

## Introduction

- World Health Organization (WHO), disability has three dimensions: activity limitation, impairment, and participation restrictions<sup>1</sup>
- 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)<sup>2</sup>
- In 2020, CDC estimated about 61 million adults with some form of disability<sup>3</sup>
- Increase in the ASN population leads to potential demand in dental care<sup>4</sup>  
Oral health related problems are a predominant issue in adults with special needs<sup>4</sup>
- ASN face multidimensional physical and physiological barriers dental care<sup>5,6</sup>
- There is a bidirectional relationship between general health and oral health<sup>7</sup>  
Limited data available on oral health behaviors of the ASN

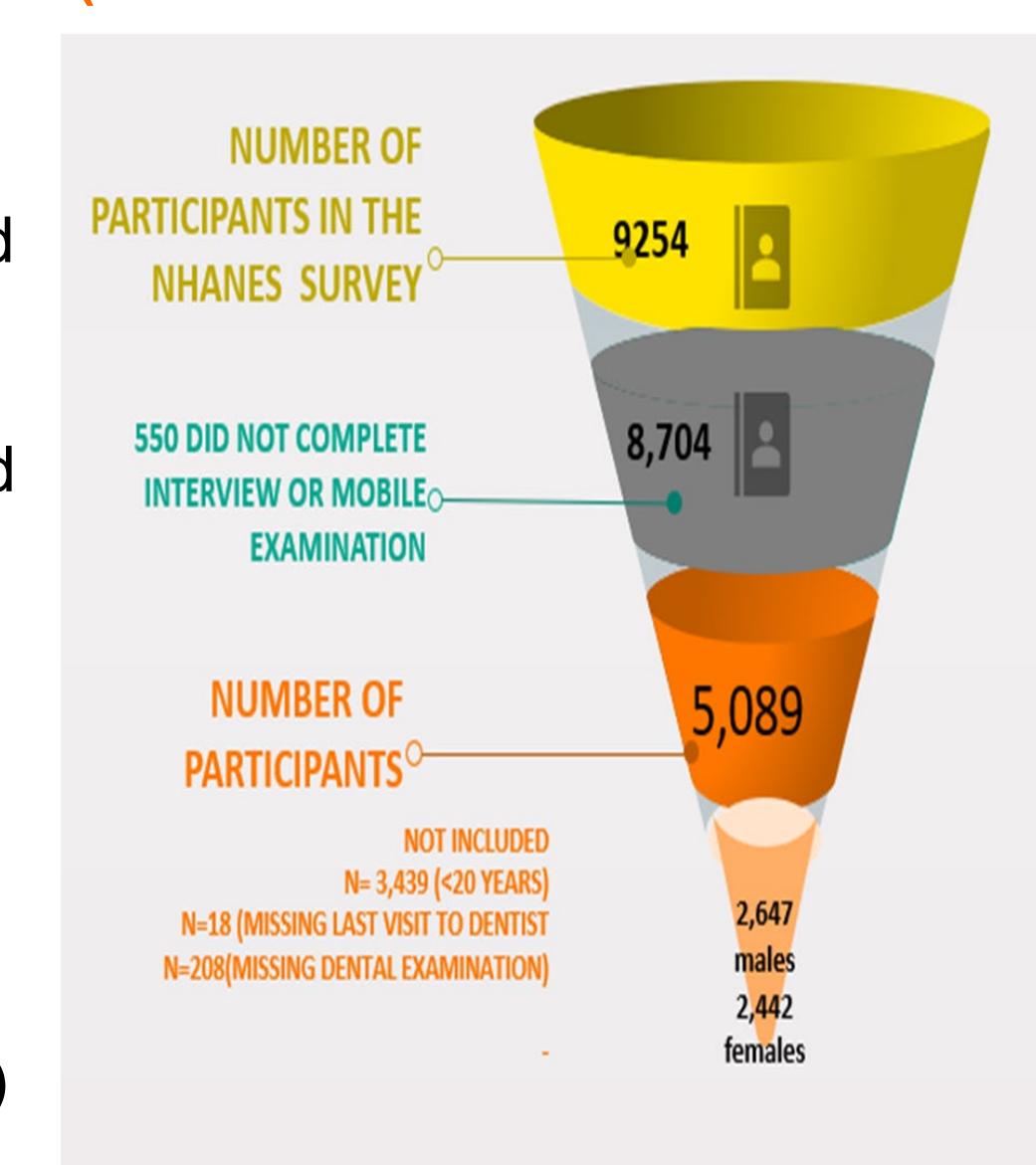
## Objectives

- 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

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

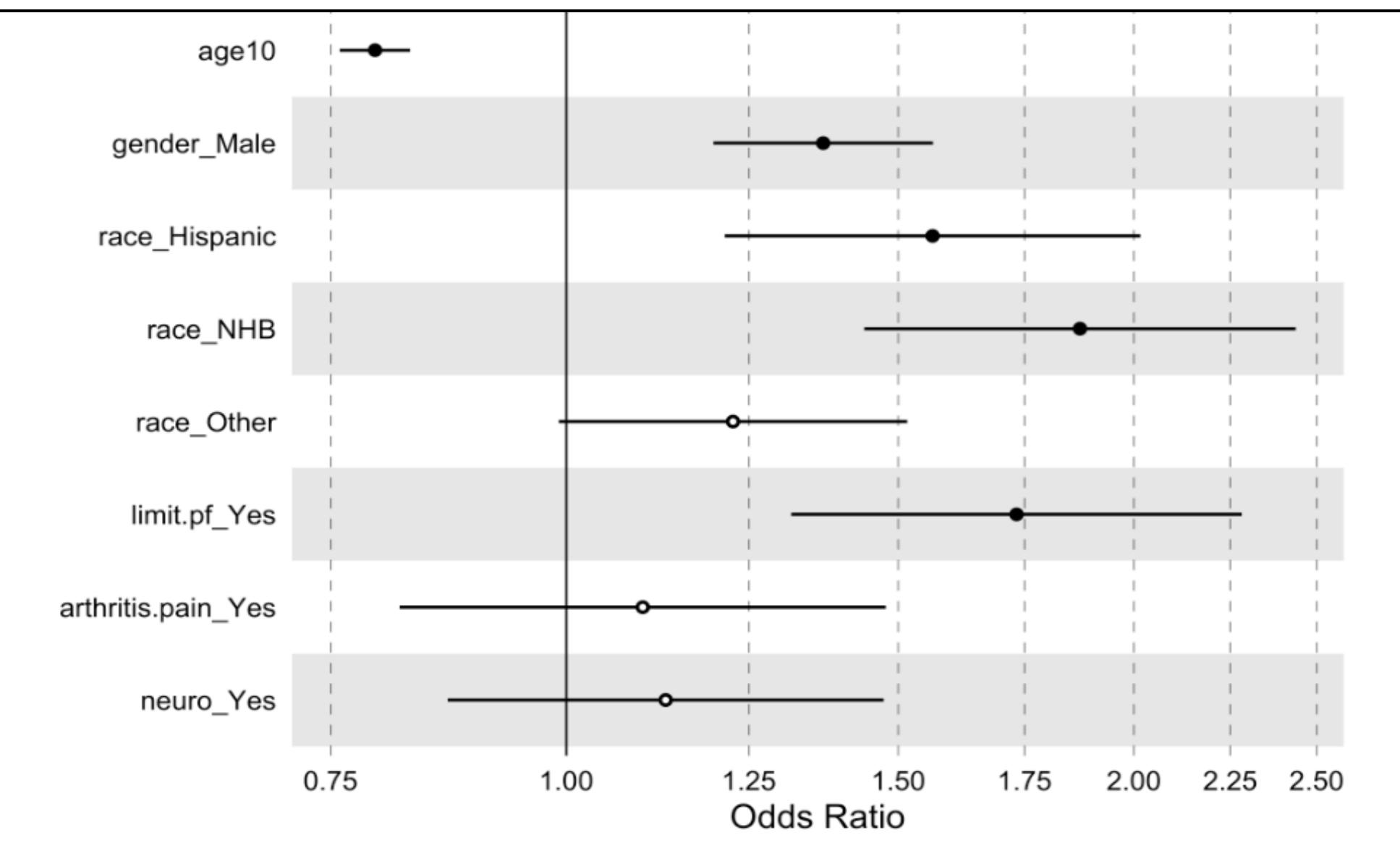
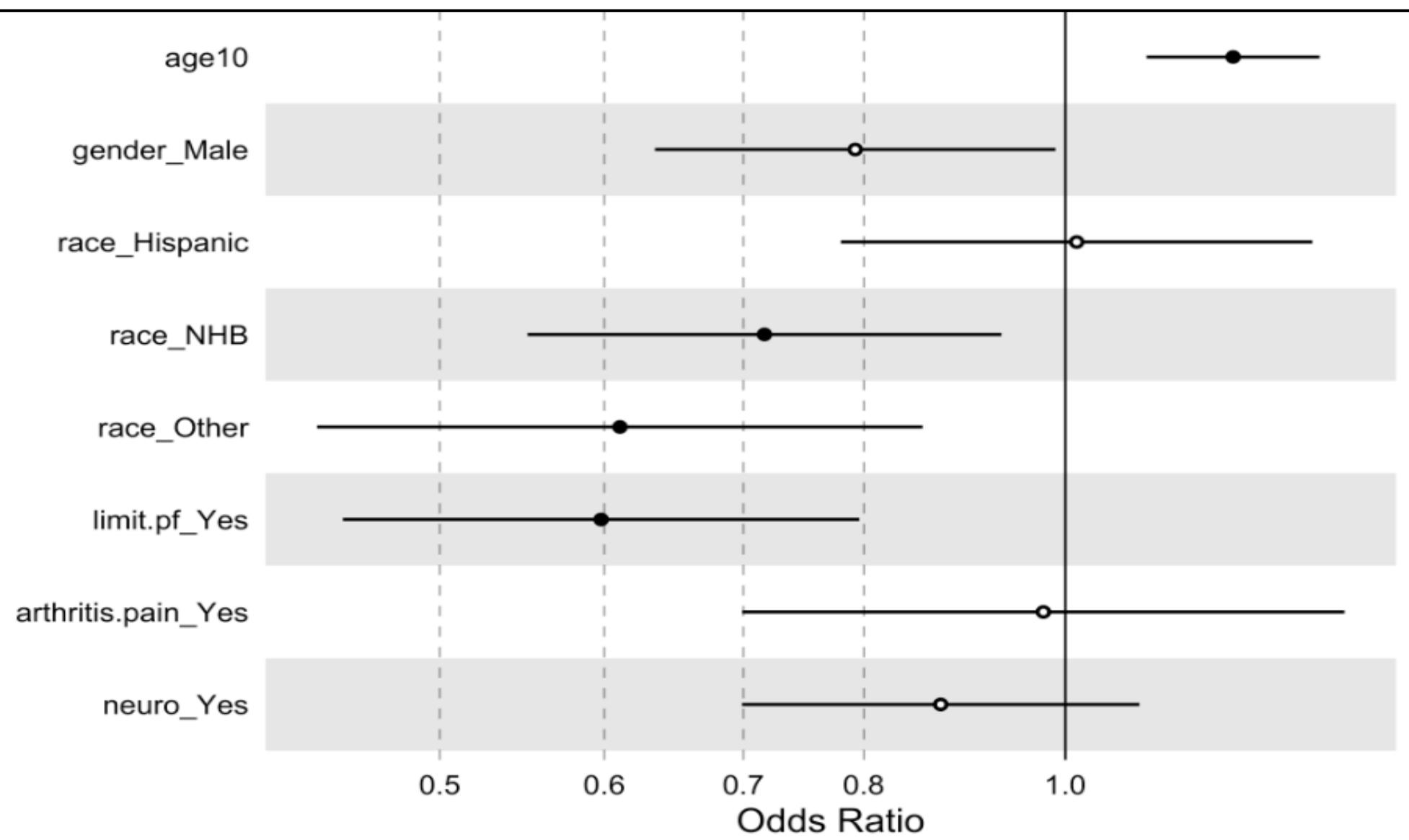
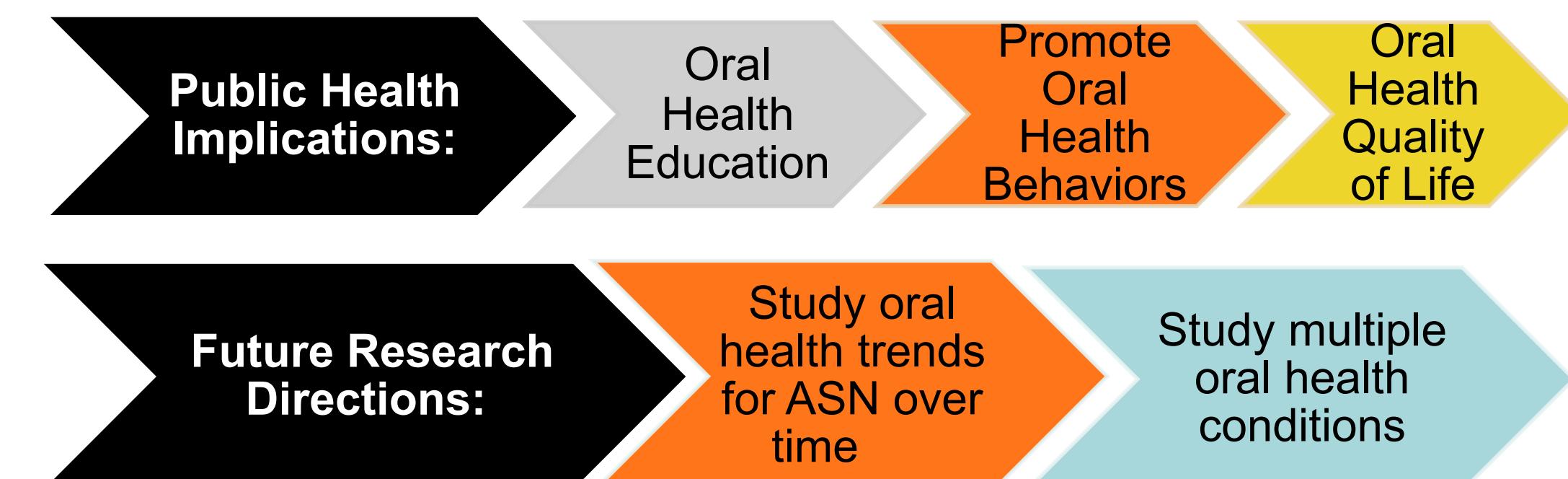


Figure 3: Association between coronal caries and age, gender, race/ethnicity, physical functioning, pain



## 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.



## References

- International classification of FUNCTIONING, disability and HEALTH (ICF) [Internet]. World Health Organization. World Health Organization; [cited 2021Aug18]. Available from: <https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health>
- Scully C, Diz Dios P, Kumar N. Special care in dentistry: Handbook of oral healthcare. Churchill Livingstone; 2007
- CDC: 1 in 4 US adults live with a disability [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2018 [cited 2021Aug18]. Available from: <https://www.cdc.gov/media/releases/2018/p0816-disability.html>
- Williams JJ, Spangler CC, Yusaf NK. Barriers to dental care access for patients with special needs in an affluent metropolitan community: Barriers to dental care access. Spec Care Dentist. 2015;35(4):190-6.
- Anderson LL, Humphries K, McDermott S, Marks B, Sisirak J, Larson S. The state of the science of health and wellness for adults with intellectual and developmental disabilities. Intellect Dev Disabil. 2013;51(5):385-98.
- 2000 surgeon General's report on oral health in America [Internet]. National Institute of Dental and Craniofacial Research. U.S. Department of Health and Human Services; [cited 2021Aug18]. Available from: <https://www.nidcr.nih.gov/research/data-statistics/surgeon-general>
- Saadeh R, Bober-Moken I, Challa S. Relationship between general health behaviors and oral health behaviors in 2015–2016 NHANES adult population. European Journal of Dentistry. 2019;13(03):405

## Acknowledgements

- This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as a part of an award totaling \$3.25 million with 0% financed with non-governmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.