Dental Disparities: A Quantitative & Regional Analysis of Male Oral Health in the United States

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Background

In 2017 the Surgeon General reported a lack of support in the healthcare industry regarding oral health, acknowledging the economic and regional disparities relating to dental care. My study compares insurance coverage, poverty rates, and dental visits to indicators of oral health status and dental care access such as percentage of tooth loss and number of dental related visits. By examining this data, I will be able to answer questions about the accessibility of oral healthcare in the U.S. Population. This study allows further evaluation of an underrepresented aspect of healthcare in the United States.

Research Question & Hypothesis

How and why does oral health differ among males across the fifty states?

There will be no correlation between poverty per capita and tooth loss among males in the fifty states in 2018.

There will be no correlation between health insurance coverage per capita and the number of visits to the dentist among males in the fifty states in 2018.

There is no difference in correlation between men and women oral health in the fifty states in 2018.

Data

These oral health data was collected by the Center for Disease Control surveying all fifty states and territories. These data have been modified to only include the year 2018, does not include U.S. Territories, or CDC coded variables.
These poverty, uninsured, & regional data was compiled from the United States Census in 2018 surveying all fifty states. These data have not been modified.

Methods & Analysis

- When comparing poverty to tooth loss, I ran the Spearman Correlation Assessment because I have a non-normal distribution for my correlation assessment. The results yielded that there is statistically significant positive correlation between poverty and all teeth loss and a negative correlation between poverty and no tooth loss
- When comparing insurance coverage to number of dental visits, I ran the Pearson Correlation Assessment because I have all normally distributed data for my correlation assessment. The results yielded that there is statistically significant negative correlation between insurance coverage and the number of dental visits.
- When comparing correlations between male and female oral health, I ran the Pearson Correlation Assessment because I have normal distributions for my correlation assessment. The results yielded that there is statistically significant negative correlation between the number of dental visits and tooth loss in males. These results were compared to the same data except for females. I ran the Spearman Correlation Assessment because I have a non-normal distribution for my correlation assessment. The results yielded that there is a statistically significant negative correlation between the number of dental visits and tooth loss in females. There is less strong of a correlations in females than in males.

Correlations

			Percent of Poverty Rates by State	All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males	No tooth loss among adults aged 18-64 years - Age-adjusted Prevalence - Males
Spearman's rho	Percent of Poverty Rates by State	Correlation Coefficient	1.000	.865**	-.643**
		Sig. (2-tailed)	.	.000	.000
		N	51	51	51
	All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males	Correlation Coefficient	.865**	1.000	-.599**
		Sig. (2-tailed)	.000	.	.000
		N	51	52	52
	No tooth loss among adults aged 18-64 years - Age-adjusted Prevalence - Males	Correlation Coefficient	-.643**	-.599**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	51	52	52

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Males	All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males	Six or more teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males
Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Males	Pearson Correlation	1	-.739**	-.696**
	Sig. (2-tailed)	.	.000	.000
	N	52	52	52
All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males	Pearson Correlation	-.739**	1	.900**
	Sig. (2-tailed)	.000	.	.000
	N	52	52	52
Six or more teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Males	Pearson Correlation	-.696**	.900**	1
	Sig. (2-tailed)	.000	.000	.
	N	52	52	52

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Percent of the Population that is Uninsured by State	Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Males
Percent of the Population that is Uninsured by State	Pearson Correlation	1	-.534**
	Sig. (2-tailed)	.	.000
	N	51	51
Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Males	Pearson Correlation	-.534**	1
	Sig. (2-tailed)	.000	.
	N	51	52

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Females	All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Females	Six or more teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Females
Spearman's rho	Visits to dentist or dental clinic among adults aged >= 18 years - Age-adjusted Prevalence - Females	Correlation Coefficient	1.000	-.674**	-.636**
		Sig. (2-tailed)	.	.000	.000
		N	52	52	52
	All teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Females	Correlation Coefficient	-.674**	1.000	.842**
		Sig. (2-tailed)	.000	.	.000
		N	52	52	52
	Six or more teeth lost among adults aged >= 65 years - Age-adjusted Prevalence - Females	Correlation Coefficient	-.636**	.842**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	52	52	52

** Correlation is significant at the 0.01 level (2-tailed).

* Refer to handout for additional information*

Results

I reject all my null hypotheses in favor of the alternative hypotheses.

Discussion & Conclusion

All statistical test revealed significant correlation. Why? These test showed disparities throughout certain regions. The South and Midwest were culprits of poor overall oral health. However, these regions also have the lowest highest poverty rates and lowest highest number of uninsured individuals. Despite the stigma that men have poorer overall health than women, there was no major difference in correlations. This allows us to conclude that it is not gender disparities that causes poor oral health, rather economic burdens. By defining regionality we can identify areas in need of additional health care.
Socio-economic factors seem to be the causation of poor oral health in the United States but how can we use this information to narrow the gap? Those who will further pursue research on oral healthcare in the United States will need to consider this question before performing research.
Oral health has been swept under the rug and deemed as not important in the eyes of the medical and political community. Ignoring dental care has only created regional disparities, however through communication, outreach, and education we can lessen these discrepancies.

References

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