

Impact of Physical and Physiological Limitations in Adults with Special Needs on Oral Health: NHANES 2017-2018

Niran Gnanaprakasam, BDS, MPH ¹; Rochisha Singh Marwaha, BDS, MPH ¹; Pankil Shah, MD, PhD ²; Suman Challa BDS, MSPH ¹

¹ The University of Texas Health Science Center San Antonio, School of Dentistry; ² The University of Texas Health Science Center San Antonio, Long School of Medicine

Introduction

- World Health Organization (WHO), disability has three dimensions: activity limitation, impairment, and participation restrictions¹
- Adults with Special Needs (ASN) can be grouped into four major categories based on their disability - physical (mobility, respiratory), mental (emotional, social), sensory (hearing, visual), and cognitive (learning, attention)²
- In 2020, CDC estimated about 61 million adults with some form of disability³
- Increase in the ASN population leads to potential demand in dental care⁴
- Oral health related problems are a predominant issue in adults with special needs⁴
- ASN face multidimensional physical and physiological barriers dental care^{5,6}
- There is a bidirectional relationship between general health and oral health⁷
- Limited data available on oral health behaviors of the ASN

Objectives

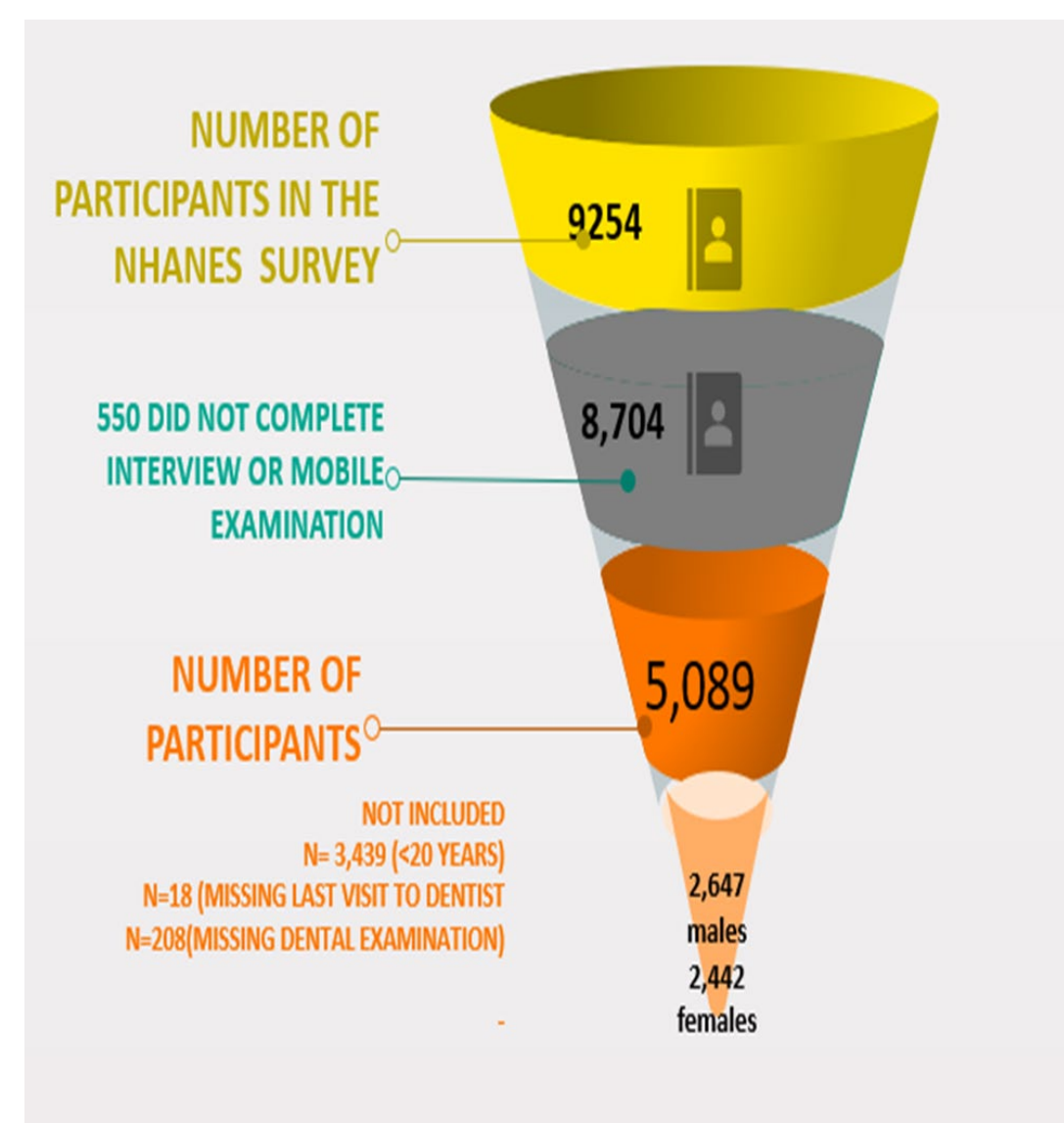
- To study the association between general health limitations (physical, neurological, or health-related) and oral health (behaviors and conditions) in United States adults aged 20 years and older.
- The secondary objective of this research is to examine the prevalence of coronal caries in participants with physical, neurological, or health-related limitations using the National Health and Nutrition Examination Survey (NHANES) 2017-2018 data.

Methods

- Data Source:** NHANES 2017-2018
- Study design:** Cross sectional study
- Sampling method:** Complex, multistage, probability sampling
- Data collection:** NHANES dataset sample of civilian, noninstitutionalized US population
- Sample size:** 8,704
- Statistical Analyses** were conducted using R software.

- Exploratory analyses were conducted to determine the characteristics of the study population.
- Logistic regression modeling was conducted to understand the strength of association (OR) for significant covariates.

Figure 1: NHANES study population (inclusion and exclusion criteria)



Results

Table 1: Odds Ratio Unadjusted and Adjusted (95% confidence interval Last Visit to the Dental Clinic within 6 months)				
Variable	Unadjusted odds ratios (OR)		Adjusted odds ratios (AOR)	
	OR (95% CI*)	P-Value	OR (95% CI*)	P-Value
Age (every additional 10 years of age)				
20 years and above	0.81(0.79-0.84)	0	0.79 (0.75-0.83)	0
Gender				
Female	Reference		Reference	
Male	1.34 (1.17-1.54)	0	1.36 (1.16-1.60)	0.003
Race/ethnicity				
Non-Hispanic White	Reference		Reference	
Hispanic	1.7(1.30-2.34)	0.001	1.56 (1.15-2.12)	0.011
Non-Hispanic Black	2.00(1.51-2.65)	0	1.87 (1.35-2.57)	0.002
Other	1.31(1.02-1.69)	0.03	1.22 (0.94-1.58)	0.103
Physical Functioning				
No	Reference		Reference	
Yes	1.32(1.09-1.60)	0.006	1.73 (1.24-2.41)	0.006
Pain				
No	Reference		Reference	
Yes	0.96 (0.78-1.20)	0.75	1.09 (0.76-1.57)	0.55
Psychiatric Distress				
No	Reference		Reference	
Yes	1.91 (0.95- 1.51)	0.125	1.12 (0.81-1.55)	0.4

Figure 2: Association between oral health behaviors and age, gender, race/ethnicity, physical functioning, and pain

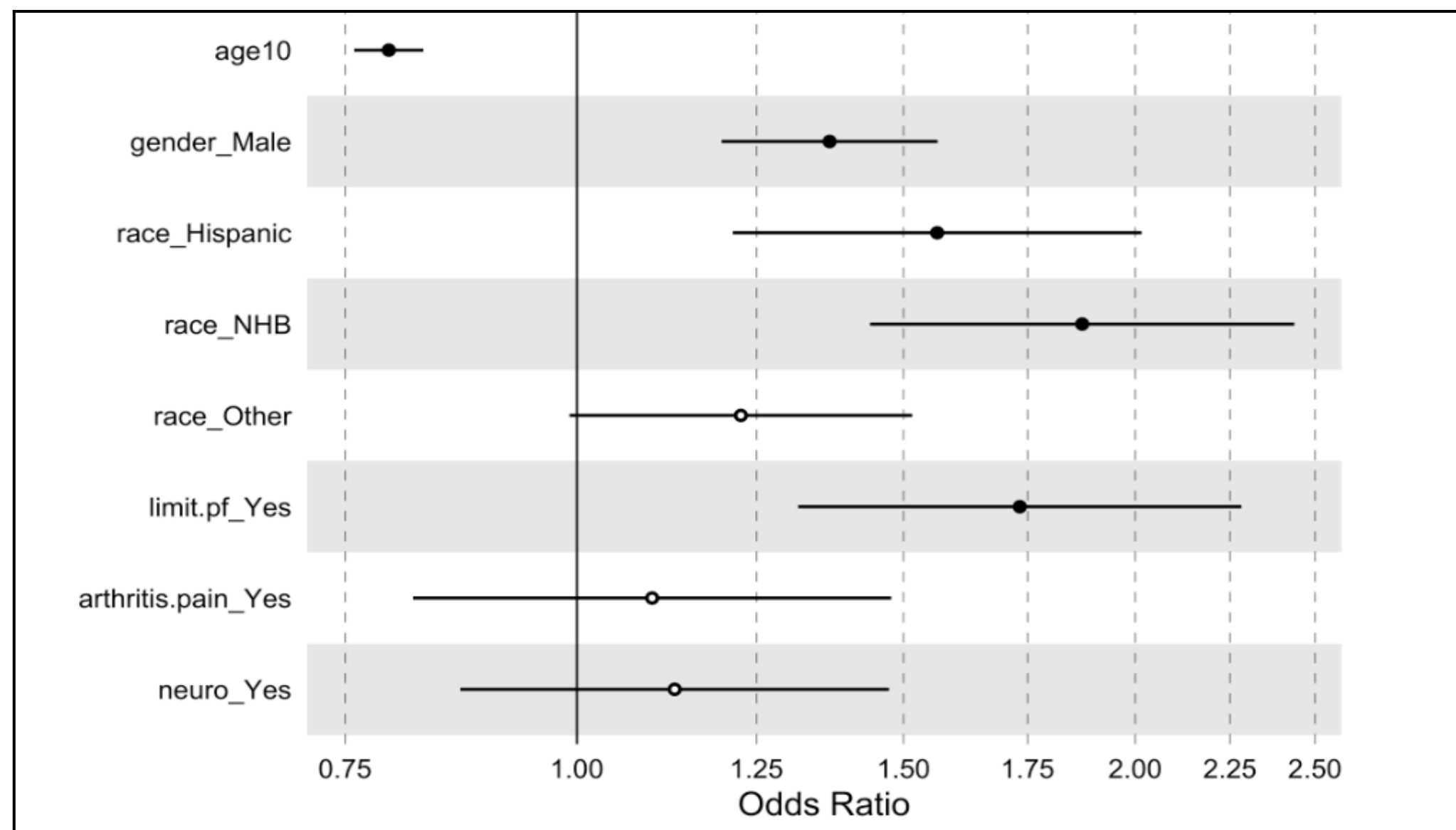
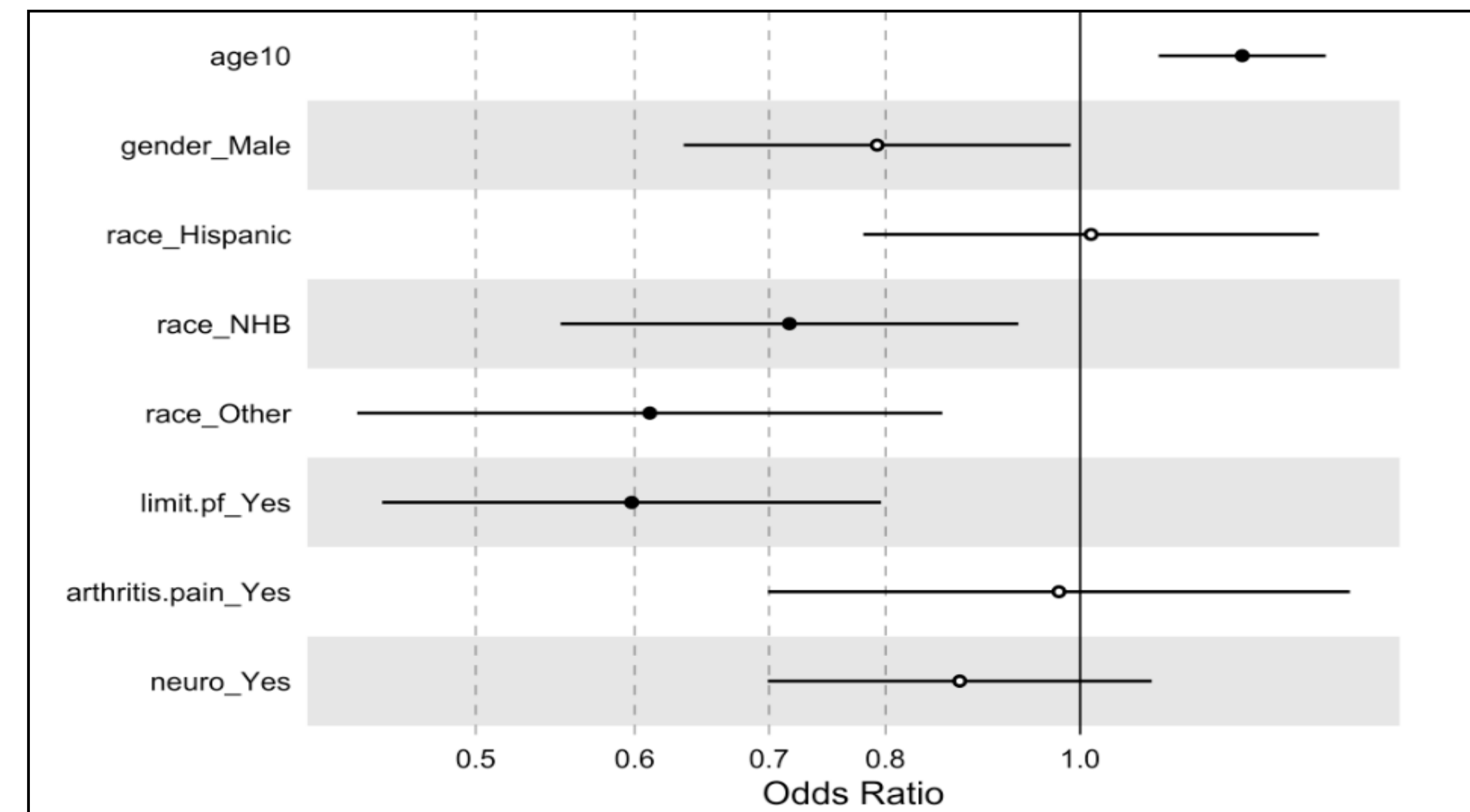


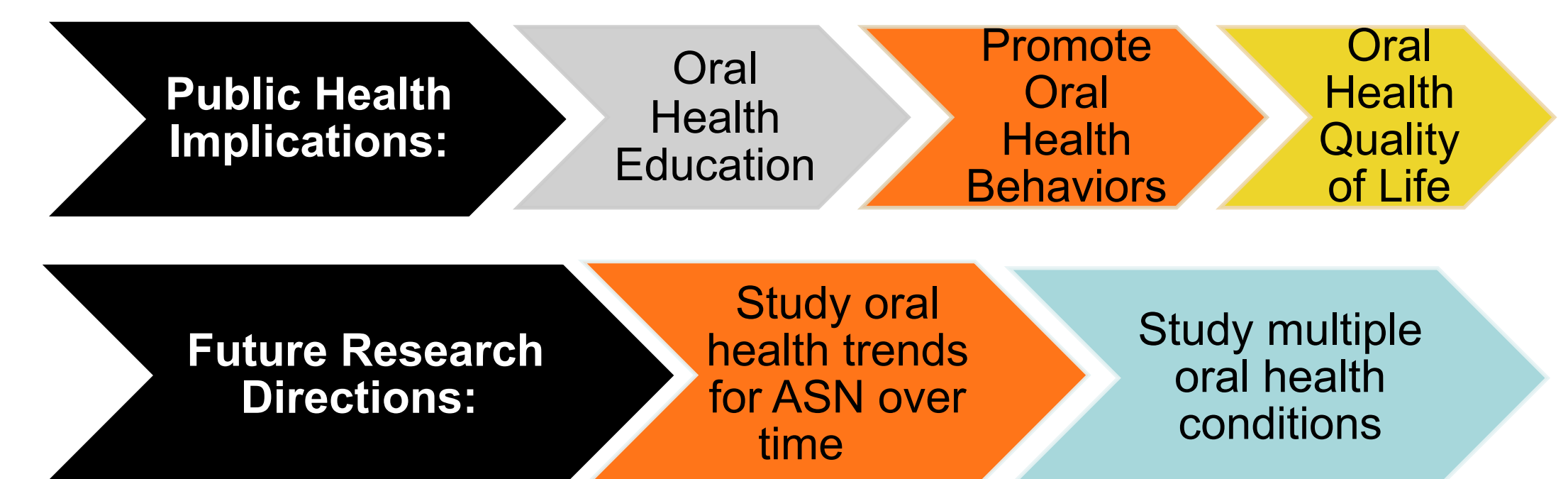
Table 2: Odds Ratio Unadjusted and Adjusted (95% Confidence Intervals) Coronal Caries				
Variable	Unadjusted odds ratios (OR)		Adjusted odds ratios (AOR)	
	OR (95% CI*)	P-Value	OR (95% CI*)	P-Value
Age (every additional 10 years of age)				
20 years and above	1.16(1.06-1.28)	0.003	1.20(0.00-1.07)	0.007
Gender				
Female	Reference		Reference	
Male	0.79 (0.61-1.01)	0.063	0.79 (0.60-1.03)	0.079
Race/ethnicity				
Non-Hispanic White	Reference		Reference	
Hispanic	0.92 (1.30-2.34)	0.001	1.01 (0.73-1.38)	0.927
Non-Hispanic Black	0.66 (0.50-0.89)	0.011	0.717 (0.52-0.98)	0.042
Other	0.58 (1.02-1.69)	0.006	0.61 (0.40-0.91)	0.024
Physical Functioning				
No	Reference		Reference	
Yes	0.74 (0.58-0.94)	0.018	0.59 (0.42-0.84)	0.01
Pain				
No	Reference		Reference	
Yes	0.98 (0.77-1.24)	0.887	0.97 (0.65-1.46)	0.891
Psychiatric Distress				
No	Reference		Reference	
Yes	0.81 (0.65-1.02)	0.073	0.87 (0.66-1.13)	0.259

Figure 3: Association between coronal caries and age, gender, race/ethnicity, physical functioning, pain



Conclusion

- Physical limitations restrict routine visits to dentists to seek oral health care in ASN.
- Male ASN were less likely to visit a dentist within the last 6 months compared to their female counterparts.
- Study also concluded that Non-Hispanic Black, and Hispanic ASN were less likely to receive dental services within 6 months.



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