

## Assessment of the correlation between dementia and systemic health using the BigMouth Dental Data Repository

**Colby Allen<sup>1</sup>**, Krishna Kumar Kookal<sup>1</sup>, Julian Nathaniel Holland<sup>1</sup>, Neha Parikh<sup>1</sup>,<sup>1</sup>The University of Texas Health Science Center at Houston, School of Dentistry, Houston, Texas, USA.

**Objectives:** Dementia is the decline in a person's capability to remember day-to-day tasks. Dementia has been correlated to a higher incidence of oral health diseases, cardiovascular diseases, diabetes, and smoking habits. This study sought to find the correlation between dementia and common comorbid conditions using data in BigMouth, a multi-institutional dental data repository.

**Experimental Methods:** Deidentified health records in BigMouth were obtained from seven US dental schools (HSC-DB-21-0437). Patients (age > 50) with self-reported dementia or Alzheimer's Disease were categorized as the dementia group (DG, N=1250). Two control group (CG) cohorts were matched with the DG for 1) age and gender (CG-AG N=1239); 2) age, gender, tobacco use, and diabetes (CG-AGSD, N=744). DG and CG were compared for the incidences of tobacco use, diabetes, cardiovascular disease (CVD), angina, arrhythmias, arteriosclerosis, bypass surgery, congenital heart disease, coronary heart disease, heart attack, heart failure, heart problem, heart valve, high blood pressure, low blood pressure, high cholesterol, palpitation, peripheral edema, heart rheumatism, and shortness of breath, and were analyzed using a chi-square test ( $P < 0.05$ ).

**Results:** The incidence of diabetes was higher in the DG, whereas tobacco use was higher in the CG-AG. The incidence of CVD, heart problem, angina, arrhythmia, coronary heart disease, heart failure, peripheral edema, and shortness of breath was higher in the DG than the CG-AGSD. Interestingly, the incidence of high blood pressure was higher in CG-AGSD than DG. The rest of the parameters were comparable in CG-AGSD and DG.

**Conclusion:** The retrospective data analysis using Bigmouth shows that diabetes and several cardiovascular diseases such as arrhythmias, angina, heart failure, and shortness of breath show a higher incidence in the dementia population. With rising dementia cases, further research is needed to dissect the causative links between dementia and systemic health.

This study was supported by the UTSD Student Research Program.