. Second, households that do not respond to the mail survey are contacted by telephone. Finally, a sample of the remaining non-respondents is selected for an in-person survey. Since the ACS began in 2005, it has had a typical response rate of 96 percent. The ACS data is used to produce two types of data products. These include a set of predefined 'summary' tables based on information collected from all respondents participating in the ACS and a sample of the individual ACS respondents (the Public Use Micro Sample- PUMS). The predefined summary tables, which generally cross-tabulate three or more variables (e.g., insurance status by race by state), can be obtained through the Census Bureau American Factfinder data sy-

stem that is available online. The population estimates in the predefined data tables are based on data collected in a one-year period, a three-year period, or a five-year period [23, 24]. The ACS PUMS is a one percent sample of the U.S. population and includes approximately one-third of all the records in the entire ACS sample [25].

The ACS contains most of the items that were included on the Decennial Census long form, including measures of income (and a derived measure of poverty), disability status, marital status, education, occupation, home-ownership, and so on. The ACS also includes important information about health insurance coverage, which is the focus of this study. In developing the health insurance question, the Census Bureau attempted to maximize reliability while minimizing under-reporting and item nonresponse. The ACS collects information about the insurance coverage status of every person in the household at the time of the survey. In this paper, the ACS PUMS data from the 2009 and 2015 ACS years were used. These data were collected before and after the implementation of ACA in 2014. In this study, we limited the age range to adults who are under 65; respondents who are older are usually covered by Medicare or Medicaid [26].

In this study data for the United States (all states), the Gulf Coast states region (Alabama, Mississippi, Florida, Louisiana, and Texas), the rest of the nation (all states except those included in the Gulf Coast states), and the individual Gulf Coast states was examined [27]. Our analysis included a descriptive comparison of insurance coverage in rural and urban areas in each of the aforementioned geographic entities (Table 1). Next, in Table 2, descriptive information was presented for each of the variables used in our multivariate analyses. Our multivariate analysis examines the effect of ACA in rural and urban areas, net of the effects of other relevant variables (Table 3).

Study variables

The dependent variable in this study was a

dichotomous measure indicating the respondent's response to the following question: 'Do you have any health insurance coverage?' (Yes = 1, No = 0). The independent variables included measures of individual, socio-economic, and geographic characteristics that are likely to affect health insurance coverage. These include age, gender, marital status, race-ethnicity, educational attainment, employment status, urbanicity, and poverty status. Age was recoded into two age groups, age 18 to 44 and age 45 to 64. Gender was measured with a dummy variable indicating whether the respondent is female or not. Our measure of marital status included five categories (married, separated, divorced, widowed, and never married). Respondents labor force status included three categories: employed, unemployed, and not in the labor force. The variable for racial or ethnic minority status was dichotomized into all groups or white Non-Hispanics. Our measure of educational attainment considered four categories (less than high school, high school diploma or General Education Diploma (GED), some college, and college and higher). Poverty status was also measured with a dichotomous variable indicating whether or not the respondent was living in a family with an income below the federal poverty threshold at the time of the survey (Federal poverty threshold are the original version of the federal poverty measure and updated by the U.S. C Census Bureau every year, this study used 125% of the household income level as a threshold) [28, 29].

The last two independent variables were central to our analysis and permitted us to test whether the effect of the ACA was different for rural and urban areas. The ACS provides a measure of urbanicity for all Public Use Micro-Sample Areas (PUMAs) in the United States. Residents categorized as *metro or urban* include those who live in a central or principal city or outside the central or principal city. Residents whose central or principal city status was 'unknown' were also designated as *metro* [30]. Residents living outside a metropolitan area were designated as *non-metro or rural*. The year of the survey

was another important independent variable, which was central to our analysis. Data from the 2015 ACS was coded as '1', whereas data from the 2009 ACS as '0'. In our multivariate analysis, we combined this information with the respondents' *rural v. urban* status to create an interaction term *rural*year* (2015). This new variable indicated whether the change in health insurance coverage before (2009) and after (2015) the implementation of the ACA was different for rural and urban areas. Means (percentages) and standard deviations for each of the variables were used in the multivariate analysis, including the reference groups. All of the variables used in our analysis were dummy variables with values of 0 and 1. Statistical significance was set up at $P < 0.05$.

Data analysis

The ACS data used in this study were obtained from de-identified public use files that are available from the IPUMS website at the University of Minnesota (ipums.org) [31]. In our multivariate analysis, the effects of the ACA implementation on health insurance coverage were examined in the two groups of the Gulf Coast states and the 'rest of the nation.' Each of the models controlled for the effects of socio-demographic and labor market characteristics. They also controlled for whether or not the individual lived in a family with an income below the poverty threshold, whether or not the individual lived in a rural or urban area, and the year of the survey. Finally, each of the models was estimated with and without an interaction term for rural*year, which indicates how the effect of the ACA implementation differed in rural and urban areas.

RESULTS

Overall results confirm our expectation that the benefits of the ACA differ by region and by rural and urban areas. Table 1 presents the percentage of residents with health insurance coverage for rural and urban areas, before and after the implementation of the ACA. This information is presented for the United States, the 'rest of the nation' (all states other

than the Gulf Coast states), and for each of the individual Gulf Coast states.

As expected, health insurance coverage in the United States increased from 2009 to 2015 in both rural and urban area, but the increase was greater in rural areas (6.82%) than urban areas (5.84%). The increases in coverage in the 'rest of the nation' were very similar, 6.72% in rural areas and 5.96% in urban areas. In the Gulf Coast states region, however, the opposite was true; the increase in coverage in rural areas (4.79%) was less than the average increase in urban areas (5.40%). Overall, coverage was less in the Gulf Coast states than in the 'rest of the nation,' before and after the implementation of the ACA. The pattern of coverage changes within the Gulf Coast states varied substantially. Indeed, in Alabama and Mississippi, the increases in coverage were greater in rural areas, but the opposite was true for Florida, Louisiana, and Texas where the increase in health insurance coverage was greater in urban areas.

Table 2 presents descriptive statistics for the rest of the nation and the two groups of Gulf Coast states. Respondents in the Gulf Coast states are somewhat younger than the respondents in the rest of the nation. Nearly half of the combined population of Florida, Louisiana, and Texas are racial or ethnic minorities, a greater percentage than in the other Gulf Coast states and the rest of the nation. The Gulf Coast states have a greater percentage with less than a high school education and a smaller percentage with graduate or advanced degrees. Alabama and Mississippi have a smaller proportion of people with jobs and a greater percentage of people living in poor families than either the other Gulf Coast states or the rest of the nation. A much greater percentage of people in Alabama and Mississippi live in rural areas, approximately 30% compared to less than 6% for the other Gulf Coast states and 12% for the rest of the nation.

In the final part of our analysis presented in Table 3, we examine the effects of the ACA on the likelihood of having health insurance coverage, net of the effects of relevant socio-demographic and labor force variables.

The effects of the control variables are what we expected at the outset of our study. Younger respondents were less likely to be insured than those that were older and women were more likely to be insured than men, net of the effects of the other variables included in the model. People who were single, divorced, widowed, or who had never been married were less likely to have health insurance than individuals who were married. Respondents with higher levels of educational attainment were also more likely to have insurance coverage, even when controlling for labor force status and other variables. In contrast, individuals who were unemployed or out of the labor force, and those who were living in families that were poor, were more likely to be uninsured. Overall two comparative points are noteworthy. Respondents in Alabama and Mississippi without a high school diploma or GED were less likely to be insured than residents in the other Gulf Coast states or in the rest of the nation. Poor respondents in the Gulf Coast states were also less likely to have health insurance than poor respondents in the rest of the nation. Three variables provide a test of the how the ACA affected health insurance coverage in rural and urban areas: rural, year (2015), and the interaction term, rural*year. We have estimated the models for the two Gulf Coast groups the rest of the nation, both with and without the interaction term.

In each of the models (Models 1, 2 & 3), the interaction term was significant, which means that the effect of the implementation of the ACA (year = 2015) is different for rural and urban area. A comparison of the -2 log likelihoods also shows that the addition of the interaction term results in a statistically significant improvement in the fit of the models. Thus, our computation of effect the ACA on the odds of having health insurance coverage combines the two main effects (rural and year) with the interaction term (rural*year). Note that for urban residents, the effects of the variable for rural and the interaction term are equal to 0. For the 'rest of the nation,' the implementation of the ACA increased the odds for urban areas by 86% (OR = 1.86, CI

Table 1. Health insurance coverage for the United States, Gulf Coast states, The Rest of the Nation, and individual Gulf Coast states*.

	Non-metro			Metro		
	2009	**2015**	**Percentage Change**	**2009**	**2015**	**Percentage Change**
Unites States	79.41	86.23	6.82	82.56	88.40	5.84
Rest of the Nation	80.67	87.39	6.72	84.06	90.02	5.96
Gulf Coasts (Average)	71.76	76.55	4.79	75.96	81.36	5.40
Alabama	78.83	84.81	5.98	83.08	85.36	2.28
Florida	75.41	80.40	4.99	79.57	81.36	1.79
Louisiana	64.30	65.10	0.80	76.07	82.74	6.67
Mississippi	72.59	77.00	4.41	78.87	83.29	4.42
Texas	67.89	69.29	1.40	73.95	79.35	5.40

* %s are Weighted.
* Sample N=3,765,447

Table 2. Descriptive statistics for the Gulf Coast states and the rest of the nation*.

	Rest of the Nation	Gulf Coasts	
	Rest of the Nation	**AL & MS**	**FL, LA, & TX**
Unweighted N	**(N = 3,093,177)** %	**(N = 92,855)** %	**(N = 579,415)** %
Health Insurance Coverage	84.56	80.05	74.14
Age Group			
Age (18-44)	58.23	58.22	59.64
Age (45-64)			
Female	50.15	51.57	50.12
Marital Status			
Married	50.25	48.61	49.41
Divorced, Separated, or Widowed	14.95	18.46	17.02
Never Married	34.80	32.93	33.57
Racial or Ethnic Minority	34.17	36.76	49.32
Post–Secondary Education			
Less than High School	10.22	13.26	13.57
High School/GED	35.64	48.69	36.38
Some College	25.74	27.71	25.60
College and Post-Graduate	28.40	20.34	24.45
Employment Status			
Employed	70.75	64.20	69.30
Unemployed	6.08	6.52	5.85
Not in Labor Force	23.17	29.28	24.85
Poverty	15.59	21.02	16.91
Rural	12.00	30.05	5.79
Year (2015)	50.67	50.34	52.21

*Percentages are weighted

Table 3. Logistic regression of health insurance coverage on the ACA, and demographic and labor force variables, 2009 and 2015.

	Model 1 Rest of the Nation (N = 3,093,177) Odds Ratio				Model 2 AL & MS (N = 92,855) Odds Ratio				Model 3 FL, LA, & TX (N = 579,415) Odds Ratio			
Age 18-44	0.64	*	0.64	*	0.57	*	0.57	*	0.61	*	0.61	*
(Reference Group = Age 45-64)												
Female	1.36	*	1.36	*	1.46	*	1.46	*	1.31	*	1.31	*
Marital Status												
Divorced, Separated, or Widowed	0.53	*	0.53	*	0.54	*	0.54	*	0.62	*	0.62	*
Never Married	0.65	*	0.65	*	0.72	*	0.72	*	0.77	*	0.77	*
(Reference Group = Married)												
Racial or Ethnic Minority	0.50	*	0.49	*	0.75	*	0.75	*	0.48	*	0.48	*
Post-Secondary Education												
Less than High School	0.57	*	0.57	*	0.58	*	0.58	*	0.55	*	0.55	*
Some College	1.46	*	1.46	*	1.61	*	1.61	*	1.59	*	1.59	*
College and Beyond	2.96	*	2.96	*	3.75	*	3.75	*	3.07	*	3.07	*
(Reference Group = High School/GED)												
Employment Status												
Unemployed	0.37	*	0.37	*	0.32	*	0.32	*	0.36	*	0.36	*
Not in labor force	0.88	*	0.88	*	0.88	*	0.88	*	0.85	*	0.85	*
(Reference Group = Employed)												
Poverty	0.58	*	0.58	*	0.41	*	0.41	*	0.42	*	0.42	*
Rural	0.75	*	0.76	*	0.89	*	0.83	*	0.78	*	0.83	*
Year (2015)	1.84	*	1.86	*	1.35	*	1.28	*	1.53	*	1.55	*
Rural*Year			0.95	*			1.17	*			0.77	*
Constant	14.51	*	14.46	*	12.09	*	12.43	*	9.28	*	9.20	*
-2 Log Likelihood	-1054622		-1054611		-37385		-37377		-260089		-260051	
X^2	326967		326989		13082		13098		95106		95182	

Note: *<.001

1.84 to 1.87), yet rural area decreased by 24% (OR = 0.76, CI 0.75 to 0.77). The interaction variable showed that the health insurance coverage for the rural area after the ACA implementation was still lower than that of an urban area by 5% (OR = 0.95, CI 0.94 to 0.97). The odds ratios were increased from 0.76 to 0.95, but still showed the rural area's disadvantage for health insurance coverage. The same pattern was found in Florida, Louisiana, and Texas: the odds ratio for urban was 1.55 (CI 1.53 to 1.57), for rural was 0.83 (CI 0.81 to 0.86), and for the interaction variable was 0.77 (CI 0.72 to 0.81). Alabama and Mississippi, however, showed the opposite result for the interaction variable: the health insurance coverage for the rural area after the ACA implementation was still higher than that of an urban area by 17% (OR = 1.17, CI 1.09 to 1.27). The other two variables, rural and year, showed similar results as in Florida, Louisiana, and Texas. In other words, rural residents in Alabama and Mississippi benefited more from the ACA compared to other 3 Gulf Coast states.

DISCUSSION

Nationwide, the increase in health insurance coverage after the implementation of the ACA was greater for individuals living in rural areas than it was for those living in metro areas [13–16]. However, previous research has not examined how the ACA has affected health insurance coverage in the Gulf Coast states region. In this study, we find that the increase in health insurance in the Gulf Coast states was greater in urban areas than in rural areas. We also find that increases in rural and urban coverage varied greatly among the states in the Gulf Coast region, especially when we control for relevant socio-demographic and economic variables. In Alabama and Mississippi, the ACA improved coverage more in rural than urban areas. The overall health insurance coverage for the rural area was still lower than in urban areas. However, the ACA had little or no effect on rural coverage in Florida, Louisiana, and Texas, and the increase in urban areas was greater than it was

in the other Gulf Coast states.

There are several possible explanations for this difference between the two groups of Gulf Coast states. First, a smaller proportion of the population in Florida, Louisiana, and Texas live in rural (non-metro) areas than the other two Gulf Coast states. Less than 7% of the total population in these three states live in rural (non-metro) areas (see Table 2), and it may be the case that rural residents in these states lack the political power to affect the states' health insurance coverage policies. Second, the Medicaid Waiver program in Texas put more effort into increasing coverage in the urban areas than rural areas [32, 33]. Third, another possible factor is a difference in the way Gulf Coast states draw their health insurance area boundaries [34, 35]. According to Dickstein and his colleagues (2015) [35], Florida, which has 67 counties, uses counties to define health insurance boundaries. However, there are other states, such as Tennessee, that combine urban counties with adjacent rural counties into a single insurance coverage area. Because this enlarges the coverage pool to include rural residents, it lowers their health insurance premiums. This suggests that rural residents in Florida, Texas, and Louisiana may have had higher premiums compared to other states because of the way they define health insurance coverage areas.

The complexity of our findings in this study has important implications for health policy and for assessing the effects of the ACA. First, future research on the ACA should take into account the effects of state Medicaid Waiver programs and the way different states construct their health insurance area boundaries. Second, at the time the data was collected for our study, not all of the Gulf Coast states had expanded their Medicaid, which was intended to provide coverage for individuals and families with incomes below the federal poverty threshold [1]. This was true for most of the states in the South. Consequently, the proportion of residents covered by Medicaid in the South is lower than in other parts of the country where states expanded their Medicaid program [36]. This has profound

implications for low-income groups and communities, especially for minority health disparities (to date, Louisiana is the only one of the five Gulf Coast states that have opted to participate since 2015).

Study limitations

There are a couple of limitations in this study. First, the information about the Medicaid Waiver programs for each state is minimal, especially information about the program's effectiveness [36, 37]. Second, information about the health insurance coverage areas is only available for Florida. In order to assess the differential impact of the ACA on rural and urban areas, this information would have been needed for all states.

CONCLUSION

Further study of the effect of the ACA on rural and urban health insurance coverage and other states is necessary to have a complete understanding of the impact of the Medicaid Waiver programs and the effect of health insurance area boundaries [33–36], as described above. This would aid state governments developing more effective policies in their efforts to increase health insurance coverage overall and in reducing the insurance coverage gap between metro and non-metro populations.

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