



CLINICAL RESEARCH:

High Prevalence of Self-Reported Dentin Hypersensitivity and its Associated Factors in Peruvian University Students

Alta prevalencia de hipersensibilidad dentinaria autorreportada y sus factores asociados en estudiantes universitarios peruanos

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ABSTRACT: This study aimed to determine the prevalence of self-reported dentin hypersensitivity and its association with sociodemographic, clinical, dental, dietary, and lifestyle factors among Peruvian university students. An observational, cross-sectional, and analytical design was applied to a sample of 600 students who completed a validated, self-administered digital questionnaire with 37 items distributed across five dimensions, plus a section on dentin hypersensitivity. The outcome variable was self-reported tooth sensitivity, defined as pain in response to thermal, mechanical, or chemical stimuli, acknowledging the inherent limitations of self-reported data. The overall prevalence was 68.5%, and 39.4% of participants reported sensitivity to two or more stimuli. In bivariate analyses, hypersensitivity was significantly associated with gastric acidity, dry mouth, and frequent consumption of acidic foods, whereas snoring and orthodontic treatment showed marginal trends. In multivariable logistic regression, gastric acidity (OR = 1.86; 95% CI: 1.26-2.73), dry mouth (OR=2.16; 95% CI: 1.37-3.42), and snoring (OR=1.65; 95% CI: 1.02-2.68) remained independent associated factors. The final model exhibited good overall fit and high sensitivity, though low specificity, with a moderate discriminative capacity (AUC=0.668). In conclusion, self-reported dentin hypersensitivity among university students showed a high prevalence, mainly associated with gastric acidity, dry mouth, and snoring, with additional trends related to orthodontic treatment and frequent intake of acidic foods, and the findings should be interpreted considering the limitations of self-reported measurements.

KEYWORDS: Tooth sensitivity; Students; Risk factors; Prevalence; Cross-sectional studies.

RESUMEN: El presente estudio tuvo como objetivo determinar la prevalencia de hipersensibilidad dentinaria autorreportada y su asociación con factores sociodemográficos, clínicos, odontológicos, dietéticos y de estilo de vida en estudiantes universitarios peruanos. Se realizó un estudio observacional, transversal y analítico en una muestra de 600 estudiantes que completaron un cuestionario digital autoadministrado y validado, compuesto por 37 ítems distribuidos en cinco dimensiones, además de una sección específica sobre hipersensibilidad dentinaria. La variable de desenlace fue la sensibilidad dentaria autorreportada, definida como la presencia de dolor frente a estímulos térmicos, mecánicos o químicos, reconociendo las limitaciones inherentes al uso de medidas autorreportadas. La prevalencia global fue del 68,5 %, y el 39,4 % de los participantes reportó sensibilidad frente a dos o más estímulos. En los análisis bivariados, la hipersensibilidad se asoció significativamente con la acidez estomacal, la boca seca y el consumo frecuente de alimentos ácidos, mientras que el ronquido y el antecedente de tratamiento ortodóntico mostraron tendencias marginales. En el modelo multivariado de regresión logística, la acidez estomacal (OR=1,86; IC95 %: 1,26-2,73), la boca seca (OR=2,16; IC95 %: 1,37-3,42) y el ronquido (OR=1,65; IC95 %: 1,02-2,68) se mantuvieron como factores asociados independientes. El modelo final mostró un buen ajuste global y alta sensibilidad, aunque baja especificidad, con una capacidad discriminativa moderada (AUC=0,668). En conclusión, la hipersensibilidad dentinaria autorreportada en estudiantes universitarios presentó una alta prevalencia y se asoció principalmente con acidez estomacal, boca seca y ronquido, además de mostrar tendencias relacionadas con el uso de brackets y el consumo frecuente de alimentos ácidos, y los resultados deben interpretarse considerando las limitaciones propias de los datos autorreportados.

PALABRAS CLAVE: Hipersensibilidad dentinaria; Estudiantes; Factores de riesgo; Prevalencia; Estudios transversales.

INTRODUCTION

Dentin hypersensitivity (DH) is a common condition characterized by a sharp, transient pain that originates in exposed dentinal tubules in response to external stimuli (1, 2). These stimuli—thermal, chemical, tactile, or osmotic—induce fluid movement within the tubules, activating the nerve endings of the dentin–pulp complex (3,4). Beyond its clinical dimension, DH may cause emotional discomfort, social interaction limitations, and a significant reduction in quality of life (5). This condition is particularly prevalent among young populations, with reported rates up to 34.9% in

adults aged 20 to 29 years and around 19% in adolescents (6).

University students represent a group especially susceptible to DH due to factors related to lifestyle and behavior, including irregular oral hygiene practices (7), diets rich in acidic foods and beverages (4) and high levels of academic stress (8). In this context, a previous study among university students reported that approximately 68.4% experienced dental sensitivity, with cold stimuli being the most frequently associated (7). These findings suggest that the university population may constitute a relevant epidemiological niche

for understanding the interaction between individual, behavioral, and environmental factors in the development of DH.

The main prevalence reports of DH originate from Arab countries (9,10), Europe (11-13), and Asia (14-16), whereas evidence from Latin America remains limited, with relevant studies conducted exclusively in Brazil (17). Overall, data from the region—and particularly from Peru—are scarce and fragmented, hindering the understanding of the true magnitude of the problem among young populations and limiting the development of prevention and clinical management strategies tailored to this context (18).

Traditionally, DH diagnosis has relied on clinical tests using tactile or evaporative stimuli to confirm sensitivity (19). However, self-reported questionnaires have also been used to estimate its prevalence and severity, although this approach may produce variability in reported rates (4,20). Despite this limitation, self-reports offer significant advantages: they are easy to administer (21), capture the subjective experience of pain and its impact on daily life (22,23), and represent a particularly useful strategy in population-based studies and in developing-country contexts.

Considering the above, this study aimed to determine the prevalence of self-reported dentin hypersensitivity and its association with sociodemographic, clinical, dental, dietary, and lifestyle factors among Peruvian university students. Given the cross-sectional observational design, the null hypothesis stated that there were no significant associations between dentin hypersensitivity and the risk factors evaluated.

MATERIAL AND METHODS

The study was approved by the Ethics Committee of the Universidad Católica de Santa

María (Arequipa, Peru) under code 137-025, and conducted in accordance with the principles of the Declaration of Helsinki. Participation was voluntary and anonymous, following acceptance of a digital informed consent form.

STUDY DESIGN

This was an observational, cross-sectional, and analytical study conducted among undergraduate students from different faculties of the university. Data were collected between July and November 2024 using a structured, self-administered digital questionnaire (Google Forms).

POPULATION AND SAMPLE

The target population comprised approximately 19,490 students enrolled in 2024. Students aged ≥ 17 years who agreed to participate and completed the questionnaire in full were included. Records with incomplete key variables or inconsistent responses were excluded. In total, 600 valid questionnaires were analyzed.

Sample size was calculated based on the university population ($N=19,490$), with a 95% confidence level, 4% margin of error, and expected prevalence of 50% (a conservative criterion for cross-sectional studies). The minimum required sample was 583 students, exceeded by the final sample of 600 participants, increasing the precision of estimates.

Sampling was non-probabilistic and convenience-based, aiming to include students from various faculties and academic years. This approach was chosen because access to formal student rosters was restricted and digital recruitment was operationally feasible within the university setting. While this method facilitated broad participation across academic programs, it may introduce self-selection bias and limits external generalizability;

therefore, the findings should be interpreted as representative only of the responding students rather than the entire university population.

A flowchart summarizing the recruitment and selection process is presented in Figure 1. Although the total university population comprised 19,490 students, the questionnaire was disseminated through institutional e-mail lists, faculty WhatsApp groups, and direct in-person invitations in common university areas. Consequently, the number of students effectively reached was lower than the total population. This recruitment approach is consistent with nonprobability convenience sampling and is commonly used in cross-sectional survey research within university settings.

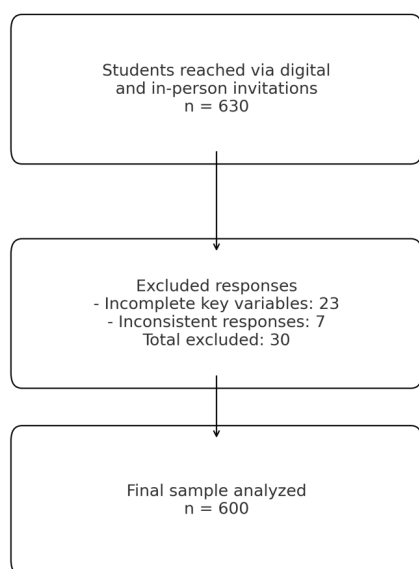


Figure 1. Flowchart of participant recruitment and selection. The questionnaire was disseminated through institutional e-mail lists, faculty WhatsApp groups, and in-person invitations in common university areas. A total of 630 responses were received; 23 were excluded due to incomplete key variables and 7 for inconsistent responses, resulting in 600 valid questionnaires included in the final analysis.

DATA COLLECTION INSTRUMENT

Data were obtained through a structured, self-administered digital questionnaire (Google Forms) designed to identify factors associated with tooth sensitivity among university students. The instrument was initially composed of 49 questions, adapted from previously validated surveys on erosive tooth wear and dentin hypersensitivity, and was subjected to expert validation in methodology and oral health. This expert review included an assessment of content and face validity, ensuring that the items were clear, relevant, and conceptually aligned with the study objectives.

To enhance transparency, examples of key questionnaire items were included in the Methods. Dentin hypersensitivity was assessed with the item “Do you feel sensitivity in your teeth in the following situations?”, followed by four scenarios (toothbrushing, cold stimuli, hot stimuli, and sweet foods) rated on a three-level Likert scale (Never, Frequently, Always). Snoring was evaluated using the question “Do you snore while sleeping?” with response options Yes/No/Prefer not to answer. Additional clinical variables were measured with analogous items, such as “Do you experience gastric acidity?” and “Do you have dry mouth or a decrease in the amount of saliva?”.

A pilot test was then conducted with 22 students of different genders, academic programs, and semesters to assess clarity, order, and coherence of items. Based on feedback, response options were refined, question wording was improved, and redundant or irrelevant items were removed. The final questionnaire consisted of 37 questions, distributed across five dimensions:

sociodemographic (7 items), clinical (8 items), dental (7 items), dietary (11 items), and lifestyle (4 items), plus a block assessing the outcome variable: dentin sensitivity (4 items). The instrument demonstrated acceptable reliability (Cronbach's $\alpha=0.71$).

To minimize bias, the questionnaire was digital, anonymous, and voluntary, reducing social desirability bias and encouraging honest responses. The self-administered format also minimized interviewer bias and ensured standardized application.

The primary outcome was self-reported tooth sensitivity, defined as the presence of pain or discomfort in response to thermal, mechanical, or chemical stimuli. This approach was chosen because patient perception is a clinically relevant indicator of quality-of-life impact and has shown concordance with clinical evaluation in previous studies (24).

STUDY VARIABLES

The dependent variable was self-reported tooth sensitivity, defined as the presence of pain or discomfort elicited by thermal, mechanical, or chemical stimuli. Because the question did not specify a recall period, the measure reflected the participant's current perception of sensitivity at the time of completing the questionnaire. This outcome was analyzed in three forms: dichotomous (presence or absence of sensitivity to at least one stimulus), ordinal through a severity index (0-8), and proportional (0-1), based on the number and combination of reported stimuli. The proportional index was treated as a continuous descriptive measure and was not included in inferential analyses.

The independent variables were organized into five dimensions consistent with the questionnaire structure. The sociodemographic dimension

included age (in years), sex, age group (17-18, 19-22, and ≥ 23 years), academic year (1st to 5th), field of study (health sciences, engineering, social sciences, and humanities), and employment status (employed or unemployed). The clinical dimension comprised body mass index (BMI, kg/m^2), presence of gastric acidity, vomiting or regurgitation, dry mouth, snoring, and bruxism or clenching. The dental dimension included history of orthodontic treatment (brackets), brushing frequency and duration, toothbrush type, brushing immediately after meals, and use of whitening toothpaste. The dietary dimension addressed the frequency of consumption of acidic foods, natural juices, citrus and non-citrus fruits, dairy products, soft drinks, and energy drinks. Finally, the lifestyle dimension covered alcohol consumption, use of tranquilizers or antidepressants, and engagement in physical exercise.

DATA ANALYSIS

Data were analyzed using Jamovi software (v.2.3.18.0, Melbourne, Australia). Normality of continuous variables was assessed using the Shapiro–Wilk test. Variables with normal distribution were reported as mean $\pm$ standard deviation (SD), whereas non-normal variables were expressed as median and interquartile range (IQR). Categorical variables were presented as frequencies and percentages.

Associations between self-reported tooth sensitivity (≥ 1 stimulus) and independent variables were examined using the chi-square test (Pearson's χ^2). Variables with $p < 0.05$ (significant) or $p < 0.10$ (trend) were entered into a multivariable binary logistic regression model which was adjusted a priori for key sociodemographic variables (sex, age group, and employment status). Results were expressed as odds ratios (ORs) with 95% confidence intervals (95% CI).

Assumptions were verified, including collinearity (VIF), overall model fit (χ^2 , AIC, BIC, McFadden, Cox-Snell, and Nagelkerke pseudo- R^2), and predictive performance through ROC curve, sensitivity, specificity, and correct classification rate.

RESULTS

A total of 600 university students participated in the survey. The mean age was 20.4 ± 2.4 years, with a median of 20 years (IQR: 19-22). The majority were female (59.3%), and more than half belonged to the 19-22-year age group (61.3%). Regarding academic distribution, 43.5% were first-year students, followed by third-year (32.8%) and second-year students (20.0%), while those in the fourth and fifth years represented a smaller proportion.

In terms of field of study, 41.2% were enrolled in health sciences, 29.0% in engineering, and 28.8% in social sciences and humanities. Additionally, 29.7% of students reported being employed, 66.2% were not working, and 4.2% preferred not to answer. The mean body mass index (BMI) was 23.4 ± 5.6 , with a median of 22.9 (IQR: 21.0-25.2) (Table 1).

Regarding the main outcome, 68.5% of participants reported dentin sensitivity to at least one stimulus, and 39.4% reported sensitivity to two or more stimuli. The severity index showed a mean value of 1.63 ± 1.71 (median: 1; IQR: 0-2), while the proportional index had a mean of 0.21 ± 0.22 and a median of 0.125 (IQR: 0-0.375) (Table 1).

In the bivariate analysis of sociodemographic and clinical characteristics (Table 2), no

statistically significant associations were observed with self-reported dentin sensitivity ($p > 0.05$ for all comparisons). However, some trends were identified: prevalence was higher among women than men (57.1% vs. 42.9%; $p = 0.072$) and among first- and third-year students compared to those in later years (42.2% and 36.0%, respectively; $p = 0.105$). The 19-22-year group showed the highest proportion of cases (60.1%), although differences were not significant ($p = 0.590$). Neither field of study nor employment status was associated with sensitivity ($p = 0.526$ and $p = 0.832$, respectively). Regarding nutritional status, most cases corresponded to students with normal BMI (65.2%), with no significant differences among other categories ($p = 0.338$).

In the bivariate analysis of clinical, behavioral, and dietary factors (Table 3), significant associations were found between dentin sensitivity and the presence of gastric acidity ($p < 0.001$), dry mouth ($p < 0.001$), and frequent consumption of acidic foods, including lemon ($p = 0.039$). Additionally, there were trends toward higher sensitivity among students reporting vomiting or regurgitation ($p = 0.056$) and snoring during sleep ($p = 0.059$), although these did not reach statistical significance.

Conversely, no relevant associations were found with bruxism/clenching ($p = 0.141$), alcohol consumption ($p = 0.699$), use of tranquilizers or antidepressants ($p = 0.298$), or exercise practice ($p = 0.569$). Among dietary factors, aside from acidic foods, natural juices, citrus and non-citrus fruits, dairy products, soft drinks, and energy beverages showed no association with sensitivity ($p > 0.05$ in all cases). Similarly, dental factors such

as brushing frequency, toothbrush type, brushing duration, brushing immediately after meals, and use of whitening toothpaste were not associated ($p > 0.05$ in all cases). However, a history of orthodontic treatment (brackets) was significantly associated with higher prevalence of dentin sensitivity ($p = 0.027$).

In the multivariable logistic regression analysis (Table 4), gastric acidity was independently associated with dentin sensitivity, approximately doubling the likelihood of its presence ($OR = 1.86$; 95% CI: 1.26-2.73; $p = 0.002$). Likewise, dry mouth showed a strong association, with more than twice the probability of sensitivity ($OR = 2.16$; 95% CI: 1.37-3.42; $p = 0.001$). Snoring during sleep was also significantly associated, increasing the probability of dentin sensitivity by about 65% ($OR = 1.65$; 95% CI: 1.02-2.68; $p = 0.043$).

These associations were obtained from a logistic regression model adjusted a priori for sex, age group, and employment status. Clinically, these effect sizes indicate that students experiencing gastric acidity or dry mouth had approximately twice the likelihood of reporting dentin hypersensi-

tivity, while those who reported snoring showed a 65% higher probability, underscoring the meaningful contribution of these factors to symptom perception in daily life.

Conversely, current or previous orthodontic treatment showed a marginal trend toward association ($OR = 1.40$; 95% CI: 0.98-2.02; $p = 0.067$). Regarding acidic food consumption, a dose-response gradient was observed: consumption ≥ 4 times per day was linked to a higher risk ($OR = 6.36$; 95% CI: 0.77-52.37; $p = 0.085$), although it did not reach statistical significance in the adjusted model.

With respect to model performance, the overall test was highly significant ($\chi^2 = 51.4$; $df = 11$; $p < 0.001$), confirming an adequate fit. The pseudo- R^2 values indicated a modest proportion of explained variance ($R^2_{McF} = 0.07$; $R^2_{CS} = 0.08$; $R^2_N = 0.12$). Collinearity was not an issue (all $VIF \approx 1$). In terms of predictive capacity, the model demonstrated high sensitivity (0.98) but low specificity (0.05), with an area under the ROC curve (AUC) of 0.668, indicating acceptable though limited discriminative ability.

Table 1. Sociodemographic, clinical characteristics, and outcomes (tooth sensitivity) of the study population (n=600).

Variable	n (%) or Mean $\pm$ SD
Sociodemographic	
Age (years), mean $\pm$ SD	20.4 $\pm$ 2.38
Median (IQR)	20 (19-22)
Sex	
Female	356 (59.3)
Male	244 (40.7)
Age group	
17-18 years	144 (24.0)
19-22 years	368 (61.3)
≥ 23 years	88 (14.7)
Academic year	
1st	261 (43.5)
2nd	120 (20.0)
3rd	197 (32.8)
4th	13 (2.2)
5th	9 (1.5)
Clinical	
BMI (kg/m ²), mean $\pm$ SD	23.4 $\pm$ 5.6
Median (IQR)	22.9 (21.0-25.2)
Outcomes (tooth sensitivity)	
Self-reported (≥ 1 stimulus)	408 (68.5)
Self-reported (≥ 2 stimuli)	235 (39.4)
Severity index (0–8), mean $\pm$ SD	1.63 $\pm$ 1.71
Median (IQR)	1 (0-2)
Proportional index (0–1), mean $\pm$ SD	0.21 $\pm$ 0.22
Median (IQR)	0.125 (0-0.375)

SD: standard deviation; IQR: interquartile range. Self-reported dentin sensitivity was based on the presence of pain or discomfort in response to mechanical, thermal, or chemical stimuli.

Table 2. Association between sociodemographic and clinical characteristics and self-reported tooth sensitivity (≥ 1 stimulus) among university students (n=600).

Variable	Category	Sensitivity "Yes", n (%)	p (χ^2)
Sex	Female	233 (57.1)	0.072
	Male	175 (42.9)	
Age group	17-18	98 (24.0)	0.590
	19-22	245 (60.1)	
	≥ 23	65 (15.9)	
Academic year	1st	172 (42.2)	0.105
	2nd	77 (18.9)	
	3rd	147 (36.0)	
	4th	7 (1.7)	
	5th	5 (1.2)	
Field of study	Health sciences	172 (42.2)	0.526
	Social sciences/humanities	117 (28.7)	
	Engineering	119 (29.2)	
Employment status	Employed	125 (30.6)	0.832
	Unemployed	266 (65.2)	
	Prefers not to answer	17 (4.2)	
BMI category	Underweight	23 (5.6)	0.338
	Normal weight	266 (65.2)	
	Overweight	106 (26.0)	
	Obesity	13 (3.2)	

Self-reported tooth sensitivity was defined as the presence of pain or discomfort in response to mechanical, thermal, or chemical stimuli. Values represent absolute frequencies and percentages within each category. p-values correspond to Pearson's χ^2 test.

Table 3. Association between clinical factors, habits, and diet with self-reported tooth sensitivity (≥ 1 stimulus) among university students (n=600).

Variable	Category	Sensitivity “Yes”, n (%)	p (χ²)
Gastrointestinal symptoms			
Gastric acidity	Yes	174 (42.6)	<.001
	No	228 (55.9)	
	Prefers not to answer	6 (1.5)	
Vomiting/regurgitation	Yes	67 (16.4)	0.056
	No	331 (81.1)	
	Prefers not to answer	10 (2.5)	
Oral/functional factors			
Bruxism/clenching	Yes	115 (28.2)	0.141
	No	287 (70.3)	
	Prefers not to answer	6 (1.5)	
Dry mouth	Yes	125 (30.6)	<.001
	No	279 (68.4)	
	Prefers not to answer	4 (1.0)	
Snoring during sleep	Yes	91 (22.3)	0.059
	No	308 (75.5)	
	Prefers not to answer	9 (2.2)	
Substance consumption			
Alcoholic beverages	Yes	199 (48.8)	0.699
	No	196 (48.0)	
	Prefers not to answer	13 (3.2)	
Tranquilizers/ antidepressants	Yes	52 (12.7)	0.298
	No	351 (86.0)	
	Prefers not to answer	5 (1.2)	
Lifestyle			
Exercise/sports	Yes	248 (60.8)	0.569
	No	152 (37.3)	
	Prefers not to answer	8 (2.0)	
Diet			
Acidic foods, including lemon	Never/rarely	58 (14.2)	0.039
	Occasionally	218 (53.4)	
	1–3 times/day	116 (28.4)	
	≥4 times/day	16 (3.9)	
Orthodontic history			
Bracket use	Yes	193 (47.3)	0.027
	No	215 (52.7)	

Self-reported tooth sensitivity was defined as the presence of pain or discomfort in response to mechanical, thermal, or chemical stimuli. Values represent absolute frequencies and percentages within each category. p-values correspond to Pearson's χ^2 test. "Prefers not to answer" categories were included in statistical analyses and are displayed for transparency.

Table 4. Multivariable association between clinical factors, habits, and diet with self-reported tooth sensitivity (≥ 1 stimulus) among university students ($n = 600$).

Predictor	OR	95% CI	p
Gastric acidity (yes vs. no)	1.86	1.26-2.73	0.002
Dry mouth (yes vs. no)	2.16	1.37-3.42	0.001
Snoring during sleep (yes vs. no)	1.65	1.02-2.68	0.043
Bracket use (yes vs. no)	1.40	0.98-2.02	0.067
Acidic food consumption:			
Occasionally vs. never/rarely	1.08	0.66-1.78	0.765
1-3 times/day vs. never/rarely	1.40	0.79-2.48	0.238
≥ 4 times/day vs. never/rarely	6.36	0.77-52.37	0.085

OR: odds ratio; CI: confidence interval. Model adjusted for sex, age group, and employment status. OR > 1 indicates a higher likelihood of self-reported tooth sensitivity, whereas OR < 1 indicates a lower likelihood.

DISCUSSION

This study revealed a high prevalence of self-reported dentin sensitivity among university students, mainly associated with gastric acidity, dry mouth, and snoring during sleep, with additional trends related to orthodontic treatment and frequent consumption of acidic foods. These findings indicate that dentin sensitivity in young populations results from a combination of clinical and lifestyle factors, thus rejecting the null hypothesis.

In our study, more than two-thirds of the students reported tooth sensitivity (68.5%). Although self-reported methods may overestimate prevalence compared to clinical tests (25), this value aligns with a previous study in Nigerian students reporting 68.4% even under clinical evaluation (7). This suggests that self-reporting may accurately capture the subjective nature of hypersensitivity-related pain. The young age of the sample (26), frequent intake of acidic foods and beverages (27), and greater awareness of dental discomfort among university students (4) may contribute to the magnitude observed.

Gastroesophageal reflux is a well-known contributor to dental erosion through intrinsic

acid exposure accelerating enamel loss and dentin exposure (28-30). In agreement with this mechanism, gastric acidity showed a significant association with dentin sensitivity in our analysis. Likewise, xerostomia reduces salivary buffering and remineralizing capacity (31,32), creating an acidic environment prone to demineralization, which is consistent with the strong association observed in this study.

Snoring during sleep also emerged as a relevant factor. Mouth breathing decreases oral humidity (33) and favors dryness and acidification (34), mechanisms potentially contributing to hypersensitivity. Although no direct causal link between obstructive sleep apnea and dentin sensitivity has been established, the condition is associated with periodontal changes leading to root exposure (35-37), supporting the plausibility of our findings.

Regarding orthodontic treatment, the evidence shows increased sensitivity after appliance activation (38-40). In our study, a history showed only a marginal trend, likely due to variability in time since treatment and individual post-treatment experiences. This supports the need for studies specifically evaluating long-term orthodontic effects on tooth sensitivity.

The association between acidic diet and dentin sensitivity is well recognized (27,41-43). Although very high-frequency consumption (≥ 4 times/day) had limited precision due to small numbers, the dose–response pattern observed aligns with previous findings and underscores the need for nutritional education in young populations.

No significant associations were found for brushing habits, toothbrush type, whitening toothpaste use, or brushing immediately after meals. This suggests that in this population, intrinsic clinical factors (gastric acidity, xerostomia, snoring) and specific dietary behaviors may play a more dominant role than general oral hygiene practices—though interactions between these behaviors cannot be ruled out (44).

The multivariable model showed good overall fit and high sensitivity, but low specificity, reflecting a limitation inherent to self-reported measures. Self-report instruments tend to capture any level of perceived discomfort, including mild or occasional sensations that might not reach the clinical threshold for hypersensitivity, leading to overclassification of “positive” cases. This phenomenon is intrinsic to subjective assessments and does not represent a deficiency of the analytic model (45).

Furthermore, the cross-sectional nature of this study represents an important limitation because it captures exposures and outcomes at a single time point. This design does not allow determining whether gastric acidity, xerostomia,

or snoring precede and contribute to dentin sensitivity, or whether they coexist as part of broader systemic or behavioral conditions. Accordingly, all associations reported should be interpreted as non-causal correlations, and longitudinal studies are needed to clarify temporal sequencing and causality.

Based on these findings, future research should incorporate standardized clinical evaluations and longitudinal approaches to validate and expand the associations identified. The results emphasize the need for preventive and educational strategies within university dental settings, particularly regarding the early detection of gastric acidity, xerostomia, sleep-related breathing habits, and dietary behaviors that may increase the risk of dentin hypersensitivity in young adults.

CONCLUSION

Within the limitations of this study, it can be concluded that self-reported dentin sensitivity among university students showed a high prevalence (68.5%) and was mainly associated with gastric acidity, dry mouth, and snoring during sleep, with additional trends related to a history of orthodontic treatment and frequent consumption of acidic foods. These findings should be interpreted cautiously and confirmed through clinical or objective assessments in future studies. From a practical standpoint, clinicians should routinely inquire about these factors during dental evaluations of young adults, as their early identification may contribute to more effective prevention and management of dentin hypersensitivity.

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