RESEARCH & CREATIVE ACHIEVEMENT WEEK

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Dental Utilization: The Income Effect of Oral Health Utilization

Introduction

Health and income are related nowadays more than ever. Private insurance and public insurance have major discrepancies in the services that they cover. Those with money can afford to have better care while those who cannot, often go without. Oral health acts as preventative care in many ways. Without it, oral diseases and pain can lead to a poor quality of life (Lee, Somerman 2018). Those who are a part of the low-income population do not receive dental care as often as they should. Medicaid does not provide routine dental care, only emergency services (Decker, Lipton 2015). This paper will look at the relationship between dental care utilization and income through a regression analysis. This study found that income is dependent on several demographic variables.

Methodology

This study will use data from the 2017 Medical Expenditures Panel Survey or MEPS. MEPS asks the noninstitutionalized United States population questions about insurance coverage, spending, and health care use. There were a total of 414 subjects that met the criteria. The independent variables are: sex, race, marital status, age, region, education, United States born status, smoking status, and going to the dentist at least once. Dummy variables were used for women, Hispanic, African American, divorced, never married, region, smoking status, and US born status, and dental visits. The dependent variable is income. A logarithm of income was taken to normalize the data and reduce the likelihood of an error. These were then ran through a multiple regression to determine the impact of each independent variable on income. The null hypothesis is that sex, race, marital status, age, region, education, United States born status, Medicaid coverage, smoking status, and dental visits will not have a statistically significant relationship with income. The alternative hypothesis is that income will be significantly influenced by the independent variables.

Results

The significance F-value represents the model's overall statistical significance and in this model, it was significant at the 99% level. The R^2 value shows how much of the variability in the dependent variable is caused by the independent variables. In this case, the R^2 value is .2712 which means that the model explains 27.12% of the variation. The adjusted R^2 explains the variation when accounting for the number of independent variables. The adjusted R^2 for this model is .2513 which means 25.13% is accounted for by the independent variables. Table 1 shows the P-values for all the independent variables. There were six independent variables that were below the 0.05 alpha level, meaning they are statistically significant. They are: living in the south, never being married, divorced, having at least one dental visit, being female, and age. The least significant variable is education. Chart 1 shows the percent of the study population that received at least one dental visit.

If one were to reside in the South, their income would be 10.13% less than those living in other regions.. Females make 23.11% less than males. If one is of Hispanic race, they make 13.01% less than other races. African Americans make 4.969% more than other races. Those who have never been married make 9.248% more money. Divorced people make 19.51% less than other marital statuses. Those born in the United States make 13.56% more than those who were not. Current smokers make 4.061% more than non-smokers. As age increases, income increases by 0.9297%. As education level increases, income increases by 0.1917%. The difference between going to the dentist at least once a year versus none is a 12.34% raise in income level.

Table 1.

Independent Variable	P Value
Intercept	1.05106E-61
South	0.005066396
AGE	2.29216E-07
Female	1.20173E-07
Hispanic	0.099457144
African American	0.292168106
EDUCATION	0.790437964
Never Married	0.043639864
Divorced	1.92464E-05
Born In US	0.090464469
Current Smoker	0.358732351
Yes Visit	0.003220341

Chart 1.

Percent of Population Utilizing Dental Care

24.5%
75.6%
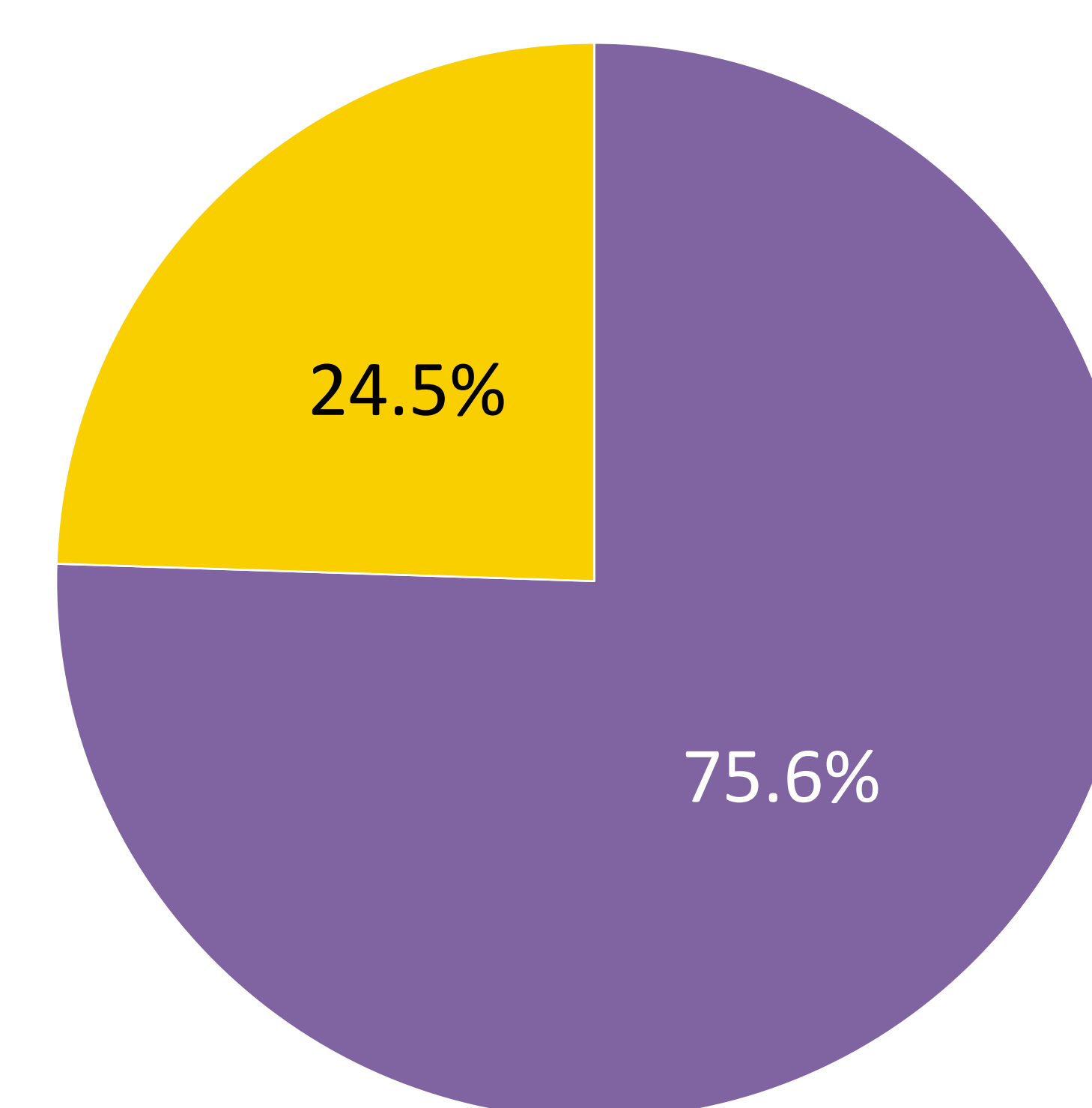
■ No Dental Visit ■ ≥ 1 Dental Visit

Discussion

One finding that is consistent with previous literature is that those who have gone to the dentist at least once a year, make more money. Past studies have determined this is due to the fact that individuals with more income, most likely have private health insurance and are able to afford regular dental services (Sweet 2005). A study done in 2017 looked at how different demographics utilize dental care, and they determined that women and those who were not married used dental services more often (Singhal 2017). This is conclusive with the current studies data as it shows that females, being divorced or never married, have a significant impact on income related to dental utilization. Taking a look at how women make 23.11% less than men can easily be explained by the wage-gap between men and women. Those who are divorced make 19.51% less than other marital statuses, most likely because divorces are expensive. There are several causes for speculations as to why certain demographics have different incomes, but it is clear from the data that those who received at least one dental visit make more money than those who did not.

Conclusion

While the need for dental service coverage among the Medicaid population is clear, many states still do not provide this benefit. It has be determined that there is a significant relationship between health and income, as dental visits increase so does income. There is a need to bridge the gap in dental care utilization and income. Due to the preventative nature of dental care, there needs to be more coverage available to the low-income population.

References

Decker S., Lipton B. (2015) Do Medicaid benefit expansions have teeth? The effect of Medicaid adult dental coverage on the use of dental services and oral health, Journal of Health Economics, Volume 44, Pages 212-225, https://doi.org/10.1016/j.jhealeco.2015.08.009.

Lee J.S., Somerman M.J., (2018) The Importance of Oral Health in Comprehensive Health Care. JAMA. 2018;320(4):339–340. doi:10.1001/jama.2017.19777

Survey Background. (2019, April 22). Retrieved November 6, 2019, from https://meps.ahrq.gov/mepsweb/about_meps/survey_back.jsp