

Incidence and progression of periodontitis and tooth loss between 2014 and 2023 in Germany: results of the 6th German Oral Health Study (DMS • 6). Online Appendix

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ABSTRACT

Objectives: Examining periodontitis progression and tooth loss (TL) on a national level is necessary to identify risk and protective factors as well as to improve the implementation of future interventions. This longitudinal study evaluated Periodontitis incidence and progression using changes in probing depth (PD) and TL between 2014 and 2023. In addition, the Risk factors associated with periodontitis progression were evaluated.

Method and Materials: The sample included 340 adults and 313 seniors from the DMS • 6 cohort who were first examined in 2014 (baseline) and reexamined in 2023 (follow-up). To maintain consistency between the baseline and follow-up measurements, only partial-mouth PD recordings (12 index teeth, three sites each) were included. Exposure variables were assessed using a questionnaire. Outcome variables included mean PD, Community Periodontal Index (CPI), and TL. Associations were examined using generalized linear regression models.

Results: The prevalence of CPI score 4 increased from 10.5% to 22.9% in adults and from 22.0% to 29.6% in seniors. During follow-up, the mean TL in adults and seniors was 0.6 ± 1.2 and 1.9 ± 2.8 teeth, respectively, corresponding to an annual TL rate of 0.1 to 0.2 teeth. Higher school education was associated with a lower risk for TL, whereas smoking and Diabetes increased the risk for TL. The use of electric toothbrushes was associated with a lower risk of TL, whereas professional tooth cleaning showed no significant effect.

Conclusion: Improvements in oral hygiene practices over the past few decades are not sufficient for preventing periodontitis progression and TL in aging populations.

KEYWORDS: cohort studies, dental care, dental health surveys, dentists, disease progression, DMS 6, epidemiology, Germany, incidence, oral health, periodontal index, periodontitis, tooth loss

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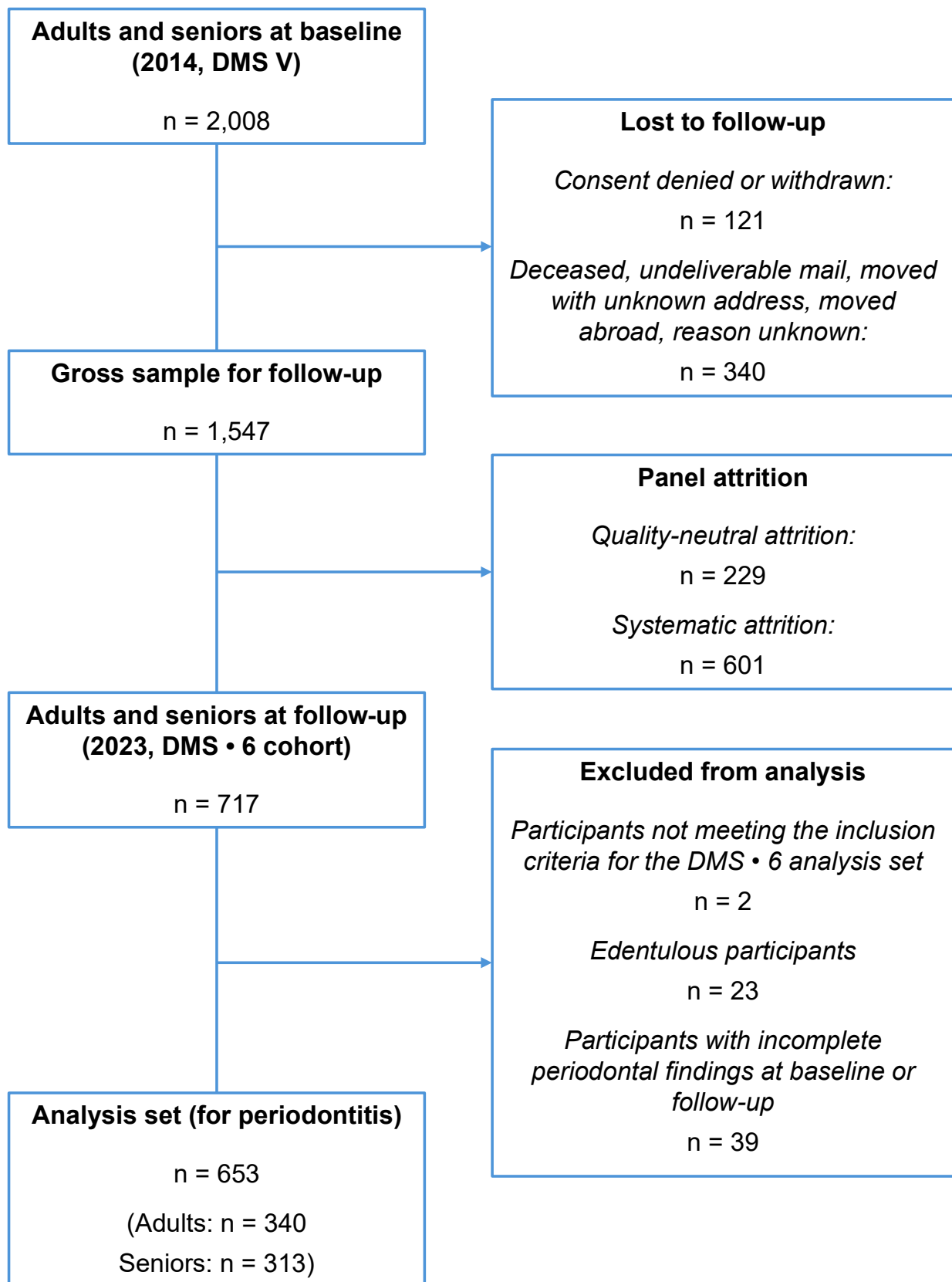
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Appendix 1

Sample for longitudinal periodontal analyses

The longitudinal analyses based on data from participants in the DMS • 6 cohort (i.e., DMS V participants from 2014 [baseline] that were re-examined in 2023 [follow-up]). In 2014, 2,008 adults and older adults participated in the baseline examination (Figure A1). A total of 461 individuals were lost to follow-up because either no consent for further participation was given or recontact was no longer possible for other reasons (e.g., relocation or death). An additional 830 participants were lost due to quality-neutral or systematic panel attrition. Of the 717 participants re-examined in 2023, a further 64 were excluded from the descriptive analyses. Among them, 2 did not meet the inclusion criteria of the DMS • 6 analysis set (i.e., complete dental and caries examination, periodontal examination conducted on at least two quadrants), 23 were edentulous at baseline, and 39 had incomplete periodontal findings at baseline or follow-up. Accordingly, the final analysis set comprised 653 participants, including 340 adults (35- to 44-year-olds at baseline; 43- to 52-year-olds at follow-up) and 313 seniors (65- to 74-year-olds at baseline; 73- to 82-year-olds at follow-up).

Figure A1: Flow chart of adults and seniors in the DMS • 6 cohort for longitudinal periodontal analyses



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