



PREVALENCE OF CORONAL CARIES IN THE GERMAN NATIONAL COHORT (NAKO)

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AIM

Epidemiological studies have consistently shown that dental caries in German adults has declined significantly. Comprehensive national data in caries prevalence are well documented, but data on regional differences are still lacking. This study aims to update coronal caries prevalence in German adults (19-74 years) using NAKO data, with a focus on age, sex, and regional variations. Additional comparisons were made with DMS V. SHIP-TREND, and HCHS.

MATERIALS AND METHODS

Caries prevalence was assessed using the DMF-T index, which accounts for decayed (DT), missing (MT), and filled (FT) teeth. In the NAKO, data were recorded through a half-mouth protocol at eight study centers (Level 2 centres). Comparative analyses in 65-74-year-olds were conducted using DMS V, SHIP-TREND, and HCHS data. Using NAKO data, total prevalence estimates were weighted in order to retrieve populationrepresentative estimates.

RESULTS

Table 1. Caries data (half-mouth) from the NAKO, including only level 2 centers (N=19,855).

				Excluding ede	entulous pers	Including edentulous persons				
	Nall	N (%) dent.	N (%) edent.	DT	MT	FT	нт	DMF-T	MT	DMF-T
By sex										
Female	9,505	9,392 (98.8%)	113 (1.2%)	0.04 (0.003); (0.04-0.05)	1.57 (0.02); (1.52-1.61)	5.56 (0.03); (5.50-5.62)	6.83 (0.04); (6.76-6.90)	7.17 (0.04); (7.10-7.24)	1.71 (0.03); (1.66-1.77)	7.25 (0.04); (7.18-7.32)
Male	10,350	10,237 (98.9%)	113 (1.1%)	0.08 (0.004); (0.07-0.08)	1.54 (0.02); (1.49-1.58)	5.30 (0.03); (5.24-5.36)	7.09 (0.04); (7.02-7.16)	6.91 (0.04); (6.84-6.98)	1.67 (0.03); (1.62-1.73)	6.99 (0.04); (6.92-7.06)
By age										
19-29 years	1,793	1,793 (100%)	0 (0%)	0.08 (0.01); (0.06-0.09)	0.20 (0.01); (0.18-0.23)	1.94 (0.06); (1.84-2.05)	11.78 (0.06); (11.66-11.89)	2.22 (0.06); (2.11-2.34)	0.20 (0.01); (0.18-0.23)	2.22 (0.06); (2.11-2.34)
30-39 years	2,086	2,086 (100%)	0 (0%)	0.06 (0.01); (0.04-0.07)	0.44 (0.02); (0.40-0.48)	3.77 (0.06); (3.65-3.89)	9.74 (0.07); (9.61-9.87)	4.26 (0.07); (4.14-4.39)	0.44 (0.02); (0.40-0.48)	4.26 (0.07); (4.14-4.39)
40-49 years	5,209	5,205 (99.9%)	4 (0.1%)	0.07 (0.01); (0.06-0.08)	0.93 (0.02); (0.89-0.96)	5.65 (0.04); (5.58-5.72)	7.36 (0.04); (7.28-7.44)	6.64 (0.04); (6.56-6.72)	0.94 (0.02); (0.90-0.98)	6.65 (0.04); (6.57-6.73)
50-59 years	5,686	5,640 (99.2%)	46 (0.8%)	0.06 (0.01); (0.05-0.07)	1.74 (0.03); (1.68-1.80)	6.30 (0.04); (6.23-6.37)	5.90 (0.04); (5.82-5.98)	8.10 (0.04); (8.02-8.18)	1.84 (0.03); (1.7-81.91)	8.15 (0.04); (8.07-8.23)
60-75 years	5,081	4,905 (96.5%)	176 (3.5%)	0.05 (0.004); (0.04-0.06)	2.96 (0.05); (2.87-3.05)	6.16 (0.04); (6.08-6.24)	4.83 (0.04); (4.75-4.91)	9.17 (0.04); (9.09-9.25)	3.34 (0.05); (3.24-3.44)	9.34 (0.04); (9.25-9.42)
Total (19-75 years)	19,855	19,629 (98.9%)	226 (1.1%)	0.06 (0.003); (0.05-0.06)	1.55 (0.02); (1.52-1.58)	5.43 (0.02); (5.38-5.47)	6.96 (0.03); (6.91-7.02)	7.04 (0.03); (6.99-7.09)	1.69 (0.02); (1.66-1.73)	7.12 (0.03); (7.06-7.17)

ata are presented as mean (SE): (95% CI). Abbreviations: DT, decayed teeth: MT, missing teeth: FT, filled teeth: HT, healthy caries-free teeth: DMF-T, ecayed Missing Filled Teeth.



Among 19.855 NAKO participants, the mean DMF-T index was 7.12 (95% CI: 7.06-7.17). Men had a higher DT score (0.08 vs. 0.04) but a lower FT score (5.30 vs. 5.56) than women. Clear age-related differences were observed, with missing and filled teeth increasing over time while healthy teeth declined. Regional disparities were prominent, with the highest DMF-T scores in Northeast Germany (Neubrandenburg: 8.46) and the lowest in Southwest Germany (Heidelberg/Mannheim: 5.89). These region-specific differences were consistent across age groups. Comparative analyses with DMS V, SHIP-TREND, and HCHS confirmed similar geographic patterns but highlighted methodological discrepancies, particularly in qualification of examiners and differences between full- and half-mouth examination protocols

Table 2. Caries data (excluding edentulous participants) in 65-74-year-olds based on data from the NAKO, SHIP-TREND, the Hamburg City Health Study, and the fifth German Oral Health Study.

	N	DT	MT	FT	HT	DMF-T
NAKO (Half-mouth)						
Augsburg	581	0.02 (0.01);	3.36 (0.14);	6.04 (0.11);	4.58 (0.12);	9.42 (0.12);
		(0.01-0.04)	(3.08-3.64)	(5.82-6.26)	(4.34-4.81)	(9.19-9.66)
Heidelberg/Mannheim	347	0.02 (0.02);	2.67 (0.18);	5.43 (0.16);	5.89 (0.17);	8.11 (0.17);
		(0.01-0.05)	(2.32-3.01)	(5.11-5.74)	(5.55-6.23)	(7.77-8.45)
Muenster	181	0 (-)	2.37 (0.21);	6.37 (0.21);	5.27 (0.21);	8.74 (0.21);
			(1.94-2.79)	(5.96-6.78)	(4.85-5.68)	(8.32-9.15)
Berlin North	107	0.01 (0.01);	2.98 (0.30);	6.10 (0.26);	4.91 (0.30);	9.09 (0.30);
		(0.01-0.03)	(2.39-3.58)	(5.59-6.62)	(4.32-5.50)	(8.50-9.69)
Hanover	217	0.07 (0.03);	3.02 (0.22);	5.85 (0.18);	5.07 (0.19);	8.94 (0.20);
		(0.01-0.12)	(2.59-3.45)	(5.50-6.20)	(4.70-5.43)	(8.57-9.30)
Hamburg	252	0.09 (0.03);	2.66 (0.20);	7.08 (0.19);	4.18 (0.19);	9.82 (0.19);
		(0.03-0.15)	(2.27-3.05)	(6.70-7.45)	(3.82-4.55)	(9.45-10.18)
Kiel	150	0.04 (0.02);	2.33 (0.25);	6.31 (0.20);	5.32 (0.22);	8.68 (0.22);
		(0.001-0.08)	(1.84-2.83)	(5.90-6.71)	(4.89-5.75)	(8.25-9.11)
Neubrandenburg	565	0.07 (0.01);	4.35 (0.14);	5.93 (0.11);	3.65 (0.11);	10.35 (0.11);
		(0.05-0.10)	(4.08-4.62)	(5.71-6.15)	(3.43-3.87)	(10.14-10.57)
lotal	2400	0.04 (0.01);	3.23 (0.07);	6.06 (0.06);	4.66 (0.06);	9.34 (0.06);
		(0.03-0.06)	(3.10-3.36)	(5.95-6.17)	(4.55-4.78)	(9.22-9.46)
SHIP-TREIND (Half-mouth)	550	0.10 (0.02)	E 02 (0 10)	(75 (0.12))	2.15 (0.12)	10.77 (0.12)
Total	224	0.10 (0.02);	5.92 (U.18); (E E9 (24)	4.75 (0.13);	3.15 (0.12);	10.76 (0.12);
Hamburg City Health Cturk (Full mouth)		(0.00-0.14)	(3.36-0.20)	(4.30-4.77)	(2.72-3.30)	(10.55-11.00)
Tatal	2212	1 10 (2 27)	4 / 5 (4 4 2)	12 25 (5 27)	712(4.99)	20.99 (7.99)
Iotal	JZIZ	(111-127)	(6.22:6.68)	(13.06.13.63)	(6.95:7.28)	(20.72:21.05)
Fifth Cormon Oral Health Study (Full, mouth)		(1.11, 1.27)	(0.22, 0.00)	(10.00, 10.40)	(0.73, 7.20)	(20.72, 21.00)
Mecklenhurg-Western Pomerania/ Brandenhurg/ Berlin/	206	0.25 (0.05)	9 72 (0 50)	6.83 (0.35)	11 19 (0 38)	16.81 (0.38)
Saxony-Anhalt/ Saxony/Thuringia	200	(0.16: 0.34)	(8 73: 10 72)	(6 15: 7 51)	(10 44: 11 95)	(16.05:17.56)
Schleswig-Holstein/Hamburg/ Bremen/Lower Sayony	159	0.24 (0.06)	8 61 (0 61)	7 15 (0 41)	12 00 (0 41)	16.00 (0.41)
Sentesting Holsteni, Hansarg, Brennin, Ester Sakony		(0.11: 0.36)	(7.42:9.81)	(6.35: 7.96)	(11.18: 12.81)	(15.19:16.82)
North Rhine-Westnhalia	174	0.96 (0.13)	8.47 (0.52)	6.36 (0.37)	12.21 (0.39)	15.79 (0.39)
		(0.70:1.21)	(7.43: 9.50)	(5.62:7.10)	(11.44:12.99)	(15.01: 16.56)
Baden-Württemberg/Saarland/Hesse/Rhineland-	225	0.78 (0.18)	7.88 (0.42)	7.07 (0.36)	12.27 (0.34)	16.97 (0.36)
Palatinate		(0.43; 1.12)	(7.04; 8.72)	(6.37; 7.77)	(11.61; 12.93)	(16.26; 17.68)
Bavaria	148	0.48 (0.09)	8.99 (0.51)	7.50 (0.43)	11.03 (0.36)	15.73 (0.34)
		(0.29; 0.66)	(7.98; 9.99)	(6.65; 8.36)	(10.32; 11.74)	(15.07; 16.39)
Data are presented as mean (SE); (95% CI).						

CONCLUSIONS

This study provides a nationwide assessment of regional caries prevalence in Germany. While overall caries prevalence is low, regional disparities are prevalent, emphasizing the need for targeted caries prevention and better access to treatment in high-risk regions. Furthermore, methodological inconsistencies highlight the importance of standardized assessment protocols to enhance comparability in future research