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Perception towards clinical exposure of public health dentistry postgraduate student in Indian dental colleges – A qualitative research

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***Abstract*---**Introduction- Public Health Dentistry (PHD) is a very vast branch and it majorly focuses on research, extension activity and field trips reaching out to the community creating oral health awareness. A PHD professional is trained in providing preventive treatments but might lack confidence in performing restorative or surgical or rehabilitative treatments. Hence this questionnaire study was planned to evaluate perception of PHD post graduate students towards clinical exposure. Material and Methods- A questionnaire survey was conducted among 2nd and 3rd -year PHD PG students all across India. A 13-item questionnaire was shared and validated by the selected Heads of PHD departments all across India. Results- It was seen that 63% of respondents planned to start their own private practice, 47% chose this department as they were interested in Public Health Dentistry and 27% chose this department just for the sake of MDS. Nearly 51% of respondents felt that there was insufficient clinical exposure provided. Discussion- PHD branch is generally considered non-clinical as the syllabus focuses majorly on preventive

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treatments, but if given the opportunity, a public health dentist can carry out numerous clinical procedures in an outreach setting, or a satellite center if provided with proper clinical exposure. This should be brought to the notice that PHD department is well equipped to provide necessary clinical exposure and the outreach settings must be utilized by the PG students to receive adequate exposure.

Keywords---*Public Health Dentistry, Public Health, Career choice, Dental Public Health.*

Introduction

Public Health Dentistry is a very vast branch that majorly focuses on the research, extension activity, and field trips reaching out to the community. In spite of the versatility, Naidu et al mentioned in a publication in 2014 that PHD is given less priority when it comes to an option to choose for MDS. [1] According to Prabhu MS et al. [2] Currently, in India, there are very less job opportunities in academics after post-graduation hence most of them seek other opportunities. [2]

The choice of a career is influenced mainly by advice from parents, relatives, friends, teachers, and counselors. (3) The choice of a career is a critical decision because it has an obvious impact on the individual's future life patterns. (4)

Public Health Dentistry (PHD) aims to improve the population's oral health through preventive and curative services. However, its achievements in India are being questioned probably because of a lack of proficiency and skill among DPH personnel towards clinical exposure. [5] Apart from PHD the dental council approves post-graduation in recognized specialties like oral medicine and radiology, oral and maxillofacial surgery, oral pathology, prosthodontics, orthodontics, preventive and community dentistry, pedodontics, periodontics, and conservative dentistry and endodontics.[6]

The dentist population ratio in India is 1:10,000 in urban areas and 1:20,000 in rural areas. Almost 69 percent of the Indian population lives in rural and remote areas, making them the most vulnerable because there is a scarcity of professional manpower to deal with dental issues.[7] This situation can be resolved by making amendments in the Indian Public Health Standard (IPHS) guidelines and recruiting public health dentists generating huge scope of recruitment for the aspirants. A public health dentist is a best-suited professional to be posted at these 5568 centers as they are trained to give preventive and comprehensive care. They are expected to be well-trained to provide preventive and curative care both indoors and out, as and when needed.[2]

According to the Dental Council of India, curriculum a Post Graduate (PG) student has to carry out comprehensive oral health care for 30 patients in all three years. This includes preventive care under which health education, pit & fissure sealant, ART, preventive resin restoration, and topical fluoride application is included. In the Practical / Clinical Examination, one of the treatment

procedures as per the treatment plan (Restorative, surgical, rehabilitation) is mandatory to be performed. [8]
Dental camps are held to raise public awareness of the dental disease and its prevention and treatment. Dental camps are useful for giving rural, underprivileged, and disadvantaged people access to dental care. Along with dental graduates, specialists (MDS in Public health dentistry) attend these programs, although referrals to dental schools are the sole services offered there rather than preventive care and treatment.[9]

It is really upsetting to learn that most academic dental institutes in India misidentify the specialty of public health dentistry. The majority of organizations view specialization as a kind of advertising and a way to draw more patients into their facilities. The situation must alter. To increase the confidence levels of post-graduate students in providing care for vulnerable and marginalized groups, dental schools in India should increase opportunities for students to provide care for patients with complicated oral health requirements in community-based settings.[10]

Considering the situation, it was a felt need to evaluate postgraduate student's exposure to the clinical expertise, with this in mind, a questionnaire study is planned to find out whether there is enough clinical exposure to PG students enrolled in 84 dental colleges offering PG in PHD across India). [2]

2. Material and Methods

Study Setting

A qualitative study was carried out where a questionnaire survey was conducted among 2nd and 3rd year PG students of PHD department from all over India, approximately 466 students from 84 colleges across India were approached between October to December 2021. Ethical clearance was granted by registered institutional ethics review board Ref No.- DYPDCH/EC/DPU/299/107/2021. The data was collected through an e-survey by sending the questionnaire to participants through google forms, shared on a digital application. The participants were sent 2 reminders to fill-up the form in order to get maximum response. The responses of the participants were recorded and presented in tabular form with numbers and percentages.

Sample size-

The minimum sample size for this study was calculated using WinPepi software © J.H. Abramson version 11.65. using prevalence from a previous publication and Considering, CI- 95%, Acceptable difference- 0.05, and assumed proportion of 0.12 (students joining a research institute) [11], The total enrolled students for post-graduation in PHD in the second and third year should be 466 and hence the minimum acquired sample was calculated to be 121.
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Inclusion and exclusion criteria

- Inclusion- 2nd and 3rd-year students pursuing Masters in Public Health Dentistry who are interested to participate.

- Exclusion- 1st-year students pursuing a master's in Public Health Dentistry were excluded because they have not yet started clinical postings and are attending the basic sciences lectures.

Face Validity- The 14- item Questionnaire was validated by 5 PHD staff members of Dr. D.Y. Patil Dental College and Hospital, Pune for face validity to check if the questions and their responses were relevant and professional looking. Few modifications mentioned were updated in the questionnaire.

Content Validity- The 14- item questionnaire was shared with 12 subject matter experts of the Public Health Dentistry department in various colleges across India to check if the questions were relevant and clear marking them as essential or non-essential. 4 questions were reframed and 4 responses were modified. The data was collected and the Content Validity Ratio (CVR) was calculated. CVR = n_e – (N/2) / N/2 [12]

The minimum CVR value for 12 Subject Matter Expert (SME) was 0.56. CVR ratio for all questions was higher than 0.56 and was considered essential by SMEs. Question no. 4,11,13 had to be reframed and modified as suggested by the SMEs. Reliability is the ability of a questionnaire to yield similar results when administered to the same person on 2 different occasions. This was done among 6 Public Health Dentistry PG students from a single college. The interval between the test- re-test was 15 days. The reliability of the questionnaire was checked using SPSS software. Cronbach's alpha value was 0.887, with Pearson's correlation coefficient of 0.831, p value= 0.042, indicating that the questionnaire is good and reliable.

3. Results and Discussion

(Table-1) The response rate in the current study was 28% (128/466) considering 466 PG students from 2nd and 3rd year in Public Health Dentistry Students across India. 69% (88/128) of the PGs were females and the rest were males.

Currently, in India, numerous dental colleges are either deemed or affiliated with state or central government offering public health dentistry as a specialization course. 63% of participants in the current study belonged to colleges affiliated with the state government, 34% of participants is deemed to be universities, and 3% of respondents were with the central government.

(Table-2) In the present study when participants were asked about their plans 63% of participants chose a private dental practice as their plan, 50% of participants showed their interest in working in the government sector, and 48% of participants wanted to join an academic institution, 43% participants wanted to make their career in the research field, 27% expressed to work with NGO's/NPO's.

(Table-2) In the present study, 47% of participants chose this department for MDS as they were interested in public health dentistry, 43% chose this department as there are job opportunities, 29% of participants were interested in academics, 20% of participants chose to shift abroad and 27% of participants chose this degree just for the sake of MDS.

(Table-3) In the present study, 97% (124/128) of participants showed an interest in clinical dentistry. All participants 100% (128) think that PHD PG students should carry out clinical procedures and nearly half of the participants i.e., 51% (65) think that there is sufficient exposure to clinical dentistry.

(Table-4) In the present study when participants were asked about the presence of armamentarium and staff guidance, the highest availability of instruments and materials was seen for Restorative treatment, 91.4%, and 88% respectively while proper staff guidance was seen with pit and fissure sealant application, 75%.

(Table-5) The students were asked if their mobile dental clinic was well equipped, and 47% of participants marked yes for the availability of dental chairs in working conditions, 31% accepted the availability of materials, and 43% marked yes for the presence of instruments.

In the present study, 69% of the PGs were females and the rest were males. This could be justified by the fact that currently there is a shift in enrollment of undergraduates, as more females are seen joining the course. [13]

When participants were asked about their future plans, 63% of participants have opted for private dental practice as their future plan, and 43% of participants wanted to make their career in the research field whereas, Singh G et.al.[5] reported that 19% of participants wanted academics and private clinical practice as their primary plan. In the current study, 50% of participants showed their interest in working in the government sector, and 48% of participants wanted to join an academic institution, these findings are not in accordance with Singh G. et.al [5] who reported 22% of the participants opting for teaching jobs and 12% of participants opting research institute as their career prospects. This difference in future prospects could be due to the slow but steady increase in job opportunities at the health centers recently constituting the major opening for Govt Jobs.

In a study conducted by Singh G et.al.[11], 86% of the participants were aware of all the prospects of public health dentistry. It can be concluded by the present study that more than half of post-graduates wanted to start a clinic even if they were interested in research or academics. This could be because of a lack of awareness of job opportunities available in the field of research. Another reason proposed in the literature [2,11] is the lack of academic job opportunities.

When asked about the reason to opt for Public Health Dentistry as a choice for a Master's degree, 47% of participants were passionate about the subject, whereas other studies reported less no. of students interested in the subject. In a study conducted by Singh G. et.al.[11] only 29% of participants chose the public health dentistry department as they were interested in the subject, according to Janakiram C. et al.[14], 37% of participants were passionate about public health

dentistry, and in a study conducted by G.M. Naidu et.al.[1], 35% of participants showed a high interest in choosing public health dentistry for MDS which included nearly half of the female students.

In the present study, only 29% of participants were interested in academics whereas in a study conducted by Singh G. et.al.[11] 48.2% were interested in academics.

In the present study, 43% of the students were found to opt for this specialty as they feel that there are ample job opportunities whereas, in a study conducted by Janakiram C. et al.[14], only 16% of participants chose PHD department considering job opportunities. Singh G. et.al.[11] reported that 27% of participants chose PHD department for job security.

It was also seen that in the present study, 20% of participants wanted to shift abroad whereas Singh G. et.al.[11] reported that 13% of participants chose to shift abroad. The post-graduation in PHD must be of help in the further education programs being considered by the students pertaining to epidemiology or basic research methodology.

In a study conducted by C. Janakiram et. al.[14], 10% of participants chose this specialty because of no other choice for MDS / less fee structure whereas in the present study 2% of the participants chose this specialty for other reasons.

In the study conducted by Singh G. et.al.[11], 79% of participants were planning to work for the community whereas, In the present study, 27% plus 2% of participants chose this degree just for the sake of MDS as they had no specific reason to choose this specialization.

So, it can be concluded that the majority of the students showed interest in public health dentistry subject and chose this subject as they planned to make their career in this field.

When PGs were asked about their interest in clinical dentistry, 97% of the participants gave a positive response, but only 51% of them felt that there was good enough clinical exposure in their respective departments.

When participants were asked about various treatment procedures carried out in their respective departments, the treatments were broadly classified under Preventive, Restorative, Surgical, and Rehabilitative procedures for the ease of tabulation. Under Preventive treatments, the highest availability of instruments (88%), materials (89%), and Staff Guidance (75%) was reported for Pit and Fissure Sealant treatment followed by preventive resin restorations, topical fluoride and scaling. Under Restorative treatments, the highest availability of instruments (91%), materials (88%), and Staff Guidance (69%) was reported for restorations followed by root canal therapy, pulpectomy and pulpotomy. Under Surgical treatments, the highest availability of instruments (77%), materials (73%), and staff guidance (58%) was seen with Extractions followed by surgical extractions, minor surgical procedures, and flap surgeries. Under rehabilitative treatments, the highest availability of instruments (33%), materials (27%), and staff guidance

(38%) was reported for fixed partial dentures, followed by complete dentures, removable dentures, and implants.

In the current study, when the respondents were asked if they had access to a functional mobile dental van, only 47% of participants stated that the dental chair in their respective van was in working condition.

Also, merely 31% of participants accepted the availability of the materials required for the smooth dental procedures to be carried out. According to Dental Council of India (DCI), it is mandatory for every dental institute to have a working mobile dental van to carry out treatment procedures. According to DCI, every mobile dental clinic must be well equipped with materials and instruments to carry out the necessary procedure [8]. When respondents were asked about the availability of instruments 43% of respondents felt sufficient availability of instruments to carry out treatment procedures in the mobile dental van.

According to PG students, 88% of students provide clinical treatments in satellite centers. Rest of the students who had a negative response for this question, must be not keen in clinical dentistry, or maybe the working conditions in their center are not up to the mark regarding the availability of instruments or materials where the PG student can work.

Public health dentists are trained in all aspects i.e., administrative, preventive measures, and research fields. According to the DCI, every PHD PG student must complete 10 comprehensive cases every year involving Restorative, Surgical, and Rehabilitative treatments. [8] The clinical exposure that is provided for the PG students should be such that they are confident of treating patients at satellite center and through mobile dental clinic.

Conclusion

Public Health Dentistry is a very vast field that mainly focuses on improving and promoting oral health within a community. This branch is generally considered non-clinical as it majorly involves research and outreach activities, which involve little/ only preventive treatments or no clinical exposure, but if given the opportunity, a public health dentist can carry out numerous clinical procedures in an outreach setting, or a satellite center. This exposure will definitely prepare the candidate to be well equipped towards the job opportunities at the health centers.

A change in the outlook is required to make a shift from age-old ventures to a new era of opportunities that require a more dynamic and overall well-versed post-graduate comprising of clinical and research exposure.

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Table- 1 Demographic details of the PG Students

Variable	Option	N	%
Age	23- 27	89	70
	28- 32	34	27
	33- 41	5	3
	Total	128	100
Gender	Males	88	31
	Females	40	69
	Total	128	100
College Affiliation	Colleges affiliated with Central Government	4	3
	Colleges affiliated with State Government	80	63
	Deemed University	44	34
	Total	128	100

Table- 2 Responses of Post Graduate students towards reason to join specialty and their future plans

Sr. No.	Options	Percentage	Number
• What are your future plans?			
1	Private dental practice	63	81
2	Research field	43	55
3	Government Sector	50	64
4	Non-profit organizations/ non-government organization	27	35
5	Academic position	48	61
6	Others	2	3
• Reason to opt for Public Health Dentistry as a choice for a Master's degree?			
1	For the sake of the MDS degree	27	34
2	Interested in the branch of public health dentistry	47	60
3	Job opportunities	43	55
4	Interest in academics	29	37
5	Shifting abroad	20	25
6	Others	2	2
	Respondents were given an option to select multiple answers*		

Table- 3 Responses of Post Graduate students toward interest in Clinical Dentistry

Questions	Responses	Number	Percentage
• Are you interested in Clinical Dentistry?	Yes	124	97%
• Do you think Public Health Dentists should treat patients?	Yes	128	100%
• Do you feel there is sufficient exposure to clinical dentistry in PHD?	Yes	65	51%

Table- 4 Responses toward availability of armamentarium for treatments

Treatment Procedures	Treatment Procedures	Instruments available %(N)	Materials available %(N)	Guidance by the Staff %(N)
PREVENTIVE	Pit & Fissure Sealants	87.5 (112)	89 (114)	75 (96)
	Preventive Resin Restorations	83.5 (107)	80.4 (103)	67 (86)
	Topical Fluoride	86.7 (111)	82.8 (106)	71.8 (92)
	Scaling	90.6 (116)	85 (109)	70.3 (90)
RES(74)TORATIVE	Restorations	91.4 (117)	87.5 (112)	68.7 (88)
	Root Canal Treatment	75 (96)	71 (91)	56.25 (72)
	Pulpotomy	27.3 (35)	27.3 (35)	27.3 (35)
	Pulpectomy	27.3 (35)	27.3 (35)	27.3 (35)
SURGICAL	Extraction	76.5 (98)	73.4 (94)	57.8 (74)
	Surgical Extraction	35 (45)	31.2 (40)	28.9 (37)
	Minor Surgical procedures	28.9 (37)	23.4 (30)	24.2 (31)
	Flap Surgery	14.8 (19)	11.7 (15)	14.8 (19)
	Fixed Partial Dentures	32.8 (42)	27.3 (35)	37.5 (41)
	Complete Dentures	24.2 (31)	22.6 (29)	23.4 (30)

REHABILITATIVE	Removable Partial Dentures	23.4 (30)	24.2 (31)	21 (27)
	Implants	12.5 (16)	12.5 (16)	17.9 (23)

Table 5- Response towards availability of instruments, materials and a well functional mobile dental van by the respondents.

Sr. No.	Responses	Yes % (N)
1	Dental Chair in Working Condition	47 (92)
2	Materials	31(75)
3	Instruments	43(86)