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Knowledge, Attitude, and Practice of Dental Practitioners Regarding Desensitizing Agents for the Management of Dentinal Hypersensitivity - A Real-World, Cross-Sectional Survey

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ABSTRACT

Purpose: To assess the dental practitioners' (DPs) knowledge, attitude, and practice regarding the use of desensitizingagents for the effective management of dentine hypersensitivity (DH).

Methods: A cross-sectional survey was carried out among 92DPs practising at various Indian dental healthcare setups/clinics/hospitals/colleges using a pre-defined, structured, and a self-administered questionnaire consisting of 32 questions (both open- and close-ended) about different realms of DH and the usage pattern of desensitizing agents and recorded their responses. The descriptive analysis was carried out to evaluate the responses of DPs.

Results: The most common predisposing factors of DH were reported to be attrition (73.91%), abrasion (65.22%), and gingival recession (55.43%).Verbal Rating Scale (67.50%) and air blast from a dental instrument (78.26%) were the most frequently used methods for subjective and objective assessment of DH, respectively. For home management of DH, both depolarizing and occluding desensitizing agents were preferred by DPs. Among various occluding desensitizing agents, calcium sodium phosphosilicate (CSPS) was ranked first by nearly two-thirds (64.13%) of DPs. Quick action, long-lasting relief, and significant reduction in sensitivity were the key parameters influencing the choice of DPs for prescribing occluding desensitizing agents. Nearly 80.00% of the DPs agreed to recommend the everyday use of desensitizing agents like CSPS and believed that their regular use is likely to provide improved outcomes.

Conclusion: DPs had a fair idea regarding various aspects of DH and about the usage of desensitizing agents to manage DH; however, onlya few knowledge gaps concerning certain aspects of the diagnosis of DH were observed.

KEYWORDS: Dentine hypersensitivity, Desensitizingagents, Depolarizing desensitizing agents, Occluding desensitizing agents, Calcium sodium phosphosilicate

I. INTRODUCTION

Dentine hypersensitivity (DH) is one of the most common complaints reported in clinical dental practice. DH has been defined as a 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 form of dental defect or pathology[1].Studies have evidenced a huge disparity in the prevalence of DH worldwide, ranging from 1 to 98%[2].This can be attributed to the differences in populations, dietary habits, and methods of clinical investigation[2]. According to the National Health Portal, India, the prevalence of DH is reported to be 10-30%[1].In consonance, a recently conducted cross-sectional study reported the overall prevalence of DH to be 27.4% among the Indian population.

DH is believed to be triggered due to the exposure of dentine that ensues the opening of the dentinal tubules to the external oral environment and transmits hydrodynamic stimulus across these tubules, resulting in transient acute pain.[3] The predisposing factors that can cause dentine exposure include improper tooth brushing,bruxism, acidic diet habits, premature occlusal contacts, gingival recession, etc[4].

Dental practitioners (DPs) consider DH as a challenge to long-term oral health, and the associated discomforth as a negative effecton the patients' quality of life regarding dietary selection, maintaining dental hygiene, and cosmetic aspects.[4,5]Therefore, aclearnotion and greater vigilance of his clinical condition are required by the dentists to ensure its pertinent diagnosis and management.

The therapeutic strategies for the management of DH involvenon-invasive desensitization treatments for pain relief and restoration or surgical treatments for hard and soft

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tissue defects. For mild-to-moderate sensitivity, 'at-home' desensitizing therapy is recommended, and if there is no respite in DH, then 'in-office' therapy is advised[4,6].The application of desensitizing agents is considered especially in cases with limited or invisible dental hard tissue loss or cervical exposure. These desensitizing agents act either by suppressing neural transmission of the pain stimulus (e.g., potassium ions)or by physically blocking the exposed dentinal tubules (e.g., oxalate,arginine,phosphosilicates, etc.).A survey conducted among 106 DPs in Canada revealed that the recommended first-line treatment for DH included desensitizing agents (40.6%) and sensitivity toothpaste (38.7%)[7].Similarly, in a study carried out among 206 DPs in India reported the usage of desensitizing agents as the most common strategy for DH management at home[8].

Though there is a plethora of agents available in the market for the desensitization treatment of DH, yet,a lack of consensus exists regarding their usage and treatment regimen. Therefore, the present study was conducted with the objective of assessing the DPs' knowledge, attitude, and practice regarding the use of desensitizing agents for the effective management of DH.

II. METHODS

This was a cross-sectional study conducted using a pre-defined, structured, and self-administered questionnaire, which was electronically shared with DPs to capture their responses. The online questionnaire consisted of 32 questions (both open- and close-ended)about dentists' practice (4), patient burden and clinical presentation (5), diagnosis (5), treatment (5), management of DH using desensitizing agents (5), recurrence of DH (3), patient's feedback for calcium sodium phosphosilicate (CSPS) desensitizing agents (1), and awareness related to the usage pattern of desensitizing agents (4).

2.1 Study Participants

100 DPs were contacted for the purpose of the survey, out of which 92 responded to the shared questionnaire based on the convenience and feasibility who practice at dental healthcare setups/clinics/hospitals/colleges located across 19 states of India. The study was conducted for a duration of 3 months (July 2021-September2021).

2.2 Study Outcomes

The responses of DPs were evaluated to assess their knowledge regarding various aspects of DH, including common complaints, predisposing factors, methods for the diagnosis, and strategies used for its management. Further, the perception of DPs regarding the usage of desensitizing agents for the management of DH in terms of the type of desensitizing agent preferred and key factors that influence the choice of desensitizing agent. Patients' feedback and usage patterns of desensitizing agents were also assessed.

2.3 Statistical Analysis

The responses of the DPs were presented using frequency distribution. Descriptive analysis was conducted to evaluate the responses of DPs regarding their knowledge, attitude, and practice. Statistical significance was considered at $p<0.05$.

2.4 Ethical Statement

To protect data confidentiality, the identity parameters of dental practitioners were removed from the survey documents. Ethical approval was obtained from the Royal Pune Independent Ethics Committee (RPIEC) located in Pune, India (Letter No. RPIEC300921, dated: 27 September 2021), and the study was registered at the Clinical Trial Registry - India (CTRI/2021/10/037573). The survey was conducted according to the applicable ethical and regulatory guidelines, including Indian GCP and ICH-GCP.

III. RESULTS

A total of 92 DPs participated in the present survey. As per qualification, the majority of the DPs were graduates (69.57%), while 30.44% were postgraduates. Most of them (30.43%) worked in clinical practice for 11-15 years. Regarding the work settings, the majority of the DPs (96.74%) confirmed to practice in the private sectors (Table 1).

Table 1: Practice related information of the dental practitioners

Primary medical specialty	N (%)	Total years of experience	N (%)	Primary practice setting	N (%)
Dentist (BDS)	64 (69.57%)	0-5	4 (4.35%)	Standalone clinic/centre	67 (72.83%)
Endodontist	9 (9.78%)	6-10	21 (22.83%)	Multispecial	22

Primary medical specialty	N (%)	Total years of experience	N (%)	Primary practice setting	N (%)
				ty corporate/private hospital	(23.91%)
Oral & Maxillofacial Surgeon	8 (8.70%)	11-15	28 (30.43%)	Government hospital/dispensary	1 (1.09%)
Orthodontist	4 (4.35%)	16-20	26 (28.26%)	Charitable trust and multispecialty clinic	1 (1.09%)
Prosthodontist	4 (4.35%)	>20	13 (14.13%)	Trust hospital	1 (1.09%)
Periodontist	3 (3.26%)	-	-	-	-

When asked about OPD visits, more than half of the DPs (58.70%) acknowledged it to be100-500 patients per month. Further, the number of OPD patients diagnosed with DH was stated to be nearly 100by 53.26% of DPs. The prevalence of DH was reported as higher in males (51-60%) as compared to females (31-40%) and among patients who were in their fourth decade of life (by 58.70% of DPs). Sensitivity to cold, pain/tooth ache and sensitivity to sweets were reported as the three common complaints by 52.17%, 20.65%, and 11.96% of DPs, respectively (Table 2).

Table 2: Patient burden and clinical presentation

Number of OPD patients diagnosed with DH			
Percentage of patients		**Number of dental practitioners N (%)**	
≤100		49 (53.26%)	
101-200		20 (21.74%)	
201-300		11 (11.97%)	
301-400		8 (8.70%)	
401-500		2 (2.17%)	
>500		2 (2.17%)	
Gender-wise categorization of patients with DH (%)			
Males	**N (%)**	**Females**	**N (%)**
21-30	2 (2.17%)	21-30	19 (20.65%)
31-40	23 (25.00%)	31-40	32 (34.78%)
41-50	12 (13.04%)	41-50	14 (15.22%)
51-60	30 (32.61%)	51-60	23 (25.00%)
61-70	20 (21.74%)	61-70	3 (3.26%)
71-80	5 (5.43%)	71-80	1 (1.09%)
Age-wise categorization of patients with DH (%)			
Percentage of patients	**N (%) Below 18 years**	**N (%) 18-45 years**	**N (%) Above 45 years**
0-10	63 (68.47%)	1 (1.09%)	3 (3.26%)
11-20	21 (22.83%)	7 (7.61%)	1 (1.09%)
21-30	8 (8.70%)	38 (41.3%)	10 (10.87%)

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31-40	-	27 (29.35%)	6 (6.52%)
41-50	-	11 (11.96%)	25 (27.17%)
51-60	-	7 (7.61%)	29 (31.52%)
61-70	-	0 (0.00%)	10 (10.87%)
71-80	-	1 (1.09%)	6 (6.52%)
81-90	-	-	2 (2.17%)

Common complaints/symptoms of patients suffering from DH					
Complaint 1	**N (%)**	**Complaint 2**	**N (%)**	**Complaint 3**	**N (%)**
Sensitivity to cold	48 (52.17%)	Sensitivity to cold	22 (23.91%)	Sensitivity to sweets	11 (11.96%)
Hypersensitivity	19 (20.65%)	Pain/tooth ache	19 (20.65%)	Pain/tooth ache	10 (10.87%)
Sensitivity to hot	19 (20.65%)	Sensitivity to hot	18 (19.57%)	Sensitivity to cold	10 (10.87%)
Attrition	8 (8.70%)	Sensitivity to sweets	17 (18.48%)	Difficulty in chewing	8 (8.70%)
Pain/tooth ache	8 (8.70%)	Attrition	4 (4.35%)	Sensitivity to air	6 (6.52%)
Sensitivity to sweets	3 (3.26%)	Hypersensitivity	3 (3.26%)	Sensitivity to hot	6 (6.52%)
Difficulty in chewing	2 (2.17%)	Erosion	3 (3.26%)	Sensitivity to sour	6 (6.52%)
Others	0	Others	14 (15.21%)	Others	29 (31.52)

The most common predisposing factors of DH were stated to be attrition, abrasion, and gingival recession by 73.91%, 65.22%, and 55.43% of DPs, respectively (Figure 1a). Among various clinical aspects, 50.00% of DPs considered the type of external stimulus that triggers pain as the most important aspect while diagnosing DH. Further, the duration and intensity of pain were rendered to be very important, while the frequency of pain was regarded as an important clinical aspect by 41.30% and 32.61% of DPs, respectively(Figure 1b).

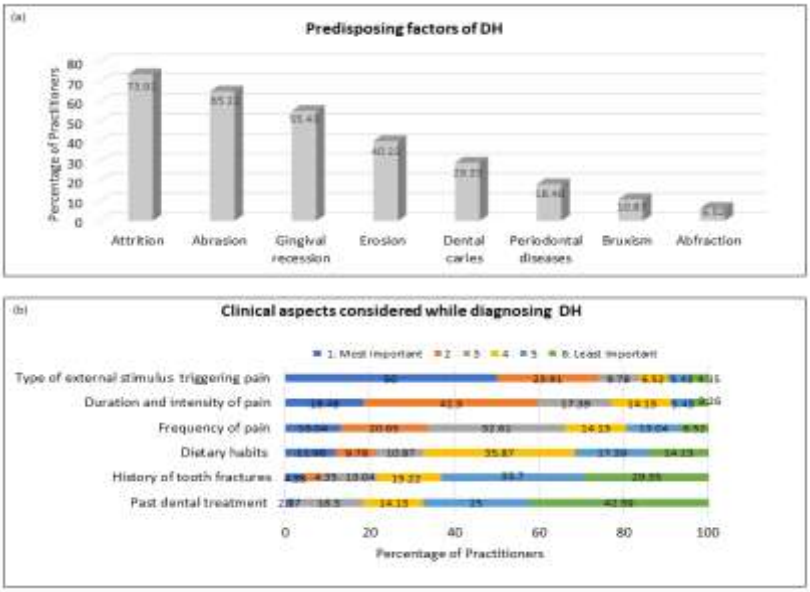

Figure 1: (a) Predisposing factors leading to DH (b) Clinical aspects considered while diagnosing DH

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When asked whether they use the rating scale for subjective assessment of DH diagnosis, 43.48% of DPs responded positively. Of these, 67.50% of DPs reported using the Verbal Rating Scale (VRS),followed by 25.00% reporting the Visual Analogue Scale (VAS), and 2.50% reporting McGill Pain Questionnaire (Figure 2a). On the other hand, among clinical tests for confirming the diagnosis of DH, air blast from a dental instrument was reported to be the most frequently used test (78.26%), followed by probe or explorer testing (66.30%) and coolant water jet from a dental instrument (65.22%) (Figure 2b). Further, when questioned about the key factors leading to the definitive diagnosis of DH, the top five responses included the condition of enamel (76.09%), the clinical condition of the tooth (69.57%), the type of external stimulus that triggers pain (64.13%), state of gum (57.61%), and type of pain (57.61%).

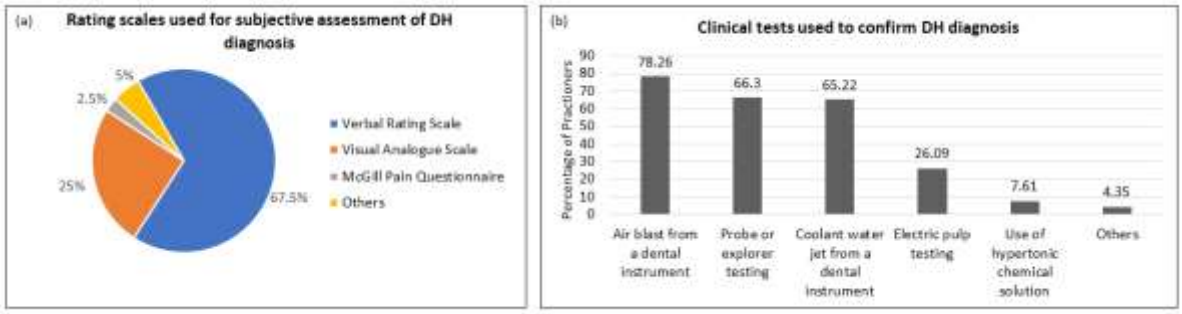

Figure 2: (a)Rating scales used for subjective assessment of DH diagnosis (b) Clinical tests used for DH diagnosis

Regarding the treatment preference for newly diagnosed DH, 55.43% of DPs considered that a high proportion of patients (41-70%) were managed by 'at-home' therapy. However, only 21-50% of patients were managed by 'in-office' treatment, as reported by 58.70% of DPs. Further, more than half of DPs (54.35%) preferred prescribing desensitizing agents among patients (41-80%) receiving 'in office' therapy. Most of the DPs (71.74%) favoured prescribing desensitizing agents among patients experiencing mild discomfort without any severe pain, followed by patients experiencing pain after the application of a stimulus (45.65%) and patients having severe pain that persisted even after the removal of stimulus (29.35%).Based on tooth involvement,60.87% of DPs believed that desensitizing agents should be prescribed when more than 3-4 teeth are hypersensitive, while 46.74% of DPs prescribed them when 3-4 teeth are hypersensitive, and only 32.61% of DPs considered prescribing desensitizing agents when 1-2 teeth are hypersensitive. Further, attrition was observed to be the most preferred condition for prescribing desensitizing agents by 80.43% of DPs, followed by abrasion by 71.74%, and gingival recession and erosion by 69.57% of DPs (Table 3).

Table 3: Prescribing pattern of desensitizing agents

Parameters	**N (%)**
Intensity or level of pain preferred for prescribing desensitizing agents	
Mild discomfort, but no severe pain	66 (71.74%)
Severe pain when a stimulus is applied	42 (45.65%)
Severe pain occurs and persists even after removal of stimulus (lasts for more than 10 seconds)	27 (29.35%)
Type of tooth involvement preferred for prescribing desensitizing agents	
1 or 2 teeth	30 (32.61%)
3 or 4 teeth	43 (46.74%)
More than 3-4 teeth	56 (60.87%)
Type of tooth and gum clinical condition preferred for the usage of desensitizing agents	
Attrition	74 (80.43%)

Abrasion	66 (71.74%)
Gingival recession	64 (69.57%)
Erosion	64 (69.57%)
Bruxism	34 (36.96%)
Periodontal diseases	33 (35.87%)
Abfraction	31 (33.70%)
Dental caries	12 (13.04%)

Regarding the management of DH, nearly one-third of DPs (28.26%) preferred switching almost all (90-100%) of their patients with DH from regular toothpaste to desensitizing agents, and ~70% of the DPs preferred switching more than 50% of their patients with DH to desensitizing agents.The prescription pattern of depolarizing and occluding desensitizing agents was found to be nearly similar. Depolarizing and occluding desensitizing agents were prescribed by 66.30% of DPs to 21-60% of patients and by 63.04% of DPs to 31-70% of patients(Table 4).The primary reason for preferring depolarizing desensitizing agents was the faster onset of action reported by 31.52% of DPs, followed by affordable price (21.74%), suitability for everyday use (20.65%), low rate of recurrence (14.13%), long-lasting relief (13.04%), and suitability for long term usage (>3 months) (10.87%).Further, when asked to rank the various occluding desensitizing agents, calcium sodium phosphosilicate (CSPS) was ranked first by nearly two-thirds (64.13%) ofDPs, followed by calcium fluoride phosphosilicate (CFPS) (16.30%), stannous fluoride(11.96%) and strontium chloride (7.61%)(Figure 3a).The majority of the DPs considered quick action (66.30%), long-lasting relief (61.96%),significant reduction in sensitivity (60.87%), and tooth remineralization/capability of forming a protective layer (58.70%)as the key parametersin fluencing their choice for prescribing occluding desensitizing agents (Figure 3b).

Table 4: Utilization pattern of desensitizing agents

Percentage of patients	N (%) switched from regular toothpaste to desensitizing agent/molecule	N (%) prescribed with depolarizing desensitizing agents	N (%) prescribed with occluding desensitizing agents
≤10	5 (5.43%)	7 (7.61%)	1 (1.09%)
11-20	1 (1.09%)	8 (8.70%)	5 (5.43%)
21-30	6 (6.52%)	17 (18.48%)	7 (7.61%)
31-40	5 (5.43%)	15 (16.30%)	15 (16.30%)
41-50	11 (11.96%)	14 (15.22%)	15 (16.30%)
51-60	3 (3.26%)	15 (16.30%)	15 (16.30%)
61-70	12 (13.04%)	8 (8.70%)	13 (14.13%)
71-80	16 (17.39%)	6 (6.52%)	11 (11.96%)
81-90	7 (7.61%)	0 (0.00%)	6 (6.52%)
91-100	26 (28.26%)	1 (1.09%)	4 (4.35%)
Missing	0	1 (1.09%)	0

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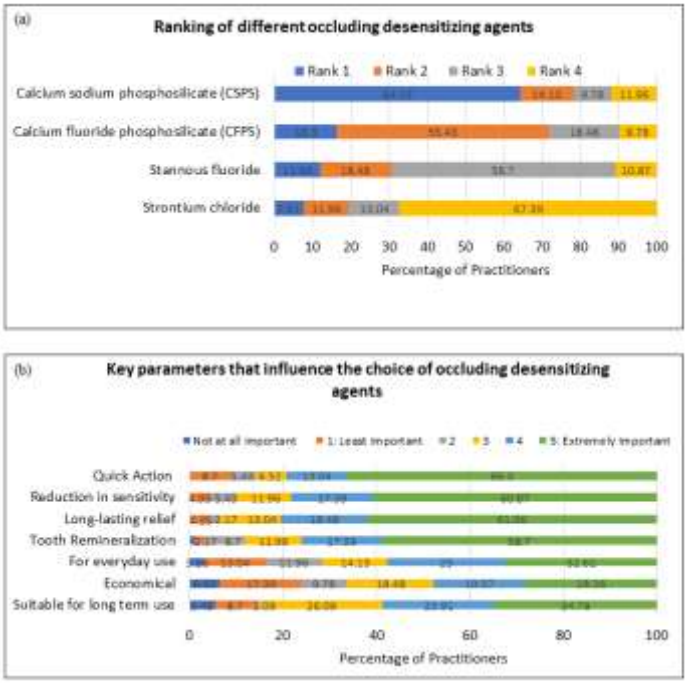

Figure 3: (a)Ranking of different occluding desensitizing agents (b) Key parameters that influence the choice of occluding desensitizing agents

The responses about the recurrence rate of DH varied among DPs.A large number of DPs (72.83%) observed the recurrence among a considerable proportion of patients (11-60%), predominantly among 11-20% of patients. The major reason for recurrence was reported to be short-term use (<2 weeks) of desensitizing agents by more than two-thirds of DPs (69.57%),in addition to non-compliance and inadequate relief.

When asked about the most frequently used desensitizing agent in recurrent cases, potassium nitrate and CSPS were preferred by the majority of DPs, i.e., 39.13%and 32.61%, respectively. Further,82.61% and 81.52% of DPs agreed that patients experience quick relief and long-lasting sensitivity relief, respectively, with the use of CSPS desensitizing agents (Table 5).

Table 5:Patient feedback for CSPS desensitizing agents

Parameters	**N (%)**
Patients' experience with CSPS occluding desensitizing agents	
Patients experiencing "quick-relief"	
Strongly agree	39 (42.39%)
Somewhat agree	36 (39.13%)
Neither agree/disagree	10 (10.87%)
Somewhat disagree	5 (5.43%)
Strongly disagree	2 (2.17%)
Patients experiencing "long-lasting sensitivity relief"	
Strongly agree	36 (39.13%)
Somewhat agree	40 (43.48%)
Neither agree/disagree	10 (10.87%)
Somewhat disagree	5 (5.43%)
Strongly disagree	1 (1.09%)

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Lastly, the perception of the DPs regarding the everyday use of desensitizing agents was assessed. It was observed that 80.43%of DPs agree to recommend the everyday use of desensitizing agents like CSPS and believe that their regular use is likely to provide improved outcomes in patients with chronic DH (Figure 4). When questioned about duration and frequency of usage, the majority of DPs(80.44%) advised using desensitizing agents regularly for at least 3 months, and 89.13% advised using twice a day. Further, toothpaste(89.13%) was chosen as the most preferred delivery form of desensitizing agents as compared to mouthwashes (13.04%), creams and foams (1.09%), and gels (1.09%) (Table 6).

Table 6: Awareness related to the usage pattern of desensitizing agents

Parameters	N (%)
Preferred duration for everyday use of desensitizing agents to achieve a significant reduction in tooth pain/sensitivity	
2 months	18 (19.57%)
3 months	39 (42.39%)
6 months	21 (22.83%)
>6 months	14 (15.22%)
Frequency of usage of desensitizing agents prescribed to patients suffering from DH	
Do not specify	3 (3.26%)
Once in a day	5 (5.43%)
Twice in a day	82 (89.13%)
Others	2 (2.17%)
If 'Others', details	
Brushing at night, after the meal	1 (1.09%)
Initially 3-4 times a day, then reducing to twice a day	1 (1.09%)
Most preferred delivery form of desensitizing agents	
Toothpastes	82 (89.13%)
Mouthwashes	12 (13.04%)
Creams and foams	1 (1.09%)
Gel	1 (1.09%)

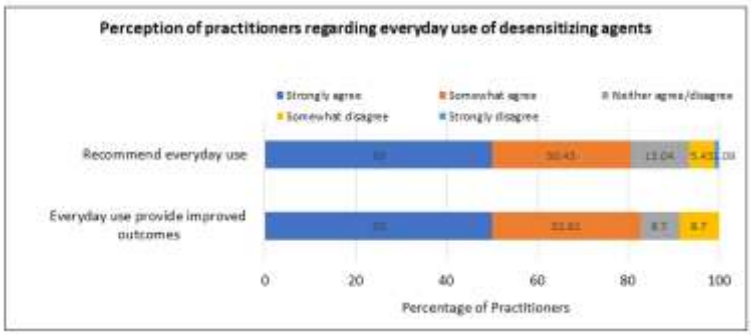

Figure 4:Perception of the dental practitioners regarding everyday use of desensitizing agents

IV. DISCUSSION

DH is the most frequently encountered dental condition in clinical practice; however, it is not adequately understood by the majority of DPs. Therefore, the present survey conducted to assess the knowledge, attitude, and practice of DPs about the use of desensitizing agents may have an impact on the effective management of DH.

In the current survey, DPs stated a patient flow of 100-500 patients per month, of which nearly 100 patients were found to have DH. Similarly, a survey conducted among the Indian population reported the prevalence of DH to be

20.6%[9].Further, in the present survey, DPs reported a higher prevalence of DH among the male population (51-60%) and in patients above 45 years of age. These findings were consistent with the observations of recently conducted studies that reported males and patients in their fourth decade of life to be more frequently affected with DH[10-12].

The most frequent complaints observed by the DPs were sensitivity to cold, pain/toothache, and sensitivity to sweets. These observations were also in concordance with the previous reports, wherein cold food/drink[13] and sweet[14] were cited as the most common stimulus for sensitivity by 89.4% and 31.5% of patients, respectively. When reporting about predisposing factors of DH, 73.91% of DPs reported attrition as their first option, followed by abrasion, gingival recession, erosion, and others. These responses are supported by the hydrodynamic theory of DH, which suggests that stimuli (thermal, physical, or osmotic changes)trigger the displacement of the fluid present within the dentinal tubules and this mechanical disturbance stimulates the nerve endings across the pulp[3].These observations indicate that the DPs had a fair understanding of the clinical presentation and etiological factors of DH.

Generally, the diagnosis of DH is initiated by investigating the medical history of the patient, which might include questions related to the presence/absence of short sharp pain to environmental stimuli, the intensity of pain, and factors aggravating/intensifying sensitivity[4].In concordance, in the present survey, the type of external stimulus triggering pain, duration of intensity and pain, and frequency of pain were considered as an important aspects of clinical history while diagnosing DH. However, the history of tooth fractures and prior dental treatment were regarded as less important, but in clinical practice, DPs often enquire about these aspects from the patients[6].For the subjective assessment of DH, DPs reported utilizing VRS and VAS questionnaires most frequently. These scales have been extensively used in clinical research to evaluate subjective states[15].Further, most of the DPs stated to use air blast, probe testing, and coolant water jet from a dental instrument to confirm the diagnosis of DH. In concurrence, literature has evidenced that these methods are accurate for the investigation of hypersensitivity levels[16] and have been widely used in Indian settings[17].Thus, these findings revealed that there are only a few gaps exist among DPs' knowledge concerning the diagnosis of DH. Regarding the management of DH,there is no universal consensus regarding which strategyis more effective, but it may be logical to initiate a minimally invasive treatment procedure and then follow a stepwise approach depending on the severity of the condition[18].In the case of mild-to-moderate sensitivity, 'at-home' desensitizing therapy is advised[19].Desensitizing agents act by occluding the openings of dentinal tubules or by directly depolarizing/desensitizing the pulpal nerves[20].In the current survey, most DPsadvised 'at-home' treatment, employing desensitizing agents such as dentifrices, mouthwashes, chewing gums, etc., to manage DH. These findings were found to be in coherence with an Indian survey in which the most common management strategy opted by 89.8% DPs was to prescribe 'at-home' desensitizing dentifrice[8].The prescription pattern of depolarizing and occluding desensitizing agents were found to be nearly similar.The clinical efficacy of potassium salts (a depolarizing agent) is well established in the literature as a statistically significant reduction in the sensitivity score observed after 8 weeks of application[21]. Similarly, a clinical trial conducted among 78 patients reported a significant decrease in VAS score along with immediate pain reduction from hypersensitivity observed post-application of potassium nitrate for 30 seconds[22].In concurrence, in the present survey, DPs opined that the primary reason for preferring depolarizing desensitizing agents to be their faster onset of action.

Among various occluding desensitizing agents, CSPS was ranked first by nearly two-thirds of DPs, and the majority of them were revealed to prefer them because of their long-lasting action in addition to their effectiveness in reducing hypersensitivity. Literature has evidenced the greater effectiveness of CSPS in alleviating DH symptoms as compared to other desensitizing agents (potassium nitrate and amine fluoride), along with its prolonged effect even after discontinuation[23-25].In a clinical survey, a statistically significant reduction in DH was observed even after 3 weeks of discontinuation of CSPS dentifrice[23].The long-lasting effect of CSPS is proposed to be due to its adhesion with the exposed dentin surface, after which it reacts with it to form a mineralized layer that provides continual occlusion of the dentin tubules[23].

The recurrence of DH was reported to be varied amongst 11-60% of patients, predominantly among 11-20% of patients. In corollary with these delineations, a cross-sectional survey in India reported that 18.4% of patients experienced

recurrent hypersensitivity episodes often or very often, and 81.6% of patients experienced them occasionally[17].In the present survey, the primary reason for recurrence was cited to be short-term use (<2 weeks) of desensitizing agents by the majority of the DPs. However, researchers believed abfraction and gingival recession to be the predisposing factors associated with DH recurrence. These two conditions result in continuous exposure of dentine surfaces (even the new dentinal tubules) to the oral cavity leading to recurrent episodes. Furthermore, the mechanical challenges (tooth brushing, daily meals, and chewing) are also thought to eliminate the protective effect of the desensitizing agents by eroding the outer surface of dentine and/or the desensitizing agents themselves. Consequently, dentinal tubules would be exposed, and the treatment for DH would tend to fail and lead to recurrent DH[26].This reflects the conflicting understanding among DPs regarding the cause of DH recurrence.

Concerning the awareness related to the usage, more than 80% of DPs agreed to recommend desensitizing agents like CSPS for everyday/regular use. Further, it was advised to use them twice daily for three months to achieve improved outcomes. These findings were in consonance with the observations of a systematic review (including 3,029 records)that demonstrated satisfactory post-treatment results to be obtained between 3 and 6 months of usage of desensitizing agents[27].The frequency of usage of desensitizing agents twice daily is often advised by clinical practitioners to obtain maximum effectiveness[28].Toothpaste was considered as the most preferable delivery form by the majority of DPs. Literature also corroborates this fact as toothpaste is deemed as the firstl ine of treatment for DH by various researchers since they have been shown to improve patient satisfaction[7,29].Hence, it can be concluded that the majority of the DPs in the present survey had adequate knowledge about the management strategies of the condition.

LIMITATIONS

The present study depends upon the questionnaire data rather than explicit observation of clinical procedures to assess the perception of DPs regarding the use of desensitizing agents. Further, the data collection included a small sample of DPs, due to which the generalizability of the results should be corroborated with other clinical evidence.

V. CONCLUSION

The responses obtained in the present survey indicated that DPs had a fair idea regarding various aspects of DH and about the usage of desensitizing agents to manage DH. Their knowledge was found to be consistent with the available scientific literature. However, few knowledge gaps concerning certain aspects of the diagnosis of DH were observed. In view of the escalating prevalence of DH, it is suggested that DPs should keep themselves updated on the current recommendations and guidelines for the management of DH and advise their patients in terms of understanding and prevention of DH. Therefore, there is a need for continuing educational programs and training for DPs to keep them informed of any changes in the clinical practice that will ensure improved patient outcomes.

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CONFLICT-OF-INTEREST STATEMENT

The authors, Kranthi Kiran Pebbili, Kirti Shukla, and Colette Pinto, are serving as the Cluster Head/Director, Medical Advisor, and Clinical Research Specialist, respectively, at Medical Affairs Department, Dr. Reddy's Laboratories Ltd., Hyderabad. Similarly, the authors, Amey Mane, and Bhavesh Kotak, are also working as Medical Cluster Head and Head-Medical Affairs, respectively, at Medical Affairs Department, Dr. Reddy's Laboratories Ltd., Hyderabad. The author, Ajay Kakkar, has no conflict of interest to disclose.

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