

The association between alveolar bone loss and arthritis

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Research objective:

- To analyze if the alveolar bone loss is associated with arthritis.
- A dentist can help in the early diagnosis of arthritis by recognizing the oral symptoms such as alveolar bone loss and examining the medical history.
- The dental patients can then be referred to the physician by the dentist and early treatment can lead to better health outcomes for the patients.

Research design and Methods:

- A cross-sectional study
- Sample size (N) = 9254
- The data from National Health and Nutritional Examination Survey (NHANES 2017-2018) analyzed using SAS software.
- Outcome variable: Alveolar bone loss
- Independent variable: Arthritis
- Univariate and multivariate logistic regression performed



Univariate and multivariate logistic regression results

Independent variable	Outcome or dependent variable: Alveolar bone loss					
	Unadjusted odds ratio	95% CI	P-value	Adjusted odds ratio**	95% CI	P-value
Arthritis Yes vs No (Ref.)	2.12	1.75-2.57	<0.0001*	1.54	1.18-2.01	0.0035*

*p < 0.01

**Adjusted for age, gender, and race

CI: Confidence interval

Study population characteristics

Variables	N (%)	Missing N
Age (Mean)	9254 (38.4)	0
Alveolar bone loss	4700	4554
Yes	792 (16.6)	
No	3908 (83.4)	
Arthritis	5552	3702
Yes	1695 (27.9)	
No	3857 (72.1)	
Gender	9254	0
Male	4557 (48.9)	
Female	4697 (51.1)	
Race	9254	0
Mexican American	1367 (10.8)	
Other Hispanic	820 (7.3)	
Non-Hispanic White	3150 (59.2)	
Non-Hispanic Black	2115 (11.8)	
Other Race - Including Multi-Racial	1802 (10.8)	

Results:

- After controlling for age, gender, and race, alveolar bone loss was positively associated with arthritis.
- **Adjusted odds ratio:** After adjusting for age, gender, and race, the individuals with arthritis are 1.54 times (95%CI, 1.2 -2.0) or 54% more likely of having alveolar bone loss compared to those who did not have arthritis.
- **Unadjusted odds ratio:** The individuals with arthritis are 2.12 times (95%CI, 1.8-2.6) or 112% more likely of having alveolar bone loss compared to those who did not have arthritis.

Conclusion:

- There is a positive association between alveolar bone loss and arthritis.
- A dentist should carefully go through the medical history of a patient with alveolar bone loss to determine if they might have arthritis and should refer them to the physician for further medical examination.



References:

- Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). National Health and Nutrition Examination Survey Data. Hyattsville, MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, retrieved from <https://www.cdc.gov/nchs/nhanes/continuousnhanes/default.aspx?BeginYear=2017>

