



Awareness among general public of Srikakulam in regards to periodontics, as a speciality in dentistry—a cross-sectional survey

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Background: Periodontology is most versatile and technique sensitive branch that deals with the tissues surrounding the teeth. Like other dental specialities periodontics is lacking its entity among general population. So, the present study is aimed to evaluate the awareness of general public of Srikakulam district in regards to periodontics as a speciality in dentistry.

Methods: Present cross sectional survey evaluated 2,058 questionnaires proforma's using 10 questions. Chi-square test was performed to assess the association with age and gender wise distribution. While Fischer exact test was performed to know who a periodontist was and what he does. Study was performed during January 1st 2023 to June 31st 2023. Questionnaires were distributed to participants and after 10 minutes they were returned. Subjects having >20 years age, interested to participate in the study were included and subjects who were not interested, dentists, all speciality dental practitioners, students pursuing dentistry as profession, dental hygienists and dental health care workers were excluded from the study.

Results: Reveals 38.8% population had gum problems, lower percentages of 15.8% (P=0.20) of study population has higher level of awareness regarding periodontics as a separate specialty, who a periodontist was, what he does. For gender wise distribution females have much awareness than males but values were non-significant (P=0.20). While opting what a periodontist does, 59.1% (P<0.001) population opted for flap surgeries and implants, 33.7% never visited a periodontist, 54.5% reported no dental problems, degree and post-graduate people had a lesser percentages higher level of awareness with no significance (P=0.17). Regarding age variation 21–30 years group has shown higher level of awareness (19.9%). Further medicos had a higher significant level (P<0.001) of awareness than non-medicos.

Conclusions: Present study concluded a low percentages of high level awareness for periodontics a specialty in dentistry, who a periodontist was and what he does indicating a lack of knowledge regarding the speciality in Srikakulam population. It is our responsibility to educate people regarding our speciality for interdisciplinary approach among people as well as medical fraternity.

Keywords: Periodontics; periodontitis; questionnaires; surveys

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Introduction

Periodontics is one of the most important and versatile branches of dentistry which deals with the tissues surrounding the teeth. Because of its multifactorial origin, with bulk plaque and calculus containing many bacteria make it a tough task to treat (1). Many treatment strategies like surgical (periodontal flap, bone grafts, guided tissue regeneration, platelet concentrates) and non-surgical periodontal therapy (scaling and root planing, local drug delivery etc.) have been developed to treat periodontitis. Periodontitis is a painless disease and by the time pain is felt maximum bone loss would already took place (2). Most people will not visit a dentist until it is of utmost important. There is always a lack of awareness among the population regarding the dental specialities (3). Medical awareness was of much greater pace because of increasing diseases and availability of treatment strategies and emergencies. Because of single individual clinical practice of dentistry with no multidisciplinary approaches general population lack awareness regarding, which speciality they need to visit for their problems. Moreover single practitioner does all the speciality treatments also led to this situation (4).

Highlight box

Key findings

- Present study gives knowledge and awareness status of general public regarding the periodontics as separate specialty, which directly helps in identifying the systemic diseases initially without going into advance stages.

What is known and what is new?

- Up to now, no study has been conducted to assess knowledge and awareness of periodontics as a specialty in dentistry.
- People know regarding medical specialties to most extent because of increased awareness regarding various medical diseases but don't have much awareness and knowledge regarding individual dental specialties.

What is the implication, and what should change now?

- As a part of medical and dental fields it is our responsibility to educate the general people and fellow medical colleagues so that oral health problems can be reduced. Further camps should be conducted in medical hospitals and general areas regarding the identification of separate dental specialties.

In the present scenario because of dental camps, some awareness was created for treating dental caries, teeth replacement etc. Hence, people know some things regarding the root canal treatments, implants and other treatment modalities (5). Like other dental specialities periodontology lacks this kind of awareness because of its painless situation and patients also neglect the bleeding gums by leaving them as it is or use the home remedies. Hence people were not much aware of who a periodontist is, what he does (6).

Most of the studies (6,7) were performed regarding the knowledge and awareness of periodontal disease systemic links, regarding general and oral health comparisons in medical and dental professionals. Where they concluded that it is the practitioners and patient responsibility to communicate regarding the oral and systemic links and educate regarding the global burden of oral disease by conducting awareness camps. Apart from this, it is important to address health education, patient-doctor interaction and a multidisciplinary collaboration of identifying and treating a disease (8). But no study was performed to find awareness regarding periodontics speciality as a separate branch of dentistry. Because of this prevailing confused state, present study aimed to evaluate the awareness of general public of Srikakulam district regarding periodontics as a speciality in dentistry, who a periodontist is and what he does. We present this article in accordance with the STROBE reporting checklist (available at <https://amj.amegroups.com/article/view/10.21037/amj-23-211/rc>).

Methods

Sample size estimation, study design and patient enrolment

Present study used systematic random type of sampling. It was a close ended, validated, self-administered, cross-sectional questionnaire survey. Study was performed during January 1st 2023 to June 31st 2023. Sample size estimation was done using the formula $n = (Z_{\alpha} + Z_{1-\beta})^2 pq/d^2$ where Z_{α} value was 1.96, $Z_{1-\beta}$ value was 0.84, P value was 55.3, q value was 44.7 and d value was 2.84. Thus a total sample of 2,392 was obtained after utilizing the formula and it was rounded to 2,400. A total of 2,400 questionnaires were gathered, out of which 342 were excluded because of incomplete filling

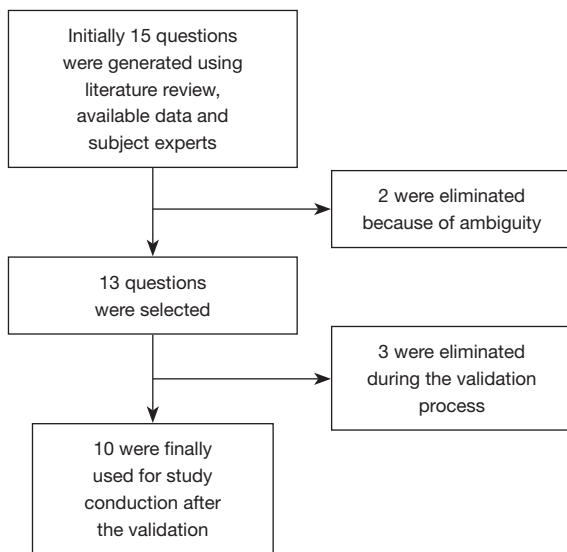


Figure 1 The flow diagram of questionnaire preparation and finalizing of questions in the study.

and irrelevant answering of questionnaires. So a total of 2,058 samples [females of 1,134 (55.1%) and males of 924 (44.9%)] were finalized with mean age of 28.3 ± 10.3 years. Based on calculated sample size, 14 questionnaires were distributed per day for 6 months. First person randomly included into the study and afterwards every 21st person attending the institute was included in the study. Patients and their attendants who were visiting dental college were considered and questionnaires were randomly distributed.

Inclusion and exclusion criteria

Subjects aged >20 years who visited dental college for treatments, subject's attendants who came along with them and interested to take part in the survey were included in the study while subjects who were not willing to participate, subjects who gave irrelevant and irresponsible answers were excluded. Dentists, all speciality dental practitioners, students pursuing dentistry as profession, dental hygienists and dental health care workers were also excluded from the study.

Questionnaire proforma

Development of questionnaire was done in the following way, initially 15 questions were generated by doing literature review, expert opinion and based on existing similar questionnaires. Out of 15 questions, 13 were considered and 2 were eliminated because of their ambiguity. Further

during the validation process, 3 more questions were eliminated (*Figure 1*). Finally, this self-administered (which means a respondent was required to complete the questionnaire by him/herself) questionnaire consists of 10 questions with demographic data, questions 1, 2, 3, 4, 5, 7 and 8 depicts the awareness and remaining questions show the knowledge regarding the bleeding gums, visiting the periodontist and reason for not visiting (*Figures 2*). Out of these 10 questions, question 1 to 5 have binary responses (yes/no) for which score 1 was given for yes and 0 for no. Question 1 has four options correct response was given a score of 1 and wrong response was given as 0. Further for question 8—dental implant placement is done by whom? The responses were periodontist/prosthodontist/oral surgeon/general dentist was given a weightage score of 1 while all the above option was given a weightage score of 5. When added the scores of questions 1, 2, 3, 4, 5, 7 and 8, the overall range of score is 1–11 which were categorized as follows— ≤ 4 = lower awareness; 5–8= medium and 9–11= higher awareness. Internal consistency of questionnaire was good with a Cronbach alpha value of 0.84. Test re-test reliability was found to be 0.75. Fake and content validity of the questionnaires were checked with the help of experts.

Ethical consideration

The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by the institutional ethics committee of Sree Sai Dental College and Hospital Srikakulam, Andhra Pradesh, India (No. SSDCRI/IEC/2023/8/S2) and informed consent was taken from all individual participants.

Procedure

Patients and their attendants who have visited the dental college for treatments were considered and explained regarding the questionnaire. For interested people proforma's were distributed and gave a time period of 10 minutes so that they will fill the forms. Further forms were collected and entire data was transferred to a Microsoft excel spread sheet and subjected to statistical analysis. Study was performed according to STROBE guidelines to as much extent as possible.

Statistical analysis

Data of analysis was performed on statistical package for

Age:	Gender:	Education/Job qualification:	Place:
1. Are you aware of various dental specialties?			
Yes/No			
2. Do you have knowledge regarding gum disease and the specialty related to it?			
Yes/No			
3. Do you know who a periodontist is?			
Yes/No			
4. Periodontal surgeon deals with...			
A) Flap surgeries and implants; B) Root canal treatment; C) Extraction; D) None of the above			
5. Do you know that there are treatments for exposed tooth roots?			
Yes/ No			
6. Have you ever faced gum problems?			
Yes/No			
7. Expert who deals with treatment of bleeding gums?			
A) Prosthodontist; B) Endodontist; C) Periodontist; D) All of the above			
8. Dental Implants placement is done by?			
A) Periodontist; B) Prosthodontist; C) Oral Surgeon; D) Endodontist; E) General Dentist; F) All of the above			
9. How many times do you visit a Dentist or Periodontist?			
A) Once in a year; B) Twice; C) Thrice; D) Never			
If never,			
10. Reason behind not visiting a Dentist/Periodontist?			
A) Dental Procedures Painful; B) Fear of Dental procedures and Dentistry field; C) Costly procedures affecting the visits; D) Others (please specify)			
.....			
			Signature

Figure 2 The image of questions 1 to 10.

social sciences (SPSS) version 22.0 (IBM Pvt Ltd., Chicago, IL, USA). Age was calculated and expressed in mean and standard deviations. Gender and awareness parameters were expressed in frequency distribution percentages. Fisher Exact test was applied to identify the association for identifying who the periodontist is and what he deals with. Chi-square test was performed to find out the association for gender and age wise awareness. Tests utilized in the study, were two sided and a P value of two sided <0.05 was considered statistically significant.

Results

Frequency distribution percentages of various age groups recruited in the study were depicted as follows: 402 (19.5%) were ≤ 20 years whereas 21–30 years were 1,154 (56.1%), 31–40 years [244 (11.9%)], 41–50 years [132 (6.4%)], 51–60 years [114 (5.5%)] and >60 years [12 (0.6%)]. For

Question 6, regarding facing of gum problems 38.8% of study population face (opted yes) gum problems while 61.2% opted no and didn't have any problems. Further regarding the level of awareness, 15.8% of study population showed higher level of awareness while 21.9% and 62.3% depicted the low and medium levels of awareness for periodontics as separate specialty, who a periodontist is and what he does. When significant comparisons were performed for question 3 and question 4, for knowing who a periodontist is, 59.1% revealed that periodontist does flap surgeries and implants and the value was statistically significant ($P < 0.001$) whereas 40.9% also opted yes but reported a false answer of root canal treatment/extraction or none of the above.

Regarding (question 9) visit to a dentist or periodontist, 33.7% of study population never visited a dentist or a periodontist while 32.8% once, 22.9% twice and 10.5% visited thrice. Further when asked for a reason of not

Table 1 Gender wise significant association of knowing the awareness among subjects who really know a periodontist is and what he does

Gender	Level of awareness, n (%)			P value
	High	Low	Medium	
Female	198 (17.5)	254 (22.4)	682 (60.1)	0.20 [#]
Male	128 (13.9)	196 (21.2)	600 (64.9)	

[#], non-significant (P>0.05).

Table 2 Age wise significant association of knowledge and awareness of subjects, regarding periodontist

Age range (years)	Level of awareness, n (%)			P value
	High	Low	Medium	
≤20	30 (7.5)	78 (19.4)	294 (73.1)	<0.001*
21–30	230 (19.9)	206 (17.9)	718 (62.2)	
31–40	36 (14.8)	74 (30.3)	134 (54.9)	
41–50	24 (18.2)	56 (42.4)	52 (39.4)	
51–60	6 (5.3)	30 (26.3)	78 (68.4)	
>60	0 (0.0)	6 (50.0)	6 (50.0)	

^{*}, statistical significance (P<0.05).

Table 3 Significant awareness of study population based on education level whether degree, inter/diploma/post-graduation

Education level	Awareness, n (%)			P value
	High	Low	Medium	
Degree	256 (16.5)	328 (21.1)	968 (62.4)	0.17 [#]
Inter/diploma	6 (6.4)	32 (34.0)	56 (59.6)	
Post-graduation	64 (15.5)	90 (21.8)	258 (62.6)	

[#], non-significant (P>0.05).

Table 4 Significant awareness comparison between medical and non-medical individuals of present study population

Subjects	Awareness, n (%)			P value
	High	Low	Medium	
Medical	204 (24.8)	90 (10.9)	528 (64.2)	<0.001*
Non-medical	122 (9.9)	360 (29.1)	754 (61.0)	

^{*}, statistical significance (P<0.05).

visiting a periodontist/dentist was 54.5% didn't had any dental problems, 23.9% reported the costly dental procedures affected the visits, 3.5% reported the painful dental procedures, 0.9% reported due to intake of medicines problem got subsided so didn't visit, 11.2% reported fear of dentistry and dental procedures and 6.1% had no interest for dental treatments.

Results were non-significant (P=0.20) regarding gender wise distribution to know the awareness regarding who a periodontist and what he does but numerically females (17.5%) have relatively higher awareness than males (13.9%) (Table 1). In the present study, comparing the levels of awareness among various age groups a significant (P<0.001) medium level of knowledge and awareness was reported. Higher level of awareness was reported for 21–30 years age group (19.9%) when compared to other age groups in high level column (Table 2).

When significant awareness comparisons were performed based on education level among study population, results were non-significant (P=0.17) and among high level awareness 16.5% were degree level educated, post graduates (PG) reported a 15.5% and inter/diploma people were about 6.4% but overall there was reported of greater medium level of awareness among study population (degree 62.4%, PG 62.6% and inter/diploma 59.6%) (Table 3).

When study population was divided into medical and non-medical individuals and compared for awareness, significant (P<0.001) higher level of awareness was recorded for medical individuals (24.8%) and non-medical individuals showed a percentage of 9.9. Medium level of awareness percentage was more in medical individuals than non-medical people. Further non-medical individuals has 29.1% lower awareness than medical individuals (10.9%) (Table 4).

Discussion

Tooth loss is a worldwide global burden, it is always necessary to take essential measures for controlling this with the use of newer treatment strategies both surgically and non-surgically (9). But for us to treat these disease conditions, patients should know regarding the disease which they were suffering from and to which type speciality of dentistry should they go. Medical practitioners lack sufficient knowledge regarding the oral and systemic health relations and if they identify any oral ailment they

refer to a dentist in general (10). In the present scenario, interdisciplinary practice among specialized dentists is also lacking in-toto. Hence present cross-sectional survey tried to evaluate the awareness regarding periodontics as separate speciality in dentistry. As much number of studies were not performed regarding this, present study compared the results with the existing literature.

Limitations of the present study were as follows. Present cross-sectional study had a good sample size, larger prospective field surveys were required for better outcomes, sample was also limited to a local area of Srikakulam. Type of answers delivered or depicted by the study population sometimes cannot be guaranteed and we tried to eliminate the flawed questionnaires to most extent. We had divided the sample into medical and non-medical individuals we couldn't sub-classify them according to the speciality of education they belong to. This might help in better clarity of results. Apart from these limitations, as it is a hospital based study and included patients who have visited the dental college and hospital might have plausibility that the participants were already aware of or had inquired about dental services before the commencement of the study which might be an additional limitation of the study.

In the present study, 38.8% (opted yes) individuals has experienced gum problems, 61.2% subjects reports no bleeding of gums (opted no) this data coincides with meta-analysis done by Janakiram *et al.* (11) [2020] and study done by Penmetsa *et al.* (12) [2018] where they concluded that 42.3% and 51.5% of their study populations reported gingivitis. Thus it can be attributed that most of the Indian population were being experienced with some or the other periodontal disease. While coming to knowledge regarding periodontal speciality present study population reported minimal high level awareness of 15.8%. This is in harmony with a study done by Bhatia *et al.* (13) [2013], where they reported a poor awareness of periodontal disease in North Indian population. The similarity in both these studies might be due to lack of interest of taking good oral health care, increased use of tobacco products that alters the periodontal health, changed food patterns and lack of proper education regarding oral and systemic health.

While reporting the gender wise comparisons, present study population reported non-significant ($P=0.20$) high level of awareness in females (17.5%) when compared to males, this is in accordance with Hemalatha *et al.* (14) [2020] and Gupta *et al.* (15) [2016], stating females has more awareness. This might be attributed to greater aesthetic concern in females led to their timely visit

to a dentist. Further in the present study Q3 and Q4 answers were controversial where 59.1% individuals has opted yes and 81.5% opted no with statistical significance ($P<0.001$) for who periodontal surgeon is and what they does. These variations might be due to irrelevant response of the study participant or genuinely they lack proper knowledge and awareness regarding who a periodontist is and what he does. Regarding age group variations, 21–30 years study population has about 20% of awareness in regards to periodontics as speciality. Similar results were reported by Penmetsa *et al.* (12) [2018] and contrast results were recorded with Hemalatha *et al.* (14) [2020], where 31–50 years individuals have higher awareness regarding the periodontal disease. This might be attributed to the change in educational environment, level of ads that were displayed socially and increased awareness of oral health camps to some extent. Further, 33.7% individuals never visited a dentist or periodontist and the reason was no dental problems (54.5%). This is in accordance with studies done by Shah (16) [2017] and Al-Hussaini *et al.* (17) [2003], where they recorded the percentage were 43%, 49% which indicates the lack of knowledge regarding the dental problems. Moreover periodontitis is a painless disease and this might be another reason for lack of attending a periodontist or dentist.

The level of education had showed an influence on data, high level of awareness was noted among university graduate (16.5% and 15.5%) was relatively lesser. This is in accordance with Hemalatha *et al.* (14) [2020], where they concluded that higher level of education helped in higher level of awareness; Dayakar *et al.* (18) [2016] and contrasted with Penmetsa *et al.* (12) [2018], where they concluded that lower economic status people with lower level of education had greater awareness regarding periodontal disease. These variations in the present study might be due to different population group, educated people's active participation in the study, and greater levels of camps and awareness programs that are being conducted at a greater pace to educate the oral health problems. It was also evident from present study results that Medical fraternity has better understanding of dental specialities, when compared with non-medicos. Results were in contrast with Nagrik *et al.* (3) [2019], where they concluded that university students have poor awareness regarding the periodontal diseases and lack of proper knowledge regarding the conventional periodontal treatment influence on periodontal and systemic health. This can be indirectly attributed that as people are lacking

awareness regarding the periodontal disease it is understood that they won't have adequate knowledge regarding the periodontics speciality, who a periodontist was and what he does. Present study results regarding medical fraternity was also in contrast with recent study done by Gummaluri *et al.* (7) [2023] and Parveen *et al.* (19) [2023], where they concluded that medical professionals didn't have adequate knowledge and awareness regarding relation between oral health and its relation to general health. This might be due to lack of educational camps and busy schedule of their clinical practice lack adequate knowledge, addiction to tobacco products was relatively higher in that area also caused such carelessness in their population. This was relatively lesser in the present study population.

Conclusions

Within limitations it can be concluded that there was a lack of higher level of awareness regarding periodontics as a separate speciality of dentistry, who a periodontist is and what he does. This indicates that general public of Srikakulam don't have awareness regarding the periodontics subject as well as periodontal surgeon. It is our responsibility to educate the people by keeping field awareness camps. The amount of awareness that is being created in the present scenario is still lacking and much improvement should be done.

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Footnote

Reporting Checklist: The authors have completed the STROBE reporting checklist. Available at <https://amj.amegroups.com/article/view/10.21037/amj-23-211/rc>

Data Sharing Statement: Available at <https://amj.amegroups.com/article/view/10.21037/amj-23-211/dss>

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Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://amj.amegroups.com/article/view/10.21037/amj-23-211/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by institutional ethics committee of Sree Sai Dental College and Hospital Srikakulam, Andhra Pradesh, India (No. SSDCRI/IEC/2023/8/S2) and informed consent was taken from all individual participants.

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