

Growing Importance & Scope of Dental Education in India: An Overview

Abstract

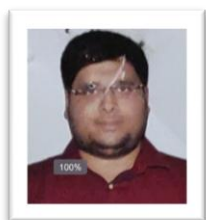
A considerable population of children in the developing nations is being affected by tooth decay and most of the time their proper treatment is given the last priority owing to limited access to oral health services. The lack of availability and affordability of oral health services not only results in aggravation of the disease but also enhances the cost of treatment and care. There is no single country that claims to have caries free children. Adverse experience during childhood may lead dental phobia, impacting on attitudes to oral health and self care as well as availing oral health care services for life. Poor oral health in childhood often continues into adulthood, effecting economic productivity and quality of life. In many countries, a large number of children and parents have limited knowledge of the causes and prevention of the most common oral diseases. Similarly, the schoolteacher's oral health knowledge has also not been satisfactory. It is evident that cultural beliefs and social taboos play an important role in the perception of the causes of dental decay and gum diseases. In India, a very less percentage of mothers have received proper advice on oral care of the children from dentists or health care workers. In many countries, the number of children brushing their teeth is very unsatisfactory including India. A small proportion of children do not clean their teeth at all, some may not have access to a toothbrush and many are using the traditional cleaning aids like datun, salt and oil, coal ash and locally made powders etc. This high prevalence of dental caries has also caused increase in the absenteeism of school hours and loss of working hours and economy for the parents. Apart from this, the treatment of dental caries is not available to all due to lack of facilities in their areas. This has further caused an increase in tooth loss before time, resulting in malocclusion and other problems. The availability, affordability and quality of Fluoride tooth paste remains a major problem in many developing countries. Only a small proportion of population is using fluoridated toothpaste and moreover because of high concentration of fluoride in drinking water in certain parts of India, also has a prohibiting effect as use of fluoride toothpaste. The high prevalence of Dental Caries has been brought under control in many developed countries during the last three decades.

The paper which is a theoretical study based on the 10 specific research questions and on the secondary data made available through various search engines, surveys the various important variables associated with the dental education and its growing importance in India.

Keywords: Dental Public Health, Dental Tourism, Mobile Dentistry, Primary Care, Research, Dental Education, India, Equity, Private Sector, Access, Dental Curriculum, Dental Education, Dental Faculty, Dental Students, Indian Dental Education, Effectiveness, Oral Health Education, Oral Health Promotion

Introduction

Dental education refers to dentistry, the science concerned with the prevention, diagnosis and treatment of the diseases of teeth, gums, and related structure of the mouth including the repair and replacement of defective teeth. The dental education in India, despite its tremendous growth since the beginning, has some significant issues regarding the quality of dental education mostly in some private dental colleges. Ever since the human civilization dentistry in various undeveloped and underdeveloped forms has been there as tooth decay has always been with with the people of different age groups ranging from the children to the old. Toothache is too painful and unbearable, therefore, the dentists have served the sufferers with the best cure they could. At the beginning, there was not much craze for the dental education, as most of the students desirous of careers in medicines, would go for MBBS or Ayurveda or



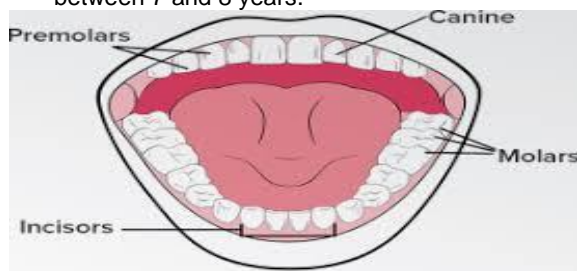
Utkarsh Gupta

Research Scholar,
Faculty of Dental Science
Education,
Banaras Hindu University,
Varanasi

Homeopathy. They would be least interested in the dental education. Another reason was that there were very few dental colleges in India. However, with the passages of time and with the advancement in educational forms, dental education grew popular with the students, and the current status of dental education in India is so enthusiastic. Of the various parts and organs of the human body, teeth are probably the most important and sensitive ones, as they help the person chew and eat food, and thus, to satisfy his utmost basic need of eating food. There are four types of human teeth, i.e., incisors, canines, premolars and molars.

Points of Awareness about Teeth and Their Functions

1. There are 20 primary teeth
2. Lower incisors are usually the first teeth to erupt at about 6 months. All 20 primary teeth are usually in the mouth by about 2 years
3. There are 32 permanent teeth including 4 wisdom teeth
4. The first permanent teeth to erupt (usually at about 6 years) are the 4 first permanent molars behind the last primary teeth. Incisors erupt between 7 and 8 years.



4 different types of teeth



Each of the four types of teeth, namely, canines, incisors, premolars and molars has some specific function to perform in order to help man chew and eat food. All of them combinely help him eat and drink properly. They require much care on the part of man because a little negligence can cause toothache or some serious problem like cavity or even cancer.

Canines

The **canines** are situated at the 'corners' of the dental arches. They have a sharp, pointed biting surface. Their function is to grip and tear food. There are four canine teeth in both primary and permanent dentitions.



Incisors

The **incisors** at the front of the mouth have a sharp biting surface and are used for cutting or shearing food into small chewable pieces. There are eight incisors in both primary and permanent dentitions.



Premolars

The premolars, unlike the incisors and canines, have a flat biting surface. Their **function** is to tear and crush food. They are unique to the permanent dentition which has eight **premolars**. The molars are the largest of the teeth.



Molars

The **molars** are the largest of the teeth. They have a large flat biting surface. The function of the molars is to chew, crush and grind food. There are eight molars in the primary dentition and twelve in the permanent dentition.

**Objectives of the Study**

1. To be familiar with the various parts of body, and the importance of teeth as parts of body
2. To develop an idea about the structure of the various types of teeth in human body
3. To study the growing importance of dental education in India
4. To find out the causes of the growing importance of dental education in India
5. To brood over the importance of dental education in public and private sector
6. To have an overview of the dental colleges
7. To assess quantitatively the size of the Indian dental education sector, its growth over time, and the implications of this growth for equity and quality in oral health care.
8. To investigate factors that lead to the choice of dentistry as an occupation among the students in India.
9. To highlight some important influential factors in the choice of dentistry as a professional career.
10. To study motives and career choices of dental students
11. To highlight future career intentions of dental students that could contribute to more efficient planning of the dental workforce.
12. To find the answer of research questions to understand barriers in oral health

Review of Literature

Ajay S. Mahal, Ph.D. & Naseem Shah, M.D.S., M.N.A.M.S.¹ discuss that by influencing the supply of trained human resources, the dental education sector can play a significant role in influencing policy goals of ensuring good quality and equitable access to oral health services in developing countries. The private sector in undergraduate dental education in India has grown significantly over the years in terms of numbers of institutions and currently accounts for 90 percent of undergraduate enrollment capacity. It also accounts for 69 percent of all postgraduate dental education enrollment capacity, starting from negligible levels in the 1960s. The growth of private schools has also been a major factor in influencing the geographic distribution of dental education in India. Charu Madan, Estie Kruger & Marc Tennant² find out that India is on a near exponential upward growth while Australia through the latter half of the last decade has been more stable in output. State-wise breakdown in both countries shows that the proportions are more consistent for Australia, but for India, a major number of publications can be

traced to three states. It is expected that dental research in Australia will grow in the coming decade as the new dental schools embed their educational programs and mature to develop strong research profiles. However, India is becoming a significant force in the published peer review dental research literature, and is growing at a very rapid rate. Dagli N & Dagli R.³ observe that the problem of dental education starts with the admission. Most of the dental students opt for dentistry as a second choice because they do not get through MBBS course through common entrance test for MBBS, BDS, and other paramedical branches. Thus, most if not all, BDS admissions are not by choice and this leads to lack of interest in the dental practice. Nandita Rani Kothia, Vikram Simha Bommireddy, Talluri Devaki, Narayana Rao Vinnakota, Srinivas Ravoori, Suresh Sanikommu & Srinivas Pachava⁴ observe that it is time that the responsibility of oral healthcare of citizens are to be in the hands of governments. For discharging their obligation of assuring healthy smiles to their public, governments require a policy. All the queries in attaining oral health for all can be answered by oral health policy. As many authors suggested, the need for implementation of the drafted oral health policy with modification that suits the rapidly changing oral health system of this country is inevitable. Indian government needs to set up a committee by involving dental professionals to plan to reduce the oral disease burden of the country in a more comprehensive and practical approach. Political, social, organizational (both government and nongovernmental), professional dedication and support are needed to make oral health of this country comparable with general health. Nupur Sharma, Soumik Kabasi, & Abhishek Ranjan Pati⁵ generalize through the study that the extremely important reason for the students to choose dentistry as their career choice was that dentistry has more regular hours than other health related professions and would let them make a lot of money. This study revealed significant differences between males and females with respect to their perceived future plans. Priya Devadas Nakre and A. G. Harikiran⁶ suggest that oral health education is effective in improving the knowledge attitude and practice regarding oral health and in reducing the plaque, bleeding on probing of the gingival and caries increment and in improving the gingival health. The most successful oral health programs are labor intensive, have involved significant others and have received funding and additional support. A balance between inputs and outputs and health care resources available will determine if the program can be recommended for general use. Ramandeep Singh Gambhir, Amanpreet Kaur, Arshdeep Singh, Anmol Rattan Singh Sandhu, and Angad Prakash Singh Dhaliwal⁷ suggest that that more attention should be given toward preventive oral health care by employing more number of public health dentists in public sector, strengthening DPH education and research, and combining oral health programmes with general care programmes. The study observes that the rapid growth of dental professionals has not helped the public health system as a whole. Moreover, a major

imbalance exists in the distribution of public health dentists across different states. There is a need to broaden the scope of this specialty and to make it more practical. Proper orientation on this subspecialty of dentistry from the under graduation level is the need of the hour. More public health dentists should be recruited in the government/public sector to raise awareness regarding oral health problems. Utilization of MDV is indispensable for the treatment camps, but preventive services should also be given importance. DPH education programs should be implemented on a priority basis to make people aware of the dangers of self-medication. There should be inclusion of dental health programs with family welfare programs by the government like in other developed countries. Political, social, organizational (both government and nongovernmental), professional dedication and support are needed to make oral health of this country comparable with general health. T Padmapriya⁸ observes that the dental education forms the foundation of the professional lives of the dentists. In the context of the student, faculty and the curriculum constitute the main aspects of the dental education. The faculties both in terms of quality and number have profound impact on the outcomes of the dental education. The Dental Council of India and the Union Government should be more stringent with reinforcing rules and regulations to assure adequate infrastructure and quality education in all the private dental colleges. Vehkalampi, Angela; Haimilahti, Li; Amanpor & Susan⁹ observe that the growing burden of oral health diseases among the elderly is a global challenge for the patient and those caring for them. Greater attention is needed toward the promotion of oral health care of the elderly. Results strongly indicated lack of nursing interventions needed against various barriers to oral health of the elderly, such as, insignificant role, lack of multiprofessional collaboration, lack of access to dental services, lack of dental supplies, the negative impacts of polymedicine and chronic diseases upon the elderly, negative attitudes and perceptions of the elderly, lack of education and skills within the nursing profession and lack of protocols for the nursing professionals. Yadav S & Rawal G¹⁰ observe that India is emerging as a young intelligent country with youth population of 65% below 35 years of age. These demographics of population will have a great impact on global economics as well as Indian economics. Apart from other professions which will have an impact on economics, medical and dental professions have a major role to play in terms of Indian economy. In 2004, the dentist population in India was 1:30,000 according to World Health Statistics. In 2014, the ratio was 1:10,000.

Hypothesis

1. Dental education provides good careers to the promising students
2. The dental education in India is constantly on move
3. The dental education has its importance both in the public and the private sectors
4. The current scenario of dental education in India is enthusiastic, but not satisfactory

5. The dental education has an unlimited scope

Method

The present study is all theoretical mixed with the author's own classroom and library studies. Content analysis is the sole basis of the study. For the purpose, first the secondary data were explored through various sites and search engines, such as, ResearchGate, PubMed and MEDLINE. The resulting titles and abstracts provided the basis for initial decisions and selection of articles. Out of the primary list of articles, a total number of 10 articles were selected as they fulfilled the purpose of the study. The full text of the articles was then obtained through the internet. A set of important variables were identified and grouped together for the sake of special focus on the theme. The studies covered the various aspects of the subject. Information on the location of teaching institutions, the year of establishment, type of ownership, and seat capacity was obtained from government sources, the Dental Council of India, and websites of individual institutions to estimate the growth in the undergraduate dental education sector, including the role of the private sector from 2006 onwards. Documents related to the Central and State Governments of India were also considered. 10 specific research questions covering the various aspects of the theme were developed as to assist the author in meeting his objectives during the research process.

Research Questions

1. How is the private sector helpful in the growth of the dental colleges and enrolled capacity?
2. Is the region-wise distribution of the dental colleges in India same or unequal?
3. If unequal distribution of the dental colleges in the various states and regions, what is the criterion of the distribution?
4. What is the impact of the easy access to the dental education through the mushroom-like dental colleges in private sector?
5. Is the number of parodontal personnels in the dental colleges sufficient, or it needs to be increased?
6. Is the present dental curriculum satisfactory enough to expertise the dentists or it needs to be reformed in accordance with the demands at present?
7. What is the current status of the job opportunities for the dentists in the government hospitals?
8. Who prefers dental education more, the male students or the female students?
9. Why do the students prefer pursuing their higher studies in medicines in abroad?
10. What types of approaches at the national level are required to explore and understand student's motives for choosing or not choosing dentistry as a career.

Results

1. Dental colleges and enrollment capacity have grown rapidly over the last five decades mainly due to a growing private sector. Every year in India new dental colleges are opened so as to allow more and more students to choose career in dental education. However, as per the latest

- norms for admissions in the dental colleges, only the NEET qualified candidates are allowed.
2. The state and region-wise distribution of the dental colleges is shocking. There is regional inequality in the location of dental education schools in India with a bias toward economically better-off regions.
 3. The impact of the mushroom-like-growing private medical colleges in India is all negative. The growth in the dental education sector has translated into increased overall access, although accompanied by rising inequality in access and possibly lower quality of dental education.
 4. There is a need to increase the number of parodontal personnel (dental hygienists, dental mechanics) for the sake of the systematic running of the dental colleges and for the sake of various other careers in the field.
 5. The present dental curriculum needs to be reformed by correcting some inherent concerns and flaws such as inadequate clinical relevance of basic science concepts, lack of comprehensive patient care model for clinical education, and overcrowding of the curriculum.
 6. The job opportunities for the dental doctors in the government hospitals are not satisfactory, as at the district level, there is only one post for the dentists.
 7. More number of job postings for dentists should be created in the government hospitals, and the present inappropriately limited number of postgraduate seats should also be increased to assure the viability of the dental profession in future.
 8. The dental education is popular more with the female students than with the male ones. Only those male students who fail to get selection in MBBS generally join it.
 9. The female students take up dentistry as their career because it allows for more flexible working hours, and they easily balance their professional career with the demands of domestic life. In addition, female students see dentistry as a way to work with others, as well as to achieve financial gain and professional prestige. Moreover, the fee for the dental education is lower than for the other medical education.
 10. Due to mushroom-like growth of the private colleges in India, some of the prospective candidates prefer to go to abroad for their future studies and practice.
 11. Qualitative and quantitative approaches at the national level are required to explore and understand student's motives for choosing or not choosing dentistry as a career.

Conclusion, Analysis & Discussion

In recent years, attention has been drawn toward assessing the effectiveness of oral health education programs. Oral diseases are a major public health problem, and their burden is on increase in many low- and middle-income countries. Dental public health (DPH) aims to improve the oral health of the population through preventive and curative services. However, its achievements in India are being

questioned probably because of lack of proficiency and skill among DPH personnel. Career development, for most people, is a lifelong process of engaging the work world through choosing among employment opportunities made available to them. Each individual undertaking the process is influenced by many factors, including the context in which they live, their personal aptitudes, educational attainment, and on few instances peer pressure. Oral Health is an integral component of general health. It has also become clear that causative and risk factors in oral diseases are often the same as those implicated in the major general diseases. The overall health, well being, education and development of children, families and communities can be affected by oral health. Though there has been considerable improvement in the oral health of children in the last few decades, dental caries (tooth decay) still remains one of the most commonly occurring oral health problems in the children all over the globe.

Dental education is growing popular day by day in India, and more and more students are desirous of getting it for the sake of careers. The reasons are that- it is more easily accessible than the medicine education; the fee is lower; the syllabus is limited; it is available at door; it has a tremendous scope in private sector, and it ensures a good career both in public and private sector. However, in order to make it more popular, it still needs to be reformed in a way that every student who joins it gets a sure success. For it the government should take initiatives and launch such policies that can help the dental education in India flourish with perfection and be within the reach of the promising students who want to make dentistry their career, and are ready to serve both the private and the public sector.

References

1. *Ajay S. Mahal, Ph.D. & Naseem Shah, M.D.S., M.N.A.M.S.- Implications of the Growth of Dental Education in India, Journal of Dental Education ,Volume 70, Number 8, 2006*
2. *Charu Madan, Estie Kruger & Marc Tennant-30 Years of dental research in Australia and India: A comparative analysis of published peer review literature Indian Journal of Dental Research, Volume 23, Issue 2, 293-294, 2012*
3. *Dagli N, Dagli R. Increasing unemployment among Indian dental graduates – High time to control dental manpower. J Int Oral Health 2015;7:i-ii.*
4. *Nandita Rani Kothia, Vikram Simha Bommireddy, Talluri Devaki, Narayana Rao Vinnakota, Srinivas Ravoori, Suresh Sanikommu & Srinivas Pachava -Assessment of the Status of National Oral Health Policy in India , IJHPM, 4(9), 575–581, 2015.*
5. *Nupur Sharma, Soumik Kabasi, & Abhishek Ranjan Pati- Perception of 1st year dental students studying in Odisha toward career choice: A cross-sectional survey, Journal of Indian Association of Public Health Dentistry, Volume 13, Issue 4, 449-453, 2015*
6. *Priya Devadas Nakre and A. G. Harikiran- Effectiveness of oral health education programs:*

- A systematic review, Journal of International Society of Preventive and Community Dentistry, 3(2): 103–115, 2013 Jul-Dec.*
7. Ramandeep Singh Gambhir, Amanpreet Kaur, Arshdeep Singh, Anmol Rattan Singh Sandhu, and Angad Prakash Singh Dhaliwal-Dental public health in India: An insight, *Journal of Family Medicine and Primary Care*, 2016 Oct-Dec; 5(4): 747–751.
 8. T Padmapriya- *The perspectives and perceptions of dental education in the West and an overview of dental education in India, Journal of Education and Ethics in Dentistry, Volume 5, Issue 2, 41-46, 2015*
 9. Vehkalampi, Angela; Haimilahti, Li; Amanpor & Susan-Oral health of the elderly A literature review, *Degree programme in Orientation in Nursing Thesis, Lahti University of Applied Sciences, 21.5.2015*
 10. Yadav S, Rawal G. *The current status of dental graduates in India. Pan Afr Med J 2016;23:22.*