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EVALUATION OF KNOWLEDGE, SELF-PERCEIVED CONFIDENCE AND MANAGEMENT OF PERIODONTAL PATIENTS AMONG GENERAL DENTISTS

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ABSTRACT

The incidence of tooth loss due to advanced periodontal diseases are on the rise because of the unawareness of basic periodontal treatment needs by the majority of general dentists (GDs) in Pakistan. This cross-sectional study was carried out to evaluate the periodontal knowledge, treatment strategies being used, referral profile and level of confidence of GDs regarding their provision of periodontal care. A pre-validated, self-administered, structured questionnaire-based survey was used, comprising of 16 questions, with a combination of open and closed-ended questions. A total of 300 participants were reached for the data collection. The data were collected and analysed by using SPSS version 26. The response rate was 36.6% (n=110). The results showed that the majority 84 (76%) of the GDs were running their practices for less than 5 years with most of them were males 58 (53%). The majority 88 (80%) of the study participants referred their patients to specialist periodontists. The major (46%) cause of referral was a lack of response to initial periodontal therapy performed by themselves (50%) after basic periodontal examination at their practices. Ninety-nine (90%) participants stated that a visiting periodontist was needed for a private clinical setup. This study concluded that there was an increasing trend of referring patients to periodontists by the GDs. The current knowledge of awareness about diagnosis, treatment strategies, and referral profile of GDs were adequate however, a very low inclination 36 (33%) towards continuing dental education programs on periodontal therapy was expressed which should be addressed.

Keywords: *Awareness, General dentists, Periodontal disease, Oral hygiene, Treatment strate gies*

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INTRODUCTION

Healthy periodontium is very important for the overall health of teeth and general wellbeing. Therefore, accurate diagnosis and management of periodontal diseases is an integral part of general dental practice. It has been reported by the World Health Organization (WHO) that tooth loss due to periodontal disease in adults ranges from 15%-30%, and to accomplish the prevention and management of periodontal diseases, early diagnosis followed by immediate appropriate treatment is necessary.[1]

Periodontology has evolved shifting paradigms in recent years, providing a higher level of predictability of success in salvaging periodontally compromised-teeth that were formerly regarded to have a poor or questionable prognosis.[2] Many developed countries have seen an increase in the requirement of periodontal services in recent times.[3,4]

The usual scenario in the general dental clinics is that patient's chief complaint is addressed only. As periodontal disease manifests in different stages, most often, early stages are not recognized as they are asymptomatic inflammatory responses in the oral cavity.[5] Routine dental screenings are invaluable in recognizing early disease states and directing early

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intervention unless they have reached advanced stages of destruction.[6] Thus, early recognition of the disease by general dentists (GDs) is practically very low. The patients are not referred to the periodontists until the disease becomes obvious.[7]

McFall and colleagues[8] determined that periodontal status could not be established by most private patient records (except radiographs) as they had deficiencies in diagnostic information. It is evident that management cannot be accomplished without a definitive diagnosis.[9] Hence, a thorough knowledge in diagnosing and formulating a sound treatment plan is an essential skill that every GD should master.[7]

The currently published literature states that the GDs do not lay much emphasis on the periodontal health of their patients.[10] There is a dearth of published data in the literature on Pakistani general dentists' approaches to periodontal problems.

Therefore, the objective of the present study was to evaluate the level of understanding of periodontal diseases by general dentists practicing in the major cities of Pakistan and to investigate the nature of periodontal therapies rendered by these dentists. Also, the aim was to investigate different factors that may significantly influence a dentist's decision to provide treatment in the office or refer the patient to a specialist.

METHODOLOGY

This was a descriptive cross-sectional study that was conducted from December 2020 to January 2021. The target population was qualified general dentists having at least 2 years of post-qualification experience, currently practicing in major cities of Pakistan. The study utilized an online questionnaire-based survey which was open for completion for four weeks. A pilot study was done on 20 participants to evaluate the reliability of the survey questionnaire followed by some minor modifications by the team of experts to remove the discrepancies. A final structured questionnaire was built using a Google platform and the subsequent link was distributed via social media. A total of 300 participants were reached for the data collection. A consent statement was included at the beginning of the questionnaire and an agreement was made before participation. The study was approved by the Ethical Research Committee of Shifa Tameer-e-Millat University, Islamabad following the Helsinki declaration for human research.

The questionnaire comprised of 16 open and closed questions gathered details on demographics of the respondents including the practice type (solo or multispecialty), knowledge of the GDs about the diagnosis and treatment of the periodontal diseases, referral profile of GDs, periodontal services offered in general practice, patient education about oral hygiene practice and approach for continuing dental education programs on periodontal therapy. General dentists whose licenses were expired in Pakistan Medical Commission, having additional postgraduate qualifications, working in a tertiary dental hospital, having other nationality, a resident of a country other than Pakistan and a response that was incomplete, lacking agreement to consent statement was excluded from the final analyses. Data were analyzed using SPSS version 26 statistical package software (SPSS Inc., Chicago, IL). Descriptive statistics like frequencies and proportions were used to summarize the data.

RESULTS

A total of 300 general dentists were accessed for the survey, and 110 responses were collected, out of which only 90 fulfilled the study criteria making a response rate of 36.6%. These 90 GDs represent the result analysis of the current study. The demographic data of the participants listed in Table 1 shows a slight male majority 58 (53%). Duration of clinical practice of 76.6% respondents was less than 5 years and their work setting included both Solo (40%) and associate multispecialty practice (60%). About 33% of the respondents had attended continuing dental education (CDE) programs on periodontal therapy in the past one to two years. Moreover, a vast majority of GDs (80%) who participated in the survey referred their patients to periodontists.

Results concerning knowledge on periodontal diagnosis shows that half of the respondents routinely perform Basic Periodontal Screening/Examination at their respective setups, however, most (90%) GDs reported that they did not perform full mouth periodontal examinations/charting including assessment of bleeding on probing, probing pocket depths, clinical attachment loss and mobility and stated that a visiting periodontist is necessary for a private clinical setup. In addition to clinical examination, the most used radiographic examination is orthopantomograms for the diagnosis of periodontal diseases (Table 2).

Nearly half (46.3%) of them stated the reason for referral to the specialist periodontist to be a lack of response in periodontal disease's status after initial therapy while 30% ascribed the complex medical history of patients to be the reason for referral to the specialist periodontist (Table 2). Besides referral, 40% of the GDs did not refer as they were performing periodontal procedures by themselves. However, 30% stated the reason for not referring was the unavailability of specialist periodontists (Table 3).

A clear majority (93%) of the participants stated that they perform oral hygiene motivation methods at

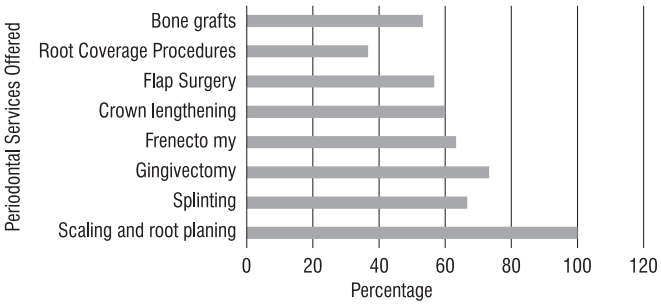

Fig 1: Periodontal services (surgical and non-surgical) being offered at general dentists' clinics.

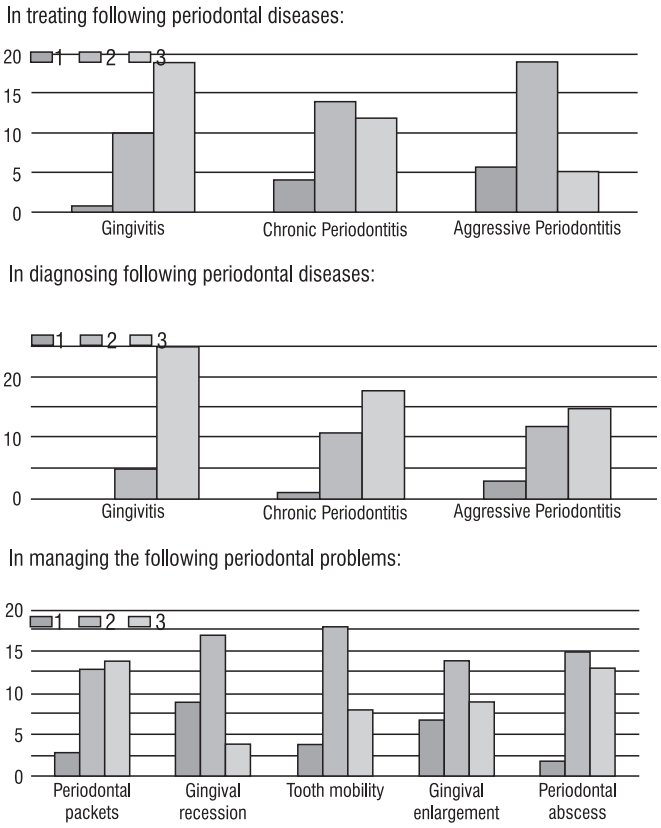

Fig 2: Levels of confidence of general dentists in diagnosing (a), treating (b), and managing (c) following periodontal diseases.

their clinics, with about 64% using both visual aids as well as verbal expressions as means of motivation.

Out of 8 periodontal services as shown in figure1, nearly all the GDs provided scaling and root planning at their clinics while the root coverage procedure being the least offered service.

The level of confidence for the diagnosis and treatment of different periodontal diseases received varied responses, with majority of the GDs reporting high level of confidence with the diagnosis and treatment of gingivitis, fairly confident when it came to chronic periodontitis while for aggressive periodontitis, there was a general lack of confidence seen among all the re-

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS

Variables	Frequency (%)
Gender	
Males	58 (53)
Females	52 (47)
Duration of Practice (In Years)	
Less than 5	84 (76.3)
Between 5 to 10	18 (16.3)
Greater than 10	8 (7.2)
City-wise Representation	
Islamabad/Rawalpindi	28 (25.4)
Lahore	31 (28.4)
Karachi	29 (26.3)
Peshawar	17 (15.4)
Quetta	5 (4.5)
Work Setting of the Clinic	
Solo	44 (40.0)
Associate Practice (Multispecialty)	66 (60.0)
Referral of GDs to specialist Periodontist	
Yes	
No	
88 (80.0)	
22 (20.0)	

TABLE 2: KNOWLEDGE ON PERIODONTAL DIAGNOSIS AMONG GDS

Items	Yes n (%)	No n (%)
Perform Basic Periodontal Examination	56 (50.9%)	54 (49.0%)
Perform Full Mouth Periodontal Charting	11 (10%)	99 (90%)
Bleeding on probing	6 (5.4%)	29 (26.3%)
Probing pocket depths	2 (1.8%)	34 (30.9%)
Clinical attachment loss	3 (2.7%)	31 (28.1%)
Mobility	0	5 (4.54%)
Perform risk assessment for periodontal diseases	63 (57.2%)	47 (42.7%)
Periapical radiograph taken for diagnosis	24 (21.8%)	86 (78.1%)
Orthopantomograms taken for diagnosis	71 (64.5%)	30 (27.2%)

TABLE 3: REASONS FOR REFERRAL AND NOT REFERRAL TO SPECIALIST PERIODONTISTS BY GENERAL DENTISTS

Variables	Frequency (%)
Reasons for referral	
Initial periodontal therapy non-effective	51 (46.3)
Moderate or advanced periodontitis	13 (11.8)
Any periodontal problem	13 (11.8)
Complex medical histories	33 (30.0)
Reasons for not referral	
Practice settings policy	22 (20.0)
Periodontist unavailable	33 (30.0)
Unable to motivate patients	11 (10.0)
Performing periodontal procedures by oneself	44 (40.0)

spondents (Figure 2). Even for post-placement implant care, almost half of the respondents reported very low level of confidence. Generally, a neutral response was observed among 43.6% - 60% of GDs for management of different periodontal problems.

DISCUSSION

Basic Periodontal Examination (BPE) is a reliable screening tool used to assess the periodontal health status of the patient in the clinical practice which guides the treatment needs.[11] This study showed that half the percentage of respondents perform BPE using a periodontal probe at initial evaluation of patients. Results of this study were quite different from the results observed in a study done in Australia[12] where 85.3% of GDs reported performing screening for periodontal health but the screening mainly involved radiographs. Full mouth periodontal charting is paramount in the diagnosis of periodontal disease of which probing pocket depth is gold standard.[13] However, the results of this study showed that most of the GDs did not perform this basic clinical method. This finding is in accordance with a previous study reporting a negative relationship between clinical experience and the frequency of probing.[14] However, previous studies reported higher figures where 80%, 87% and 95% of the respondents were routinely checking and performing periodontal examination of their patients.[15,16] Such differences could be due to unavailability of the specialist periodontists in the teaching institutes who can guide properly on performing full mouth periodontal charting as well as countrywide variations in the regulatory requirements. The responses of the present study suggest that there was an inadequate emphasis on the periodontal health status of the patient at initial examination despite the basic requirement of healthy periodontium for any dental procedure. The present study also reported the use of OPG as a most used radiographic examination when compared to periapical radiography. Aleksejūnienė and colleagues reported similar trend where OPG is the most employed radiography while diagnosing periodontal diseases.[13] This study also showed that majority of the GDs performing risk assessment in diagnosis. The study performed by Allam and colleagues reported similar findings where the knowledge regarding risk assessment of periodontal disease is adequate among the GDs.[17]

A vast majority of GDs (80%) reported that they refer their patients to periodontists.[13] The same was observed in Saudi Arabia18 (75%) and Eastern European countries[4] (78%) where referral was observed by most of the GDs when needed. However, a declining trend of referral was seen in Australia where only 38% of the GDs had reported periodontist referrals.[12] The possible reason could be related to the availability of sufficient hygienists within their clinical practice.

The present study showed that the most common clinical factor associated with the decision of patient referral to a periodontist was the lack of response to initial therapy (46.2%) followed by complex medical histories (30.8%) and advance stage of periodontal disease (13%). These findings are in accordance with the previous studies performed in Saudi Arabia[18] and Canada.[19] The decision for a referral to a specialist is also driven by many factors (including clinical, personal, and cost) that causes the referral process to become a complex entity in the daily general dental practice.[20]

Referral based on complex medical histories by almost one-third of GDs represents an area that needs more attention to understand the strong association between periodontal and systemic diseases. Forty percent of the responding GDs in this study reported that they do not consider referral to periodontists and prefer to perform periodontal procedures themselves, listing it as the primary reason for not referring followed by unavailability of a periodontist (30%). These results were in conjunction with a study where GDs of the Michigan Dental Association showed a lack of willingness to refer patients with an increased desire to perform periodontal procedures on their own.[8] The possible reason could be the non-availability of periodontists is a sign of concern in Pakistan especially, as there are not many post-graduation opportunities available in the specialty, as opposed to other clinical dental faculties. Besides, the proportion of specialist periodontists are also quite scarce in Pakistan.[21] Moreover, most of the private practices in Pakistan also have the policy of not referring their patients to a specialist or another

practice as they fear they might lose their clientele in the process. A multidisciplinary approach towards the dental health of the patient is very important to deliver high-quality care to the patients.

In this study, non-surgical periodontal therapy of which scaling, and root planning were provided by most of the GDs. This finding is consistent with the results of a previous survey conducted in Canada (98.5%)19 and Iraq (91.1%)[22] where of Phase 1 periodontal therapy was performed by most of the GDs. Another survey in Virginia[23] also identified non-surgical procedures as common service offered by GDs. Root coverage procedures were among the less performed procedure in this study. In Pakistan, training in scaling and root planning is part of the undergraduate degree but there is limited exposure of surgical periodontics in the curriculum of undergraduates which mandates additional training in advanced education programs. An earlier study in Virginia[23], showed a positive correlation between dentists having additional training in periodontics and practicing surgical procedures. Besides, this study also showed that only one-third percentage (33%) of general dentists have pursued additional education in periodontology through continuing dental education (CDE) programs. Therefore, the general practitioner's ability to offer surgical periodontal services is much controversial. One of the reasons for the lack of additional training in two-thirds of GDs may be due to an inclination of dentists more towards the other specialties and the other being that there is no declaration of mandatory CDE training hours by the regulatory bodies.

This study did have some limitations. The sample size of 300 may not be satisfactorily representative of the entire population. Due to time constraints, the data were collected in a cross-sectional study (incidence rates could not be calculated) using a nonprobability sampling method which has low weightage in the presentation of results. Another limitation was the use of web-based design rather than *in vivo* examination of patients that may have influenced variability among general dentists. The greater sample size will be used after the coronavirus pandemic has subsided. It is believed that diagnoses and treatment recommendations could have been more consistent if actual patients were examined. Furthermore, this study was not designed to evaluate the accuracy of responses gained from general dental practitioners. Steps need to be taken to determine accuracy and intra- and inter-rater variability through the development of GDs in-service training sessions.

CONCLUSION

This was the first study conducted to explore the knowledge, self-perceived confidence and management of periodontal patients among general dentists in Pakistan. The results are comparatively in line with the findings of other countries however, Pakistani GDs are falling behind in two areas: majority not performing routine periodontal examination and charting and a very low inclination towards continuing dental education programs on periodontal therapy. Therefore, more periodontal training should be rendered to GDs and they should be encouraged to take more continuing dental education programs in periodontics.

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3 Nasar Um Min Allah:	Critical review and wrote the final version of the manuscript.
4 Sohaib Arshad:	Data collection
5 Zain Iftikhar:	Data collection
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