Tooth loss and denture status: results of the 6th German Oral Health Study (DMS • 6)

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Objectives: The German Oral Health Study (DMS) is a series of consecutive studies designed to assess the oral health status of adults, seniors, and children in Germany. DMS is a major program of the Institute of German Dentists (Institut der Deutschen Zahnärzte) with the aim to produce health statistics for Germany. Tooth loss, edentulism, and prosthetic care have considerable socioeconomic significance; it is the aim of this paper to report findings on these aspects. **Method and materials:** The survey combines interviews and clinical examinations. Previous DMS studies focused primarily on tooth loss, edentulism, and prosthetic care. In the DMS • 6 survey, the condition of removable dentures and need for adjustments were additionally recorded, as well as necessary repair measures that were grouped according to their complexity (chairside or laboratory). **Results:** The prevalence of edentulism decreased considerably compared to that in the Fifth German Oral Health Study (DMS V) in 2014. Among younger adults (35- to 44-year-olds), the prevalence of edentulism was negligible, with an average of 26.6 teeth present. The younger senior group (65- to 74-year-olds) had an average of 19.3 teeth; the prevalence of edentulism was 5%, which is a reduction of > 50% compared to 2014 (12.4%). Lower education status was an important prognostic factor for tooth loss. Owing to the low prevalence of edentulism in younger adults, removable dentures were not prevalent in this age group, whereas combined fixed–removable dentures were most frequently used in seniors. Regarding the type of denture, a shift towards fixed as well as implant-supported types was observed. Of the removable dentures, 50% to 60% were in a very good or good clinical condition. Problems were mainly identified with simple acrylic dentures. Nonetheless, participants' satisfaction with removable dentures was extremely high, and the dentures were used almost continuously. **Conclusion:** The most important finding in this study is the continued significant decline in the prevalence of complete edentulism among seniors that suggests a further reduction in edentulism in the future with an estimate of around 4% in 2030. The shift observed in primary prosthetic care from removable to fixed prostheses as well as the increasing prevalence of implants placed are positive developments. The data revealed further compression of morbidity compared to DMS V. Complete edentulism declined, and fixed partial dentures, including implant-supported prostheses, were increasingly used. Lower education status was an important predictor for tooth loss. *(Quintessence Int 2025;56(Suppl):S60–S68; doi: 10.3290/j.qi.b5986257)*

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Replacement of missing teeth in completely or partially edentulous patients has considerable economic implications. German public health insurance expenditure on denture treatment in 2023 was €4.02 billion.[1] In the 6th German Oral Health Study (DMS • 6), the benefits of prevention-oriented dentistry in childhood were observed in younger adults (35- to 44-year-olds); however, similar benefits were only observed in exceptional cases in the senior group (65- to 74-year-olds).

The German Oral Health Study (DMS) is a series of consecutive epidemiologic studies designed to assess the oral health status of adults, seniors, and children in Germany. The Institute of German Dentists (Institut der Deutschen Zahnärzte) has surveyed the oral health of the German population (DMS I/II–V) since 1989.[2,3] In these studies, in addition to the dental status, data on removable dentures were collected, and the prevalence of the individual treatment modalities was analyzed. In

addition, the treatment needs for removable and combined fixed–removable dentures were assessed, and four categories were defined (no need for treatment, new restoration necessary, repair necessary due to technical defects, and relining necessary due to alveolar ridge atrophy).[4] In DMS • 6, the criteria regarding removable dentures were further refined, and the denture condition was evaluated in addition to denture related need for treatment. Furthermore, necessary repairs were classified according to their extent and complexity (repairs that can be carried out chairside and those that require dental laboratory support).

The part of the DMS • 6 survey described here aimed—in continuation of the previous DMS studies—to produce health statistics for Germany with regard to tooth loss, edentulism, prosthetic care, and treatment need with education status as a covariate.

Method and materials

The general methodology of the study is presented in separate articles.[5,6] The 6th German Oral Health Study (DMS • 6) has been approved by the Institutional Review Board (IRB) of the Witten/Herdecke University, Witten, Germany (registration number S-249/2021). This study is registered at the German Clinical Trials Register (registration number DRKS00028701).

Sample

The study included 927 younger adults (35- to 44-year-olds) and 797 younger seniors (65- to 74-year-olds) who fulfilled the inclusion criteria of DMS • 6.

Measurement methods and variables

Regarding refinement of the criterion "Treatment need for removable dentures," the challenge was to develop an assessment structure that was easy to use and standardized for the different types of dentures. It had to be largely comparable with those in previous studies and fit into the limited time frame of a field study. Therefore, the following four-stage protocol originally described by Marxkors was used[7]:

1. No deficiencies, very good quality: Protection of the teeth and of adjacent tissues is warranted; no deviation from the ideal.
2. Acceptable condition, good quality: Minor deviations from the ideal that need to be corrected and monitored. Corrections can be carried out chairside.
3. Moderate deficiencies, moderate quality: These require correction with the assistance of a dental technician in a dental laboratory. After correction, the denture is acceptable and can be used further.
4. Major deficiencies, poor quality: The existing deficiencies can only be corrected by fabricating a new removable or combined fixed–removable denture.

Levels 1 and 2 describe restorations that are completely or mostly functional and can be corrected chairside by simple measures, if necessary. In contrast, levels 3 and 4 include restorations that require major corrections or fabrication of a new denture.

This protocol is comparable with that used in DMS V, because levels 1 and 4 correspond to those in DMS V, and the groups "relining" and "repair" from DMS V correspond to level 3.[2]

Similar to that in DMS IV and V, the concept of primary restoration was used to characterize the overall prosthodontic status.[8] Participants were categorized into groups based on the type of denture replacing the largest number of teeth, independent of the jaw. A total of six consecutive categories were defined:

- fully dentate without gaps and without dentures
- at least one untreated gap, no dentures
- at least one crown restoration
- at least one fixed denture (ie, bridge/implant)
- at least one removable partial denture
- at least one complete denture.

Statistical analysis

For the epidemiologic description, prevalences and means with associated 95% confidence intervals (CIs) were calculated separately for younger adults and younger senior groups. A weighted dataset was used for this purpose to compensate for selection bias and differences in gender, age, and region compared to the overall population in Germany. Numbers (n) are provided without weighting. Within the age groups, subgroup analyses were conducted based on gender (male/female) and education group (low/medium/high). Detailed information on data handling and statistical methods is described previously.[9]

Results

Tooth loss and complete edentulism

The declining prevalence of tooth loss observed in DMS V[2,3] continued in the newly collected data. In previous DMS, complete

Table 1 Epidemiologic description and treatment of missing teeth in younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) by gender

Variable		35- to 44-year-olds			65- to 74-year-olds		
			Gender			Gender	
		Total	Male	Female	Total	Male	Female
No. of participants (n)		927	459	467	797	375	422
Full dentition (base 28 teeth, prevalence)		56.3%	57.1%	55.3%	6.7%	7.9%	5.5%
Edentulism (base 32 teeth, prevalence)	Maxilla only	0.1%	0.2%	0.0%	10.8%	12.2%	9.4%
	Mandible only	0.2%	0.1%	0.3%	7.2%	8.1%	6.4%
	Total	0.1%	0.1%	0.0%	5.0%	6.4%	3.8%
Number of missing teeth (base 28 teeth)	Total	1.4	1.4	1.4	8.7	8.8	8.7
	Not replaced	0.9	0.9	0.9	2.0	2.0	2.0
	Replaced by pontics	0.2	0.2	0.2	1.5	1.4	1.7
	Replaced by removable dentures	0.1	0.2	0.1	4.5	4.6	4.3
	Replaced by implants	0.1	0.1	0.1	0.7	0.8	0.6
Percentage of missing teeth that have been replaced (%)		28.1	25.1	30.9	63.8	61.7	65.7

Data are presented as unweighted numbers (n) and weighted percentages or weighted means. One gender-diverse individual is included in the total column, but not in the gender categories.

Table 2 Epidemiologic description and treatment of missing teeth in younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) by education group

Variable		35- to 44-year-olds			65- to 74-year-olds		
		Education group			Education group		
		Low	Medium	High	Low	Medium	High
No. of participants (n)		80	408	383	158	367	230
Full dentition (base 28 teeth, prevalence)		27.5%	51.3%	68.3%	3.9%	4.3%	13.4%
Edentulism (base 32 teeth, prevalence)	Maxilla only	0.7%	0.1%	0.0%	20.1%	11.0%	3.2%
	Mandible only	2.1%	0.0%	0.0%	12.8%	6.4%	3.3%
	Total	0.7%	0.0%	0.0%	8.8%	5.0%	1.9%
Number of missing teeth (base 28 teeth)	Total	3.3	1.5	0.8	11.4	9.1	5.7
	Not replaced	1.7	1.0	0.6	2.5	2.0	1.5
	Replaced by pontics	0.6	0.3	0.1	1.3	1.6	1.5
	Replaced by removable dentures	0.9	0.1	0.0	7.2	4.9	1.6
	Replaced by implants	0.1	0.2	0.1	0.5	0.6	1.0
Percentage of missing teeth that have been replaced (%)		36.4	29.4	24.1	65.8	65.2	59.7

Data are presented as unweighted numbers (n) and weighted percentages or weighted means.

edentulism was observed in 22.6% (DMS IV) and 12.4% (DMS V) of seniors, respectively. In this study, the prevalence of complete edentulism in the senior group was 5.0%, which indicates a reduction of > 50% (Table 1). Furthermore, the prevalence was approximately 3.0% greater in men than in women. In contrast, the prevalence of complete edentulism was insignificant in younger adults, and complete edentulism was not detected in participants with a medium or high education status. Additionally, the education status influenced the number of missing teeth in both age groups. Compared with the group with a high

Table 3 Primary prosthetic treatment in younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) by gender

	Primary prosthetic treatment (prevalence)	35- to 44-year-olds			65- to 74-year-olds		
			Gender			Gender	
		Total	Male	Female	Total	Male	Female
No. of participants (n)		927	459	467	797	375	422
Total dentition	Fully dentate (no gaps, no dentures)	38.5%	40.6%	36.2%	1.1%	1.4%	0.7%
	≥ 1 untreated gap, no dentures	19.0%	21.2%	17.0%	4.4%	5.8%	3.0%
	≥ 1 crown restoration	25.9%	23.6%	28.3%	16.9%	20.3%	13.7%
	≥ 1 fixed denture (ie, bridge/implant)	15.1%	12.8%	17.3%	47.8%	43.4%	52.0%
	≥ 1 removable partial denture	1.3%	1.7%	1.0%	19.1%	17.7%	20.3%
	≥ 1 complete denture	0.2%	0.2%	0.3%	10.8%	11.4%	10.2%
Maxilla	Fully dentate (no gaps, no dentures)	50.9%	54.0%	47.6%	3.3%	4.9%	1.9%
	≥ 1 untreated gap, no dentures	16.6%	17.4%	15.9%	6.1%	7.6%	4.6%
	≥ 1 crown restoration	20.2%	16.8%	23.6%	25.5%	26.9%	24.2%
	≥ 1 fixed denture (ie, bridge/implant)	11.1%	10.1%	12.2%	38.8%	34.0%	43.3%
	≥ 1 removable partial denture	1.0%	1.5%	0.5%	16.6%	15.8%	17.3%
	≥ 1 complete denture	0.2%	0.2%	0.3%	9.8%	10.8%	8.8%
Mandible	Fully dentate (no gaps, no dentures)	54.3%	55.8%	52.7%	3.4%	3.3%	3.4%
	≥ 1 untreated gap, no dentures	17.7%	20.6%	15.1%	10.9%	13.1%	8.8%
	≥ 1 crown restoration	18.6%	15.9%	21.3%	22.8%	24.3%	21.3%
	≥ 1 fixed denture (ie, bridge/implant)	8.3%	6.3%	10.2%	40.5%	36.4%	44.4%
	≥ 1 removable partial denture	0.9%	1.2%	0.5%	18.0%	17.2%	18.7%
	≥ 1 complete denture	0.2%	0.1%	0.3%	4.5%	5.7%	3.4%

Data are presented as unweighted numbers (n) and weighted percentages. One gender-diverse individual is included in the total column, but not in the gender categories.

education status, in the group with a low education status, 2.5 more teeth were missing in younger adults, and in younger seniors twice as many teeth were missing (Table 2). In contrast, the remaining gender-related differences were small (Table 1).

The number of teeth replaced by pontics in the senior group was comparable to that in DMS V; however, the number of teeth replaced by removable dentures reduced by 50%. In contrast, the frequency of implant restorations increased by 2 to 3 times (younger adults, 0.06 to 0.1; younger seniors, 0.22 to 0.7). Nonetheless, the rate of replacement of missing teeth with implants was low. A comparison of the general trends in denture-related epidemiologic indicators is shown in Appendix 1.

Primary prosthetic treatment

Among younger adults, 38.5% had a full dentition, and only 16.6% were provided with dentures, with fixed and removable dentures accounting for 15.1% and 1.5% of participants, respectively. In contrast, only 1.1% of the younger seniors were fully edentate and 77.7% had dentures. Although the proportion of participants without any dental prostheses (not even a crown) remained almost unchanged compared to the results of DMS V (DMS V, 6.6%; DMS • 6, 5.5%), a considerable shift toward fixed partial dentures was observed (crowns [+5.9% points] and bridges [+11.2% points]). In contrast, the proportion of removable partial dentures (−8.9% points) and complete dentures (−7% points) decreased considerably. Overall, fixed dentures replaced removable dentures as the dominant treatment modality in this age group (Table 3). Men were more likely to be fully dentate than women and more likely to go without dentures in most of the subgroups analyzed. Full dentures were approximately twice as frequent in the maxilla than in the mandible (9.8% vs 4.5%), which is consistent with the findings of previous studies.[2,3]

Participants' education status was clearly related to the primary prosthetic treatment. In the high education group, 48.2% of younger adults were fully dentate and only 10.4% had

Table 4 Primary prosthetic treatment in younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) by education group

Primary prosthetic treatment (prevalence)		35- to 44-year-olds			65- to 74-year-olds		
		Education group			Education group		
		Low	Medium	High	Low	Medium	High
No. of participants (n)		80	408	383	158	367	230
Total dentition	Fully dentate (no gaps, no dentures)	14.4%	35.6%	48.2%	1.6%	0.6%	1.7%
	≥ 1 untreated gap, no dentures	30.6%	18.3%	15.8%	3.8%	4.9%	1.3%
	≥ 1 crown restoration	21.6%	26.6%	25.6%	10.3%	13.5%	29.5%
	≥ 1 fixed denture (ie, bridge/implant)	27.2%	17.6%	10.4%	40.0%	49.3%	51.8%
	≥ 1 removable partial denture	4.0%	1.9%	0.1%	25.0%	20.0%	13.4%
	≥ 1 complete denture	2.1%	0.1%	0.0%	19.3%	11.8%	2.3%
Maxilla	Fully dentate (no gaps, no dentures)	28.7%	48.9%	59.4%	3.9%	2.6%	4.0%
	≥ 1 untreated gap, no dentures	21.4%	16.8%	14.2%	5.9%	7.3%	1.9%
	≥ 1 crown restoration	22.1%	18.4%	21.2%	15.5%	22.4%	38.8%
	≥ 1 fixed denture (ie, bridge/implant)	22.6%	14.4%	5.1%	35.3%	39.0%	42.2%
	≥ 1 removable partial denture	3.0%	1.4%	0.1%	22.3%	17.7%	11.1%
	≥ 1 complete denture	2.1%	0.1%	0.0%	17.2%	11.0%	1.9%
Mandible	Fully dentate (no gaps, no dentures)	33.2%	51.0%	63.3%	3.2%	2.2%	6.1%
	≥ 1 untreated gap, no dentures	33.0%	17.8%	11.8%	12.4%	12.3%	5.4%
	≥ 1 crown restoration	15.7%	21.0%	17.2%	20.2%	19.3%	32.8%
	≥ 1 fixed denture (ie, bridge/implant)	11.9%	9.2%	7.5%	30.1%	42.2%	45.4%
	≥ 1 removable partial denture	4.0%	1.0%	0.1%	26.9%	18.9%	9.2%
	≥ 1 complete denture	2.1%	0.0%	0.0%	7.2%	5.2%	1.1%

Data are presented as unweighted numbers (n) and weighted percentages.

bridges or implants. Removable dentures were almost absent in this group. In the senior group, participants with a low education status were five times more likely to be edentulous and fitted with a complete denture than those with a high education status. One third of the latter subgroup (32.5%) did not have any denture, whereas in the corresponding group with a low education status, removable dentures represented the main prosthetic restoration, at 44.3% (Table 4).

Prosthetic treatment

Fixed prostheses dominated in both age groups, and only 12 removable partial dentures were noted in the younger adults. Missing teeth were replaced only in 10.0% of the participants. In the senior group, 37.4% of participants had removable dentures (DMS V, 45.8%),[2] with combined fixed–removable dentures predominating.

Among younger adults, implant-supported restorations were exclusively found in combination with fixed dentures. The prevalence of participants with implants in this group doubled to 7.1% compared to 3.4% in DMS V,[3] although the number of implants per patient with implants remained almost unchanged at 1.7 (DMS V, 1.8). In the younger senior group, the prevalence of implants almost tripled compared to that in DMS V (23.2% vs 8.1%), although the mean number of implants per patient with implants increased only slightly (3.1 vs 2.7).[2] In this group too, implants were predominantly used to support fixed dentures (87.5%). Moreover, education status remained a determining factor (Table 5).

Removable denture quality and wearing behavior

No results are reported for younger adults owing to the small number of cases. Regarding denture quality among the younger seniors, only 50% to 60% of the removable dentures, including

Table 5 Prosthetic treatment in younger adults (35- to 44-year-olds) and younger seniors (65- to 74-year-olds) by gender and education group

Age group	Prosthetic treatment		Total	Gender		Education group		
				Male	Female	Low	Medium	High
35- to 44-year-olds	No. of participants (n)		927	459	467	80	408	383
	Fixed dentures (prevalence)	On natural teeth	39.7%	34.7%	44.7%	51.3%	42.9%	34.6%
		Partial crowns/inlays	9.6%	7.2%	11.9%	4.9%	9.7%	10.9%
		Full crowns	31.7%	27.2%	36.0%	42.0%	33.5%	27.3%
		Bridges	10.0%	8.9%	11.0%	24.2%	11.6%	5.9%
	Removable dentures (prevalence)	Due to the small number of cases, the values are provided in Appendix 1						
	Implants (prevalence)	Total	7.1%	6.0%	8.2%	5.7%	9.0%	5.3%
		With fixed dentures	7.1%	6.0%	8.2%	5.7%	9.0%	5.3%
		With removable dentures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	No. of implants per patient with implants		1.7	1.7	1.7	1.7	2.0	1.4
65- to 74-year-olds	No. of participants (n)		797	375	422	158	367	230
	Fixed dentures (prevalence)	On natural teeth	79.7%	77.8%	81.5%	67.3%	78.5%	93.4%
		Partial crowns/inlays	24.2%	23.4%	24.9%	11.0%	22.1%	39.8%
		Full crowns	71.7%	68.0%	75.3%	60.5%	70.0%	85.6%
		Bridges	51.7%	44.1%	59.0%	47.1%	54.3%	50.8%
	Removable dentures (prevalence)	Total	19.6%	20.8%	18.4%	30.4%	20.9%	8.9%
		Acrylic partial denture	3.6%	2.7%	4.4%	4.5%	3.3%	3.2%
		Cast framework partial denture	7.7%	9.4%	6.1%	7.9%	9.9%	4.5%
		Combined fixed–removable partial denture	15.1%	13.5%	16.7%	23.4%	15.6%	7.7%
		Hybrid denture	0.2%	0.5%	0.0%	0.0%	0.0%	0.8%
		Complete denture	10.8%	11.4%	10.2%	19.3%	11.8%	2.3%
	Implants (prevalence)	Total	23.2%	22.7%	23.7%	18.6%	20.7%	30.3%
		With fixed dentures	20.3%	19.5%	21.0%	11.7%	18.9%	28.5%
		With removable dentures	2.9%	3.2%	2.7%	6.9%	1.8%	1.9%
	No. of implants per patient with implants		3.1	3.5	2.7	2.7	3.0	3.4

Data are presented as unweighted numbers (n) and weighted percentages or weighted means. One gender-diverse individual is included in the total column, but not in the gender categories.

combined fixed–removable partial dentures, were in a very good or good clinical condition, and the remaining required extensive repairs. Major deficiencies were found more frequently in acrylic-based dentures than in cast framework removable partial dentures or combined fixed–removable partial dentures. Interestingly, more than half of the non-framework acrylic partial dentures were fully functional, whereas approximately 40% of all other types of dentures showed no need for repair (Table 6).*

Simple acrylic-based removable dentures were worn sporadically or not at all in 14.8% of cases. In contrast, 95% of other removable dentures were worn continuously, with the combined fixed–removable partial dentures having the highest acceptance rate (97.3%).

*For reasons of clarity, the numbers, percentages, and means in the tables are presented without confidence intervals. Appendix 1 provides all values with the corresponding 95% confidence intervals.

Table 6 Removable denture quality and wearing behavior in younger seniors (65- to 74-year-olds)

Variable		Total	Acrylic partial denture	Cast framework partial denture	Combined fixed–removable partial denture*	Hybrid denture†	Complete denture
No. of dentures (n)		387	39	69	162	1	107
Removable denture quality (%)	No deficiencies, very good quality	41.4	51.6	40.1	40.3	100.0	39.7
	Acceptable condition, good quality	15.6	7.3	13.3	18.3	0.0	16.1
	Moderate deficiencies, moderate quality	26.8	5.9	34.6	29.8	0.0	24.5
	Major deficiencies, poor quality	16.2	35.2	12.0	11.6	0.0	19.7
Dentures: wearing behavior (%)	Dentures are worn	94.4	85.2	94.4	97.3	100.0	94.6
	Dentures are not worn or only worn sporadically	5.1	14.8	5.6	2.7	0.0	5.4

Data are presented as unweighted numbers (n) and weighted percentages, unit of analysis = dentures.
*Anchored via double crowns, precision attachments, or bars.
†Anchored only via root caps.

Discussion

Complete edentulism, as the final stage of caries and periodontal disease, has a considerable impact on nutritional behavior and quality of life. However, the changes can only be partially restored using complete dentures.[10] The most important finding in the present study is the continued significant decline in the prevalence of complete edentulism among seniors (prevalence, 5.0%), compared to that in previous studies (DMS III [1997], 24.8%; DMS IV [2005], 22.6%; DMS V [2014], 12.4%). The decrease in the number of missing teeth in younger adults compared to that in DMS V suggests a further reduction in edentulism in the future. Notably, the senior group in this study is comparable to the group of adults from DMS III with an average tooth loss (based on 28 teeth) of 4.2 teeth. Thus, the prevalence of edentulism in the entire resident population in Germany is supposed to reach 4.2% by 2030, as predicted by Schwendicke et al,[11] based on previous DMS data. However, this assumes that the general conditions for dental care in Germany remain at the present status quo, as socioeconomic factors significantly influence tooth loss and edentulism. Accordingly, the observed influence of the education status was to be expected.

The shift in primary prosthetic care from removable to fixed dentures is a positive development, because the chewing function and quality of life with fixed restorations are almost equivalent to those with natural teeth. The recent decades have seen a trend toward more frequent treatments with fixed partial dentures (bridges) and removable partial dentures, and complete dentures are used less frequently.[12-14] The increasing number of implants inserted will further support and accelerate this trend.

Despite the relatively high proportion of removable dentures that required repair (40.0%), most participants were satisfied with their dentures. Moreover, apart from simple acrylic partial dentures, which were often interim dentures, all other types of dentures were worn almost continuously. The fact that satisfaction with dentures does not correlate with the condition of the dentures ("paradox of old age," oral-geriatric paradox) has previously been described.[15,16]

Conclusion

The data clearly show further compression of morbidity. This is consistent with the trend observed in previous studies. Furthermore, the prevalence of complete edentulism continued to decrease considerably; however, education status was an important influencing factor. Patients are increasingly opting for fixed restorations with or without implant support. The use of removable dentures is decreasing. However, combined fixed–removable partial dentures were the predominant restoration in the senior group and were worn almost without exception.

Disclosure

ARJ and KK are employed by the National Association of Statutory Health Insurance Dentists (KZBV). The authors declare that there are no conflicts of interest according to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals. The interpretation of data and presentation of information is not influenced by any personal or financial relationship with any individual or organization.

Author contributions

All authors listed in the paper have contributed sufficiently to fulfill the criteria for authorship according to Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals (ICMJE Recommendations). All authors read and approved the final manuscript. BW is a member of the scientific advisory board of the DMS • 6 and an author of the manuscript. StS is a member of the scientific advisory board of the DMS • 6, participated in drafting the SOP, trained the study dentists, and is an author of the manuscript. ARJ is the principal investigator of the DMS • 6, responsible for developing the clinical examinations, and a co-author of the manuscript. KK is the deputy principal investigator of the DMS • 6, responsible for the data analysis, and a co-author of the manuscript. IN is a member of the scientific advisory board of the DMS V and DMS • 6, was involved in creating the SOP, was co-responsible for developing the clinical examinations for dental prosthetics and senior dentistry, and is a co-author of the manuscript. HS is a member of the scientific advisory board of the DMS V and DMS • 6 and is a co-author of the manuscript.

Dedication

This work is dedicated to Professor Dr med dent Reinhard Marxkors (1932–2024), former Director of the Department of Prosthodontics of the Westfälische Wilhelms-Universität Münster, for his inspiring work in the field of prosthodontics.

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Appendix 1

Additional data available at: https://www.idz.institute/publikationen/online-journal-zahnmedizin-forschung-und-versorgung/tooth-loss-and-denture-status-results-of-the-6th-german-oral-health-study-dms-6-online-appendix/.