Impact of Interrupted Care Access on Dental Pain: A Target Trial Emulation [only 75 characters allowed in the title]

Word count: 304 (limit 300)

Dental pain can impact one’s quality of life, causing discomfort and interfering with essential daily activities. This study aimed to estimate the impact of interrupted dental visits on the incidence of dental pain among Japanese adults (age: median=56, IQR=45-33 ).Panel data from 2020 to 2022 (four waves) was obtained from nationally representative web-based surveys in Japan (JACSIS and JASTIS). A total of 7,684 participants who did not have dental pain at the baseline survey but had intended to visit a dentist were included. Target trial emulation causal inference method was used to estimate the effect associated with a dynamic exposure scenario defined by at least one interrupted visit during the 2 year follow-up. This dynamic scenario was contrasted with a static hypothetical scenario where participants were never interrupted. A stratified analysis was conducted based on the participants' pre COVID-19 pandemic attendance patterns (regular/non-regular). The g-computation formula for the target trial was estimated using sequential doubly-robust estimators with appropriate adjustments for time-dependent confounding, and treatment and outcome regressions were fitted flexibly using an ensemble of machine learning models (lasso, elastic net, XGBoost).

Adjusting for age, sex, history of oral diseases, income, education, smoking, alcohol consumption, and marital status, the estimated cumulative incidence of dental pain under no interrupted access was 32.2% (95% CI, 30.8%-33.6%) for regular attendees and 37.0% (95% CI, 34.9%, 39.2%) for non-regular attendees. The respective estimates for the interrupted visits scenario were 35.3% (95% CI, 33.5%, 37.0%) and 42.8% (95% CI, 40.0%-45.6%). This indicates that the interrupted visits increased the incidence of dental pain by 3.1% (95% CI, 1.3%-4.9%) among regular attendees and 5.8% (95% CI, 2.9%-8.7%) among non-regulars. Interrupted access to dental care had a greater impact on pre pandemic non-regular attendees, emphasizing the importance of long-term oral health maintenance to buffer the effects of unexpected interruptions of access to care.