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The impact of health insurance on preventive care utilization: An evidence from the Graves County in Kentucky.

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Abstract

Private health insurance is the primary source of coverage for most Americans. During the year 2016, 91.2% American had health insurance coverage (Bureau, US Census: 2016). The un-insurance rate in Kentucky decreased from 15.9% in 2009 to 8.5% in 2014. It is a common belief that health insurance impacts positively to preventive care including vaccination and screening. This may be the case for urban educated and high-income dwellers. However, rural population are usually less educated with lower income. This study aims to analyze the impacts of health insurance on preventive care utilization in a rural setting, Graves County, Kentucky. We find a strong correlation between having health insurance and preventive care utilization. Our regression analysis shows that both private and employer provided insurance are good predictors of preventive care utilization. The findings are crucial to the health planners and policy makers.

Key Words: Health Insurance; Health Care; Preventive Care Utilization; Rural Health

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1. INTRODUCTION

In the U.S., the rural area is generally underserved with primary care physicians (PCPs)1 and have limited access to health care2. Rural elders have poorer functioning than their urban counterpart3. There is a wide gap in health seeking behaviors between rural and urban areas of Kentucky4. Rural women have higher rate of cardiovascular, lung disease and type 2 diabetes5. KY ranks 40th among the United States in its PCP workforce per 100,000 people6. In 2018, there were 124.1 PCPs in KY against 156.7 nationwide7. Although 40% of Kentuckians live in rural areas, only 17% of PCPs practice in rural areas.

Health insurance is a predisposing factor of healthcare utilization as well as preventive care utilization8. Health insurance increases outpatient, inpatient and preventive care utilization. Insurance coverage reduces ambulatory care sensitive to hospital admission. Freeman et al. (2008)9 found that health insurance had substantial effects on the use of physician services, preventive services, self-reported health status, and mortality conditional on injury and disease. Private health insurance is the primary source of coverage for most Americans. During the year 2016, 91.2% American had health insurance coverage10. The un-insurance rate in Kentucky decreased from 15.9% in 2009 to 8.5% in 2014. It is a common belief that health insurance impacts positively to preventive care including vaccination and screening. This may be the case for urban educated and high-income dwellers. However, rural population are usually less educated with lower income.

Affordable Care Act (ACA) includes several provisions to enhance preventive service coverage. The law also

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mandates that all private insurance plans and Medicare coverage must include preventive services without any cost sharing. Thus, it is essential to understand how insurance enhances coverage of preventive services that impacts the use of preventive care at the rural level. This study aims to analyze the impacts of health insurance on preventive care utilization in a rural setting, Graves County, Kentucky. Majority of the existing studies looked at the macro level effects. In this study our focus is on the micro-level situation. There are evidence that health insurance increases health care utilization including preventive care utilization, however, what preventive care services are influenced is not clear. We attempt to clarify what are the preventive care services that are greatly influenced by health insurance.

The main objectives of the study are to analyze the impacts of health insurance on preventive care utilization at macro-level rural setting, and to share the findings with the local level planners and decision makers.

2. DATA & METHODS

In summer 2016, 480 individuals in Graves County, Kentucky participated in a survey examining access to preventive healthcare services. In collaboration with the Graves County Health Department, we disseminated survey links via flyers at health departments, physician offices, and retail pharmacies. To reach a wider variety of community members, we also provided survey links via flyers and hard copy surveys at the Graves County Farmer's Market. We employed a mixed method (convenience plus randomly assigned) to collect the samples. The following 7 measures of preventive care were examined: Prostate exam, Pap smear, mammogram, colonoscopy, dental, vision, and hearing.

3. GRAVES COUNTY

The Graves County is located in the southwest boarder of the U.S. Commonwealth of Kentucky. The estimated population as of July 2018 is 37,317 with a per capita income of U.S. $21,27711. Thirty seven percent of the population lacks of physical activity, 36% are obese and 73% is overweight. The prevalence of smoking among adults is 22%, and 11% of the adults are diabetic12.

4. FINDINGS

4.1 Descriptive statistics

Among the samples, 45.61% have had insurance. This is a low percentage. Sixty eight percent of the female samples were referred and received Pap smear screening. Of them, about 4% were referred but did not receive the test. 10% of them were not referred, however received the test. 18% of them neither referred nor received the test. Colonoscopy services were referred to 32% of the samples and 60% were neither referred nor received the services. However, 6% of the samples were not referred but received the services. Mammograms were advised to 46% of the patients and eventually they received the services. However, 45% were neither advised not received the services. 25% of the samples were referred and received skin examination. However, 67% were neither referred nor received the services. 60% of the samples were referred to the dental doctors for checkups. 12% of them were not referred but received the services. 63% of the samples received vision examination and received the services and 25% were neither referred nor received the services. In respect of hearing services only 18% had received the service and were referred. A bulk of the samples (75%) were neither referred nor received hearing checkups. A summary of the descriptive statistics is seen in table 1.

Vaccination is a broad category of preventive services. A total of 10 vaccines were included in the questionnaire. Among those, up-to-date vaccination was achieved for Diphtheria and pertussis (TDaP) (76%), measles, mumps and Rubella (MMR) 65%, varicella (56%), Hepatitis-B (55%, and Influenza (52%). Among the rest, HPV (27%), Zoster (18%), Pneumonia (33%0, Hepatitis-A (42%), and Meningitis (27%) were achieved in a lower percentage (Figure 1).

Preventive services	Pap smear%	Mammo-Gram%	Colonos-copy%	Skin exam%	Dental exam%	Vision exam%	Hearing exam%
Referred and received	68.48	46.21	31.78	24.89	59.64	63.01	17.89
Referred but not received	3.54	5.05	6.20	4.29	3.27	2.74	2.29
Not referred but received	9.65	3.25	1.94	3.43	12.36	9.25	5.05
Neither referred nor received	18.33	45.49	60.08	67.38	24.73	25.00	74.77

Table 1: Percentage distribution of preventive services among different categories of activities.

Having insurance through employer is also related to having a PCP. We find a strong correlation between employers' provided insurance and enrollment with a PCP (Chi-square 6.49, p value 0.01).

As the data set is small and the value of each cell does not satisfy for a normal statistical test, therefore, we have conducted a Fisher exact test which shows a strong relationship between having health insurance and utilization of preventive healthcare services. Mammogram, colonoscopy, and skin checkups are highly significant (p value < 0.0001). Pap smear, dental checks and vision is significant (p=0.001), and hearing is not significant (Table 2).

4.2 Utilization of vaccination services

The utilization of 10 vaccination services were assessed. Chi-square test were employed to test of having health insurance and utilization of vaccination services. Influenza and HPV were found highly significant (p<0.0001), TDaP Zoster, Hep-A and Hep-B were found significant (p<0.001) and MMR was found significant (p<0.05). However, varicella, pneumonia and meningitis were found non-significant (Table 3).

Preventive services	Fisher exact test	Significance level
Pap smear	16.85	0.011**
Mammogram	46.93	0.000***
Colonoscopy	25.24	0.000***
Skin check	23.71	0.000***
Dental check	14.10	0.020
Vision checks	15.60	0.001
Hearing checks	3.65	0.32 NS

Table 2: Correlation between utilization of preventive services and having health services.

Vaccines	Chi² test	Significance level
Influenza	23.00	0.000*
TDaP	6.24	0.04*
Varicella	4.32	0.120
HPV	19.46	0.000*
Zoster	7.35	0.025*
MMR	6.12	0.05*
Pneumonia	3.41	0.18
Hepatitis-A	6.92	0.03*
Hepatitis-B	6.31	0.04*
Meningitis	4.43	0.10

Table 3: Results of chi-square test and significance level of different types of vaccines.

5. DISCUSSION AND CONCLUSIONS

These micro-level findings are of great importance to the planners and policymakers. Macro-level evidence are abundant, however, micro-level evidence are rare. Our findings will add evidence at local level planning. The findings suggest a strong relationship between having insurance and utilization of preventive health services, which is concordant with the findings of Buchmuller et. al.8. and Wallece et al.13. Our study suggests that expanding health insurance coverage would increase preventive care utilization and eventually would reduce avoidable hospitalization.

The study has some limitations. A small sample size makes the findings less robust. The mixed method is not a good choice, however due to time and resource limitation we were compelled to use mixed method. Future researchers should avoid this method. Further research is warranted for local level planning for the betterment of the community health.

6. DECLARATIONS

6.1 Acknowledgement:

We would like to thank Graves County Health Department for their all-time collaboration throughout the data collection period.

Funding: This research received no specific grant from any agency in the public, commercial or not-for-profit sectors

6.2 Conflict of interest:

None declared

6.3 Ethical approval

The ethics committee of the Murray State University (IRB) approved this study.

6.4 Contributorship

MT and PM researched literature and conceived the study, and gained ethical approval and completed the interviews. AM analyzed the data and wrote the first draft of the manuscript. All the authors reviewed and edited the manuscript and approved the final version of the manuscript.

6.5 Guarantor:

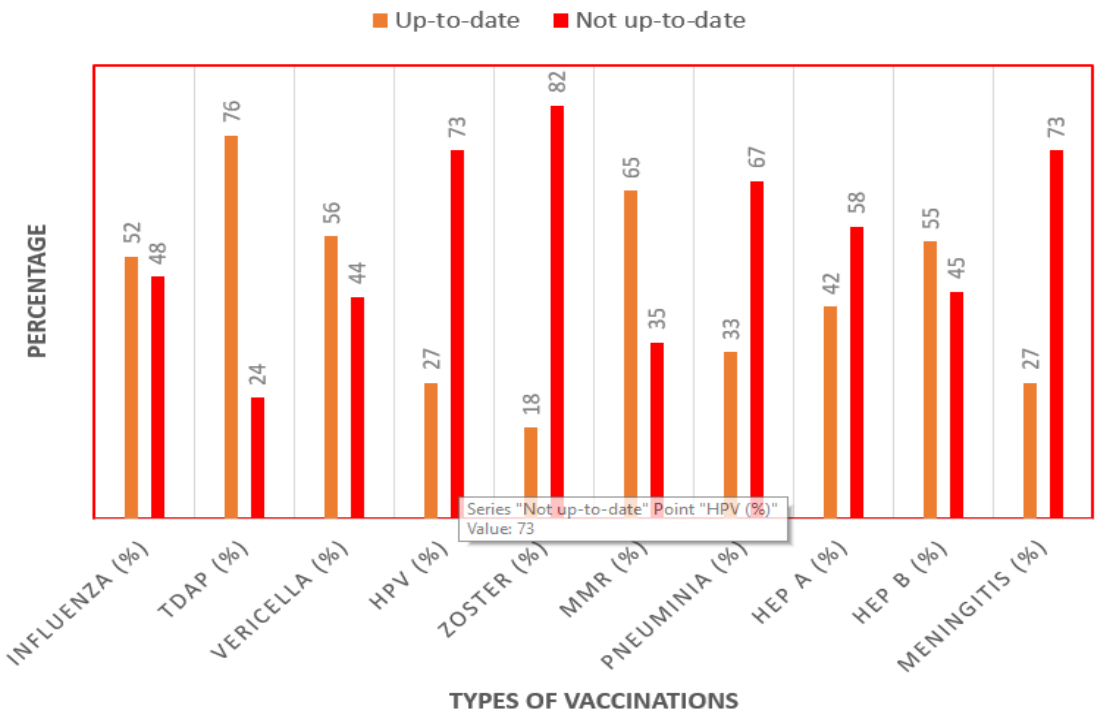

Figure 1: Reported vaccination Status, Graves County, KY, July, 2016

AM is the guarantor of this article.

6.6 Informed participant consent

All participants provided written informed consent for inclusion in the study. All names have been changed to make them anonymous.

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