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Time to Modify Dental Education – Changing Scenario

Pankaj Datta*, J. R. Sabharwal**

Abstract

The new generation of oral health professionals will require an improved understanding of the interplay between oral health and general health. An ageing population and a greater proportion of medically complex patients; call for changes in the ways dentists are getting trained in India. A concerted effort to broaden primary health-care delivery in the dental clinic will greatly improve both oral and general health outcomes. It is proposed that expansion of biomedical training in the graduation dental curriculum, postgraduate training program and improved continuing education courses would provide the basis for achieving these goals.

Kew words: Dental Education; Oral Health; General Health; Dental Curriculum; Continuing Dental Education.

Introduction

Over the past few decades, the dental and medical professions have evolved along parallel paths, similar in their focus on health care, but divided by fundamental differences in training, methods of treatment and the system used to deliver it. Being primarily surgical in nature, dentistry has pursued advances in techniques, materials and scientific knowledge that allow improvement in the restoration and replacement of teeth. While the available approaches to dental care have progressed significantly in the modern era, changes in the demography of our country and our understanding of the basis of oral diseases compel us to evaluate the oral health care of patients in the future. These considerations will require the dental profession to embrace a more integrated approach towards patient care.

The 21st century has witnessed a gradual transition to an ageing society globally. Countries like ours will not only be at the forefront in terms of absolute number of total population, but also in terms of absolute number of the elderly (60^{+}) population. In India, the elderly population (aged 60 years or above) accounts for 8% of total population in 2011. Both the share and size of elderly population is increasing over time. From 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026 [1].

Along with the decline in fertility and mortality rates and the increase in the life expectancy, this has lead to an increasing proportion of the elderly after a time lag. A greying of the population is inevitable and one must understand its implications. The life expectancy at birth during 2002-06 was 64.2 for females as against 62.6 years for males [1, 2]

The ability to meet the demands of a large number of geriatric patients will require changes in the delivery of oral health care. Compared to previous generations, a critical difference in regard to this group of older adults, apart from numbers, is the varied lifetime incidence of dental disease [3].

Interplay between Oral and General health care

Unlike their western counterparts, nearly 30 % of elderly are edentulous [4]. Modifications are necessary so that oral health care can be provided to these elderly patients. This group of older adults will live longer and will receive treatment for many chronic diseases. Further, the elderly have physical,

Author's Affilation: *PhD Scholar, Department of Dentistry, JJT University, Rajasthan. **Director, Professor and Head, Department of Oral and Maxillofacial Surgery, Inderprastha Dental College & Hospital, Ghaziaabad,UP.

Reprints Requests: Dr. Pankaj Datta, C-86, Anand Vihar, Delhi-110092
E-mail: pankajdatta97@gmail.com

psychosocial and financial limitations that may have a negative impact on dentists' ability to render care [5].

A pressing concern for dentists in caring for the greater number of elderly patients will be the increase in medically complex patients [6]. The ability to recognize and manage systemic diseases that influence dental treatment will be more important for these patients. Many diseases that were associated with a shortened lifespan and reduced quality of life, such as diabetes, cardiovascular disease, autoimmune disorders, hepatitis, renal impairment, neurologic disorders and HIV/AIDS, can now be managed over the long term with medications and advancement in patient care. With this ability to prolong the lives of these patients, dentists are seeing a much greater number of functional yet chronically ill individuals seeking comprehensive dental care.

Finally, with the proportion of patients (especially the elderly) taking multiple prescription medications for chronic diseases steadily increasing, the potential for adverse drug reactions is a constant concern for health care providers [7]. The identification of oral infection as a risk factor for a number of diseases and disorders at distant sites has increased awareness of the importance of oral health. Recent data suggest an association between periodontal disease and diabetes mellitus, atherosclerosis and respiratory disorders [5]. This linkage is often referred to as the "oral-systemic" connection, but this expression is unfortunate, as oral health has always been a component of general health.

With these new findings, dentists could more effectively promote the importance of both oral and general health and offer a patient centered focus on health promotion and disease prevention [8].

Working with "comprehensive oral health care" approach for all patients is important to emphasize on the importance of general medicine in dental curriculum; especially for medically compromised and ageing patients. Given these driving forces, it seems apparent that as a profession, dentists need to increase awareness of the overall health of patients. No longer can caries or periodontal disease be treated solely with just the hand-piece or scaler. If we are to offer patients comprehensive treatment, consideration of their overall health needs must hold equal importance with oral health.

Development of Dental Education

Historically, two fundamental approaches to the practice of dentistry took birth; odontology and stomatology. Odontology modal in which dentistry made the transition to formal education in 19th century in United States, helped standardize modern dental education [9]. This model flourished in the US and was exported to Britain, Western Europe, Japan, Australia and India, where dental education is considered an independent discipline [10]. In contrast, the stomatology modal, emerged in Eastern Europe that unified medicine and dentistry by sharing a common ground in general medical education before specialization in treating disorders of the oral cavity [11]. It is prevalent in eastern parts of Europe, Italy, Spain and China, where dentistry is taught as a branch of medicine [12].

The stomatology model produced a dentist that while arguably less proficient in terms of restorative and prosthetic technique, did offer unprecedented status for oral health within the spectrum of general health care [10].

Dentistry has always been labor-intensive, provided by apprentice-trained surgeons, and mainly restricted to the treatment of dental infections, restoration of dental tissues and the provision of prostheses to replace the affected dentition. The transition to a technology-driven society provided the opportunity to focus on interceptive and preventive treatment. With expansion of the knowledge, technology and material base, the need for formally educated professional dental practitioners, following the odontology modal grew.

Formal dental education started in India with the starting of the first autonomous dental college at Calcutta in 1920 [13, 14]. The four year BDS program was introduced in 1935 [14]. Since independence, all dental colleges started were government colleges until 1966, when the first dental college in the private sector was established. Currently, nearly 26000 dental students graduating every year [12], the real challenge still remains; the challenge of bridging the theory - application gap: Our dental curriculum, the theoretical aspect of which is at par with any dental course in the world, teaches a student to perform clinical work for a particular situation, but falls short in teaching comprehensive treatment planning, follow up care and patient management skills [12, 15]. Thus, there seems to be a disconnection between theory and its application.

Differences in Dental and Medical Education

Medical education for at least the past century has followed a "two plus two and half" paradigm,

starting with a two year, intensive grounding in pre-clinical and para-clinical subjects.

After completion of their didactic training, medical students spend the second half of their graduation in clinical settings to gain exposure to the wide range of disciplines in medicine and surgery. Providing a broad experience and impetus to select an area of specialization, medical college is only the first step in becoming a physician. With junior residency training, medical college must only prepare graduates with a fundamental grounding to begin their medical or surgical specialization.

Conversely, the dental college curriculum can be described as comprehensive. The four year training period seeks to provide many of the same elements of the first two years of medical college, but is constrained by the need to simultaneously develop the manual skills required to perform most dental procedures.

In contrast to medical colleges, dental colleges need to train technically competent graduates who are able to practice independently. Also, only a limited number of dental graduates get a chance to do junior residency, which is an important component of training.

Access to Health Care

Access to health care in India is an enormous problem that negatively affects the delivery of quality dental care. Out of 1.2 billion people, 0.57 billion are insurable. To compare, if we look at America, in 2010, over 83.3 percent of people had health insurance compared to just 5.51 percent Indians. [16] Even those who have health insurance, dental treatments don't fall under the purview of claim.

Dentistry is a highly technical profession and the reimbursement of services is very minimal, selective or partial. As such, the incentives to provide general oral health screening, counseling and other services are few. Patient examinations in dentistry are highly focused on caries and periodontal disease and interventions to replace lost tissue. These examinations generally account for a small proportion of a doctor's billing. In contrast, the physician's examination is generally compensated at a much higher level, representing the importance of a thorough history and physical, as well as accurate diagnosis. This many times leads dentist to focus on the dental tissues only, ignoring the underlying general health of the patient which calls for dentist to look at the situation in a different way, forcing dentist to modify the treatment plan.

Finally, the expanding population of older adults will soon present dentists with another challenge: the need to treat a new generation of dentate elderly. These factors call for major changes in how dentists are trained in this country.

Recommendations

Changing Course

Given these challenges, several changes can be recommended for training future dentists. They are listed here.

- The formal biomedical education of dental students, residents and continuing education for practicing registered dentists must be emphasized. These changes cannot be made only in dental colleges; rather, they should be part of a continuum of education for dentists at all stages of their career.
- Primary health care activities by dentists should become standard practice. These activities are as simple as blood pressure monitoring and dietary counseling, or broader risk assessment for cardiovascular disease, diabetes and cancer (especially those of the oral cavity).
- Provisions in the dental curriculum to include treatment planning seminars to encourage students to prepare ideal as well as alternative treatment plans for a particular patient based on his medical condition and to improve analytical skills and logical reasoning.
- To provide an environment conducive for problem based learning [PBL] to improve knowledge, skills and attitude of the students and also prepare them for self-directed life-long learning
- Postgraduate training for all 1st year post-graduates students in general dentistry; this will provide the basis for more integrated training of our nation's new dentists within the context of the general health care. By working alongside physicians and having first-hand knowledge of their patients' health status, young dentists will be better trained to meet the needs of today's patient population and have their transition to private practice eased.
- To initiate junior residency in dentistry in all government hospitals.
- To periodically update dental professionals with emphasis on comprehensive treatment planning

and dental emergencies to facilitate long term self-evaluation. While many people would see this proposal as a major change for dentistry, it is part of a natural progression toward improving health care delivery in this country.

Dental colleges

Dental colleges are the future of the dental profession. While a limited number of colleges co-educate dental and medical students during the basic science curriculum, this arrangement should be considered at other colleges. Providing a strong foundation in biomedical education for dental students will emphasize evidence-based decision making and provide the proper context for oral health within general health. Keeping this view in mind, Dental Council of India has made it mandatory for all new dental colleges to have their own medical college & hospital. Earlier it was necessary to have a 100 bedded hospital or attachment with a government hospital within a radius of 10 km [17]. Of course, curricula at dental colleges can only accommodate a finite amount of additional information because of the restraints of the four-year schedule. To fully embrace a more comprehensive grounding in medicine for dental graduates, some of the education burden must be relieved.

Dental Residency

Creating more openings in the form of a year of residency training is the most practical way to address this need. The benefits of this change would be many. An additional year of training would primarily allow young dentists to further improve their skills set and efficiency before entering their independent practice. The interactions with other medical disciplines within a hospital setting will offer insight into the management of medically complex patients. With these tools in hand, the nascent dentist will be more thoroughly prepared for his or her patients' needs.

At present, the dental residency system is almost non-existent in the country or very negligible and not able to accommodate the number of dental graduates passing every year. Increasing the number of residency positions will be challenging. Residency programs must be initiated at the central and state government health policies. Even the private dental colleges must create minimum number of residency positions of 1 year. However, such an innovative model must be created by DCI.

Continuing Education

In recent years there has been guidelines issued by Dental Council of India, regarding the implementation of continuing dental education (CDE) points required to maintain registration with state dental councils to pursue the Profession of Dentistry in India.[18]While increasing CDE requirements is necessary, the content and quality of such courses must also be improved. CDE courses focusing on cosmetic and implant dentistry far outnumber those devoted to medical considerations for dental treatment and caring for medically compromised patients.

Increasing the number of CDE courses that address general health topics, as well as a subject matter distribution requirement, would result in a more balanced educational experience.

Conclusion

While much work still needs to be done, the dental profession is well equipped to address these challenges. To succeed, dentistry must strengthen its bonds with medicine to better serve patients.

The recommendations presented here are achievable, but will certainly meet some resistance. It should be noted that these suggestions do not minimize the importance of technical training. Rather, the combination of improved understanding of patients' overall health and superior clinical skills will result in better oral health and general health outcomes. It is time for change in how we educate future dental professionals.

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