Table A: Distribution of sociodemographic, oral Hygiene, and behavioural determinants by periodontal status (Healthy vs. Diseased Gingiva)

No.	Variable description	Categories	Healthy Gingiva n (%)	Diseased Gingiva n (%)	p-value
1	Gender	Male	215 (12.3%)	1530 (87.7%)	0.111
		Female	228 (14.2%)	1379 (85.8%)	
2	School Type	Governmental	252 (12.9%)	1703 (87.1%)	0.510
		Private	191 (13.7%)	1206 (86.3%)	
3	Governorate	Nablus	199 (15.1%)	1121 (84.9%)	0.000
		Jenin	94 (9.3%)	917 (90.7%)	
		Tulkarm	150 (14.7%)	871 (85.3%)	
4	Number of siblings	≤3	277 (13.3%)	1798 (86.7%)	0.771
		>3	166 (13.0%)	1111 (87.0%)	
5	Father's employment status	Yes	368 (13.0%)	2468 (87.0%)	0.336
		No	75 (14.5%)	441 (85.5%)	
6	Mother's employment status	Yes	213 (14.0%)	1306 (86.0%)	0.209
		No	230 (12.5%)	1603 (87.5%)	
7	The education status of the student's father	Yes	337 (13.9%)	2086 (86.1%)	0.034
		No	98 (11.1%)	786 (88.9%)	
8	The education status of the student's mother	Yes	282 (13.4%)	1820 (86.6%)	0.734
		No	159 (13.0%)	1064 (87.0%)	

9	Self-reported Family's economic status	Good or excellent	151 (16.3%)	778 (83.7%)	0.001
		Average or low	292 (12.1%)	2131 (87.9%)	
10	(Mean) S-OHI	Good (1.0-1.2)	222 (80.1%)	55 (19.9%)	0.000
		Medium (1.3-3.0)	220 (7.2%)	2817 (92.8%)	
		Bad (3.1-4.0)	5 (20.0%)	20 (80.0%)	
11	Brushing status	Yes	336 (75.8%)	107 (24.2%)	0.115
		No	2302 (79.1%)	607 (20.9%)	
12	Frequency of brushing/day	One time	262 (77.7%)	75 (22.3%)	0.000
		Two times or more	2019 (87.6%)	285 (12.4%)	
13	Duration of brushing(mins)	One	184 (85.6%)	31 (14.4%)	0.056
		Two and more	1433 (51.7%)	1337 (48.3%)	
14	Modified Bass brushing technique	Yes	11 (13.6%)	70 (86.4%)	0.831
		No	325 (12.8%)	2219 (87.2%)	
15	Medium-sized bristle toothbrush	Use	83 (18.7%)	360 (81.3%)	0.000
		Do not use	380 (13.1%)	2529 (86.9%)	
16	Interdental brush usage	Use	53 (12.0%)	390 (88.0%)	0.187
		Do not use	416 (14.3%)	2493 (85.7%)	
17	Visiting dentist	Yes	386 (87.1%)	57 (12.9%)	0.170
		No	2462 (84.7%)	446 (15.3%)	

18	How often does the participant visit the dentist	Regularly	55 (14.1%)	334 (85.9%)	0.016
		Sometime	249 (10.0%)	2229 (90.0%)	
19	Fruit-eating frequency	<5 times	272 (8.2%)	3026 (91.8%)	0.496
		≥5 times	6 (12.0%)	44 (88.0%)	
20	Vegetable-eating frequency	<5 times	261 (8.1%)	2960 (91.9%)	0.291
		≥5 times	14 (10.7%)	117 (89.3%)	
21	Dairy-consumption frequency	<5 times	157 (7.9%)	1818 (92.1%)	0.520
		≥5 times	118 (8.6%)	1259 (91.4%)	
22	Red meat-eating frequency	<5 times	264 (8.1%)	2977 (91.9%)	0.448
		≥5 times	11 (10.2%)	97 (89.8%)	
23	Fish-eating frequency	<5 times	268 (8.4%)	2931 (91.6%)	0.054
		≥5 times	6 (4.0%)	145 (96.0%)	
24	Sweet-eating frequency	<5 times	219 (8.1%)	2480 (91.9%)	0.692
		≥5 times	56 (8.6%)	596 (91.4%)	
25	Nut-eating frequency	<5 times	270 (8.2%)	3022 (91.8%)	0.803
		≥5 times	7 (13.0%)	47 (87.0%)	
26	Smoking status (cigarette)	Yes	111 (7.2%)	1425 (92.8%)	0.257
		No	162 (9.0%)	1636 (91.0%)	
27	Frequency of tobacco smoking	Regularly	86 (8.0%)	992 (92.0%)	0.068
		Rarely	26 (5.4%)	456 (94.6%)	
28	Age of start of smoking tobacco	10-12 years	87 (6.7%)	1210 (93.3%)	0.063

		13-15 years	25 (10.0%)	224 (90.0%)	
29	No. of cigarettes smoking per week	1-17	95 (7.5%)	1169 (92.5%)	0.996
		18-25	7 (7.8%)	83 (92.2%)	
30	Smoking status (water pipe)	Yes	216 (7.6%)	2630 (92.4%)	0.003
		No	58 (11.5%)	445 (88.5%)	
31	Frequency of water pipe smoking	Frequently	184 (7.6%)	2230 (92.4%)	0.192
		Rarely	184 (20.3%)	722 (79.7%)	

Note: All p-values were derived from Pearson's chi-square test. Education level of students' fathers and mothers= attended or completed university level. The variables (Age of start of tobacco smoking) and (No. of cigarettes per week) represent only the percentages among students who reported smoking tobacco.

In the bivariate analysis (Chi square), several sociodemographic, oral hygiene, and behavioral factors showed significant associations with gingival health status. Students from Nablus governorate exhibited a higher prevalence of healthy gingiva compared with those from other governorates. Having a father with university-level education ($p = 0.034$) and reporting a good or excellent family economic status ($p = 0.001$) were also associated with better periodontal health. Oral hygiene measures were strongly related to gingival status: a good Simplified Oral Hygiene Index score was linked to markedly higher rates of healthy gingiva compared with medium or poor scores ($p < 0.001$), brushing teeth twice or more per day was associated with improved periodontal health ($p < 0.001$), and using a medium-bristled toothbrush was positively associated with healthy gingiva ($p < 0.001$). In

terms of dental service utilisation, students who reported visiting the dentist regularly had better gingival health than those who visited the dentist only sometimes ($p = 0.016$). Regarding behavioural factors, water pipe smoking was significantly associated with poorer gingival health, with non-smokers showing a higher prevalence of healthy gingiva ($p = 0.003$).

No significant differences in gingival health were observed for gender, school type, number of siblings, parental employment status, mother's education level, brushing status, brushing duration, brushing technique, interdental brush use, dental visit status (yes/no), most dietary variables, cigarette smoking status, frequency of cigarette smoking, age of starting smoking, number of cigarettes per week, or frequency of water pipe smoking.