ORIGINAL ARTICLE

A CROSS-SECTIONAL STUDY ON THE PREVALENCE OF DENTINAL HYPERSENSITIVITY AMONG POPULATION IN KOLKATA

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ABSTRACT

The cross-sectional study investigated the prevalence of dentinal hypersensitivity in Kolkata, a common condition characterized by a short, sharp pain from exposed dentin. The study employed standardized questionnaires and clinical examinations on a diverse sample of individuals from various age groups and socioeconomic backgrounds. We gathered data on participant's experiences with tooth sensitivity, triggering factors, and oral hygiene practices. Clinical assessments included a tactile sensitivity test and an evaluation of gingival recession and occlusal wear. The findings revealed a significant correlation between the prevalence of dentinal hypersensitivity and factors such as age, diet, and oral care practices.

The study provided valuable insights, highlighting the need for greater awareness and improved dental care services for affected individuals in the region.

KEY WORDS

Dentinal hypersensitivity, tactile sensation, pain, Kolkata

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INTRODUCTION

According to Holland et al.(1997) dentinal hypersensitivity can be defined as short, sharp pain arising from exposed dentine in response to stimuli, typically thermal, evaporative, tactile, osmotic or chemical and which cannot be ascribed to any other dental defect or pathology.[1]

Dentinal hypersensitivity is one of the most common clinical conditions that dental professionals come across in their day to day clinical practice.

It affects individuals with various age groups and diverse socio-economic backgrounds. The prevalence of dentinal hypersensitivity may vary according to the region, the population, their oral hygiene habits, their dietary habits etc.[2,3]

There are various ways that dentin might become exposed (lesion localization). Open dentinal tubules (lesion initiation), which serve as a direct channel between the internal pulp of the tooth and the external environment, appear to be a common feature of dentinal hypersensitivity regardless of their etiology.[4]

Painful sensations may appear when externally introduced tactile, thermal, or chemical stimuli come into contact with the exposed dentin.[5]

Lesion Initiation in Relation to Dentinal Hypersensitivity

Lesion initiation in the context of dentinal hypersensitivity refers to the initial processes that lead to the exposure of dentin or the alteration of its structure, resulting in increased sensitivity.

a. Enamel Erosion or Wear

- Loss of enamel is the most common initiating factor for dentinal hypersensitivity. The enamel is the hard, protective outer layer of the tooth, and when it is eroded or worn away, the underlying dentin becomes exposed. This can happen due to various factors, including:
  - Acidic food and beverages: Citrus fruits, carbonated drinks, and acidic foods can demineralize the enamel over time, leading to

erosion.

- **Acid reflux:** Stomach acids can also contribute to enamel erosion, especially in individuals with gastroesophageal reflux disease (GERD).

- **Bruxism (teeth grinding):** Mechanical wear due to clenching or grinding of the teeth can wear down the enamel and expose dentin.

- **Tooth brushing:** Overly aggressive brushing with a hard-bristled toothbrush can contribute to enamel abrasion, especially at the gumline.[6,7,8]

b. Gingival Recession

- Gingival recession is another important factor in dentinal hypersensitivity. As the gums recede due to periodontal disease, poor oral hygiene, or natural aging, the cementum (the thin covering over the root surface) is exposed. This exposes the dentin in areas near the root, which can lead to sensitivity when the root surfaces are stimulated. Since the dentin at the root is not covered by enamel, it is more vulnerable to external stimuli.[2,9,10,11,12]

c. Exposure of Dentin Tubules

- The primary reason for dentinal hypersensitivity is the exposure and alteration of the dentinal tubules, which are microscopic channels within the dentin. These tubules contain fluid, and when the dentin is exposed to stimuli, the fluid inside the tubules can move, stimulating the nerve endings in the pulp of the tooth. This movement of fluid is thought to trigger pain.[4,5]

- Lesion initiation occurs when the protective enamel is compromised, and the dentin, particularly in areas where the enamel is thin or worn down, is exposed to external factors like temperature, touch, or air. As the tubules become exposed, the sensation of pain or discomfort can occur.[9,10,11]

d. Factors Contributing to the Opening of Dentin Tubules

- **Cavity formation or micro-fractures in the enamel and dentin:** Caries or fractures can create openings to the dentin, allowing stimuli to reach the nerve endings inside.

- **Acidic environments:** The presence of acids from dietary sources or from bacteria in plaque can demineralize the tooth surface, further enlarging the dentinal tubules and leading to hypersensitivity.

Lesion Localization in Relation to Dentinal Hypersensitivity

Lesion localization refers to identifying the specific areas of the tooth where the dentin has been exposed or altered, leading to hypersensitivity. Proper localization of the lesion is crucial for diagnosing and treating dentinal hypersensitivity effectively.

a. Common Locations of Dentinal Hypersensitivity Lesions

- **Cervical areas:** The most common sites for dentinal hypersensitivity are at the cementoenamel junction (CEJ), where the enamel and cementum meet. This area is vulnerable because it is close to the gumline, which may recede over time, exposing the dentin. If the enamel has worn away or if there is gingival recession, the underlying dentin is exposed and becomes more sensitive.

- **Exposed root surfaces:** When the gums recede, the tooth roots become exposed. The root surface is covered by cementum, which is thinner than enamel and more porous. This makes the dentin underneath more susceptible to external stimuli, leading to sensitivity.

- **Occlusal surfaces:** The biting surfaces of teeth (especially in areas where there is significant wear or erosion) can also develop areas of dentinal exposure. However, this is less common compared to cervical or root exposure.

- **Areas of enamel erosion:** Areas where enamel is thin or worn down, especially on the buccal or lingual surfaces of the teeth, can also become prone to dentinal hypersensitivity. Erosion can occur due to environmental factors, acid reflux, or dietary habits.

b. Diagnostic Techniques for Lesion Localization

- **Visual Inspection:** Dentists typically begin by examining the tooth to identify signs of enamel wear, gingival recession, or areas where dentin may be exposed. The use of a dental mirror and explorer allows the dentist to examine the tooth surface for potential lesions.

- **Tactile Examination:** A dental explorer can be used to feel for exposed dentin or soft areas on the tooth surface that could indicate hypersensitivity. However, caution must be taken during this examination to avoid exacerbating pain.

- **Air Blast Test:** A blast of air directed at the suspected area of sensitivity can help localize the lesion. The patient's reaction to the air blast (sharp pain) can help pinpoint the area of exposed dentin causing hypersensitivity.

- **Cold Stimulus Test:** The application of a cold stimulus (such as ice or a cold spray) can also be used to localize areas of sensitivity. The discomfort experienced will help identify which part of the tooth is hypersensitive.

- **Radiographs:** Though not directly used to detect dentinal hypersensitivity, radiographs may help identify gingival recession, tooth wear, or other factors that could contribute to dentinal exposure.

c. Factors Affecting Lesion Localization

- **Severity of Gingival Recession:** The extent of gum recession plays a significant role in determining the localization of the lesion. More severe recession leads to more extensive exposure of root surfaces.

- **Extent of Enamel Erosion:** If enamel erosion is widespread, more areas of dentin may be exposed, increasing the chances of hypersensitivity in various locations of the mouth.

- **Tooth Position and Function:** Teeth that are subjected to high functional loads (such as molars or teeth that grind against each other) may have wear patterns that predispose them to hypersensitivity.

- Describe this clinical condition. These terms refer to sensitivity resulting from periodontal disease and its treatment. On the other hand, dentinal hypersensitivity that results from hydrodynamic stimulation may not be the same as the sensitivity that follows periodontal therapy.

Dentinal sensitivity is explained by the widely accepted hydrodynamic theory, which proposes that fluid shifts in response to hydrodynamic stimuli occur across exposed dentine with open tubules. This, in turn, mechanically activates the nerves located in the outer layers of the pulp or at the inner ends of the dentine tubules, resulting in dentinal hypersensitvity. Dentinal hyprsensitivity can be extremely painful and unpleasant for people, despite not being a major dental issue or a life-threatening condition.[4,5,12]

The aim of the study is to assess the factors most commonly associated with the dentinal hypersensitivity cases in the population of Kolkata since knowing its factors will make it easier to customize and modify the treatment plan.

MATERIALS AND METHODS

Study design: This is a cross-sectional study done among population in Kolkata.

Sample size: A total of one-hundred patients were examined who came to the Department of Conservative Dentistry and Endodontics of our institute from December 2023 to February 2024 with the chief complaint of dentinal hypersensitivity.

Inclusion criteria:

- Patients residing in Kolkata and its suburbs who came to the Conservative Department of our institute.
- Patients in the age range between 20-69 years.
- Patients complaining of sensitivity in atleast one tooth.
- Systemically healthy patients.
- Atleast one non-carious tooth affected by dentinal hypersensitivity.

Exclusion criteria:

- Teeth with restorations.
- Patients who have undergone desensitization treatment in past three months.
- Medically compromised patients.

PROCEDURE

Informed consent: An informed consent was taken from patients regarding the survey.

Formation of a questionnaire: A structured questionnaire was prepared which includes the demographic details of the patients, their relevant medical history, oral hygiene habits etc.

Data collection time: The data was collected from patients from December 2023 to February 2024.

Questionnaire:

The survey inquired about the participant's name, age, gender, employment status, past medical history, oral hygiene practices, including the kind, manner, and frequency of brushing.

CLINICAL EXAMINATION:

To verify the existence of dentinal hypersensitivity, clinical testing was performed on subjects who had claimed sensitivity. Using tactile and cold air stimuli, the sensitivity of the teeth were assessed. At first, the tooth was isolated with cotton roll and then using a Shepherd's hook explorer perpendicular to the cervical third of each tooth and the explorer's tip scraping the surface horizontally, tactile sensitivity was measured. A blast of cold air from the dental unit triple syringe was applied for one second, approximately two millimetres from and perpendicular to the tooth surface, and used cotton rolls to isolate the affected tooth from neighbouring teeth ten minutes after the tactile stimulus (TS). This was done to evaluate the patient's reaction to the cold air stimulus (AS).

STATISTICAL ANALYSIS

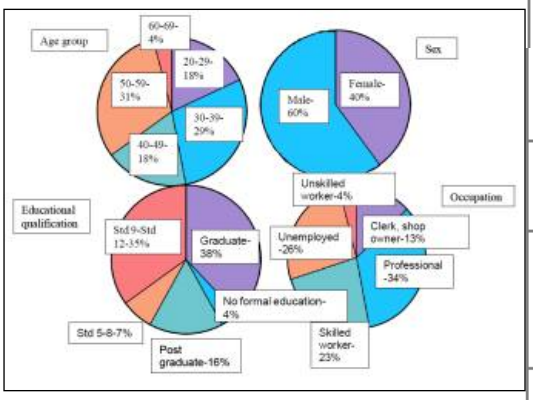
The collected data was tabulated in a spreadsheet using Microsoft Excel 2019 and then statistical analysis was carried out using Graph Pad Prism for Windows, Version 9.5 (Graph Pad Software, La Jolla California USA).

Descriptive statistics were used to report the categorical variables in terms of frequencies and percentages and were tested using the Chi-square($\chi 2$) test.

A uni variate logistic regression analysis was

Table 1:Demographic characteristics of the study respondents

Age Group	*n* (%)
20-29	18(18%)
30-39	29(29%)
40-49	18(18%)
50-59	31(31%)
60-69	4(4%)
Sex	
Female	40(40%)
Male	60(60%)
Educational qualification	
Graduate	38(38%)
No formal education	4(4%)
Postgraduate	16(16%)
Std 5-8	7(7%)
Std 9 - Std 12	35(35%)
Occupation	
Clerk, shop owner	13(13%)
Professional	34(34%)
Skilled worker	23(23%)
Unemployed	26(26%)
Unskilled worker	4(4%)



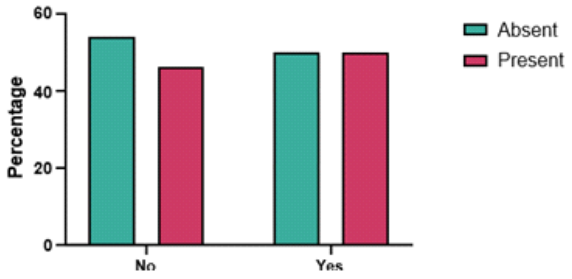
Pie Chart: Distribution of study subjects:

IndependentVariables		Absent(n=53)	Present(n=53)	Total(N=100)	*P* value
Age Groups	20-29	18(34%)	0(0%)	18(18%)	<0.001**
	30-39	26(49.1%)	3(6.4%)	29(29%)	
	40-49	3(5.7%)	15(31.9%)	18(18%)	
	50-59	6(11.3%)	25(53.2%)	31(31%)	
	60-69	0(0%)	4(8.5%)	4(4%)	
Gender	Female	21(39.6%)	19(40.4%)	40(40%)	0.935ns
	Male	32(60.4%)	28(59.6%)	60(60%)	
Educational Qualification	Graduate	27(50.9%)	11(23.4%)	38(38%)	<0.001**
	No formal	0(0%)	4(8.5%)	4(4%)	
	education				
	Post graduate	16(30.2%)	0(0%)	16(16%)	
	Std 5-8	0(0%)	7(14.9%)	7(7%)	
	Std 9- Std 12	10(18.9%)	25(53.2%)	35(35%)	
Occupation	Clerk, shop owner	0(0%)	13(27.7%)	13(13%)	<0.001**
	Professional	31(58.5%)	3(6.4%)	34(34%)	
	Skilled worker	14(26.4%)	9(19.1%)	23(23%)	
	Unemployed	8(15.1%)	18(38.3%)	26(26%)	
	Unskilled worker	0(0%)	4(8.5%)	4(4%)	
Are you suffering from any systemic disease?	No	41(77.4%)	35(74.5%)	76(76%)	0.73ns
	Yes	12(22.6%)	12(25.5%)	24(24%)	
Do you take any medication on regular basis?	No	43(81.1%)	33(70.2%)	76(76%)	0.73ns
	Yes	10(18.9%)	14(29.8%)	24(24%)	
Are you pregnant/lactating ?(for female)	No	50(94.3%)	44(93.6%)	94(94%)	0.87ns
	Yes	3(5.7%)	3(6.4%)	6(6%)	
Do you have any detrimental habit?	chewing hard food like supari	0(0%)	2(4.3%)	2(2%)	<0.001**
	chewing tobacco	0(0%)	9(19.1%)	9(9%)	
	none	27(50.9%)	20(42.6%)	47(47%)	
	others	10(18.9%)	1(2.1%)	11(11%)	
	pencil biting	4(7.5%)	0(0%)	4(4%)	
	smoking	12(22.6%)	15(31.9%)	27(27%)	
How do you clean your teeth?	Other	0(0%)	0(%)	0(0%)	0.12ns
	using tooth brush	53(100%)	47(100%)	100(100%)	
Which type of tooth brush do you use?	hard bristles	0(0%)	25(53.2%)	25(25%)	<0.001**
	medium bristles	19(35.8%)	21(44.7%)	40(40%)	
	soft bristles	34(64.2%)	1(2.1%)	35(35%)	
Which brushing technique do you follow?	horizontal	12(22.6%)	15(31.9%)	27(27%)	0.012*
	horizontal and	26(49.1%)	29(61.7%)	55(55%)	
	vertical				
	vertical	15(28.3%)	3(6.4%)	18(18%)	
How many times do you brush in a day?	Once	28(52.8%)	40(85.1%)	68(68%)	0.006**
	Twice	25(47.17%)	7(14.9%)	29(29%)	
Which hand do you use while brushing?	left	5(9.4%)	1(2.1%)	6(6%)	0.125ns
	right	48(90.6%)	46(97.9%)	94(94%)	
Which tooth cleansing aid do you use?	tooth cleansing powder	11(20.8%)	6(12.8%)	17(17%)	0.288ns
	tooth paste	42(79.2%)	41(87.2%)	83(83%)	

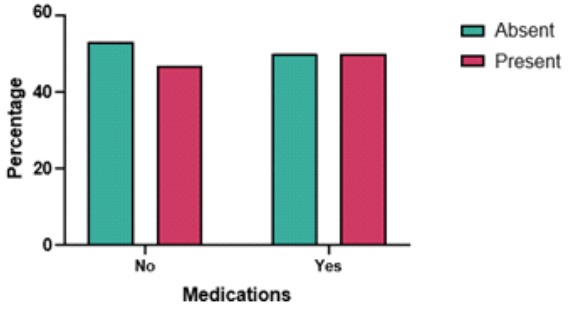
Table 2: Distribution of the study questionnaire responses according to the status of dentinal hypersensitivity:

Bar Graphs showing the distribution of responses according to the DH status

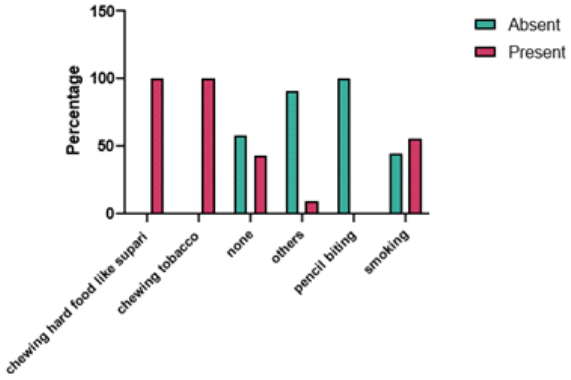
Are you suffering from any systemic disease?



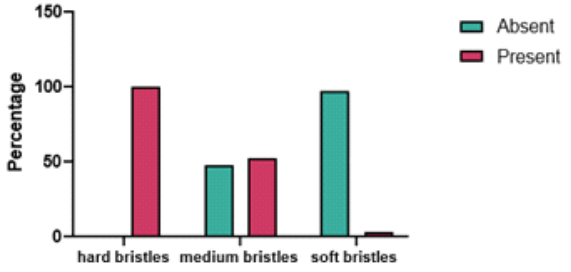
Do you take any medication on regular basis?



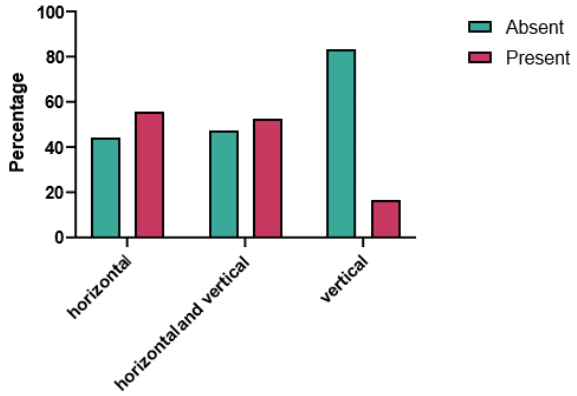
Do you have any detrimental habit?



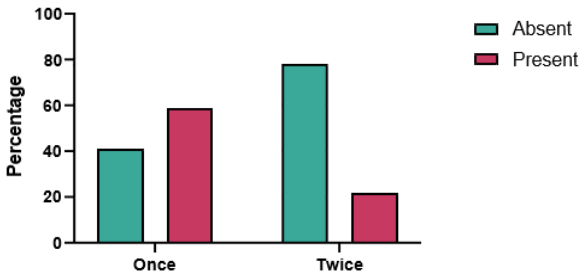
Which type of tooth brush do you use?



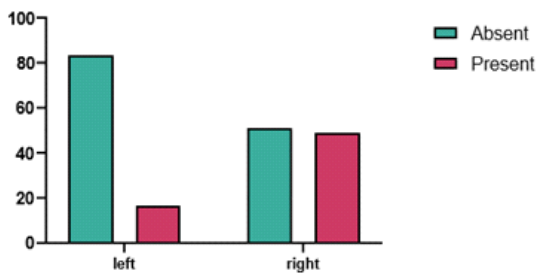
Which brushing technique do you follow?



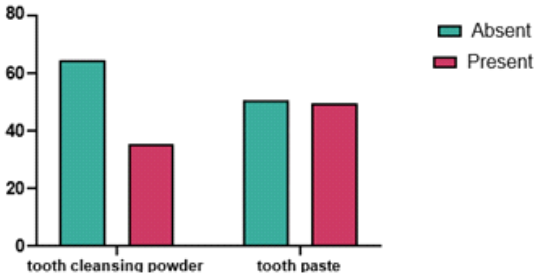
How many times do you brush in a day?



Which hand do you use while brushing?



Which tooth cleansing aid do you use?



done to evaluate variables with a significant association and to obtain the Odds ratio (OR) with 95% Confidence intervals (CI).

A P value of ≤0.05 was considered as the level of significance.

RESULT

A total of 100 responses were screened and 47 of the patients were found to be complaining of dentinal hypersensitivity with an overall prevalence rate of 47%. Out of all the study participants, the majority were above 40 years of age (53%) and males (n=60%). Regarding the qualification, 54% had completed education above a higher secondary school level than Std 12, thereby most of the study respondents were professionals (34%). 76% of the respondents did not report any known systemic diseases and thus did not require the intake of any medications. Possession of a detrimental habit was reported by 53% of the respondents out of which the majority reported to be smokers (n=27). A toothbrush was used by all the study participants (100%), however, toothpaste as a dentifrice was used by only 83% of the participants to clean their teeth, using both the horizontal and the vertical method (55%). Brushing once daily was the most preferred frequency (68%), using the right hand (94%) with a medium-bristled toothbrush (40%)

Table 4: Reponses to Oral tests and questionnaire for patients suffering from DH

Oral tests and questionnaire		*P* value
In which region are you experiencing the pain or sensitivity?		
Lower front	13(27.7%)	0.31ns
Lower left	4(8.5%)	
Lower right	7(14.9%)	
Upper front	6(12.8%)	
Upper left	9(19.1%)	
Upper right	8(17%)	
Is the pain associated with a cervical lesion?		
No	7(14.9%)	<0.001**
Yes	40(85.1%)	
How intense is the pain or sensitivity?		
mild	16(34%)	<0.001**
moderate	28(59.6%)	
severe	3(6.4%)	
For how long the pain/sensitivity persist?		
Few minutes	43(91.5%)	<0.001**
Few seconds	3(6.4%)	
For hours	1(2.1%)	
Is the pain continuous or intermittent?		
Continuous	4(8.5%)	<0.001**
Intermittent	43(91.5%)	
Is the pain spontaneous?		
No	38(80.9%)	<0.001**
Yes	9(19.1%)	
Does your pain aggravate or diminish on having		
cold	36(76.6%)	<0.001**
hot beverages	5(10.6%)	
sweet	5(10.6%)	
Tooth brushing	1(2.1%)	
Did you use any desensitizing toothpaste in last 3 months?		
no	41(87.2%)	<0.001**
yes	6(12.8%)	
Have you undergone any desensitizing procedure in last 3 months?		
No	47(100%)	-
Is there any other pathological condition associated with tooth pain/sensitivity?		
bleeding	9(19.1%)	<0.001**
none	35(74.5%)	
others	3(6.4%)	
Number of teeth involved		
<3	35(74.5%)	<0.001**
>3	12(25.5%)	

Oral tests and questionnaire		*P* value
Surfaces involved in cervical lesion:		
Buccal	47(100%)	-
Which arch is involved?		
Mandibular	24(51.1%)	0.884ns
Maxillary	23(48.9%)	
Which side is involved?		
Both	16(34%)	0.979ns
Left side	15(31.9%)	
Right side	16(34%)	
Type of cervical lesion:		
Carious	3(6.4%)	<0.001**
Non-carious	44(93.6%)	
Extent of lesion:		
enamel and dentin involved	39(83%)	<0.001**
lesion reaching to pulp but not exposed	7(14.9%)	
only enamel involved	1(2.1%)	
Shape of the lesion:		
Saucer	31(66%)	<0.001**
Uneven	12(25.5%)	
V shaped	4(8.5%)	
Depth of the lesion:(measured using periodontal probe)		
1mm	2(4.3%)	<0.001**
2mm	38(80.9%)	
3mm	7(14.9%)	
Is there any tooth wear associated with the concerned teeth?		
Abrasion	31(66%)	0.03**
Attrition	16(34%)	

***n*=frequency**

ns : not statistically significant(P>0.05);*:statistically significant(P<0.05); **:Highly statistically significant(P<0.01)

All the factors were cross-tabulated with the status of dentinal hypersensitivity to find an association with the other determinants such as age, gender, occupation, educational qualification, detrimental oral habits, intake of medications and oral hygiene practices as independent variable.

However, the factors that were found to be significant determinants of dentinal hypersensitivity, were subjected to Logistic regression analysis to obtain the Odd's ratio with 95% CI and is enlisted as follows:

- **Age:** Age was significantly associated with dentinal hypersensitivity, with people older than 40 years of age more prone to the condition (OR:71.7037,95%CI:18.1871-282.696,P=< .001)

- **Education:** Educational qualification significantly affected the occurrence of DH, as people below an educational level of Standard 12 seem to have more prevalence of DH than well-educated individuals (OR:14.073,95%CI:5.367- 36.903,P< .001)

- **Occupation:** Compared to professionals, clerk owners (OR:1200000000,95%CI:0-Inf,P=0.991) skilled workers(OR:6.6429,95%CI:1.5565-28.35,P=0.011), unemployed individuals (OR:23.25, 95%CI:5.4622-98.964,P=<.001) and unskilled workers(OR:1200000000,95%CI:0-Inf,P=0.995) showed more predilection to DH. However, a significant difference was noted only in case of skilled workers and unemployed individuals.

- **Detrimental habits:** Detrimental oral habits like smoking, or chewing of tobacco seemed to a positive determinant of DH, implying that people in possession of such habits were more prone to DH (OR:1.402,95%CI:0.636- 3.09, P=0.04)

- **Bristles:**Hard Bristles (OR:10700000000, 95%CI:0-Inf,P=0.05) and medium bristled toothbrush (OR:37.5789, 95% CI:4.67994-301.751, P=< .001) users were more prone to DH than users of soft bristled tooth brushes.

- **Brushing technique :** DH was seen to be more prevalent in individuals who followed the horizontal

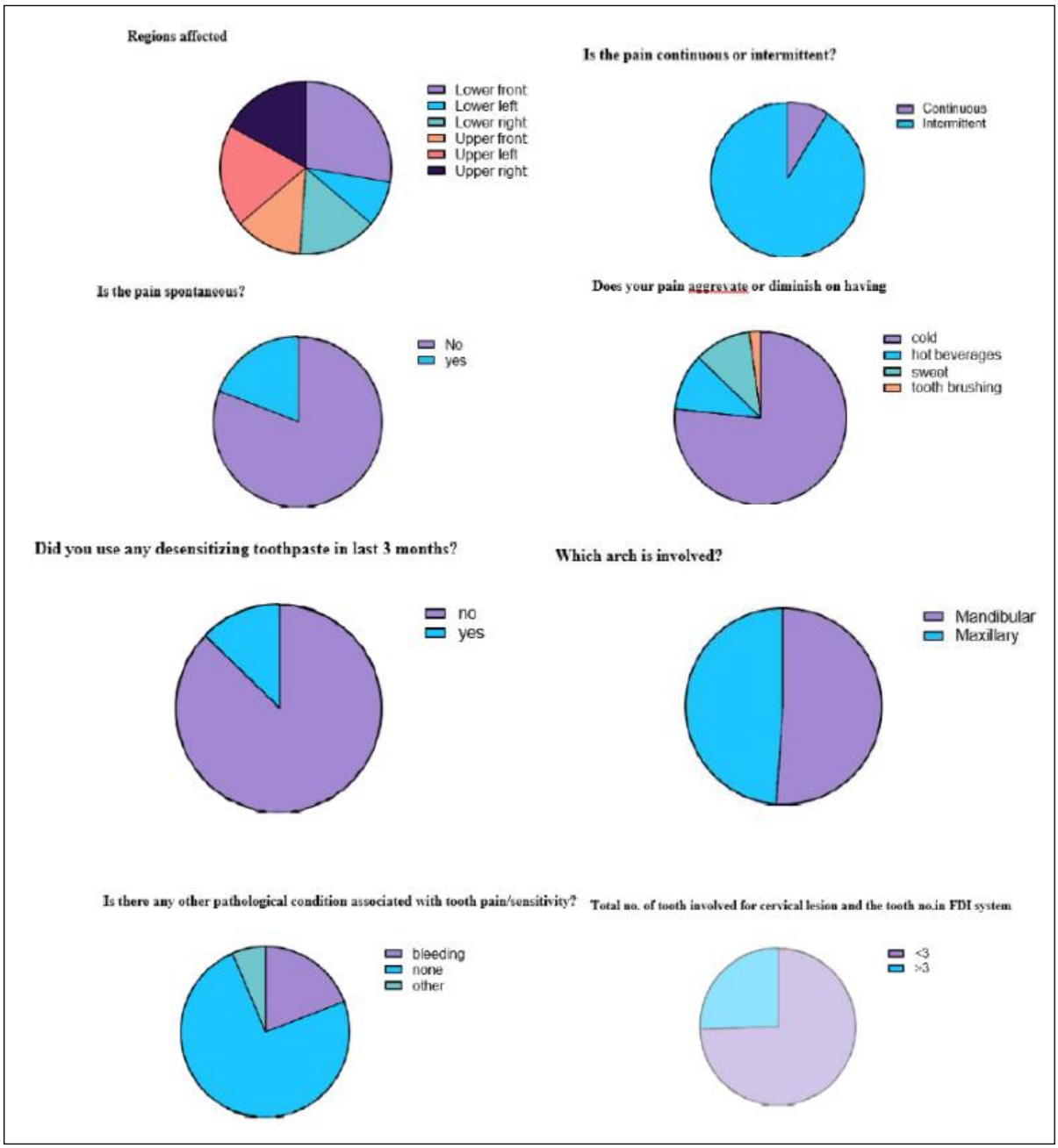
method of brushing (OR:6.25, 95%CI:1.4609-26.739, P=0.013) and the dual method of brushing (OR:5.577, 95%CI:1.4488- 21.467, P=0.012) than individuals who brushed in a vertical direction only.

- **Frequency of brushing:** the frequency of brushing was a significant predictor and paradoxically people who brushed once a day reported with DH more than people who brushed twice a day (OR:0.247, 95%CI:0.0934-6.51, P=0.005)

Oral tests and questionnaires were conducted in patients complaining of DH, and it was found that the lower incisors were comparatively more affected than the other sextants (27.7%, n=13). However, the difference in proportions did not significantly differ from the hypothesized distribution (P=0.31).

It was also seen that in 85.1%(n=40) of the cases, the lesion was associated with pain (85.1%, n=40), which was majorly moderate in intensity(59.6%, n=28). The persistence of pain was for a few minutes (91.5%, n=43) and was intermittent (91.5%, n=43). The pain was not spontaneous (80.9%, n=38) and aggravated majorly by having cold foods(76.6%, n=36). 87.2% (n=41)of the patients did not report of having any desensitizing toothpaste in the past 3 months. On oral testing, DH was not associated with any other dental pathology (74.5%, n=35) in most of the cases and the number of teeth involved was less than 3(74.5%, n=35). Buccal surface lesions were found in all the study participants complaining of DH. The lesion associated with DH was more commonly non-carious (93.6%, n=44)and extended till dentin in most of the cases (83%, n=39). Saucer-shaped lesions

Pie charts showing distribution of responses and oral tests



were most commonly found, with a depth of 2mm (66%, n=31). Abrasion was more commonly seen as an etiologic factor (66%, n=31) and the tooth position was found to be normal in most of the cases (87.2%, n=41). All of these factors were statistically significant from different from the hypothesized proportions (P<0.001)

Additionally, it was seen that no difference existed in the affliction of the arches and was almost equal (P=0.884), and also no significant affection for a side was seen (P=0.979)

DISCUSSION

With increase in life expectancy and increased retention of natural dentition, the incidence of dentin hypersensitivity is likely to become a frequent dental finding. Thus, the decline of tooth loss in the 20th century and the increasing longevity of the teeth with tooth wear in the 21st century will be far more demanding in the preventive and restorative skills of the dental professionals.[13,14,15] Typically, dentin hypersensitivity occurs when the dentinal tubules are exposed, triggers a rapid outflow of dentinal fluid, and the resultant pressure change across the dentin activates interdental nerve fibers to cause immediate pain.[4,5]

Tactile, cold and osmotic stimuli all trigger rapid fluid outflow. Heat, on the other hand, triggers a slow retreat of dentin fluid and the resultant pressure change activates the nerve fibers in a less dramatic fashion, consistent with the observation that cold is generally more problematic to sufferers than is heat.

In this study, the greatest percentage affected by hypersensitivity includes the age range between 50-59 years which is 53%.This is due to compromized periodontal condition along with recession in older age group. This is similar to the study of Jagjit Singh Dhaliwal et al. where greatest percentage includes age range between 50-59 years which is around 98% in rural Punjabi population.[22] But according to Ryana Kour Haneet et al. a higher predilection for hypersensitivity has been noticed in the age range between 36-45 years in the population of Davangere, Karnataka.[23]

In this study, male involves the greater percentage which is 60%. This is prabably due to increased oral habits of smoking and chewing tobacco in male population.[23] But according to Ryana Kour Haneet et al. female involves the greater percentage which is 50.3 % in the population of Davangere, Karnataka.[23] According to Jagjit Singh Dhaliwal et al. also, female involves the greater percentage which is 58% in the rural Punjabi population.[22]

In this study, among the patients chewing hard food like supari, 4% were affected. Among the patients chewing tobacco, 19% were affected. Among the patients who smoke, 31% were affected. These habits may lead to gingival recession and enamel erosion which in turn causes exposure of dentinal tubules and thus sensitivity occurs. According to Abdul Salam T.A. et al. in 44% cases, oral habits cause dentinal hypersensitivity.[24]

In this study, among the patients using hard bristles toothbrush, 53% were affected. Among the patients using medium bristles toothbrush, 44% were affected. Among the patients using soft bristles toothbrush, 2% were affected. Using hard bristles toothbrush may cause maximum abrasion on the tooth surface which may lead to the exposure of dentinal tubules. This is similar according to Ryana Kour Haneet et al. where among the patients using hard bristles toothbrush, 52% were affected.[25]

In this study, among the patients using horizontal brushing technique, 31% were affected. Among the patients using horizontal and vertical brushing technique, 61% were affected. Among the patients using vertical brushing technique, 6% were affected. The patients using horizontal and vertical brushing technique may cause more abrasion on tooth surface which may lead to the exposure of dentinal tubules. But according to Nikolaos A C et al. among the patients who use horizontal brushing technique, 77% were affected.

In this study, most commonly affected region is lower incisal region, which is 27%.This occurs due to the compromised periodontal condition associated with recession during old age. This is similar according to the study of Hasanain Al- Khafaji et al. where most commonly affected region is lower anteriors, which is around 34%.[26]

In this study, 87% of the affected individual did not use any desensitizing toothpaste or mouthwash; nor did they undergo any desensitization procedure in past 3 months. This helps to record the actual hypersensitive condition of the patients. But according to Abdul Salam T.A. et al.28% of the affected individual did not use any desensitizing agents in past 3 months.[24]

In this study, in 51% of cases, mandibular teeth/arch was involved. This may be due to the recession, which most commonly affects the lower anteriors. This is similar to the study of Hasanain Al-Khafaji et al. where most commonly affected region is lower anteriors, which is around 34%.

CONCLUSION

Thus this cross sectional study, contributes valuable insights into the prevalence of dentinal hypersensitivity in Kolkata, highlighting the factors associated with dentinal hypersensitivity like the type of toothbrush used, the brushing technique, type of tooth cleansing aid, any detrimental oral habit like smoking, chewing tobacco etc; thus indicating the need for specific treatment protocols for managing patients.

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