

A quantitative overview of dentinal hypersensitivity in the private practice patient population of north India: A short study

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ABSTRACT

Dentine hypersensitivity (DH) is a well known and one of the most widely investigated clinical entity; still, studies based on randomly selected general practice populations are very less. The present study was designed to scrutinize the intraoral distribution of DH and its relationship with age, sex, symptoms, stimuli, predisposing factors and management strategies in the North Indian private practice patient population. The study was designed as a short survey based on questionnaire and was conducted on the randomly selected North Indian private dental practice dentists. It was concluded that dietary acid, gingival recession and erosion were potentially associated with DH, with a strong predilection for middle-aged females.

Key words

Dentine hypersensitivity, erosion, survey

INTRODUCTION

Dentine hypersensitivity (DH) may be defined as short, sharp pain arising from exposed dentine, typically in response to chemical, thermal or osmotic stimuli that cannot be explained as arising from any other forms of dental defect or pathology.^[1,2] Mechanical stimulus frequently occurs when the patient rubs the sensitive area with a finger nail or toothbrush bristles during brushing, setting off pain. The atmospheric air during mouth breathing, particularly in winter, which is associated with cold, or the air of a triple syringe by dehydration also causes pain.^[3] Rees and Addy studied the DH prevalence in the UK general practice population on a cross-sectional basis and found that it was 2.3%, with a close association between DH and patients with periodontal diseases who smoke.^[4] They also reviewed the related literature and showed a wide range of variation (4–74%) in the prevalence of DH in different populations as studied by different authors.

Dentine hypersensitivity has been extensively investigated on the short-term basis using both clinical and questionnaire-based studies in general practice as well as in hospital/special clinic settings. In clinical practice, the importance of its presentation determines both understanding of the underlying etiology and the management approach by the dental specialist. The literature describes a number of methods for the clinical management of DS. However, problems are found when evaluating and comparing such treatments because of the diversity of data published. Such contradictions in the literature are probably attributable to differences in the designing of the clinical trials and in the types of procedures.^[5-8] This study aimed to evaluate the association of DH with sociodemographic factors such as age, sex, symptoms, stimuli, predisposing factors and preventive and treatment approaches in patients of the private dental practice in North India.

MATERIALS AND METHODS

Several epidemiological surveys have been conducted so far on DH, but longitudinal studies exploring its relationship with other associated factors are meager. Therefore, the aim of this study was to evaluate the association of DH with sociodemographic factors (e.g., age, sex, symptoms, stimuli, predisposing factors, preventive) and treatment approaches in patients of the private dental practice in north India. A total of

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1200 sample of North Indian private dental practice dentists was randomly selected from the Indian Dental Association (IDA) membership list and these dentists were invited to partake in a electronically mailed questionnaire-based survey. The questionnaire was proposed based on universal information regarding dentine hypersensitivity, including the number, surfaces of tooth, important predisposing factors, major triggers and demographic details of patients in relation to DH, like age, sex, region and surface of tooth involved.

A pertinent record of total number of patients of DH seen in 1 week was maintained with the details that include teeth affected with DH and age, sex, symptoms, stimuli, predisposing factors and treatment approaches for affected people. All the information collected was on an observational basis, i.e. as reported by the patient or noticed as a result of routine intraoral examination. Informed consent regarding participation in the study was taken from the patient.

A master chart was prepared by filling the data in an MS Excel sheet and statistically analyzed using SPSS 15.0 for Windows XP Professional™. Independent *t*-test was employed to compare the differences between two means, while the chi-square test was the test of choice for the comparison of categorical data. The level of significance was fixed at $P < 0.05$.

On electronic observation of the dentist’s response to the questionnaire, it was found that only 428 of 1200 had responded positively. There were 105 dentists who reported their nonengagement in the general dental practice and 33 dentists who were not primarily involved in general private practice were excluded from the study, restricting the final analysis to 290 dentists. The overall rate of response of dentists was 35.6%, which was satisfactory, and was considered as a starting point.

Furthermore, a total of 7564 patients were routinely seen during a typical week of general practice by 290 private dental practitioners in north India. Statistical analysis and results revealed the prevalence of DH as 9.1% among patients examined in the representative week, with 2.3 teeth/person and 1.2 surfaces/tooth affected. Women (69%) were predominantly affected than men (31%), while 30–49 years (48.8%) was the most frequent age group among those affected, and premolars (36.5%) and buccal surfaces (54.8%), respectively, showed a high degree of involvement [Figures 1 and 2]. Although dietary acid was the sole stimulus that was significantly associated with DH, cold stimulus (80.1%) was the most common one. Rees and Addy also reported a similar finding in the UK general population in 2004.^[4] Gingival recession and erosion were observed as major predisposing factors, while the use of desensitizing tooth pastes was the most imperative treatment approach. Low response rate seen in this study may be considered as its limitation.

DISCUSSION

Prevention of dentinal hypersensitivity at an early stage

In order to prevent the localization and initiation of such hypersensitive lesions, primary health care physicians must identify the etiological factors responsible at a very early stage. These are considered to be the simplest, cost-effective and efficacious first line of treatment for most patients. Several therapeutic oral care products are available to assist the patient in the control of dental caries, calculus formation and dentinal hypersensitivity, to name a few.^[9,10]

The prevalence of DH was reported as 9.1%, with a strong predilection in middle-aged females. This was significantly lowered than the studies done by Chrysanthakopoulos

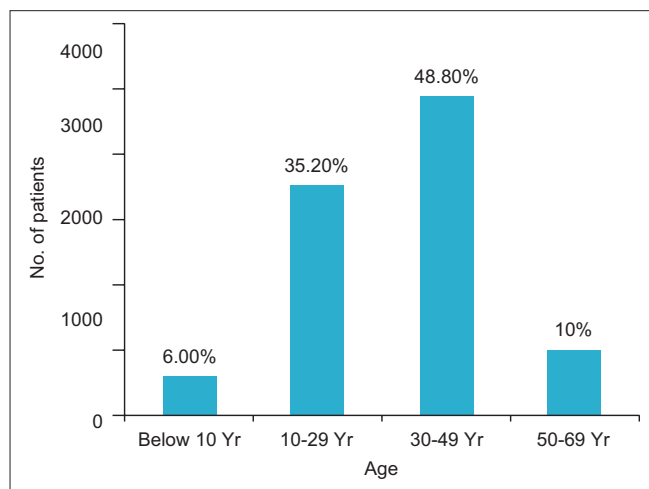


Figure 1: Showing the distribution of dentine hypersensitivity patients among various age groups

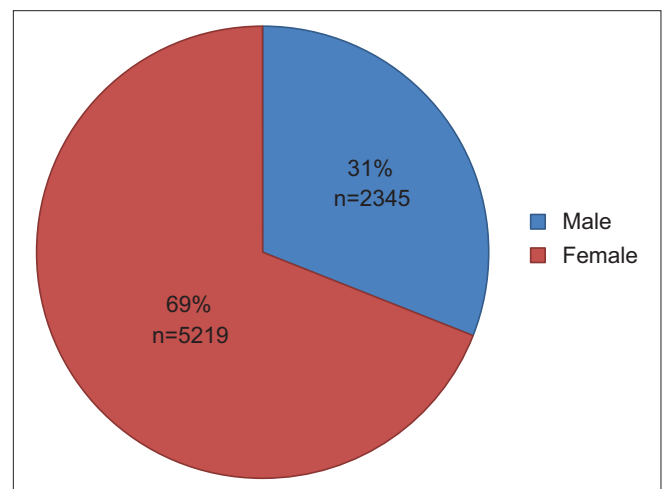


Figure 2: Showing the prevalence of dentine hypersensitivity in different sexes in the studied population

Table 1: Recommendations for preventing dentine hypersensitivity in early childhood^[14]

Suggestions for patients	Suggestions for dental professionals
Avoid using large amounts of dentifrice	Avoid over-polishing exposed dentine during stain removal
Avoid medium- or hard-bristle toothbrushes	Avoid violating the biological width during restoration placement, as this may cause recession
Avoid "picking" or using toothpicks inappropriately	Avoid burning the gingival tissues during in-office bleaching and advise patients to be careful when using home bleaching products
Avoid brushing teeth with excessive pressure or for an extended period of time	Avoid over-instrumenting the root surfaces during scaling and root planning, particularly in the cervical area of the tooth
Avoid overuse of floss or other interproximal cleaning devices	
Maintain good oral hygiene	

on Greek (13.5%) and Greece (18.5%) population, and may be attributed to the difference in the diet and consumption pattern in different populations.^[11,12] However, they found an increasing prevalence of DH with age, as in our study.

CONCLUSION

The present study findings suggested that DH is a relatively commonly encountered clinical entity in the northern India. Results showed that dietary acid, gingival recession and erosion were considerably associated with DH, and this was similar to the results of the study done by Amarasena and associates on the Australian population, where the desensitizing toothpastes were the foremost treatment approach employed for DH, similar to what was concluded for the North Indian population.^[13] The results also highlighted a need for guidelines on the etiology, prevention and treatment of DH for both dentists and their patients at an early stage. Additionally, it was also hypothesized that self-reporting of DH is significantly lower than those that are examined in a private practice population, and was not professed as a major dilemma by most patients. Yet, there is a necessity for further studies to substantiate and authenticate the findings of this short communication study [Table 1].

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