



Periodontal Treatment Practice and Referral Profile of General Dentists – A Cross-sectional Questionnaire Survey

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Abstract

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BACKGROUND: Because of medical advancement, the mean age of the general population is increasing gradually. This increase in the mean age of patients has led to its implications on oral health. Hence, it is logical to assume an increase in the figure of referrals to specialists and the complexity of treatments provided.

AIM: The aim of the survey was to assess the current status of periodontal treatment provided, awareness of referral profile, and criteria taken into consideration for the referral to the periodontist by general dentists.

MATERIALS AND METHODS: This cross-sectional questionnaire study was conducted among 318 general dentists. The relevant work related to the status of periodontal procedures provided by dentists and their referral relationships were studied. The questionnaire consisting of six questions was designed. Descriptive statistics, including frequency distributions and measures of central tendency and Chi-square test, were used.

RESULTS: The study showed that majority of the general dentists do non-surgical procedures by their own. However, around 85% of respondents did not provide surgical periodontal treatment by themselves. About 25% of the responding general dentists thought that they had inadequate education and experience in the field of periodontics which was a major reason for the referral to specialists.

CONCLUSION: It was concluded that the general dentists are comfortable in carrying out the non-surgical procedures, but they had some reservations about the periodontal surgical procedures. Inadequate experience and facilities were the major reasons for the referral to periodontists. More of this type of study should be conducted to know the basic level of periodontal practices carried out among the general dentists and about the referral to the specialists.

Introduction

Innovative development in science and knowledge has expanded the dental discipline and enhanced how to communicate that knowledge to dentists, specialist, and other health-care providers. The specialty of periodontics is growing in varied aspects such as in examination, diagnosis, and treatment procedures of various periodontal diseases [1]. This evidence-based advancement has given good results in periodontal diagnosis and treatment plan [2]. Also with this development in science and provision of the medical services, the mean age of the population is increased and more aged patients are available with oral health implications.

Several studies have established the fact that prevalence and severity of periodontal disease increase with the advancing age [3], [4], [5]. Due to this information, periodontal disease is more common in older persons [6]. Although dental institutes provide good quality education to the students in the field of

periodontics, the level of specialty training is limited in the curriculum for undergraduates. The patients visiting specialist dental clinics or dental institutes get quality periodontal care, but still, a number of patients visiting general dentists lack the appropriate treatment [7].

As general dentists treat the major part of the public, their knowledge and approach about periodontal disease and its management are of paramount importance. It has been found that diverse elements such as patient's lack of availability to care, poor socioeconomic status, patient anxiety, non-acceptance of referrals, and non-referral attitude by the general dentists are the main barriers to provide the proper treatment [8].

Limited scientific literature is available regards to status and quality of periodontal care provided by general dentists and their referral profile. Studies are being conducted to analyze the relationship between the general dentists and the specialist [9], [10]. Linden *et al.* established that significant variation existed

in the referral practice. In many cases, non-disease causes have powerful effects on the choices made by general dentists in relation to periodontal referral pattern [11], [12].

By this knowledge, the present study was planned to assess the current status of periodontal treatment provided, awareness of referral profile, and criteria taken into consideration for the referral to the periodontist by general dentists in South Saudi Arabia region.

Subjects and Methods

The present one-point, cross-sectional survey was conducted from October 15, 2016, to February 26, 2017. This survey was conducted by means of a questionnaire among 318 general dentists having their dental practice in the southern region of Saudi Arabia. The questionnaire was prepared in English language and was checked for face validity by a language expert. The questionnaire was divided into six main domains comprising of demographic and practice characteristics, non-surgical periodontal treatment provided, surgical periodontal treatment provided, knowledge of periodontics, reasons for referral, and criteria followed for the selection of specialist. The study protocol was presented before the Institutional Ethics Committee to obtain the ethical clearance before commencement of the survey. The importance of the study was explained verbally to the participants and written informed consent was obtained before completion of the questionnaire form. The questionnaire was anonymous, and participation was voluntary. The questionnaire was distributed among the dentists manually in their respective workplaces and collected after completion.

The sample size of 318 was selected according to the results of the pilot study. The results of the pilot study revealed that out of 20 participants, 25% reported that they can perform the periodontal treatment procedures without any referral to the specialists.

The sample size was calculated depending on the following formula;

$$\text{Sample size} = \frac{Z\alpha^2 * (p) * (1 - p)}{c^2}$$

Where:

Z = Z value (1.96 for 95% confidence level)/

p = percentage of picking a choice, expressed as decimal for the present study which was expressed as 0.25.

c = confidence interval, expressed as decimal.

Hence, the sample size was calculated as per formula:

$$= \frac{(1.96)^2 * 0.25 * 0.75}{(0.05)^2}$$

The minimum sample size was calculated to be 288.

The collected data were tabulated and statistical analyses were performed using SPSS software (Statistical Product and Service Solutions, SSPC Inc., Chicago). Descriptive statistics, including frequency distributions and measures of central tendency, Chi-square test, were used for analyzing the results.

Results

Out of 318 general dentists answered the questionnaire, major respondents were male (86.8%). In this study, 47.2% of the responded dentists were of <2 years of practice and 53.7% were practicing in urban area (Table 1). About 61.3% and 56.6% of the participants had periodontist and dental hygienists in their clinics, respectively. Majority of the respondents provide non-surgical therapy (scaling and root planing 83%, periodontal maintenance 55.7%, and delivery of local antimicrobials 55.7% in their practice). Detailed description of the referral profile by respondent related to the treatment procedure is shown in Table 2. Figure 1 shows the distribution of participants for referral of splinting treatment according to the age of practice, educational qualification, and location of practice. The results showed that majority of practitioners prefer to refer the patients to periodontist for splinting treatment, which is statistically significant in the groups (p = 0.00). The distribution of participants for the treatment of implant with respect to different variables has been summarized with detail in Table 3. The answers recorded by the respondent for the referral of periodontal surgical procedure with respect to the different variables are shown in Table 4.

Table 1: Demographic characteristics of general dentists who participated in the survey

Parameters	Respondents (n)	Respondents %
Gender		
Male	279	87.7
Female	39	12.3
Years of practice		
<2	150	47.16
2-5	96	30.18
More than 5	72	22.64
Intern	129	40.56
Educational degree		
Graduate	126	39.62
Postgraduate	63	19.81
Place of location		
Rural	144	45.28
Urban	174	54.71

Table 2: Profile of periodontal treatment followed by the general dentists

Treatment procedure	Respondents n (%)	p-value
Scaling and root planing		
Self	264 (83.0)	0.000*
Referred	54 (17.0)	
Splinting		
Self	39 (12.3)	0.000*
Referred	279 (87.7)	
Occlusal adjustment		
Self	75 (23.6)	0.000*
Referred	243 (76.4)	
Periodontal maintenance		
Self	177 (55.7)	0.244
Referred	141 (44.3)	
Local antimicrobials		
Self	155 (55.7)	0.244
Referred	141 (44.3)	
Gingivectomy		
Self	78 (24.5)	0.000*
Referred	240 (75.5)	
Crown lengthening		
Self	48 (15.1)	0.000*
Referred	270 (84.9)	
Frenectomy		
Self	30 (9.40)	0.000*
Referred	288 (90.6)	
Flap procedures		
Self	33 (10.4)	0.000*
Referred	285 (89.6)	
Hard tissue/soft-tissue grafts		
Self	21 (6.60)	0.000*
Referred	297 (93.4)	
Implant-related surgery		
Self	721 (6.60)	0.000*
Periodontist	219 (68.9)	
Oral surgeon	78 (24.5)	

With respect to knowledge of periodontics, 56.6% responded that dental education prepared them well for periodontal therapy and 43.4% of them responded as they would like to attend educational programs to improve it (Table 5). About 25% of the

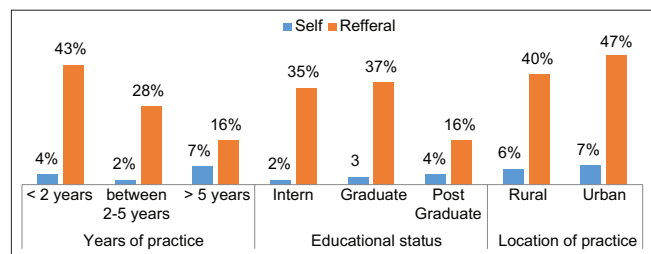


Figure 1: Distribution of referral profile of dentists for splinting treatment

general dentists responded that they had inadequate education and experience in the field of periodontics, followed by 20% who said that they were unable to motivate the patients for periodontal treatment, which was a major reason for the referral to specialist (Figure 2).

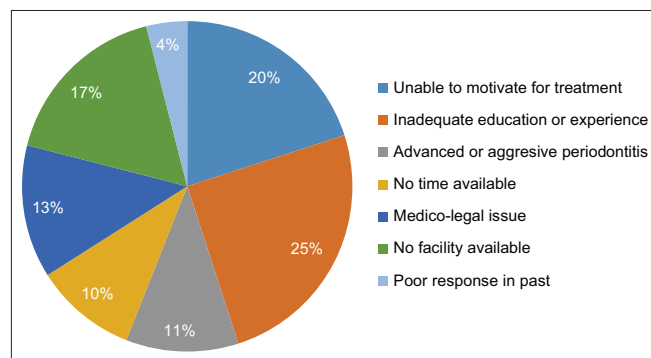


Figure 2: General dentists' reasons for referral to periodontist

Table 3: Distribution of respondents for the referral of implant therapy

Variables	Self n (%)	Periodontist n (%)	Oral surgeon n (%)	p-value
Years of practice				
<2 years	9 (3)	105 (35)	36 (12)	0.721
Between 2 and 5 years	3 (1)	69 (23)	24 (8)	
>5 years	9 (3)	45 (15)	18 (6)	
Educational status				
Intern	3 (1)	96 (32)	30 (10)	0.012
Graduates	3 (1)	90 (30)	33 (11)	
Postgraduates	15 (5)	33 (11)	15 (5)	
Location of practice				
Rural	6 (2)	105 (35)	36 (12)	0.729
Urban	9 (3)	111 (37)	51 (17)	

The results also revealed that 40% and 34% of the general dentists were aware of the presence of specialists and their availability in the area as the major factor in selecting the specialist (Figure 3). The overall information from this questionnaire revealed that the general dentist performed non-surgical periodontal treatment by themselves and the surgical periodontal procedures were either performed by themselves or referred to periodontist.

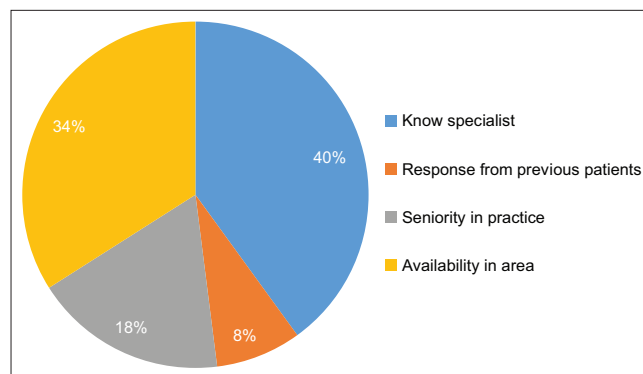


Figure 3: Criteria followed by general dentists in selecting a periodontist

Discussion

Only a few studies have been conducted with the objective of evaluating the procedures performed and the criteria followed for referral by general dentists in their practice. This study was planned to assess the periodontal treatment practice and referral by anonymously surveying, through questionnaire to a random sample of general dentists in the southern region of Saudi Arabia. The questionnaire included a list of questions about personal demographics, characteristics of their practice, treatment procedures provided, reasons for referral, and criteria considered in referring the patients to periodontist.

The regulation permits general dentists in Saudi Arabia to perform a comprehensive choice of procedures that are also performed by dental specialists. A general dentist's choice to perform treatment or to refer a patient to a specialist depends on his competency, availability of specialists in the

Table 4: Distribution of respondents for the referral of periodontal surgical procedures

Variables	Do all surgeries n (%)	Do minor surgeries n (%)	Major surgeries to periodontist n (%)	p-value
Years of practice				
<2 years	3 (1)	114 (38)	33 (11)	0.191
Between 2 and 5 years	3 (1)	60 (20)	33 (11)	
>5 years	9 (3)	42 (14)	21 (7)	
Educational status				
Intern	6 (2)	87 (29)	36 (12)	0.154
Graduates	0 (0)	93 (31)	33 (11)	
Postgraduates	9 (3)	36 (12)	18 (6)	
Location of practice				
Rural	6 (2)	105 (35)	36 (12)	0.772
Urban	9 (3)	111 (37)	51 (17)	

Table 5: Distribution of respondents with respect to knowledge

Response to knowledge	n (%)
Dental education prepared me well for periodontal therapy	60 (56.6)
Would like to attend educational program for this	46 (43.4)

area of practice, stage of periodontal disease, lack of facilities in the clinic, inability to motivate the patient, and medicolegal issues [13], [14].

The results of our study suggest almost similar trends given by studies related to our idea that general dentists are performing most of the non-surgical periodontal procedures at their clinics [15]. As per our study, in comparison to non-surgical procedures, surgical periodontal procedures are often referred to periodontist. Gingivectomy (24.5%) is the most commonly performed periodontal surgical procedure by general dentists. However, results from studies conducted in Washington [15] and in Palestine [16] were much higher than our findings. In the present study, it was also established that 15.1% of general dentists performed crown lengthening procedures by self which is almost similar to be found in a study conducted in Nova Scotia, Canada (17.0%) [13]. The common procedure performed by or referred to periodontist was soft and hard tissue grafting (93.4%), flap surgeries (89.9%), followed by crown lengthening (84.9%), and gingivectomy (75.5%). These findings were much higher compared to the results concluded by studies conducted in India [17], [18]. In the present study, there was no statistically significant difference found in groups for the referral profile of periodontal surgeries. A limited number (1–3%) of practitioners perform all periodontal surgical procedure by themselves. Majority of practitioners revealed that minor surgical procedure such as gingivectomy and frenectomy was done by themselves. Whereas, a major surgical procedure such as ridge augmentation and soft-tissue graft need a referral to the periodontist.

In general, it has been reported that more referrals related to implant surgeries are done to oral surgeons than periodontist; however, periodontist was most often referred for esthetic zone related to implant surgeries [19]. In our study, 68.9% of general dentists responded that they referred the implant-related surgeries to periodontists and 24.5% to the oral surgeon. The result of the study also revealed that age and location of practice have no significant effect on the referral profile of the practicing dentists ($p = 0.72$),

whereas educational qualification has a significant influence on the referral profile of the practitioners ($p = 0.012$). Interns and graduates as compared to postgraduates had a high percentage of referral profiles for implant treatment.

In this study, seven criteria were mentioned to determine the reason for referring the patients to the periodontist. Inadequate education or experience (25%) and unable to motivate for periodontal treatment (20%) were the most common criteria followed in selecting the specialist, other criteria were no facility in the clinic (17%) and medicolegal issue (13%). These figures were found to be higher in the study conducted in Nova Scotia, Canada (79.4%) [13] and Palestine (55%) [16]. However, medico-legal issues influence was found to be more in our study to determine the reason for referring to periodontist compared to study results of Nova Scotia, Canada [13].

In the present study, four factors were cited to determine the criteria included in selecting the periodontist. Known specialist (40%) and availability of the specialist in the area (34%) were cited as the most common reason in selecting the periodontist. A study conducted in Virginia showed that variables such as female gender, practicing with one other dentist, employing two or more hygienists, and being >5 miles away from the nearest periodontist, statistically influenced the number of referrals from general dentists to a periodontist [20]. Another study concluded a previous positive experience between the general dentist and periodontist as the most important factor in the referral process to periodontist [21].

However, the present study has a few limitations. Such as, the findings of this present questionnaire study are self-reported; they should be taken with some attention. The results found in this study are merely subjective perceptions. Thus, future studies with the objective investigation should be used. Although the finding of this questionnaire study cannot be generalized to other regions in Saudi Arabia, the results obtained can be used by higher authorities to formulate the regulations at various levels. Further exploration, including qualitative research, is necessary to analyze the finding of this study in detail.

The overall results from this study suggest that there is a need for general dentists to follow the regulations regarding the procedures to be done

by self and a proper referral profile for patients to all types of dental specialists recognized by the governing body. These data may also help us to formulate the procedures that to be performed by the general dentists in their regular practice and in the training level of higher education. The general dentists should recognize their role in patient motivation and build a suitable referral protocol.

Thus, it is recommended to have this kind of study to be done at regular intervals in the same regions to get the knowledge about improvement and further awareness in practice characteristics and perception regarding periodontal treatment regarding referral by general dentists.

Conclusion and Summary

Teamwork and management skills are essential in the positive interdisciplinary approach. The general dentist is the expert who knows the patient best and must take the lead in evolving the treatment plan and its management. He should also know the importance of specialists in both the multidisciplinary approach and initial treatment.

From the present study, it can be concluded that the general dentists are at ease in doing the non-surgical procedures such as scaling and root planing. However, there are still some reservations about the surgical periodontal procedures. This can be due to insufficient experience, shortage of amenities at the dental clinic, and/or the medicolegal concerns. Furthermore, from the results of this study, it is clear that the referral of patients to specialists by general dentists should be done as needed. Thus, the finding of this study can be helpful in refining the study designs in dental colleges. More of such studies must be supported to know about the basic level of periodontal procedures done self by the general dentists and about the referral to the specialists.

Furthermore, there is a lack of awareness about various periodontal treatment procedures among general dentists. Thus, there is a need for patient motivation as well as some regulations to general dentists about all treatment procedures carried out by specialists like periodontists that will enhance the treatment outcome as well as help in improving patient referrals. Dental curriculum should be regularly studied to consider how future dentists should be trained during their graduate and postgraduate programs about making appropriate treatment decisions and referring patients as needed.

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