



DIFFICULTIES ENCOUNTERED BY DENTAL STUDENTS STUDYING PUBLIC HEALTH DENTISTRY: A CROSS-SECTIONAL STUDY

Ruchi Garg¹, Sahil Thakar², Nidhi Gupta³, Preety Gupta⁴, Surbhi Jindal⁵ and Vinesha Pandita⁶

Department of Public Health Dentistry, Swami Devi Dyal Hospital and Dental College, Barwala, Panchkula, Haryana (India), 134118

ARTICLE INFO

Article History:

Received 20th August, 2017

Received in revised form 13th September, 2017

Accepted 7th October, 2017

Published online 28th November, 2017

Key words:

Perception, oral health, community-based dental education, feedback

ABSTRACT

Background: Students are among the main participants in the dental education process since they are the direct beneficiaries of this process and fund it either directly or indirectly. Their assessment is one of the vital elements in educational process. The problems faced by them should be properly addressed and solved.

Aim: The present study aimed to address the difficulties encountered by dental students in studying Public Health Dentistry.

Methods and material: This descriptive cross-sectional study was done on dental students in different dental colleges of northern states of India. The knowledge of the students in the field of Public Health Dentistry (PHD) was gauged and their problems were logged using a closed-ended questionnaire. The data recorded was subjected to statistical analysis using chi-square test.

Results: Of the total 460 students, 90.4% and 88.7% knew about fluorides with its mechanism of action and pit and fissure sealants respectively but 73.7% and 84.6% respectively had not done it clinically on the patient. The results of this study revealed that though the dental students have satisfactory knowledge of this concerned discipline of dentistry, there is still a gap between their theoretical and clinical aspects.

Conclusion: The study identified the problems of dental students in their current curriculum in the subject of PHD. By making few changes in the present schedule, it can be made more interesting and thorough for the future aspirants.

Copyright © 2017 Ruchi Garg et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

With a worldwide movement of professionals to ensure quality in education, greater focus is emphasized upon seeking feedback and assessing stakeholders' satisfaction. Students are among the main participants in the dental education process since they are the direct beneficiaries of this process and fund it either directly or indirectly. A greater emphasis on student-centered education means that the perception of the student towards their educational environment is important.[1] Graduate health courses curriculum need to be constantly analyzed and evaluated in order to offer dental courses in accordance with current technical innovations in dentistry as well as the demands of community oral health.[2]

One of the goals of the professional institutions is to provide the best educational and environmental facilities that ensure that their students graduate with the highest professional standards. To achieve this, it is essential to observe and evaluate the students' discernments on a regular basis. This

would alert staff to problem areas, and help rectify them.[3] Dental educators are responsible for ensuring a positive academic experience for dental students[4] and need to be subtle and receptive to the concerns of dental students. It is the obligation of all dental institutions to certify that future dentists are being raised in a compassionate and challenging environment that promotes learning in a positive way.[5]

Public Health Dentistry (PHD) is that discipline in which students are uniquely trained to professionally address the oral health problems of general population. In spite of a good and standardized academic curriculum and a decent enough infrastructure, there is still a gap between the student's understanding and teacher's training. With the progress of time, these changes are obligatory in nature.[6]

To the best of our knowledge and after searching various sources (print and electronic) regarding problems faced by dental students in their curriculum, little or no studies were found to be carried out in this respect. Hence, the present study

was carried out with the aim to address the difficulties encountered by dental students in Public Health Dentistry so as to narrow the gap and to provide favorable environment for the upcoming dentists of this great Nation (India).

MATERIALS AND METHODS

This descriptive cross-sectional closed-ended questionnaire based study was done on dental students in different dental colleges of northern states of India from December 2016-April 2017. Ethical approval was obtained from Institutional Ethical Review Board before commencing the study and permission was sought from principals of respective dental colleges. The study participants included 460 dental students from BDS third year, final year and interns who were present on the day of the distribution of questionnaire and willing to be a part of the study. First and second year BDS students and post graduate students and those third and final year students and interns who were absent on the day of study were excluded from the study. An informed written consent was obtained from the participants.

A 28-item questionnaire (Appendix 1) adapted and modified from Saawarn *et al.*[6] was used to collect data in the present study.

Test-retest reliability was performed to test the reliability of the questionnaire; it was found to be good with Cronbach's alpha (α) as 0.80. Each student was given a questionnaire including the gender and professional year of study. The questionnaire was distributed to the third and final year students after their theory class and was taken back after 10 minutes. The same was given to the interns by approaching their respective departments. They were informed about the nature of the study and their confidentiality was assured. Their identification was not required and they were not obliged to fill the questionnaire. The questionnaire comprised of five sections. The first section included demographic details while the second and third section comprised of individual's approach towards Public Health Dentistry and understanding Public Health Dentistry as a department respectively. The fourth section was focused on understanding Public Health Dentistry as a subject. Finally, the fifth section was directed towards the efforts and measures that can be taken to create interest in the subject and motivate the students. The data recorded was analyzed using SPSS software version 19.0[7]. Chi-square test was applied with $p \leq 0.05$ considered as statistically significant.

RESULTS

A total of 460 dental students participated in this study. Out of which 115 were from BDS third year 146 from BDS final

Table 1 Questions focusing on individual's approach towards Public Health Dentistry

Questions	Answers	BDS III	BDS IV	Interns	Total	p-value		
		n=115	n=146	n=199	n=460	+	^	#
Q3. No. of hours per week?	2 hours	32(62.7%)	15(29.5%)	4(7.8%)	51(100%)	0.26	0.09	0.78
	4 hours	68(60.2%)	30(26.5%)	15(13.3%)	113(100%)	0.98	0.07	0.89
	6 hours	10(7.1%)	82(58.6%)	48(34.3%)	140(100%)	0.48	0.26	0.20
	≥ 8 hours	5(3.2%)	19(12.2%)	132(84.6%)	156(100%)	0.09	0.65	0.52
Q4. Do you attend lectures which discuss indices before recording them?	Yes	80(24.5%)	123(37.6%)	124(37.9%)	327(100%)	0.22	0.68	0.74
	No	35(26.3%)	23(17.3%)	75(56.4%)	133(100%)	0.58	0.51	0.21
Q5. Is it necessary to explain the indices before they are recorded?	Yes	94(26.9%)	126(36.1%)	129(37.0%)	349(100%)	0.69	0.04*	0.02*
	No	21(18.9%)	20(18.0%)	70(63.1%)	111(100%)	0.47	0.24	0.36
Q6. No. of indices recorded in one practical class	2	75(24.2%)	108(34.8%)	127(41.0%)	310(100%)	0.87	0.58	0.25
	4	32(23.5%)	34(25.0%)	70(51.5%)	136(100%)	0.12	0.29	0.34
	6	0	0	1(100%)	1(100%)	0.32	0.68	0.65
	More than 6	8(61.6%)	4(30.7%)	1(7.7%)	13(100%)	0.52	0.39	0.99
Q7. Do you ask your teacher to explain, in case of difficulties?	Yes	84(23.0%)	113(30.9%)	168(46.1%)	365(100%)	0.06	0.05*	0.03*
	No	31(32.6%)	33(34.7%)	31(32.7%)	95(100%)	0.91	0.82	0.64
Q8. Do you make record books for your classes?	Yes	81(23.1%)	125(35.7%)	145(41.2%)	351(100%)	0.35	0.81	0.33
	No	34(31.1%)	21(19.3%)	54(49.6%)	109(100%)	0.25	0.15	0.97

[+ = comparison between BDS III and BDS IV, ^ = comparison between BDS IV and Interns, # = comparison between BDS III and Interns. $p \leq 0.05$ considered statistically significant]

Table 2 Questions focusing on understanding Public Health Dentistry as a department

Questions	Answers	BDS III	BDS IV	Interns	Total	p-value		
		n=115	n=146	n=199	n=460	+	^	#
Q9. Are outreach programs beneficial for you to understand the subject of PHD?	Yes	103(25.8%)	133(33.1%)	165(41.1%)	401(100%)	0.83	0.54	0.14
	No	12(20.4%)	13(22.0%)	34(57.6%)	59(100%)	0.29	0.54	0.66
Q10. Do you know that there are satellite centers of the department of PHD?	Yes	35(33.7%)	20(19.2%)	49(47.1%)	104(100%)	0.041*	0.06	0.001*
	No	80(22.5%)	126(35.3%)	150(42.2%)	356(100%)	0.59	0.58	0.46
Q11. Did you ever explore PHD department?	Yes	47(21.7%)	70(32.3%)	100(46.1%)	217(100%)	0.22	0.51	0.63
	No	68(28.0%)	76(31.2%)	99(40.8%)	243(100%)	0.11	0.74	0.95
Q12. Have you ever visited any community/primary health center?	Yes	20(11.1%)	33(18.3%)	127(70.6%)	180(100%)	0.84	0.30	0.004*
	No	95(34.0%)	113(40.3%)	72(25.7%)	280(100%)	0.61	0.35	0.41

[+ = comparison between BDS III and BDS IV, ^ = comparison between BDS IV and Interns, # = comparison between BDS III and Interns. $p \leq 0.05$ considered statistically significant]

year and 199 were interns in the field of dentistry. Of the total 92 (20%) were males and 368 (80%) were females. [Fig 1]

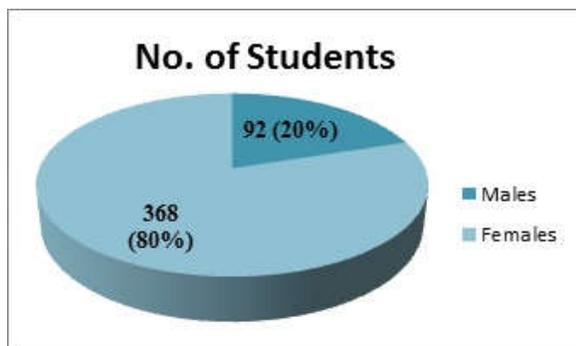


Fig 1 Distribution of study subjects according to gender

Table 1 addresses questions which focus on individual's approach towards Public Health Dentistry (PHD). The results of the present study showed that 62.7% of third year students spent two hours per week, 58.6% of final year students spent six hours per week whereas 84.6% of interns spent more than eight hours per week in the department of Public Health Dentistry during their clinical posting. A good percentage of third year students (26.9%) were of the view that indices should be explained before recording them. This difference was statistically significant when compared to final year students (p=0.04) and interns (p=0.02). Of the total, 365 (79.3%) students ask their teacher to explain in case of difficulties and the results were statistically significant.

Table 2 shows questions focusing on understanding Public Health Dentistry as a department. Most of the students (401;87%) agreed that outreach programs were beneficial for them to understand the subject of PHD (p=0.04). A total of 22.5% of BDS III students, 35.3% of BDS IV students and 42.2% of interns were unaware of the satellite centers of the department of PHD, with the difference being significant when third year students were compared to fourth year students (p=0.041) and interns (p=0.001). About 70.6% of the interns had visited any community/primary health center in contrast to third and final year students (p=0.03, p=0.004 respectively).

Of the total 460 students, 90.4% and 88.7% knew about fluorides with its mechanism of action and pit and fissure sealants respectively but 73.7% and 84.6% had never applied it on the tooth (p=0.03, p=0.05 respectively). It was observed that 68.1% interns could manage an outreach program patient for dental pain in contrast to third and final year students who couldn't as they were unable to make the patient understand the treatment protocol (26.5%). [Table 3].

A good proportion of fourth year students (108) and interns (109) agreed that more hours should be put in by the student to increase understanding of the subject. This difference was statistically significant when compared to third year dental students (p=0.042, p=0.04 respectively). A total of 76.7% of students were of the opinion that there should be more interactive sessions with the faculty (p=0.034). About 85.6% of participants felt that they could improve if further motivated and a majority of them agreed that motivation could be in the

Table 3 Questions focusing on understanding PHD as a subject

Questions	Answers	BDS III n=115	BDS IV n=146	Interns n=199	Total n=460(100%)	+	^	#
Q13. Do you know about fluorides and its mechanism of action?	Yes	111	137	168	416(90.4%)	0.94	0.05*	0.002*
	No	4	9	31	44(9.6%)	0.99	0.91	0.86
Q14. Have you ever done fluoride application?	Yes	13	30	78	121(26.3%)	0.70	0.68	0.09
	No	102	116	121	339(73.7%)	0.66	0.32	0.80
Q15. Do you know about pit and fissure sealants?	Yes	110	129	169	408(88.7%)	0.42	0.51	0.28
	No	5	17	30	52(11.3%)	0.68	0.73	0.32
Q16. Can you decide which tooth to be sealed or not?	Yes	47	63	105	215(46.7%)	0.77	0.49	0.08
	No	17	16	18	51(11.1%)	0.90	0.74	0.33
	Sometimes	51	67	76	194(42.2%)	0.17	0.46	0.73
Q17. Have you ever applied sealant on the tooth?	Yes	16	9	46	71(15.4%)	0.52	0.81	0.86
	No	99	137	153	389(84.6%)	0.40	0.37	0.11
Q18. Can you manage a patient who approaches you for dental pain in outreach programs?	Yes	80	95	138	313(68.1%)	0.66	0.06	0.04*
	No	35	51	61	147(31.9%)	0.78	0.80	0.16
Q19. What is the main difficulty you face?	Language	19	18	32	69(15.0%)	0.26	0.29	0.46
	Make the patient understand	27	28	67	122(26.5%)	0.38	0.64	0.73
	Unable to decide to treat or not	26	40	29	95(20.7%)	0.93	0.60	0.33
Q20. Does your queries answered properly by the faculty?	Other reason	43	60	71	174(37.8%)	0.55	0.42	0.19
	Yes	89	130	132	351(76.3%)	0.27	0.36	0.14
Q21. How often have you attended seminars/ continuing dental education programs related to PHD?	No	26	16	67	109(23.7%)	0.85	0.53	0.09
	Once a year	19	36	55	110(23.9%)	0.70	0.23	0.63
	Twice a year	11	1	25	37(8.1%)	0.86	0.93	0.76
	Once in 2 yrs	5	4	7	16(3.5%)	0.34	0.21	0.11
Q22. Is internet a good source for understanding PHD?	Never	80	105	112	297(64.5%)	0.67	0.62	0.31
	Yes	102	115	110	327(71.1%)	0.86	0.74	0.55
	No	13	31	89	133(28.9%)	0.55	0.36	0.18

[+ = comparison between BDS III and BDS IV, ^ = comparison between BDS IV and Interns, # = comparison between BDS III and Interns. p<0.05 considered statistically significant]

form of quiz (37.4%) and awards (37.8%), although the results were not significant. Almost equal number of students gave their view to pursue (27.8%) or not (34.3%) the subject of Public Health Dentistry as their MDS specialization, and the results were not significant [Table 4].

Most of the students in this study (327;70%) attended lectures which discuss indices as they were of the view that it is necessary to explain the indices before recording them. Most of the respondents (401;87.2%) support outreach programs to understand the subject of PHD, while there were many

Table 4 Efforts and measures to be taken

Questions	Answers	BDS III n=115	BDS IV n=146	Interns n=199	Total n=460(100%)	p-value		
						+	^	#
Q23. Do you feel that more revision practical/theory classes should be arranged than the usual?	Yes	91	111	83	285(61.9%)	0.23	0.58	0.47
	No	24	35	116	175(38.1%)	0.21	0.59	0.58
p = 0.48								
Q24. Do you feel that more hours should be put in by the student to increase understanding of the subject?	Yes	65	108	109	282(61.3%)	0.042*	0.85	0.04*
	No	50	38	90	178(38.7%)	0.12	0.35	0.64
p = 0.52								
Q25. Do you feel that there should be more interactive sessions with the faculty?	Yes	104	130	119	353(76.7%)	0.25	0.54	0.034*
	No	11	16	80	107(23.3%)	0.68	0.74	0.85
p = 0.031*								
Q26. Do you feel that you can improve if you are further motivated?	Yes	112	140	142	394(85.6%)	0.59	0.57	0.59
	No	3	6	57	66(14.4%)	0.87	0.14	0.48
p = 0.041*								
Q27. If yes, what kind of motivation?	Quiz	55	51	66	172(37.4%)	0.26	0.51	0.47
	Awards	38	61	75	174(37.8%)	0.32	0.25	0.19
	sponsorship	10	15	34	59(12.8%)	0.61	0.63	0.89
	Any other	12	19	24	55(12.0%)	0.78	0.94	0.46
Q28. If you understand the subject properly, would you like to pursue it after your BDS for the benefit of the general population?	Yes	47	33	48	128(27.8%)	0.53	0.08	0.20
	No	29	36	93	158(34.3%)	0.08	0.82	0.65
	Can't decide	39	77	58	174(37.9%)	0.64	0.38	0.93

[+ = comparison between BDS III and BDS IV, ^ = comparison between BDS IV and Interns, # = comparison between BDS III and Interns. p<0.05 considered statistically significant

DISCUSSION

Public Health Dentistry is that part of dentistry that provides leadership and expertise in population-based dentistry, oral health surveillance, policy development, community-based disease prevention and health promotion.

Learning environment means the culture of a class, school or an institution and its governing codes & characteristics, including how students perceive that environment, as well as the way in which the teachers may organize the educational curriculum to facilitate learning. The assets of a learning environment depend on factors like institution policies, governance structures and other features which are considered the important fundamentals of learning environment.[8] The accurate assessment of such an ambiguous factor and educational environment of an institute is difficult to measure on a scale. It is the summation of the individual student's perception of different factors affecting the study curriculum. Therefore an attempt to create and maintain a helpful environment for study, without compromising on quality of education is continuous and this can only be achieved through student's feedback and corrections in the curriculum done by the institutions.[9]

Investigating student's perception provides a valuable insight into the course environment, hence, the present study aimed to address the difficulties perceived by the dental students in the field of Public Health Dentistry in five dental colleges of north India.

In the present cross-sectional questionnaire study, of the total 460 dental students, 20% were males and 80% were females with response rate of 100%. This indicates female predominance in different dental colleges in India which may be attributed to the fascination of a noble profession with less chaotic work schedules and no night duties.[10]

(356;77.4%) who were neither aware of the satellites centers of the department of PHD nor have ever explored the department (243;52.8%). These include both the students and interns which shows lack of interest and enthusiasm in this subject. Of the total students, 60.8% (280) students have never visited any community/primary health center. This may be attributed to the fact that as per the dental curriculum laid down by the Dental Council of India, a student is only posted to a satellite center once he/she becomes an intern.

About 90.4% of the study participants knew about fluorides with its mechanism of action and pit and fissure sealants (88.7%) but had never done it clinically on a patient. This may be due to inadequate effort made by the student itself or the staff or it can be attributed to lack of proper curriculum which incorporates that both theory and practical classes go side by side. Majority of the students (76.3%) were satisfied with the teaching pattern of the faculty but 23.7% were unsatisfied as there queries were not answered properly. This shows communication gap between the teachers and the students. This is in agreement with the study done by Joshi M *et al* [11] where students complained of the use of PowerPoint presentations only used by the teachers and not explaining the text properly and teachers were of the view that students did not come prepared for discussions or practical classes and were hesitant to ask questions/give answers thereby class communication thus tended to become one-way. About 65% of the students have never attended seminars/continuing dental education (CDE) programs related to PHD which may be due to failure of the dental institutions to organize such CDE programs within the campus from time to time or failure of the staff to motivate students to attend such programs.

Regarding the efforts and measures to be taken by the administration or the faculty to access the difficulties encountered by the dental students, 61.9% students felt that more revision theory/practical classes should be arranged than the usual, 61.3% students agreed to put in more hours by the

student to increase understanding of the subject whereas 76.7% were of the view to have more interactive sessions with the faculty. A total of 85.6% of the students felt that they can improve if they are further motivated by means of quiz, awards or other incentives. This is in accordance with Saeed S *et al*[12] where rewarding students for positive contributions and achievements builds self-esteem and confidence. There is a mixed opinion of the students in relation to pursuing the subject of Public Health Dentistry after completing their BDS course as almost equal number of students desire to pursue this subject or not or even can't decide at this moment. This is due to the fact the students were not fully satisfied with the teaching pattern, were not sufficiently motivated or interest had been created in this overwhelming field of dentistry.

Recommendations

Based on the reports of this study, a few recommendations can be suggested in the dental education system. The curriculum can be based on the SPICES (student-centred, problem-based, integrated, community-based, electives and systematic) model rather than the traditional classroom-based teaching.[13] This will create interest in the dental students so they can relate the theoretical aspects with their practical experience.

The application of pit and fissure sealants and topical fluorides should be incorporated in the study curriculum of third and final year students after they have started their clinical classes. It is advised to the respected governing authorities to include visit of the third and final year dental students to the satellite centers of the department of PHD.

CONCLUSION

The study identified the problems of dental students in their current curriculum in the subject of PHD. By making few changes in the present schedule, it can be made more interesting and thorough for the future aspirants. The specialty needs to be anticipated well among dental students increasing their interest in the discipline as lucrative career option.

Conflicts of interest

The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or non-financial in this article.

Acknowledgements

I am using this opportunity to express my gratitude to all the study participants who supported me throughout the study

References

1. Al-Ansari AA, El Tantawi MMA. Predicting academic performance of dental students using perception of educational environment. *J Dent Educ* 2015;79(3):337-44.
2. Bulgarelli AF, Souza KR, Roperto RC. Students' perceptions regarding dental courses: An integrative literature review. *J Educ Ethics Dent* 2012; 2:74-9.
3. Ahmad MS, Ahmed B, Fadel HT, Mohammad SM. Comparing dental students' perceptions of their educational environment in Northwestern Saudi Arabia. *Saudi Med J*. 2015; 36(4):47783.
4. Cohen J, McCabe L, Michelli NM, Pickeral T. School climate: research, policy, practice, and teacher education. *Teach Coll Record* 2009; 111:180-213.
5. Genn JM. Curriculum, environment, climate quality, and change in medical education: a unifying perspective. *Med Teach* 2001; 23(5):445-54.
6. Saawarn S, Gupta A, Jain M, Saawarn N, Ashok S, Ashok KP *et al*. Assessing difficulties encountered by dental students studying Oral Pathology and addressing their concerns. *J ClinDiag Res* 2016; 10(11):55-9.
7. IBM Corp. Released 2010. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp.
8. Marambe KN. Redesigning the medical school learning environment to meet 21st century skills. *South East Asian Journal of Medical Education* 2015;9(2):1-2.
9. Pande N, Radke U, Chahande J. Analysis of dental students' perceptions about educational environment in prosthodontics. *J Edu Tech Health Sci* 2016;3(2):74-7.
10. Chandrashekar J, Jayachandra M, Mathew S. Reasons for choosing dentistry as a career among Indian women. Available on https://iadr.confex.com/iadr/sea08/techprogram/abstract_113274.htm. [assessed on July 10,2017]
11. Joshi M, Joshi N, Patankar S, Pandve H. Qualitative assessment of student-teacher communication using focus group discussion in a Dental College in India. *J Indian Assoc Public Health Dent* 2016;14:23-8.
12. Saeed S, Zyngier D. How Motivation Influences Student Engagement: A Qualitative Case Study. *Journal of Education and Learning* 2012;1(2):252-268.
13. Doshi D, Reddy BS, Karunakar P, Deshpande K. Evaluating Student's Perceptions of the Learning Environment in an Indian Dental School. *J ClinDiag Res* 2014;8(11):39-42.
