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Perceived Competency towards Dental Practice among Interns of Various Dental Colleges in Delhi NCR

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Material and Methods: A cross sectional questionnaire study was conducted Self- perceived competency of interns was assessed using a valid self-administered questionnaire with 10 parameters and 76 closed ended questions.

Statistical Analysis: Data collected was analyzed and frequency tables were computed using statistical software packages SPSS software windows (version 22.0).

Results and Conclusion: Majority of interns felt they were not skilled enough in performing procedures which are the basic requisites in running a dental operator. Hence it was concluded that there exists a need to change the current curriculum and promote competency based education for it is these aspiring dentists who will decide the future of oral health in our country.

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1. INTRODUCTION

Dentistry in India is being practiced since the era of the Indus Valley civilization. Ancient medical literature described treatments of diseases of oral cavity and emphasized the importance of tongue hygiene. The first dental college and hospital in India was opened in 1883.

Until 1966, all the dental colleges in India were either run by the government or aided by the government.¹ Since dental disease is a serious public health problem with equal distribution and affecting all age groups, the demand of providing oral health care to all had to be met. Therefore dental colleges in private sector were established. India has approximately 290 dental colleges with around 25,000 graduates passing each year and dental manpower has greatly increased. Decrease in the number of schools for hygienists and laboratory technicians from forty (20+20) in 1990s to

twenty (10+10) in 2000 with the result that there has been no increase in the efficiency of overburdened dentists.² But even with such a large work force, most of the people in India do not have access to basic oral health care.

The dentist to population ratio is 1:10,000 in urban areas whereas it drastically falls to 1:150,000 in rural areas. This unequal distribution of dentists contributes to emergence of oro-dental diseases in India. Recent estimates state that about 50% of school children are suffering from dental caries and 90% of adults are having periodontal disease. Oral cancer is also emerging as a major threat among young generation due to increased usage of tobacco products.³

Although dental care is a part of primary health care in India, dental care services are available in very few states at the primary health care level. In regions where adequate dental manpower is available yet the utilization of oral health care services is low thereby widening the oral health care differences across the social economic classes. Various factors like demographic, behavioral, socio-economic, cultural and epidemiological contribute to people's decision to either forgo care or seek professional assistance for dental problems.⁴

To bring down the burden of oral diseases, various health education programs and preventive programs were organized by the government authorities, private colleges and organizations but the major responsibility lies in the hands of aspiring dentists. Previously dental education was fabricated in such a way that a dental graduate would only learn prescribed subject matter as per the traditional curriculum in order to retain knowledge. This traditional approach was very restricted and bounded. The current trend is toward competency and evidence based education. While literature continues to emphasize on competencies when discussing dental education, ambiguity remains. An education based upon competency offers several advantages which incur a positive attitude in the aspiring dentists to independently work in a clinical set up.⁵

Change is the only constant and also the need of the hour. Hence this study was carried out to estimate

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the self- perceived competency towards dental practice among interns of various dental colleges in Delhi NCR.

II. MATERIALS AND METHODS

In the present study 5 dental colleges from Delhi NCR were chosen at random. Interns of these dental colleges in the academic year 2013-14 constituted the study population. Interns who were willing to take part in this study and those who were on the verge of completion of their internship(last one month of internship) were included as they were equally exposed to all the branches of dentistry by this time period and those who had previously taken part in any such study were excluded.

A cross sectional questionnaire study was conducted in the Department of Pedodontics and Preventive Dentistry I.T.S C.D.S.R Muradnagar Ghaziabad. Prior to start of the study an approval from the concerned dental authorities and ethical committee was obtained. The sample size was determined using the statistical formula $E = z\sqrt{p(1 - \hat{p})/n}$ with 95% level of confidence and 5% precision. Self- perceived competency of interns was assessed using a valid self-administered questionnaire with 10 parameters and 76 closed ended questions.

The various aspects included were 'General Patient Management', Periodontology and Dental Public Health', 'Conservative Dentistry', 'Oral Rehabilitation', 'Orthodontics', 'Pedodontics', 'Oral and Maxillofacial Surgery', 'Oral Medicine and Radiology', 'Oral Pathology' and 'Drug and Emergency Management'.

After informing the interns about the intent and purpose of this study the questionnaires were distributed.500 questionnaires were distributed, out of which 300 were returned completely filled and the data collected was analyzed and frequency tables were computed using statistical software packages SPSS software windows (version 22.0)

III. DATA ANALYSIS

A total of 500 questionnaires were distributed among the interns of five dental colleges of Delhi NCR. Of which 300 questionnaires were returned and free from errors and considered for further analysis. The data collected was analyzed and frequency tables were computed using statistical software packages SPSS software windows (version 22.0).

On frequency distribution it was seen that 100% of the interns felt that they were very well prepared to develop sequential plan for the patient and in interpreting tests and history to make diagnosis (Table 1). The same percentage perceived to be very well prepared in performing scaling and root planning (Table 2), restoring teeth with amalgam (Table 3), replacing teeth with partial and complete dentures (Table 4), in differentiating between primary and permanent teeth and in motivating the child and his parents in maintaining good oral health.(Table 6)

However, 300 interns felt that they were poorly prepared in performing multi-root RCTs and in restoring teeth with metal, PFM and all ceramic crowns and also in performing bleaching and restoring teeth with post and core (Table 3). The same percentage perceived to be very poorly prepared in replacing teeth with fixed partial dentures, implants, conventional bridges and resin bonded bridges (Table 4). They also perceived to be very poorly prepared in performing minor tooth alignment, in performing pulp therapy in primary teeth, treatment of traumatic injuries, bleaching, apexification, apexogenesis, diagnosing speech problems, giving stainless steel crowns, space maintainers and regainers and in managing mentally or physically disabled patients, in performing Incision and Drainage and managing fractures of dento-facial complex, in performing soft tissue biopsies and in managing medical emergencies (as shown in Tables 5,6,7,8,9 and 10).

Table 1 : Preparedness of interns in recording General Patient Management

	Very poorly		Poorly		Well		Very well	
GENERAL PATIENT MANAGEMENT	n	%	n	%	n	%	n	%
Take and interpret medical, social and dental history	0	0	0	0	26	8.7	274	91.3
Communicate effectively with patients	0	0	0	0	30	10	270	90
Discuss treatment plans and get informed consent	0	0	0	0	61	20.3	239	79.7
Discuss fees and payment options with patients	0	0	13	4.3	287	95.7	0	0
Develop a sequential treatment plan	0	0	0	0	0	0	300	100
Interpret tests and history to make a diagnosis	0	0	0	0	0	0	300	100
Identify and address patient's chief complaints	0	0	0	0	184	61.3	116	38.7

Table 2 : Preparedness of interns in the Department of Periodontology and Dental Public Health

PERIODONTOLOGY AND DENTAL PUBLIC HEALTH	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Treat early periodontal treatment	0	0	0	0	130	43.3	170	56.7
Perform deep scaling, root planing	0	0	0	0	0	0	300	100
Perform periodontal surgery	300	100	0	0	0	0	0	0
Perform oral hygiene instructions and diet analysis	0	0	0	0	21	7	279	93
Provide and monitor preventive treatment	0	0	0	0	96	32	204	68

Table 3 : Preparedness of interns in the Department of Conservative Dentistry

CONSERVATIVE DENTISTRY	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Restore teeth with amalgam restorations	0	0	0	0	0	0	0	0
Restore teeth with composite resin	0	0	45	15	255	85	0	0
Perform root surface restorations	300	100	0	0	0	0	0	0
Perform single root RCT	0	0	0	0	290	96.7	10	3.3
Perform multi-root RCT	300	100	0	0	0	0	0	0
Restore teeth with crowns								
(i) Metal crowns	300	100	0	0	0	0	0	0
(ii) Porcelain fused to metal	300	100	0	0	0	0	0	0
(iii) All ceramic	300	100	0	0	0	0	0	0
Bleaching	300	100	0	0	0	0	0	0
Restore teeth with post and core	300	100	0	0	0	0	0	0

Table 4 : Preparedness of interns in the Department of Oral Rehabilitation

ORAL REHABILITATION	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Replace teeth with partial dentures	0	0	0	0	0	0	300	100
Replace teeth with cast partial denture	0	0	252	84	48	16	0	0
Fixed Partial denture	300	100	0	0	0	0	0	0
Replace teeth with complete dentures	0	0	0	0	0	0	300	100
Replace teeth with implants	300	100	0	0	0	0	0	0
Replace teeth with conventional bridges	300	100	0	0	0	0	0	0
Replace teeth with resin bonded bridges	300	100	0	0	0	0	0	0

Table 5 : Preparedness of interns in the Department of Orthodontics

ORTHODONTICS	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Perform orthodontic treatment planning	0	0	232	77.3	68	22.7	0	0
Perform minor tooth alignment with removable appliances	0	0	247	82.3	53	17.7	0	0
Perform minor tooth alignment with fixed appliances	300	100	0	0	0	0	0	0
Perform full arch alignment	300	100	0	0	0	0	0	0

Table 6 : Preparedness of interns in the Department of Pedodontics

PEDODONTICS	Very poorly		Poorly		Well		Very Well	
Differentiate b/w primary and permanent teeth	0	0	0	0	0	0	300	100
Infant Oral Health Care	242	80.7	58	19.3	0	0	0	0
Pit and Fissure Sealant	242	80.7	58	19.3	0	0	0	0
Topical Fluoride Application	242	80.7	58	19.3	0	0	0	0
Perform Behavior Management	0	0	0	0	249	83	51	17
Motivate child to maintain good oral hygiene	0	0	0	0	0	0	300	100
Motivate parents/ guardian	0	0	0	0	0	0	300	100
Perform restorative procedures	0	0	0	0	57	19	243	81
Detection and correction of habits	0	0	252	84	48	16	0	0
Pulp therapy in primary teeth	300	100	0	0	0	0	0	0
Treatment of traumatic injuries	300	100	0	0	0	0	0	0
Bleaching	300	100	0	0	0	0	0	0
Apexification	300	100	0	0	0	0	0	0
Apexogenesis	300	100	0	0	0	0	0	0
Diagnose speech problems	300	100	0	0	0	0	0	0
Give stainless steel crowns	300	100	0	0	0	0	0	0
Perform space maintenance/ or regaining	300	100	0	0	0	0	0	0
Manage mentally or physically disabled patients	300	100	0	0	0	0	0	0
Recognize, report and follow up neglect and abuse cases.	193	64.3	107	35.7	0	0	0	0

Table 7 : Preparedness of interns in the Department of Oral and Maxillofacial Surgery

ORAL AND MAXILLOFACIAL SURGERY	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Manage acute pain/ infection	0	0	206	68.7	94	31.3	0	0
Manage Dento-alveolar abscess	281	93.7	19	6.3	0	0	0	0
Incision and Drainage	300	100	0	0	0	0	0	0
Administer local anesthesia	0	0	0	0	4	1.3	296	98.7
Perform simple extraction	0	0	0	0	4	1.3	296	98.7
Extract impacted third molars	273	91	27	9	0	0	0	0
Manage complications of oral surgery	0	0	157	52.3	143	47.7	0	0
Manage fractures of dento-facial surgery	300	100	0	0	0	0	0	0

Table 8 : Preparedness of interns in the Department of Oral Medicine and Radiology

ORAL MEDICINE AND RADIOLOGY	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Record proper case history	0	0	0	0	0	0	300	100
Generate awareness amongst patients	0	0	0	0	198	66	102	34
Shoot and Develop Radiographs	0	0	0	0	8	2.7	292	97.3
(i) IOPA								
(ii) RVG	300	100	0	0	0	0	0	0
(iii) Extra-Oral	300	100	0	0	0	0	0	0
(iv) Cephalometric	300	100	0	0	0	0	0	0
(v) Lateral View	300	100	0	0	0	0	0	0
Manage chronic oro-facial pain	92	30.7	208	69.3	0	0	0	0

Table 9 : Preparedness of interns in the Department of Oral Pathology

ORAL PATHOLOGY	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Identify and manage oral pathology	262	87.3	38	12.7	0	0	0	0
Perform soft tissue biopsies	300	100	0	0	0	0	0	0

Table 10 : Preparedness of interns in the Department of Drug and Emergency Management

DRUG AND EMERGENCY MANAGEMENT	Very poorly		Poorly		Well		Very Well	
	n	%	n	%	n	%	n	%
Prescribe Drugs	0	0	243	81	57	19	0	0
Prevent and manage local anesthesia complications	0	0	241	80.3	59	19	0	0
Manage medical emergencies	300	100	0	0	0	0	0	0
Prevent and manage dental emergencies	0	0	197	65.7	103	34.3	0	0

IV. DISCUSSION

The education system so far has promoted teaching students in an incremental pattern of prescribed subject matter i.e. conventional curriculum with the aim of instilling and retaining knowledge. It is "competence" and "accomplishment" which mark what the students are expected to or have learned in the course of their professional training programme.

Starting up one's own dental practice or running one's own operatory being the most common dream of every dental graduate, makes it necessary to assess the process and confirm that learning has actually been achieved.

Present study was conducted with the intent to assess the competency of interns of five different colleges of Delhi NCR towards dental practice.

From this study we saw majority of the interns felt well prepared in most aspects of general patient management, taking and interpreting medical, social and dental histories, communicating effectively with the patients, identifying and addressing patients' chief complaints and formulate a sequential treatment plan which was in accordance with a study conducted by McGrath et al (Hong Kong Dental Journal 2005;2;84-91) (6)]. [TABLE 1]

56.7% of Interns felt very well prepared in treatment of early stages of periodontal disease and 100% of them were well prepared in performing deep scaling and root planing procedures. Diet analysis and oral hygiene instructions are basic dental procedures taught in early dental training. It is essential that the interns are well trained in health promotion procedures. 93% of the interns felt very well prepared in performing dietary analysis and in giving oral hygiene instructions. [TABLE 2]

However, 100% of the interns felt poorly prepared in carrying out pericoronitis and curettage. They also felt they were inadequately trained in extraction of impacted third molars and couldn't perform procedures like minor tooth alignment using fixed appliances, full mouth alignment, Fixed partial dentures, in giving crowns, replacing teeth with implants, multi root RCT, post and core, pulp therapy in child patient, bleaching, Incision and Drainage which was in

accordance with Greenwood study (Journal of Dental Education 1998;62;307-13). [TABLE 2,3,4,5,6,7]

Practically all interns i.e. 93% felt they were well prepared in performing simple extractions or administering local anesthesia. Interns felt well prepared in restorative procedures like amalgam and composite restorations, single root endodontics as these are the most common procedures in dental practice, as proved in study conducted by McGrath et al Hong Kong (6)]. [TABLE 7,3]

In performing procedures like multi-rooted teeth endodontic treatment 100% of the interns felt they were poorly prepared as poor access and variation in root morphology causes practical difficulties for the dental students. The interns also felt they were incompetent when it came to replacement of teeth with conventional bridges and with the increased demand for conventional bridges and implants to replace missing teeth, the dental curriculum should be modified to solve this issue results correlated with the study done by Greenwood et al (European Journal of Dental Education, 1999;3:153-8)4 .Dental graduates were confident in creating awareness amongst children and their parents in order to maintain a good oral hygiene but poorly prepared in performing most of the procedures in a child patient besides oral prophylaxis and restorations.

They also felt poorly prepared in managing mentally or physically disabled child or recognizing and reporting neglect and child abuse. [TABLE 3, 4, 6]

100% of the interns perceived they could not manage medical emergencies and 81% of them felt that they could poorly prescribe drugs. This is an issue of concern as a risk of medical emergencies accompanies every dental procedure and it is of utmost importance that the dental graduates feel prepared for dealing with such events. [TABLE 10]

A "competent" graduate is the one who is capable of functioning independently in realistic practice settings. Combination of attributes of appropriate knowledge and professional attitudes with reliable performance undertaken in natural settings without assistance is what makes a graduate competent(7), which lacks in them at present.

A continuous assessment rather than end course examination would aid in improving the plight of these graduates as this kind of assessment is

comprehensive and covers broad outcomes rather than a few narrow areas of knowledge which lie within a prescribed educational zone.(7)

This study revealed that in all the clinical departments, dental graduates were trained only to perform conventional procedures such as amalgam restorations, simple extractions, administering local anesthesia, fabricating complete dentures and partial dentures.

Performing procedures which are pre-requisites for running a good dental practice such as multi-root RCT, fabrication of fixed partial denture, post and core, bleaching, resin bonded bridges, stainless steel crowns, pit and fissure sealants, topical fluoride application, the dental graduates appeared to be completely incompetent.

With the current trends shifting towards more advanced techniques and procedures like implants, lasers, esthetic dentistry there is a need to increase the clinical exposure. Inspite of the fact that DCI curriculum (revised in 2007 dciindia.org.in)(8) comprises the list of all the exercises that would enable a dental graduate to practice independently, the exposure to perform these procedures needs to be worked upon.

Replacing "requirements" with "minimal expected procedures" or "thresholds" will instill a great deal of confidence in the dental graduates to work independently and efficiently. (7)

V. CONCLUSION

To conclude, the interns felt well prepared towards dental practice; however, there exists a lacuna in certain areas of practical training the interns towards dental practice. and this lacunae has to be fulfilled.

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