

Knowledge And Awareness Of Dentinal Hypersensitivity Among An General Population - A Survey

Research Article

Nandini Palanivel¹, Gheena.S^{2*}

¹ Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, (SIMATS), Saveetha University, Chennai, Tamilnadu, India.

² Associate Professor, Department of Oral Pathology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, (SIMATS), Saveetha University, Chennai, India.

Abstract

The study was to assess the knowledge and awareness related to dentin hypersensitivity in a samong general population. Dentin hypersensitivity is a relatively common problem which may disturb the patient during eating, drinking, brushing and sometimes even breathing its painful condition is very highly prevalent in the general adult population. The questions were prepared and distributed to 100 participants and the survey is conducted through an online survey and then the responses are collected and finally the result is analyzed by SPSS version 20 . The most common cause was found to be consuming cold food or drinks (92%) and common cold was the most predisposing fact. The main aim of the study was to create an awareness about the dentin hypersensitivity among an general population.

Keywords: Dentin Hypersensitivity; Dietary Methods; Questionnaire Study.

Introduction

Dentinal hypersensitivity (DH) is a common clinical condition usually associated with exposed dentin surfaces. It can affect patients of any age group and most commonly affects the canines and premolars of both the arches. This article concisely reviews the patho-physiology, mechanism and clinical management of the DH [23]. Treatment of DH should be symptomatic. Differential diagnosis should be made and all other probable causes should be excluded [24]. An often neglected phase of clinical management of DH is the identification and treatment of the causative factors of DH. There are various treatment modalities available which can be used at home or may be professionally applied. The “at home” desensitizing agents include toothpastes, mouthwashes or chewing gums and they act by either occluding the dentinal tubules or blocking the neural transmission [5, 22]. Dentinal sensitivity (DS) or dentinal hypersensitivity (DH) is one of the most commonly encountered clinical problems. The terms DS or DH have been used interchangeably to describe the same clinical condition [2, 11, 32]. True hypersensitivity can develop due to pulpal

inflammation and can present the clinical features of irreversible pulpitis, i.e., severe and persistent pain, as compared with typical short sharp pain of DH. But it is well known that all exposed dentines are not sensitive and the term DH has been used over the decades by clinicians [3, 26]. “Dentine hypersensitivity is characterized by 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” [8, 10]. DH is a painful clinical condition with an incidence ranging from 4 to 74%. The variations in the reports may be because of differences in populations and different methods of investigations. The methods employed are usually patient questionnaires or clinical examinations. Interestingly, the incidence of DH is much higher in questionnaires studies than in clinical studies which quote an incidence of mere 15% [7]. A slightly higher incidence of DH is reported in females than in males. While DH can affect a patient of any age, most affected patients are in the age group of 20–50 years, with a peak between 30 and 40 years of age.

*Corresponding Author:

Gheena. S,

Associate Professor, Department of Oral Pathology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science (SIMATS), Saveetha University, 163, Poonamallee High Road, Chennai 600077, Tamilnadu, India.

Tel: 98840 33777

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Regarding the type of teeth involved, canines and premolars of both the arches are the most affected teeth [14, 33]. Buccal aspect of cervical area is the commonly affected site. An often neglected phase of clinical management of DH is the identification and treatment of the causative factors of DH. By removing the etiological factors, the condition can be even prevented from occurring or recurring. The etiological factors include faulty tooth brushing, poor oral hygiene, premature contacts, gingival recession because of periodontal therapy or physiological reasons, and exogenous/endogenous non-bacterial acids. [Faulty tooth brushing includes hard brushes, excessive forces, excessive scrubbing at the cervical areas or even lack of brushing which causes plaque accumulation and gingival recession. The patient should be taught the correct method of tooth brushing with the help of a model. Highly abrasive tooth powder or pastes should be avoided. Also, the patients should be instructed to avoid brushing for at least 2 hours after acidic drinks to prevent the agonist effect of acidic erosion on tooth brush abrasion [1]. Erosive agents are also important agents in initiation and progression of DH. They tend to remove the enamel or open up the dentinal tubules. The erosive agents can be either exogenous dietary acids or endogenous acids. The exogenous dietary acids include carbonated drinks, citrus fruits, wines, yogurt, and professional hazards (workers in battery manufacturing, wine tasters). A detailed dietary history should be taken. The quantity and frequency of the foods containing acids should be reduced [18, 30, 36]. Patients should be advised to take something alkaline (milk) or at least neutral (water) after acidic drinks and to use a straw to sip to drink and avoid swishing it around the teeth [30]. It is also common in patients with eating disorders. Management of the condition, dentinal hypersensitivity, tends to be empirical because of the lack of knowledge concerning the mechanism of pain transmission through dentine [13]. The pulpal changes associated with the condition and any modulating effect on symptoms are by no means clearly established. Evidence suggests that exposed dentine which is sensitive exhibits patent tubules [27]. Evidence for the stimulation of pulp nerve fibres by a hydrodynamic mechanism would appear the most likely mechanism [6, 14]. Nevertheless, whichever theory proves to be correct, occlusion of dentinal tubules would appear an essential prerequisite for an effective desensitising agent. The patient's diet should be monitored for a while, concerning the quality and the frequency of consumption of acidic foods so that the necessary recommendations can be offered to the patient [16, 20, 32]. Recommendations such as using alkaline resources, like milk, or at least neutral materials, like water, after eating acidic

foods, or having carbonated/acidic drinks with straw and avoiding to keep carbonated/acidic drinks in the mouth and tasting them [17, 35]. Erosive agents with endogenous acids enter the mouth through reflux or gastro-esophageal regurgitation [19, 36]. These agents can be mostly found in patients with eating disorders. The patients are recommended to refer their doctors for the underlying diseases. Poor oral hygiene contributes to periodontal diseases leading to root exposure. (Jangid et al., 2015) It has been also reported that periodontal treatment that exposes more root surface could increase incidence of DH [12, 19, 20, 31, 33]. Toothpastes with different ingredients and different concentrations of desensitizing agents and other agents such as anti-plaques and abrasives may have opposite effects on DH. However, in two of the studies which were done in 2005, these agents did not have a significant effect on the desensitizing property of the tooth pastes under study [35]. The dentist should teach the patient the correct method of tooth brushing. Tooth powders should also be used with soft-bristled toothbrushes. There is no evidence to indicate a better result in using these powders through using fingers instead of toothbrushes [30]. The aim of the study is create an awareness about the dentine hypersensitivity among people.

Materials and Methods

An online survey was conducted with a self prepared questionnaire with a sample size of 100 participants comprising the general population. The questionnaire consists of questions that helped in collecting socioeconomic data, of questions related to facts. The participants were given a short introduction about the need for the study of the prevalence of cases of dentine hypersensitivity among an out patient visiting a dental college and dietary habits. The questions were prepared in a standard manner. Measures such as the selection of participants randomly, steps to prevent asking irrelevant questions to the participants, placing restrictions over the participant's population and age group are taken to minimize the bias occurring in sampling. The questionnaire was circulated using the online platform 'GOOGLE FORMS'. Descriptive analysis and chi square tests are carried out using the statistical software 'SPSS Software Version 20'. The result of the survey was represented in the form of a pie chart and bar diagrams.

Results And Discussion

In this study there are specific limitations linked to the data and gathering method. The online survey restricts the limit of sam-

Figure 1. The pie chart represents the distribution of people on their dental check up visit. 70.51% (blue) of the people have gone for the dental check up and 29.49% (red) have not gone for dental check up.

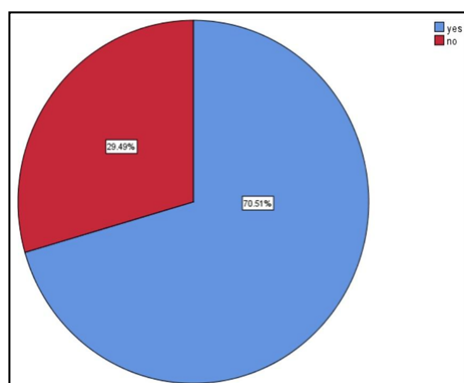


Figure 2. The pie chart represent the Awareness of dentin hypersensitivity ie ; 74.35% of the people are aware of dentin hypersensitivity (blue) and 25.64% are not aware of the dentine hypersensitivity (red).

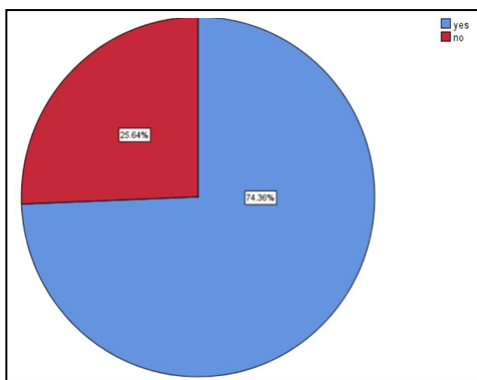


Figure 3. The pie chart represents the population with regard to brushing their teeth twice a day; 52.57% (blue) of the people brush their teeth twice a day and 37.50% (red) don't brush their teeth twice a day.

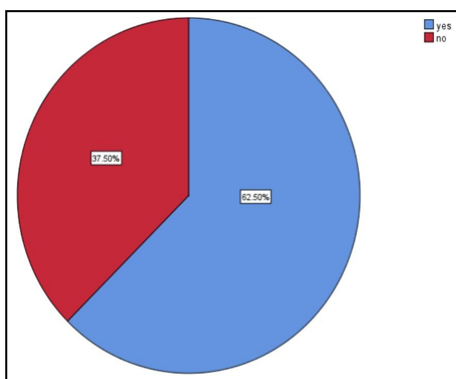


Figure 4. The pie chart represents the population with regard to having dental problems from childhood; 48.75% (blue) had dental problems from childhood and 42.50% (red) don't have dental problems from childhood.

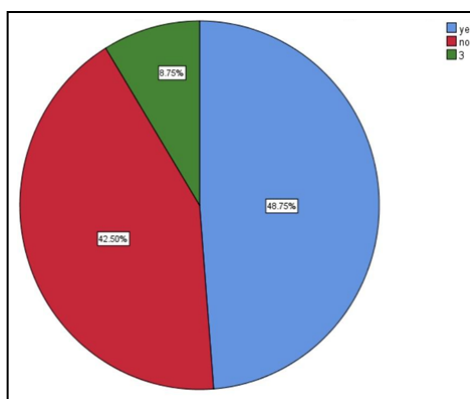


Figure 5. The pie chart represents the population with regard to the question on whether giving pressure while brushing can cause dentine hypersensitivity with 75% (blue) of the people opening that dentin hypersensitivity will cause a lot of tooth pain and 25% (red) said that it will not.

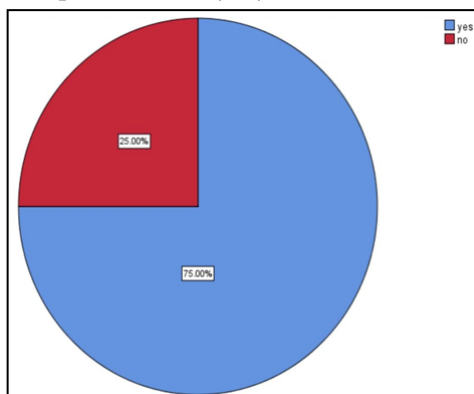


Figure 6. The pie chart represents awareness of the fact that Dentine hypersensitivity causing pain in teeth; 61.25%(blue) were aware that dentin hypersensitivity will cause pain and 38.75 % red) of them were not aware.

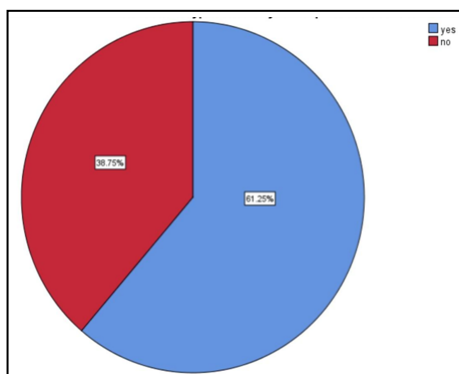


Figure 7. The pie chart represents the diet maintained by the people who are undergoing treatment for dentin hypersensitivity, 55% (blue)maintain a normal type of diet with avoidance of hot substances and 45%(red) maintain a diet inclusive of hot food too.

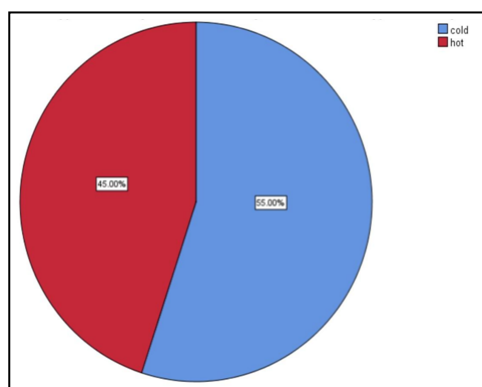


Figure 8. The piechart represents the type of Toothpaste used by population; 80% (blue) of the population use fluoride containing toothpaste and 20% (red) of the population use desensitising toothpaste.

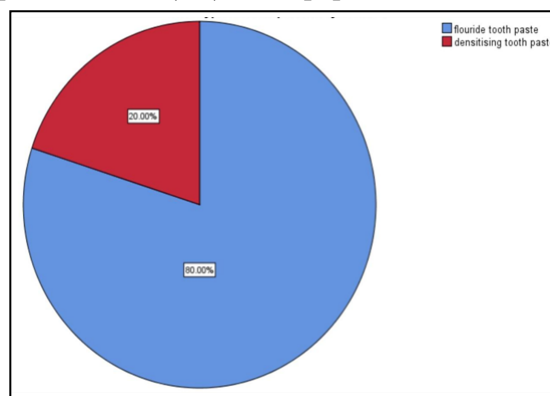


Figure 9. The pie chart represents perception of age groups experiencing dentin hypersensitivity; 26.25% (blue) felt that it affects the age group of 7-15 and 12.50%(red) of the people felt that it affects the age group of 15-30 , 28.75% (green) of the people said that it affects the age group of 40-60 and finally 28.75% (orange) felt that it affects a wide age group.

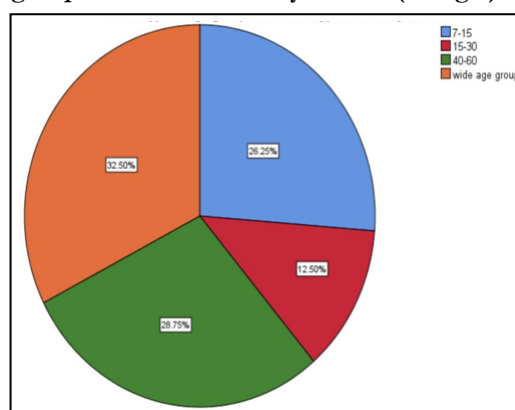


Figure 10. Bar graph representing the association between gender and the number of people who have gone for dental check up .X axis represents the gender and Y axis represents the frequency of responses regarding the people who have gone for dental check up . The blue colour bar denotes the people who have gone for dental checkup and red colour denotes the people who have not gone for dental check up. Chi square test p value = 0.134 value(p value >0.05) hence statistically not significant implying that there's no major difference between males and females regarding the number of people who went for a regular dental check up.

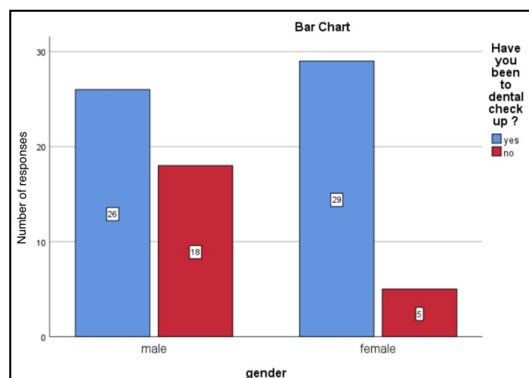


Figure 11. Bar graph representing the association by between gender and awareness on the dentin hypersensitivity .X axis represent the gender and Y axis represents the frequency of responses who are aware of dentin hypersensitivity (blue) and who are not aware of dentine hypersensitivity (red) . Chi square test p value = 0.591 value(p value >0.05) hence statistically not significant implying there are no gender differences on awareness related to dentin hypersensitivity.

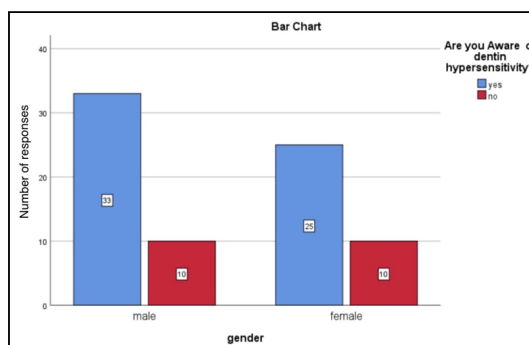
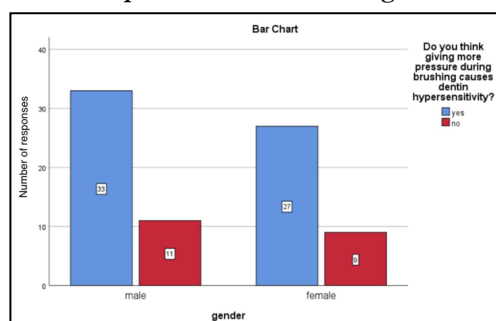


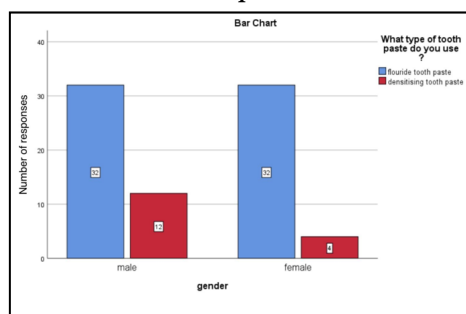
Figure 12. Bar graph representing the association between gender and opinion on giving more pressure while brushing can cause dentin hypersensitivity. X axis represent the gender and Y axis represents the frequency of responses who think giving more pressure while brushing can cause dentin hypersensitivity (blue) and who don't think likewise (red). Chi square test p value = 0.63 value(p value >0.05) hence statistically not significant implying that there are no gender differences regarding the perception that more pressure while brushing can cause dentine hypersensitivity.



pling method they cannot reach people that are not affordable with the technologies or the internets Moreover online survey do not allow a depth analysis of the results and in our study there are 100 participants 70.5% people have gone for dental check up and 29.5% they have not gone for dental check up and this study is similar to Advisory board of dentine hypersensitivity and consensus based recommended for the diagnosis and management of dentin hypersensitivity - dentine association 2003 69221-26 And in this study there are 150 participants in that 98.5% of them have gone for dental check up and 1.5% have not gone for dental check up [24] figure: 2 In our study out of 100 participants 74.4%

are aware of dentin hypersensitivity and 25.6% are unaware and This study is similar to Milani Sanjay and Aggarwal Vivek and Ahuja Bhoomika in this study out of 150 participants 87.3 % of them are aware of dentin hypersensitivity and 13.7% of them they are not aware of dentin hypersensitivity b [4] Figure:3 In our study out of 100 participants 68.8% of the respondents brush their teeth twice a day and they don't brush their teeth twice a day and this study agrees with Rees JS Jin GJ Lam kudanswoskae I vowels R the prevalence of dentin hypersensitivity in hospital dentin population In Hong Kong brushing teeth [21] Figure: 4 In our study out of 100 participants 62.5% had dental problems

Figure 13. Bar graph representing the association between gender and usage of different types of toothpaste. X axis represents the gender and Y axis represents the frequency of responses of the people who are using fluoride containing toothpaste (blue) and the people who are using desensitising toothpaste (red). Chi square test p value = 0.676 (p value >0.05) hence statistically not significant implying there are no differences across gender of people who use different types of toothpaste.



from their childhood and 37.5% they didn't have any dental problems from childhood and this study agrees with Dhaliwal Jagjit Singh Palwankar Pooja khinda Paramjit K. Sochi Sachin Jeet .k in this study out of 200 participants 78.9% of them had dental problems, from childhood and 22.1 % they didn't have any dental problems ie; prevalence of dentin hypersensitivity in 2012 [29]. Figure 5 : In our study out of 100 participants 42.5% use desensitising toothpaste and 38% of them use fluoridated toothpaste and 10% use anti plaque toothpaste and 8.8 % use anti calculus toothpaste this study is similar to Jensen MP chinc Brugge AM Interpretarn of visual analysis scale ratings and change scores of postoperative pain causing due to toothpaste , in their study out of 150 participants 50% of the Fluoride toothpaste and 10 % use anti calculus toothpaste and 8.9% of them use desensitising toothpaste [25] Figure 6: In our study out of 100 participants 75% suffer a lot because of dentin hypersensitivity and 25% do not feel much discomfort and this study is similar to the Tengrunge to Andre they found 95% patients suffer a lot because of dentin hypersensitivity among the dental patients at the dentistry Mahidol university south East Asian j trop med public health 2012 [24] Figure 7: In our study out of 100 participants 61.3% of them says that giving pressure while brushing can lead to dentine hypersensitivity and 38.7% says that giving pressure while brushing cannot lead to dentin hypersensitivity and this study is similar to hedge mithra N Bella Neha. The prevalence of dentin hypersensitivity in southern India Fand journal of the India dental association 2009 and this study include 250 participants in that 97.5% of them says that giving pressure while brushing causes dentine hypersensitivity and 2.5% they says giving pressure while brushing do not cause dentin hypersensitivity [37] Figure 8: In our study out of 100 participants 43.8% of them maintain cold food products diet when they are under dentine hypersensitivity treatment and 27.5% of them undergo hot food products diet and 16.3 % none of the other and this study is similar to Dentin Hypersensitivity: Etiology, Diagnosis and Treatment; A Literature Review AR Davari, E Ataei, and H Assarzadehand in this study out of 250 participants 79.5 % of them maintain normal diet and 20.5 % they maintain other diet [9] Figure 9: In our study out of 100 participants 26.3% of them said that dentin hypersensitivity will affect the age groups of 7-15 and 12.5 % of them said that they affect the age group of 15-30 and 32.5 % of them said that 40-60 age group and this study agrees with Gillam DG, Orchardson R. Advances in the treatment of root dentine sensitivity-mechanisms and treatment principles. Endodontic Topics. 2006;13:13–33 [15]. Figure 10 to Figure 13 depicts the association between gender on

the people who have gone for dental check up, aware of dentin hypersensitivity, the people who think giving more pressure while brushing can cause dentin hypersensitivity and toothpaste used by the people. The association between gender and the people who have gone for dental check up was statistically not significant (p value >0.05). All the statistical associations yielded values which were statistically not significant (p value >0.05). The study shows that the study population was aware and had adequate knowledge about dentinal hypersensitivity, its causes and treatment.

Conclusion

The study assessed the awareness and knowledge related to dentinal hypersensitivity among the general population and was found to be average. The awareness and knowledge related to dentinal hypersensitivity was found to be high in males compared to female participants However, the study was performed in a limited group of population pertaining to a limited age distribution. It could have been useful if a larger sample of population was used. We recommend more studies to be performed with a much larger sample and clear distinction of age distribution to arrive at baseline data of the South Indian population.

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