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# Oral health comparisons in East, Middle and Western Tennessee and factors associated with unfavorable oral health outcome in the Tennessean elderly.

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## Background and Purpose

- About one in four seniors have periodontal disease
- Significant disparities have been shown to exist between some population groups
- This study aimed to ascertain if differences exist in oral health outcomes among zones of residence in Tennessee. We also sought to explore factors predicting poor oral health outcomes in these zones.
- The state of Tennessee was divided into Eastern, Middle and Western zones
- We postulated that oral health would differ between at least two zones in Tennessee and that socio-demographic and socio-economic factors would predict oral outcome

## Methods

- We combined data from the Behavioral Risk Factor Surveillance System (BRFSS) using data from 2010, 2012, 2014, 2016
- The outcome was number of permanent teeth removed ordered as none, one to five, six or more and all
- Zones were divided into East Tennessee comprising- Kingsport-Bristol-Bristol Tennessee-Virginia metropolitan statistical area, Knoxville, Tennessee Metropolitan Statistical Area, Middle/Central Tennessee comprising (Chattanooga, Tennessee-Georgia, Metropolitan Statistical Area, Nashville-Davidson-Murfreesboro-Franklin, Tennessee Metropolitan Statistical Area and West Tennessee comprising Memphis, Tennessee-Memphis-Arizona, Metropolitan Statistical Area.
- Other independent variables included in our models were general health, could not see a doctor because of cost, history of diabetes, smoked at least 100 cigarettes, use of smokeless tobacco products, adults who had visited a dentist and poor physical health.
- Covariates were income level, education level, employment status, race/ethnicity, year and marital status
- Ordered logistic regression models with logit link function were used to explore for associations

## Results

- In our sample, 37.1% were males and 67.9% were females. Most (43.4%) were married, most had a high school level of education (34%), most were retired (73.5%), most (12.4%) earned less than 25,000 per annum from all sources, most were white (62.7%), and smokers (51.4%) and 31% had at least one teeth removed
- All variables and covariates except poor physical and mental health were significant ( $P < 0.05$ ) on univariate analysis
- On adjusting for covariates, sex, employment type, income and zone of residence in Tennessee were significantly associated with a difference in the number of permanent teeth removed
- The observed difference between the Eastern part of Tennessee and the Western part of Tennessee was significantly associated with an increased number of permanent teeth removed, Wald statistic (4.180),  $P$  value=0.04

Region	Estimate	P value	Confidence Interval
East	0.139	0.041	0.006, 0.271
Central	0.016	0.813	-0.118, 0.151
West	0	.	.

- **Table 1:** Adjusted ordinal logistic regression models showing estimates and 95% confidence intervals for the ordered difference in number of permanent teeth removed for the East and Central zones compared to the Western zone



## Conclusions and References

- Zone of residence, sex, employment type and income predict oral health outcomes in Tennessee. People in East Tennessee are more likely to have an increased number of permanent teeth removed compared to those in the west