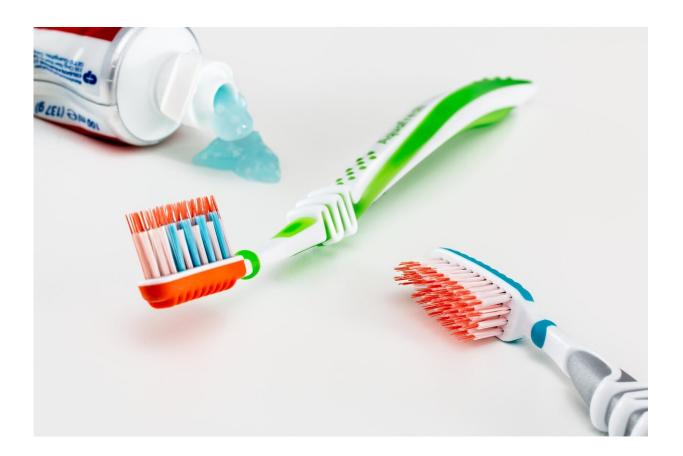# Medical Xpress

Predicting oral and general health associations using machine learning algorithms

July 21 2021

Credit: CC0 Public Domain

Muthuthanthrige Cooray, Tohoku University, Sendai, Japan, presented the oral session "Oral and General Health Associations Using Machine

Learning Prediction Algorithms" at the virtual 99th General Session & Exhibition of the International Association for Dental Research (IADR), held in conjunction with the 50th Annual Meeting of the American Association for Dental Research (AADR) and the 45th Annual Meeting of the Canadian Association for Dental Research (CADR), on July 21-24, 2021.

General health and oral health are conventionally treated as separate entities within the healthcare delivery, however most general health and oral health problems share common risk factors and both affect overall well-being. This study investigated the robustness of the association between general health and oral health using machine learning prediction.

Analyses included 19,862 Japanese Gerontological Evaluation Study 2016 participants aged 65 years or older. XGBoost machine learning algorithm was used to predict self-rated oral health using general health-related predictors (frailty, psychological status, comorbidity) and self-rated general health using oral health-related predictors (poor occlusion, chewing difficulty, and dry mouth). Age, sex, household income and smoking were added as common predictors for both models. Predictors were selected based on literature and availability.

Prevalence of poor self-rated oral health was higher (28.6%) compared to poor self-rated general health (12.4%). 20.6% of those with poor self-rated oral health also reported poor self-rated general health, whereas 47.7% of those with poor self-rated general health also reported poor self-rated oral health.

A robust general health to oral health and oral health to general health association existed as demonstrated by accurate prediction models. Oral health appeared to have a higher predictive capacity in predicting general health than general health in predicting oral health. General

health and oral health factors should be considered collectively when planning healthcare for older adults.

Provided by International & American Associations for Dental Research