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Dentin hypersensitivity and quality of life in patients with chronic systemic disease

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Objectives: To assess the potential impact of dentin hypersensitivity on the quality of life in people with chronic systemic diseases. ***Methods***: We included 252 volunteers, 18 years or older, with ≥ 6 teeth, and under outpatient medical follow-up for systemic chronic diseases. Short Form Health Survey 36 (SF-36) was used to assess quality of life (QoL); Oral Health Impact Profile-14 (OHIP-14) and Dentine Hypersensitivity Experience Questionnaire (DHEQ-15) were used for oral health-related quality of life (OHRQoL). Dentin hypersensitivity pain was assessed using an evaporative and tactile test, and pain assessment was performed using a numerical rating scale and a verbal rating scale. Medical information was obtained from anamnesis forms and the hospital digital medical records. ***Results***: Of 252 participants, 60% had dentin hypersensitivity. There was a negative impact on the QoL/OHRQoL of individuals with dentin hypersensitivity regarding the vitality, mental health, physical functioning, and bodily pain dimensions of SF-36, and the functional limitation, physical pain, physical disability, and psychological disability dimensions of OHIP-14. Dentin hypersensitivity appeared to exert an indirect influence on QoL. ***Conclusion***: Dentin hypersensitivity negatively impacts the quality of life in patients with chronic systemic diseases.

Keywords*: quality of life, oral health, chronic disease, dentin hypersensitivity, patient health questionnaire*

Introduction

Dentin hypersensitivity is characterized by short and intense pain caused by exposed dentin due to external stimuli, without any association with other forms of dentin pathology (Cartwright, 2014). This clinical phenomenon has the potential to affect the functional, psychological well-being, social dynamics, and overall pain and discomfort experience of an individual, which has a negative impact on their overall quality of life (QoL) and oral health-related quality of life (OHRQoL) (Goh *et al.,* 2016). The prevalence of dentin hypersensitivity varies considerably, ranging from 1% to 92% (Favaro Zeola *et al.,* 2019). This variation is due to factors such as the population studied, recruitment methods used, specific study environments and various diagnostic criteria used (Cartwright, 2014; Favaro Zeola *et al.,* 2019). Furthermore, the prevalence of this condition has increased, which has been attributed to more gingival recession, treatments associated with periodontitis, teeth whitening procedures, orthodontic interventions, and the increased retention of vital or minimally restored teeth over an individual's lifetime (Cartwright, 2014; Favaro Zeola *et al.,* 2019; Goh *et al.,* 2016).

Chronic systemic diseases present a substantial clinical challenge, contributing to more fatalities and disabilities than other disease categories (Vos *et al.,* 2020). Typically characterized by gradual progression and prolonged duration, chronic systemic diseases require ongoing medical interventions (Megari, 2013). This prevalence is increasing, which has been associated with advances in health management and medical technologies, enhanced access to care, and the advent of novel medications (Sprangers *et al.,* 2000). The spectrum of chronic systemic diseases includes cardiovascular, respiratory, endocrine, renal, immunological, hematologic, mental health disorders, arthritis, osteoporosis, and cancer (Vos *et al.,* 2020). The impact of chronic systemic diseases on QoL is profound, as they compromise the general well-being of individuals, exerting adverse effects on physical, mental, psychological, and social dimensions (Megari, 2013; Vu *et al.,* 2022).

With the steady rise in life expectancy and advances in health policy, chronic systemic diseases and non-carious cervical lesions that predispose to dentin hypersensitivity have all become more common (Favaro Zeola *et al.,* 2019). Although dentin hypersensitivity and chronic systemic diseases both negatively affect QoL (Megari, 2013; Goh *et al.,* 2016; Vu *et al.,* 2022), no study has linked these conditions. However, both independently reduce physical, emotional, and social well-being, suggesting a potentially compounded effect when they occur together. Chronic systemic diseases often necessitate medications and lifestyle changes that may exacerbate oral health issues including dentin hypersensitivity. Similarly, dentin hypersensitivity impairs daily activities, such as eating and speaking, further affecting oral health-related QoL. This study aimed to explore the combined impact of dentin hypersensitivity and chronic systemic diseases on QoL. By examining this overlap, we sought to provide insights that could improve the clinical management of patients with both conditions.

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Method

This observational cross-sectional clinical study included 252 volunteers with chronic systemic diseases who underwent outpatient follow-up at a University Hospital in the south of Brazil. The sample size calculation was based on a previous study of the impact of dentin hypersensitivity on OHRQoL (Goh *et al.,* 2016). Tactile and evaporative stimuli were used to induce pain, which was measured using a visual analogue scale. The sample size was calculated to be 224, with an error α= 5% and power (1-β) = 80%, based on a mean effect size of 0.41. The sample size was increased by 13% (n = 28) to compensate for potential losses, resulting in 252 participants from a potentially eligible 928 population (G*Power Version 3.1.9.2; http://www.gpower.hhu.de).

We included male and female volunteers, 18 years or older, with at least six teeth, receiving outpatient medical follow-up for chronic systemic diseases. Exclusion criteria included people who declined to participate; had systemic conditions that limited clinical examination; or who had undergone periodontal treatment, tooth whitening, or used an orthodontic appliance during the three months before clinical examination. Volunteers with pulpal sensitivity, marginal restorations that hindered the assessment of dentin hypersensitivity, lingual restorations, and those with fixed partial dentures or who had pillars of fixed or removable bridges were also excluded.

This study adhered to the Declaration of Helsinki (2008) and it received approval from the Institutional Human Research Ethics Committee (#01591118.7.0000.0105). Before enrolment, participants were informed of the study objectives and provided their informed consent. This study was designed according to STROBE guidelines (https://www.strobe-statement.org).

All participants completed a form that included sociodemographic data, as well as questions related to general and oral health, dentin hypersensitivity, and systemic medical conditions. We obtained medical data from anamnesis forms complemented by digital medical records in the hospital. Six conditions were analyzed according to their public health importance and chronic nature, and the reliability of medical classification. Based on the International Classification of Diseases 11th Revision (ICD-11; https://icd.who.int/en), the conditions were grouped into clinically relevant categories (Table 1), including diseases of the blood or blood-forming organs (anemias, thrombocytosis, thrombocytopenia), diseases of the immune system (arthritis, arthrosis, sclerosis), endocrine, nutritional or metabolic diseases (diabetes, hypothyroidism, goiter), diseases of the circulatory system (hypertension, heart failure, venous thromboses), diseases of the respiratory system (asthma, chronic obstructive pulmonary disease, other lung diseases), and factors that influence health status or contact with health services (other postsurgical states and investigations of people without a diagnosis).

The impact of general health on QoL was determined using the SF-36 questionnaire (Short Form Health Survey 36), which consists of 36 items on eight subscales (Ustaoğlu *et al.,* 2019). Scores range from 0 to 100, with higher scores indicating better health. Participants were classified as having the worst (≤50) or best (>50) QoL, based on their SF-36 scores. To measure OHRQoL, two validated instruments were used: the short versions of OHIP-14 (Oral Health Impact Profile-14) and DHEQ-15 (Dentine Hypersensitivity Experience Questionnaire). OHIP-14 is a generic measure of OHRQoL, comprising 14 items grouped into seven subscales, while DHEQ-15 is a condition-specific measure of OHRQoL, comprising 15 questions grouped into five subscales. Both use Likert scales to rate responses. OHIP-14 scores range from 0 to 28, with higher scores indicating worse health (Lima *et al.,* 2017; Robinson, 2016; Ustaoğlu *et al.,* 2019), and DHEQ-15 scores range from 5 to 35, with higher scores indicating worse health. Subscale scores were summed individually (Boiko *et al.,* 2010; Robinson, 2016).

Two trained and calibrated operators (LTN and LZL) performed periodontal clinical examinations. Cohen's weighted kappa was used to evaluate the agreement between examiners in measuring gingival recession, probing depth, and clinical attachment loss. The findings indicated substantial inter-examiner agreement for gingival recession (0.74), probing depth (0.92), and clinical attachment loss (0.85). The examinations recorded the presence or absence of marginal suppuration, dental biofilm, gingival recession, probing depth, clinical attachment loss, and bleeding on probing (North Carolina CP-15 periodontal probe; Millennium Plus-Golgran Ind. Com. Instr. Odontológicos, São Paulo, Brazil).

Clinical examinations used a Hu-Friedy #5 (Hu-Friedy®, Chicago, IL, USA) explorer probe (tactile test) and evaporative air jet test. The probe was used to perform three horizontal sweeps on the buccal cervical surface to detect dentin hypersensitivity. The air was then applied perpendicularly to the buccal tooth surface for one second at a standardized distance of 1cm (Cartwright, 2014; Moura *et al.,* 2019). Individuals rated the intensity of both tests immediately afterwards using a numerical rating scale (NRS-11), where the extremes ranged from "no pain" to "extreme pain", and a verbal rating scale (VRS), in which the intensity of pain could be specified as "no pain", "mild pain", "moderate pain" or "severe pain" (Goh *et al.,* 2016; Moura *et al.,* 2019). The interval between tests was five minutes.

The SF-36 scoring was transformed into norm-based scores, with a mean of 50 and a standard deviation of 10. We conducted statistical analyses, using Student's t-test for continuous data and the chi-square (χ^2) test for categorical data. To examine the interplay and impacts of tactile and evaporative tests on OHIP-14 and DHEQ-15, and subsequently assess their effects on general health-related QoL (SF-36), a Structural Equation Model (SEM) was developed using path analysis. A significance level of 0.05 was adopted for all tests.

Results

In total, 252 volunteers completed all assessments. The ages ranged from 18 to 82 years, with a mean of 50.0 ± 13.0 years. Sixty per cent had dentin hypersensitivity. People with and without dentin hypersensitivity were of similar age (50.3 years (sd. 11.6y) and 49.5 years (sd. 14.8y) respectively). Dentin hypersensitivity was associated with the use of medium/hard brushing (p = 0.043), and snoring (p = 0.043). (Table 1).

Table 1. Demographic and clinical characteristics of 252 people with chronic disease.

Variable		*Without DH* *n = 102 (%)*	*With DH* *n = 150 (%)*
Age (years)	≤50	49	52
	≥51	51	48
Gender	Male	41	31
	Female	59	69
Blood or blood-forming organ disease		9	3
Immune system disease		3	5
Endocrine, nutritional or metabolic diseases		24	20
Circulatory disease		38	43
Respiratory disease		15	16
Factors influencing health status or contact with health services		12	13
Brush type	Soft	18	29*
	Medium/hard	82	71
Snore	No	30	19*
	Yes	70	81
No. teeth	6 to 10	25	21
	11-19	22	30
	20 to 25	28	32
	26 to 28	25	17
Marginal suppuration (%± sd.)		3.5 ± 11,4	4.7 ± 10.9
Dental biofilm (%± sd.)		68.9 ± 26.5	70.4 ± 25.0
Bleeding on probing (%± sd.)		49.4 ± 23.5	46.9 ± 22.3
Gingival recession, (%± sd.)	Absent	25	11*
	Present	75	89
Probing depth (%± sd.)	0 - 3 mm	85.7 ± 17.1	87.8 ± 13.0
	4 - 5 mm	13.0 ± 14.6	11.2 ± 11.4
	≥ 6 mm	1.3 ± 4.4	1.0 ± 2.5
Attachment loss (%± sd.)	0 mm	72.5 ± 25.2	71.7 ± 22.9
	1 - 2 mm	10.7 ± 12.3	9.1 ± 9.5
	3 - 4 mm	5.5 ± 7.6	6.4 ± 6.5
	≥ 5 mm	11.3 ± 18.8	12.8 ± 18.1

* $p < 0.05$, t-test

Of the 150 participants with dentin hypersensitivity, 89% had gingival recession ($p = 0.003$, Table 1). One hundred forty-one particpants with dentin hypersensitivity reported discomfort during the evaporative test, while only 81 (32%) exhibited a response to tactile stimulation.

Dentin hypersensitivity was associated with worse QoL and OHRQoL. When assessing QoL using the SF-36, participants with dentin hypersensitivity due to tactile stimulus had worse vitality and mental health, while dentin hypersensitivity triggered by evaporative stimulus resulted was associated with worse scores on the functional capacity and pain subscales. OHIP-14 scores were worse for the functional limitation, physical pain, and physical and psychological disability subscales, in participants who responded to tactile stimulation, particularly (Table 2).

Older people had a worse QoL on the functional capacity, physical aspects, and pain of the SF-36 subscales, and the psychological disability subscale of OHIP-14 (Table 3). Women were affected in terms of mental health of the SF-36 subscale, as well as psychological discomfort, physical disability, and psychological disability of the OHIP-14 subscale.

To investigate the effects of tactile and evaporative assessments on the OHIP-14 and DHEQ-15 (OHRQoL) and their influence on QoL as measured by the SF-36, an SEM was created using path analysis. The model had adequate fit indices (χ^2 $p = 0.75$; SRMR = 0.008; RMSEA = 0.00 with $p = 0.85$; CFI = 1.0; TLI = 1.0 and adj. GFI =0.99). The direct and indirect effects of dentin hypersensitivity tests over OHRQoL and general health-related QoL can be observed in the Table 4. Covariance was observed between the evaporative and tactile tests (estimate = 65.5; $p < 0.001$) and between the OHIP-14 and DHEQ-15 (estimate = 41.7; $p < 0.001$). Dentin hypersensitivity demonstrated by the evaporative test was associated with poor OHQoL and consequently, poor general QoL (Table 4).

Table 2. Quality of life and Oral health-related quality of life in individuals with and without dentin hypersensitivity.

QoL and OHRQoL	*Tactile (Mean ± SD)*		*Evaporative (Mean ± SD)*	
	Without DH n = 171 (68%)	*With DH n = 81 (32%)*	*Without DH n = 111 (44%)*	*With DH n = 141 (56%)*
SF – 36 subscales				
Functional capacity	50.7 ± 9.8	48.6 ± 10.3	51.5 ± 9.4	48.8 ± 10.3
Physical aspects	50.0 ± 10.0	49.9 ± 10.1	51.0 ± 10.0	49.2 ± 9.9
Pain	50.4 ± 10.4	49.1 ± 9.1	51.4 ± 10.1	48.9 ± 9.8*
General health status	50.8 ± 9.7	48.2 ± 10.4	51.1 ± 9.3	49.1 ± 10.5
Vitality	50.9 ± 10.0	48.1 ± 9.9*	51.3 ± 10.1	48.9 ± 9.8
Social aspects	50.3 ± 10.2	49.5 ± 9.6	50.3 ± 10.0	49.8 ± 10.0
Emotional aspects	50.5 ± 10.0	49.0 ± 10.0	50.5 ± 9.8	49.6 ± 10.1
Mental health	50.9 ± 10.2	48.2 ± 9.5*	51.1 ± 9.4	49.1 ± 10.4
Total SF-36	50.6 ± 7.0	48.8 ± 7.1	51.0 ± 6.9	49.2 ± 7.1*
OHIP – 14 subscales				
Functional limitation	0.6 ± 0.9	0.8 ± 1.0*	0.6 ± 0.8	0.8 ± 1.0
Physical pain	1.3 ± 1.1	1.7 ± 1.0*	1.3 ± 1.0	1.5 ± 1.1
Psychological discomfort	1.7 ± 1.3	1.8 ± 1.3	1.7 ± 1.3	1.7 ± 1.3
Physical disability	0.8 ± 1.0	1.3 ± 1.2*	0.9 ± 1.1	1.1 ± 1.2
Psychological disability	1.2 ± 1.2	1.5 ± 1.1	1.2 ± 1.1	1.4 ± 1.2
Social disability	0.6 ± 1.0	0.8 ± 1.1	0.6 ± 1.0	0.7 ± 1.0
Handicap	0.6 ± 1.0	0.8 ± 1.1	0.6 ± 0.9	0.7 ± 1.1
OHIP total	6.8 ± 5.5	8.7 ± 5.8*	6.8 ± 5.3	7.9 ± 5.9

* $p < 0.05$. Student's t-test.

Table 3. Quality of life and Oral health-related quality of life by age and gender.

QoL and OHRQoL	Age (years)		Gender	
	≤50	≥51	Female	Male
SF – 36 subscales	n = 128 (51%) (Mean ± SD).	n = 124 (49%) (Mean ± SD).	n = 164 (65%) (Mean ± SD).	n = 88 (35%) (Mean ± SD).
Functional capacity	51.7 ± 9.9	48.2 ± 9.8*	49.7 ± 10.2	50.5 ± 9.7
Physical aspects	51.9 ± 9.9	48.0 ± 9.8*	50.5 ± 10.2	49.1 ± 9.6
Pain	51.2 ± 9.5	48.7 ± 10.3*	49.5 ± 10.3	51.0 ± 9.4
General health status	49.1 ± 9.4	50.9 ± 10.5	50.4 ± 9.9	49.2 ± 10.1
Vitality	49.3 ± 10.4	50.7 ± 9.6	49.6 ± 10.8	50.7 ± 8.4
Social aspects	50.1 ± 10.0	49.8 ± 10.0	50.0 ± 10.2	50.1 ± 9.6
Emotional aspects	51.0 ± 9.9	49.0 ± 10.0	50.0 ± 9.9	50.0 ± 10.2
Mental health	49.9 ± 10.0	50.1 ± 10.0	49.0 ± 10.6	51.9 ± 8.6*
Total SF-36	50.5 ± 7.1	49.4 ± 7.1	50.5 ± 7.1	50.3 ± 6.5
OHIP – 14 subscales				
Functional limitation	0.6 ± 0.9	0.8 ± 1.0	0.7 ± 0.9	0.6 ± 1.0
Physical pain	1.3 ± 1.1	1.5 ± 1.1	1.4 ± 1.1	1.4 ± 1.0
Psychological discomfort	1.7 ± 1.3	1.7 ± 1.3	1.8 ± 1.3	1.5 ± 1.2*
Physical disability	1.0 ± 1.2	1.0 ± 1.1	1.1 ± 1.2	0.8 ± 1.0*
Psychological disability	1.1 ± 1.1	1.4 ± 1.2*	1.4 ± 1.2	1.0 ± 1.1*
Social disability	0.6 ± 1.0	0.7 ± 1.0	0.7 ± 1.1	0.6 ± 0.8
Handicap	0.6 ± 1.0	0.7 ± 1.0	0.7 ± 1.1	0.6 ± 0.9
OHIP total	7.1 ± 5.7	7.8 ± 5.6	8.0 ± 5.8	6.4 ± 5.2*
DHEQ-15 subscales	n = 78 (52%)	n = 72 (48%)	n = 104 (69%)	n = 46 (31%)
Restrictions	13.5 ± 5.5	13.2 ± 6.0	13.8 ± 5.6	12.3 ± 5.8
Coping	13.5 ± 5.0	13.2 ± 6.3	13.8 ± 5.5	12.3 ± 5.8
Social	11.1 ± 5.2	10.7 ± 5.7	11.4 ± 5.6	9.8 ± 4.9
Emotional	10.9 ± 5.3	9.8 ± 5.8	10.8 ± 5.7	9.4 ± 5.0
Identity	8.5 ± 5.2	8.7 ± 5.6	8.6 ± 5.3	8.7 ± 5.6
DHEQ-total	57.5 ± 22.1	55.6 ± 26.2	58.4 ± 24.4	52.5 ± 23.0

* $p < 0.05$. Student's t-test.

Table 4. Structural Equation Modeling (SEM) for direct and indirect effects of dentin hypersensitivity tests (tactile and evaporative) on OHRQoL and general health-related QoL.

Direct Effect		*95% Confidence Intervals*		*β*	*p*
Dependent	*Predictive*	*Lower*	*Upper*		
OHIP-14 Total	Tactile Test	-0.10	0.14	0.020	0.790
OHIP-14 Total	Evaporative Test	0.00	0.12	0.170	0.020[s]
Total SF-36	OHIP-14 Total	-2.26	-1.38	-0.450	<0.001*
Total SF-36	DHEQ-15 Total	-0.19	-0.04	-0.170	0.001*
DHEQ-15 Total	Tactile Test	-0.60	0.62	0.000	0.970
DHEQ-15 Total	Evaporative Test	0.99	1.58	0.560	<0.001*
Indirect Effect		*95% Confidence Intervals*		*β*	*p*
		Lower	*Upper*		
Tactile Test ⇨ OHIP Total ⇨ Total SF-36		-0.25	0.19	-0.009	0.790
Tactile Test ⇨ DHEQ-15 Total ⇨ Total SF-36		-0.07	0.07	0.000	0.970
Evaporative Test ⇨ OHIP-14 Total ⇨ Total SF-36		-0.23	-0.01	-0.080	0.030*
Evaporative Test ⇨ DHEQ-15 Total ⇨ Total SF-36		-0.26	-0.05	-0.100	0.003*

[s]$p < 0.05$, significant difference.
OHRQoL (Oral health-related quality of life): OHIP-14 (Oral Health Impact Profile-14) and DHEQ-15 (Dentine Hypersensitivity Experience Questionnaire)
QoL (Quality of life): SF-36 (Short Form Health Survey 36)

Discussion

Dentin hypersensitivity had an indirect effect on QoL and was was related to worse QoL and OHRQoL in individuals with chronic systemic diseases. Dentin hypersensitivity as indicated by the evaporative test was associated with a diminished OHRQoL and worse general QoL.

Although the literature suggests that dentin hypersensitivity impacts OHRQoL (Lima *et al.,* 2017), no study has shown this effect in patients with chronic systemic diseases. Although not considered to be a serious oral health problem by individuals and professionals (Yoshizaki *et al.,* 2017), dentin hypersensitivity can be an additional factor in reducing OHRQoL in patients who already have an affected OHRQoL, such as patients with chronic systemic diseases who suffer from other general health problems.

Quality of Life in patients with dentin hypersensitivity was lower in the functional capacity, pain, vitality, and mental health categories of the SF-36 questionnaire. Although SF-36 is a generic measure of QoL, it has been used to describe the effects of chronic systemic diseases (Manzano *et al.,* 2021) but has not been used to assess the impact of dentin hypersensitivity. Therefore, SF-36 was valid to assess differences in QoL according to dentin hypersensitivity. When using the generic OHIP-14, worse OHRQoL was observed in patients with dentin hypersensitivity in the categories of functional limitation, physical pain, and physical disability. Evidence from previous studies supports the negative impact of dentin hypersensitivity on daily activities when using OHIP-14 (Lima *et al.,* 2017).

The worst QoL and OHRQoL scores were found for older individuals and women. This latter relationship may be attributed to differences in perception of health between genders, where women may be more concerned about their health and are more aware of their conditions (Hajian-Tilaki *et al.,* 2017). Older age reduces QoL and OHRQoL,14 and the presence of chronic systemic diseases increases this reduction (Ge *et al.,* 2019).

Gingival recession was associated with the presence of dentin hypersensitivity. As shown in other studies (Fukumoto *et al.,* 2014; Que *et al.,* 2013), teeth with gingival recession generally show worse dentin hypersensitivity because they have exposed dentinal tubules (Lima *et al.,* 2017). However, dentin hypersensitivity also occurs in teeth without gingival recession (Favaro Zeola *et al.,* 2019). Periodontal parameters, such as the number of teeth, marginal suppuration, presence of biofilm, bleeding on probing, probing depth, and clinical attachment loss, were not associated with the presence of dentin hypersensitivity, indicating that this condition may be associated with factors that influence dentin exposure on buccal cervical surfaces (Fukumoto *et al.,* 2014).

Dentin hypersensitivity was associated with traumatic brushing, which is an abrasive event that can contribute to gingival recession, and consequently, dentin hypersensitivity (Favaro Zeola *et al.,* 2019). However, the influence of severe brushing on the progression of non-carious cervical lesions remains controversial; some authors claim that this type of brushing influences the appearance of lesions (Khan *et al.,* 1999; Que *et al.,* 2013). We found an association between dentin hypersensitivity and snoring. The habit of snoring can reduce salivary flow for long periods, contributing to bacterial proliferation and demineralization, which can lead to dental erosion and consequent exposure of dentinal tubules (Meurman *et al.,* 1994).

Participants in this study had chronic systemic diseases and took medications for these conditions. Uncontrolled factors, such as dietary habits, use of specific oral hygiene products, and recent dental treatments, may have influenced our findings, as these variables can affect periodontal health, pain perception, and overall QoL (Ge *et al*., 2019; Hajian-Tilaki *et al.,* 2017; Khan *et al.,* 1999; Megari, 2013; Que *et al.,* 2013; Sprangers *et al*.,

2000; Yoshizaki *et al.,* 2017). Furthermore, the distribution of patients with different chronic systemic diseases was not uniform, which may have introduced selection bias, as pain perception and QoL can vary depending on the specific disease (Hajian-Tilaki *et al*., 2017; Vu *et al.,* 2022). The use of self-reported questionnaires also poses a limitation, as participants may under-report or misinterpret their symptoms, potentially introducing a response bias and affecting data validity. Additionally, we did not consider recent dental treatments, which may have influenced our results. While we acknowledge the limitations inherent in our cross-sectional study design and convenience sampling method, future research could benefit from longitudinal designs with prolonged follow-up. Longitudinal designs offer may reveal the dynamic nature of the conditions under investigation, allowing for a more nuanced understanding of the relationships observed, and strengthening the validity of results. However, there were positive aspects of employing various assessment tools to assess QoL in this study. Although we focused on dentin hypersensitivity, the use of the generic SF-36 questionnaire revealed how this condition affects individuals with underlying systemic health problems.

The external validity of our study is supported by additional information in the literature. Our data reinforce previous findings of the impact of dentin hypersensitivity on QoL and OHRQoL (Goh *et al.,* 2016). Our research demonstrates how dentin hypersensitivity may adversely affect OHRQoL in patients already burdened with chronic systemic diseases. These findings have implications for the development of public policies and treatment protocols that aim to identify predisposing factors and manage dentin hypersensitivity in people with chronic systemic diseases. Oral health professionals should be aware of the potential for dentin hypersensitivity to exacerbate the discomfort experienced by patients with chronic systemic diseases, which may further compromise their quality of life (Goh *et al.,* 2016; Megari, 2013; Sprangers *et al.,* 2000). In clinical practice, healthcare providers should adopt a proactive approach by routinely assessing dentin hypersensitivity in patients with chronic systemic disease, considering its impact on both oral and general health (Manzano *et al.,* 2021; Lima *et al.,* 2017). Management strategies include the use of desensitizing agents, modifying dietary recommendations, and ensuring proper oral hygiene practices to minimize dentin hypersensitivity (Cartwright, 2014). Additionally, interprofessional collaboration between dental and medical teams could contribute to creating integrated care plans that address both the systemic and oral health needs of these patients. By implementing these measures, oral health professionals can improve patient outcomes and reduce the burden of dentin hypersensitivity in this vulnerable population.

In conclusion, dentin hypersensitivity was associated with worse QoL in patients with chronic systemic diseases. The prevalence of dentin hypersensitivity in patients with chronic systemic diseases is high. Gingival recession is associated with dentin hypersensitivity. Older patients and women had worse QoL and OHRQoL.

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