



Original Article

Rate and Factors Associated with Dentine Hypersensitivity among Pakistani Patients: A Cross Sectional Study

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ABSTRACT

As far as our knowledge is, on the pervasiveness of the sensitive teeth in the adults of Pakistani population, there is not much data published. The data is collected from dental clinical examination and some self-governed questionnaires. **Objective:** To find out how common Dentine Hypersensitivity is in Pakistani people and to search out the causative elements/factors **Methods:** At the Dental College in Peshawar, Out-Patient Department (OPD) examined 1605 people. The questionnaire was distributed among the patients suffering from dentine hypersensitivity. Dental history, demographics, DH symptoms data dietary habits as well as the factors linked to DH, were collected in order to acquire the following information. In total 732 questionnaires were completed. Oral examinations were used to assess DH in people who had DH in at least one tooth. The participants also used a ten-digit visual analog scale to rate the seriousness of DH. A quick, acute pain emanating from uncovered dentine in rejoinder to an explorer probe and triple syringe wind squall of the tooth surface confirmed the diagnosis of DH. **Results:** The self-reported prevalence of Dentine Hypersensitivity was 13%, while the clinically diagnosed percentage of DH was 8.2%. Females were evaluated in greater numbers than males. The highest percentage of DH was observed in the patients of age group 30-39 years. The first molars and mandibular central incisors were the teeth that were considerably damaged. The main reason for the dentine hypersensitivity observed was the cold (89.4%). Those with moderate sensitivity for more than six months relied on natural remedies such as brushing with a pain-reducing paste rather than visiting their dentist. However, out of the total just 41 (8.8%) participants stated that they had visited a dental office. **Conclusions:** According to the findings, DH is a usual and widespread dental ailment in Pakistan. Despite the fact that the illness seems to cause some discomfort, majority of the patients prefer to either disregard it or simply endure it. As a result, the ailment is unlikely to have a substantial impact on the patients complaining of both the problem's quality of life and lifestyle.

INTRODUCTION

Dentine hypersensitivity (DH) is a common occurrence in medical practice and a difficult condition to treat [1, 2]. Acute, temporary pain from an uncovered dentin area in reaction to stimulus which cannot be linked to any other disorder or disease characterizes DH. Thermal, tactile, chemical, osmotic, or even evaporation-related stimuli are common [3]. The symptoms of Dentine Hypersensitivity

can be similar to other severe oral disorders, thus the identification is dependent on looking for risk factors, identifying wear lesions, and ruling out other dental diseases such cavities or periodontitis. DH can have a negative impact on one's life. It has the power to effect when as well as how the subject gets to eat and drink, to prevent dental cleaning, to have serious emotional effects,

and to change lives [4, 5]. DH prevalence has been reported to range from 4-74% depending upon that sample investigated in various data compilations [6]. There could be various reasons for these differences. Some studies asked respondents about sensitive teeth (ST) and gums using self-governed questionnaires, whereas others identified DH following a professional clinical assessment. People who claim to have ST may have DH as well as other oral disorders such as cavities or periodontitis, which would support the increased prevalence. Even if investigations are classified into two parts focused on clinical versus self-data, the estimate range remains wide (13-57% versus 4-74%, correspondingly). Other explanations, such as characteristics of the sample, have been developed to describe these disparities (study location, ethnic origin, dental care regime, periodontal status, socio-economic status, oral hygiene habits). The information given for determining the existence or non-existence of DH might be based on one of two approaches: a receptive approach that relies on the subject's assertion of pain, or an actively strategy that involves the application of various thermo-mechanical stimulations [7, 8]. Another aggravating element is the condition's episodic character, which can either elicit or suppress painful feelings [9]. Furthermore, there are only a few researches that have sought to 1) quantify the problem and 2) study factors linked to DH in the Pakistani community. Thus, the focus of this research was to identify the frequency of DH in a Pakistani community and to examine the factors linked to it. In Pakistan, there is limited information about the general public's awareness of dentine hypersensitivity. As a result, the primary goal of our research was to determine the incidence of dentine hypersensitivity and to investigate the many characteristics related with it within patients who visited the dentistry outpatient clinics of the Institute of Dentistry Peshawar.

METHODS

The current study was a survey and clinical extensive research study that carried out at the Dental College in the Out-Patient Department (OPD) in Peshawar from December of 2021 to April 2022. Examined and assessed adult subjects aged 20 years or above in the current study. Only 732 patients were selected to complete a form from a total of 1605 patients evaluated in the general OPD. The study excluded those teeth that have been carious, broken, or cracked. Patients who had trouble in communicating and/or were on analgesics or sedatives were also ruled out of the trial. For data collection, a relevant clinical data sheet was created. The DH responsiveness was measured using a visual analogue scale (VAS). The purpose of the study was communicated to the evaluating dentists as well as the

criteria of DH occurrence. A demonstration of the process for DH intra-oral examinations was given to the evaluating dentists. Followed by a short description of how and why the perceived pain will be reported on the visual analog, patients assessed the ensuing sensation of pain on the visual analogue sheet. The evaluators were validated by evaluating 15 participants over the course of a week until they achieved 95% inter- and intra-examiner concordance. During the visit to the Dental Clinic, interviews were performed. The presence of discomfort in the participants' teeth was investigated. The first section of the survey was intended to extract descriptive information from the participants, such as their name, gender, age and profession. The second section consisted of questions aimed at eliciting reasons for Dentine Hypersensitivity, which included systemic illnesses such as stomach troubles, indigestion, and vomiting (e.g., inherent erosional components); oral hygiene standards including such as brushing teeth and teeth whitening practice, including the use of some toothpaste for whitening purpose or both, are all essential. The periodontium general health of each respondent, including latest scaling antiquity over the last 3 months' initial interview and orthodontic appliances within the last 3 months; individual routine background of liquids consumption and period of DH. Participants too were questioned about their whereabouts of numbing toothpaste in the past and any expert therapy for Dentine Hypersensitivity they had received from their dentists. Participants who had been officially diagnosed with DH were encouraged to share the factors that triggered their DH reaction. Water, drinks, hot food, tooth brushing and cold were the stimuli which were triggering the response.

Intraoral Test Procedures: Individuals who said they had DH were evaluated clinically to see if they had it. A quick, intense pain emanating from uncovered teeth in reaction to osmotic and sensory stimuli mostly on the uncovered dentine of the tooth was used to diagnose Dentine Hypersensitivity. A 1 sec air shock wave was supplied by using orthodontic unit triple hypodermic needle, trying to blow a short shock (45 PSI force) of room temp air (19-23°C), held right angles and 2.5 cm away out from the tooth surface, while the neighboring teeth were shielded with palms or cotton wraps to produce evaporative triggers. A dental probe was passed horizontally to the surface of the tooth with distal sweeps to evaluate sensory stimulation, and the force was risen steadily until the patients responded. Cracked tooth syndrome/Chipped teeth/Dental caries/fractured restorations/Gingival inflammation/Marginal leakage/Pulpitis Post-restorative sensitivity and sensitivity to both surgical and non-surgical treatments were all ruled out during the examination.

Dentine Hypersensitivity Measurement on Visual Analogue Scale (VAS):

The participants were given a Visual analogue rating sheet to gauge their reaction to DH. The Visual analogue sheet consisted of a 10-centimeter line graph with ten digits (0-10). Patients with Dentine Hypersensitivity in one of the teeth was asked to mark a vertical line on the Visual Analogue Score to assess their impression of the discomfort magnitude of its most hypersensitive tooth. The marks between the numbers would be as follows: 0-1 meant minimal pain, >1- 4 meant minor discomfort, >4- 7 meant mild pain, and >7-10 meant extreme pain.

RESULTS

Out of total 732 respondents, 398 (54.4%) were females and 334 (45.6%) were males. Among total, 286 (39%) were reported dentine hypersensitive in their teeth (Table 1). Twenty-one percent (21 %) of male participants and 18 % of female participants tended to eat from one part of their mouth, while 13.5% of females and males avoided particular meals to avoid discomfort. Cold food and drinks were indicated by the population of individuals (n=226/286, 79%) as a major cause in dental sensitivity. The percentage of hot food and drinks causing hypersensitivity was 21%. Brushing teeth vigorously was reported as a major factor in 23 % of males, whereas brushing for longer periods of time, i.e. 2-3 minutes, was identified as a major component in females (35%). The maxillary back teeth were the most commonly reported as sensitive in both men and women, following the maxillary central incisors. When the participants were asked to nominate the parts of mouth in which they are having dentine hypersensitivity, among total 286, 65 (22.7%) of the participants were experiencing pain in the lower posterior portion, about 50 (17.5%) of the participants were having pain in the lower part of the left region. About 57 (19.9%) of the participants showed that they were having pain on the inner palatal and inner lingual surfaces of the teeth, however 90 (31.5%) of the participants showed that they were having pain on the outside surfaces such as facial, labial, buccal of the teeth. About 24 (8.4%) of the participants did not answer the questions. When the participants were questioned about the scaling and polishing of the teeth, out of the total only 105 (36.7%) of the participants claimed that they had recently cleaned their teeth. Based on a 0-10 (VAS), 73 (25.5%) of the participants reported that they had no pain as from the scaling treatments, whereas 213 (74.5%) stated that they had some pain. About 10 (3.5%) of the respondents said their dentist had performed any periodontist surgery, and they said they were in pain for up to two weeks afterward. When the participants were investigated of the discomfort and other factors, 65

(22.7%) reported periodontal disease which is known as gingivitis, about 152 (53.2%) were having tooth brushing, 27 (9.5%) were having restorative materials, about 13 (4.5%) were having professional cleaning, about 11 (3.8%) of the participants were having orthodontic treatment, 10 (3.5%) were having bleaching, and the participant 8 (2.8%) were having vomiting.

Dentine Hypersensitive	Females (%)	Males (%)
Present	176 (44.2)	110 (32.9)
Absent	166 (41.7)	140 (41.9)
Occasionally	53 (13.3)	67 (20.1)
Rare	3 (0.8)	17 (5.1)
Total	398 (54.4)	334 (45.6)

Table 1: Incidence of Dentine hypersensitive among patients (n=732)

DISCUSSION

In a study 39% of people had dentine hypersensitivity, which is consistent with a study done in China [10]. Furthermore, investigations conducted in India and Nigeria found greater rates of Dentine Hypersensitivity, with rates of 52.5% and 55%, correspondingly [11, 12]. This disparity can indeed be attributable to differing approaches for detecting DH, such as utilizing a survey alone and in conjunction with a clinical assessment, as well as a shortage of patients understanding and a tendency to associate pain from other sources with DH. According to some previous studies, dentine hypersensitivity is more common in females [13, 14]. Similarly, in the another study, a numerically significant correlation was found between groups, the females being more vulnerable than men. This could be because women are more mindful of tooth brushing and visiting the dentist more regularly [15]. Cold items and carbonated beverages are well-known contributors to tooth sensitivity. In our study, 79% of the participants were sensitive to cold items; these findings are similar to those of Olak et al, Bamise et al., and Gillam et al., [16-18]. The most of male and female participants preferred to chew with one half of their mouth; these changes that occur enabled them overcome their discomfort. These results were similar to those of a Kielbassa survey, which found that around three-quarters of people avoided utilizing the damaged side of their mouth [19]. Sensitivity and periodontal abrasion in teeth are caused by the use of a stiff bristled brush and poor brushing techniques [20, 21]. Brushing period and manner have been found as causal factors for gingival inflammation in studies undertaken by Kassab and Cohen, Drisko C [22, 23]. In the current study, the proportion of male respondents washed their teeth vigorously, whereas female respondents cleaned their teeth for lengthier periods of time, resulting

in DH. These findings are in accordance with those of Levitch et al, researchers found that people who cleaned their mouths for extended periods of time and used much more aggressive cleaning methods were much more likely to develop DH [24]. The molars and maxillary premolars and were the teeth particularly likely to be affected by Dentine Hypersensitivity, following the maxillary teeth. These results are consistent with Ye et al., and Deogade et al., surveys [25, 26]. Moreover, our results differed from those of Awartani and Taani who found tooth structure to be the most usually damaged. When it came to treating DH, the majority of participants chose to use desensitization toothpaste [27]. This is in line with a study conducted by Rao et al., who found that desensitizing drugs play a significant role in preventing sensitivity by occluding the dentine through mineralization process [28]. The study's sample size was low by the fact that it relies on a specific center. Second, it was a survey study that relied primarily on patients' opinions of the identification of this ailment and was conducted with no clinical tests. As a result, it's not uncommon for patients to associate pain from other origins with DH.

CONCLUSION

According to the recent study 39% of the patients were suffering from dentine hypersensitivity, which is in accordance to the studies conducted before. The percentage of females having DH was more than the percentage of males having DH. The major cause of the dentine hypersensitivity was cold food as it triggers the sensitivity. The more affected teeth by the sensitivity was the molars and premolars.

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