

Prevalence of peri-implant disease in Germany: results of the 6th German Oral Health Study (DMS • 6). Online Appendix

AUTHORS

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ABSTRACT

Objectives: To report the prevalence of peri-implant disease and factors associated with peri-implant tissue Inflammation in a German population-based cohort comprising younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) among participants in the 6th German Oral Health Study (DMS • 6).

Method and Materials: Data were available for 925 and 788 younger adults and younger seniors, of whom 63 (n = 108 implants) and 163 (n = 477 implants) had at least one dental implant. Probing depth (PD) and bleeding on probing (BOP) were recorded at six sites per implant. For each implant, peri-implant health was defined as a maximum of one site with BOP. Peri-implant mucositis was defined as at least two sites with BOP with a maximum of one site with BOP having PD >6 mm. Peri-implantitis was defined as at least two sites with BOP and PD > 6 mm.

Results: Among the entire population, 2.1% (95% confidence interval [CI], 1.3–3.5%) of younger adults and 7.0% (95% CI, 5.2–9.4%) of younger seniors were diagnosed with peri-implant disease. Among the study participants with dental implants, healthy peri-implant tissue was observed in 68.3% (95% CI, 56.1–78.7%) of younger adults and 68.1% (95% CI, 60.7–74.9%) of younger seniors. Peri-implant mucositis and peri-implantitis were diagnosed in 30.2% (95% CI, 19.9–42.2%) and 1.6% (95% CI, 0.2–7.2%) and 30.7% (95% CI, 24.0–38.0%) and 1.2% (95% CI, 0.3–3.9%) of younger adults and younger seniors, respectively. At the implant level, the corresponding values were 25.9% (95% CI, 18.4–34.7%) and 0.9% (95% CI, 0.1–4.2%) and 20.5% (95% CI, 17.1–24.3%) and 0.4% (95% CI, 0.1–1.3%), respectively. Stage III/IV periodontitis was significantly associated with an increased risk of peri-implant disease (odds ratio, 2.52; P = .006).

Conclusion: Peri-implant mucositis was frequently observed in participants with implants, whereas clinically defined (probing based) peri-implantitis was rare in both age groups. Severe periodontitis (stage III/IV) was associated with higher odds of developing peri-implant disease.

KEYWORDS: cross-sectional studies, dental care, dental health surveys, dentists, DMS 6, epidemiology, Germany, oral health, peri-implantitis, periodontal diseases, prevalence

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Appendix 1

Table A1: Prevalence of peri-implant diseases based on the modified definitions provided by the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions

	Younger adults (35- to 44-year-olds)		Younger seniors (65- to 74-year-olds)		Total	
	Number of implants/ participants	%	Number of implants/ participants	%	Number of implants/ participants	%
Dental implants (108 implants in younger adults and 477 implants in younger seniors)						
Health	63	58.3%	294	61.6%	357	61.0%
Peri-implant disease	45	41.7%	183	38.4%	228	39.0%
Peri-implant mucositis	43	39.8%	178	37.3%	221	37.8%
Peri-implantitis	2	1.9%	5	1.0%	7	1.2%
Participants with dental implants (63 younger adults and 163 younger seniors)						
Health	33	52.4%	80	49.1%	113	50.0%
Peri-implant disease	30	47.6%	83	50.9%	113	50.0%
Peri-implant mucositis	28	44.4%	78	47.9%	106	46.9%
Peri-implantitis	2	3.2%	5	3.1%	7	3.1%
All participants (925 younger adults and 788 younger seniors)						
Health	33	3.6%	111	11.3%	NA	NA
Peri-implant disease	30	3.5%	52	10.9%	NA	NA
Peri-implant mucositis	28	3.3%	50	10.3%	NA	NA
Peri-implantitis	2	0.2%	2	0.7%	NA	NA

Data are presented as unweighted numbers (n) and unweighted percentages for analysis sets of dental implants and participants with dental implants, or weighted percentages for full analysis set of all eligible participants.

NA, not applicable

References

Berglundh T, Armitage G, Araujo MG, et al. Peri-implant diseases and conditions: Consensus report of workgroup 4 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. *J Clin Periodontol* 2018;45 (Suppl 20):S286–S291.

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