Challenges to the Oral Health Workforce in India

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We are at the beginning of a new decade, a new century, and a new millennium. As part of these new beginnings, it is worthwhile to assess again the ability of the dental workforce in India to adequately and efficiently provide dental care to a population growing in size and diversity. What is needed is a strategy that, regardless of the times, can be used on an ongoing basis to ensure that the nation will maintain a workforce with the skills and cultural competence to provide the care that the nation demands. This new look at workforce issues should aim to develop a flexible strategy to steward the human resources of the dental profession.

Workforce in India

Situated majestically in the Asian subcontinent, endowed with nature’s choicest gifts, and known for its rich heritage and glorious past, India is the seventh largest country of the world. The population has risen from 850 million in 1990 to 1,045 million in 2000 with a population growth percentage remaining at 2 percent.

Conditions differ between urban and rural India. The rural population is 740 million in which the total workforce is only 55 percent comprised of 40 percent males and 15 percent females. In rural India only 47 percent of the workforce consists of skilled workers (25 percent males and 22 percent females). On the other hand, 52 percent of the 284 million urban population consists of the total workforce with 38 percent males and 14 percent females. Of this total urban workforce, 38 percent consists of skilled workers in which 5 percent are males and 13 percent are females. It is clear that in urban India the percentage of females working is less than in rural India.

On the whole only 3.6 percent of all the main workers are professionals, and dental surgeons comprise only a very small percentage of this proportion.

Existing Health Infrastructure

India consists of twenty-eight states, and the principal unit of administration in a state in India is a district, which is further divided into community development blocks. There are 2,424 such blocks in India, each of which caters to a population of 80,000 to 120,000. These are administered by four medical specialists—surgeon, physician, gynecologist, and pediatrician—who are supported by twenty-one para-medical and other staff. Each block has thirty indoor beds with one OT, x-ray, labor room, and laboratory facilities. It serves as a referral center for four primary health centers.

Health services in rural areas are administered through the primary health centers (PHC), one in each block. These primary health centers meet the needs of 20,000 to 30,000 people; there are 21,854 such centers. The PHC occupies a key position in the nation’s health care system; it aims to provide comprehensive (preventive, promotive, curative) health care services to the people living in a defined geographical area of 100-200 square miles. The sanctioned strength for each PHC is one medical officer, one pharmacist, one sanitary inspector, two health inspectors, and two auxiliaries. It has four to six beds for patients. The appointment of a staff nurse on a contract basis in these primary health centers is also being done.

Each PHC further has eight to ten subcenters, each responsible for providing health services to 3,000-5,000 people; there are 132,730 such subcenters. These subcenters are the most direct contact point between the primary health care system and the community. Each is administered by one multipurpose worker (male) and one multipurpose worker (female).
worker (female) or auxiliary nurse midwife and one lady health visitor who is responsible for six subcenters.

In 1986, there were a total of 1,043 dentists posted at the PHC level in different rural areas. Thus not even 20 percent of the existing primary health centers in India have the services of a dentist available for the population. Also, there are no set criteria for posting a dentist at the PHC level in rural areas around the country.

**Health Care Expenditure**

The irony of the budget allocation in India is that, out of the total budget, the amount that is dedicated to health expenditure is very meager, and out of this amount only a minute percentage is allocated for oral health-related activities. In fact, there is no specific separate allocation for oral health in the Indian budget.

India allocated only 4.9 percent of the GDP for health-related expenditures in the last financial year, whereas other smaller Southeast Asian countries with smaller populations allocate nearly the same amount or more for health-related activities. For example, Maldives is spending 7.1 percent of its GDP on health-related activities.

Also, in India the central budgetary allocation for health over this period, a percentage of the total central budget, has been stagnant at 1.3 percent, while that in individual states has declined from 7.0 percent to 5.5 percent. The annual per capita public health expenditure in the country is no more than Rs. 200. Given these statistics, it is no surprise that the reach and quality of public health services have been below the desirable standard.

**Issues of the Dental Workforce in India**

Following this brief description of the scenario in India, I would like to focus on the following issues related to the dental workforce:

1. deficient manpower planning and projection,
2. the changing disease pattern affecting the workforce, and
3. the changing role of women in the workforce.

**Deficient Manpower Planning and Projection**

This is one of the key issues as the basic fault lies in the defective planning of the workforce and no projection or forecast for the future. Strategies are not developed taking into consideration what could happen in the future.

*Dental Education.* Until 1966, all the dental colleges in India were government-aided. In that year, the first dental college in the private sector was established. Forecasts of shortages of manpower led to an increase in the number of colleges, especially in the private sector. Private colleges started admitting students under the capitation plan. Like a bull market, the mood was buoyant, expansion frenetic, and expectations high. There was a mushroom-like growth of these private colleges. On the other hand, there has been stagnation in the growth of government colleges, probably due to decrease of the funds provided by the government for the health sector. At present there are nearly four times as many private colleges as government colleges.

Thus, the end of the twentieth century and the beginning of the twenty-first century saw an increase in the number of enrollments. But in the near future there may be a reduced number of people entering these colleges as the rapid growth in the number of dentists might tend to discourage some prospective candidates who may feel that the increased competition would limit their future earnings.

In tune with the increase in number of dental colleges, there has been a steady increase in the number of dental graduates from the 1950s when there were only a few dental colleges in India. To cope with such an enormous number of dentists graduating each year will require a massive infrastructure, a factor that requires the very urgent attention of all concerned.

<table>
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<tr>
<th>Year</th>
<th>Number of Graduates</th>
<th>1960</th>
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<tr>
<td>1970</td>
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<td>1980</td>
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<td>1990</td>
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<td>2002</td>
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Geographic Imbalance. The number of colleges has increased to meet the demands of the society, but has there been a uniform growth of these colleges across the country? No, because there is a massive flaw in the geographic distribution of the colleges. Out of these 161 colleges, fifty are situated in one state only, and out of these colleges around fifteen are situated in one city only.

Misguided Dentist-Population Ratio. With an increase in the number of dental colleges there also has been an improvement in the dentist to population ratio. There was a marked improvement between the 1980s and 1990s, from 1:80,000 to 1:42,500. At present the dentist to population ratio in India is 1:30,000. But with a significant geographic imbalance among dental colleges, there has been a great variation in the dentist to population ratio in rural and urban areas.

At the moment India has one dentist for 10,000 persons in urban areas and about 2.5 lakh persons in rural areas. Almost three-fourths of the total number of dentists are clustered in the urban areas, which house only one-fourth of the country’s population.

This is in great contrast to the physician population ratio, which was 1:2,400 in 2000 and is 1:1,855 at present.

Just because the ratio between the patients and dentists is changing doesn’t mean that the whole education system needs to be cranked up again. One prime consideration will be the ability of the system to deliver care, and here technological advances are key.

Lopsided Specialist Training. With an increasing awareness in the society of the oral health and changing treatment needs, there has been a greater demand for specialists in dentistry. However, at present, only forty-eight colleges are offering postgraduate education in dentistry. Out of these, fifteen colleges (33 percent) are in the state of Karnataka only. The majority of these courses are in prosthodontics and orthodontics (19 percent and 18 percent, respectively).

With 32.7 percent of the Indian population in the age group of zero to fourteen years, there is a greater demand for pediatric dentists. On the contrary India trains only 9 percent of the total specialists in pediatric dentistry. Thus, the number of seats in pediatric dentistry should be increased with an increase in the lucrative job opportunities in the academic positions so that after a few years these new pediatric dentists are capable of training more graduates in this field.

Only 2 percent of the specialists are being trained in community dentistry, whereas in a country like India where the majority of the population resides in the rural areas, there is greater need for these specialists.

Also, taking into consideration the aspiration of the students for higher education, we certainly need more postgraduates.

Lacking Dental Auxiliaries. An increase in the number of dental auxiliaries should be another high priority. Since there are district hospitals where no dental service is available, dental auxiliaries should first be placed in those locations. In 1990 there were 3,000 registered hygienists and 5,000 laboratory technicians in India. This implies that the service of one hygienist was available to seven dentists, and one laboratory technician renders service to four dentists, whereas it should be a 1:1 ratio. There are no registered dental nurses or chairside assistants and no denturists. This situation is becoming increasingly difficult with a 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.

Inadequate Workforce in Rural Areas. Dentistry faces serious problems regarding accessibility of its services to all. In many developing countries like India, oral health services are offered by dentists, who practice in the cities and treat the affluent parts of the urban population. It is often difficult for the poor urban and the rural population to get access to emergency care. Community-oriented oral health programs are seldom found. The major missing link causing this unfortunate situation is the absence of a primary health care approach in dentistry.

When the primary health care systems were implemented in the 1980s, dentistry was not adequately included. This has left oral health far behind other health services. The costs of providing services are high compared to other areas of health care, and the workforce is very limited. A common way of thinking among local planners is to increase the number of dentists to meet the workforce problem. They ignore the primary health care approach for oral health services, which can be executed by dental auxiliaries.

Addressing the above principles could prevent many constraints that occur as a result of the pre-
vailing conventional dental services. An oral health service based on such an approach requires a large number of dental auxiliaries rather than dentists.

Immigration and Migration of the Dental Workforce. Retention of dentists and therapists, particularly in the early years beyond graduation, is a major issue. Complete stagnation with regards to the infrastructure and the basic facilities provided in rural areas has made it difficult for those areas to attract graduates to them.

With increasing awareness amongst the urban population and the stiff competition that graduates face in cities, there has been an increase in the number of aspirants for postgraduate courses. Since the number of seats in various postgraduate courses is very few in proportion to the large number of graduates each year, many of the new graduates immigrate to other countries to fulfill their aspirations.

Another reason for an increase in this immigration is the monetary benefits that the dentists get in most of the developed countries, especially the United States, United Kingdom, Canada, Australia, and New Zealand. These are the main four countries that receive the greatest immigration from India. Out of the 63 percent of dentists in New Zealand who are from overseas, for example, 15 percent are Indians.

Lack of adequate research facilities is also one of the reasons for a small percentage of immigration. The facilities in the developed countries are more advanced, easily accessible, and promising as compared to those available in India or any other Southeast Asian nation. Those aspiring to rise in research and academics prefer to go abroad.

Changing Disease Patterns and Treatment Needs

With increasing awareness and advancements, there has been a decline in certain diseases in urban areas or developed areas. To cope with these changes, the workforce should be equipped and capable of satisfying the changing demands and needs of the society.

Transition in Disease Patterns. An important factor that will affect the dentists’ supply-demand equation of the future centers on changing disease patterns. The effectiveness of fluoridation and the profession’s emphasis on preventive dentistry mean more people are keeping their teeth longer. Various sporadic studies have shown that there is a rising level of dental diseases in India. The situation is perhaps similar to that in most developing countries in the Asia-Pacific region. The two most prevalent diseases are dental caries and periodontal diseases, followed by malocclusion and oral cancers.

The potential disease levels have remained high over the years. Moreover, about 40-50 percent of children have malocclusion, and 40 percent of all cancers reported in India are oral cancers.

Because of the changing disease patterns, the dental sector is going through a transition from a service mix that has been predominantly therapeutic to a service mix that will be mostly preventive. There has been a decrease in the demand for extractions of teeth and an increase on conservative modalities such as root canal and crown (by comparison, in the United States, the demand for extraction has fallen from 13 percent to 3.7 percent and has risen from 1.6 percent to 6 percent for crowns and 1.7 percent to 3.3 percent for root canal treatments).

Changing Treatment Needs. People across the world are becoming more knowledgeable about dental health and what is required to maintain it. As the population has become more affluent and educated, the value placed on oral health has increased. In addition, the desire for esthetic dentistry has grown and will probably continue to do so. For example, in the United States, the demand for the amalgam restoration has fallen steeply from 20.1 percent in 1950 to 3-4 percent in the twenty-first century. All of these factors have enhanced the demand for dental services.

Also, there has been an increased demand for treatment of periodontal disease, endodontics, dental implants, cosmetic surgery, and adult orthodontics, among others.

Changes of this magnitude will have profound effects by reducing the demand for some services and enhancing the demand for others. The workforce should be able to sustain and satisfy the demands of the society.

The Changing Role of Women in the Dental Workforce

Women in India have always been considered a step behind their male counterparts. But like various other areas such as music, dance, politics, and social movements, women are making inroads in the field of dentistry too. Time has come to remove the notion that females lag behind males.
India has a comparatively low female to male ratio in the general population as compared to the Western countries and also a few Southeast Asian countries. The ratio in India is 933 women to 1000 males, whereas in Pakistan it is 938 and in China it is 944. In other countries, there are more females than males: examples include Indonesia, with 1004 women to 1000 males; the United States, with 1129 women to 1000 males; Japan, with 1041 women to 1000 males; and Russia, 1140 women to 1000 males.

The percentage of women in the Indian population who are engaged in some kind of work is low (24 percent), although that is higher than in Pakistan where 10 percent of the female population are working. In other countries, this percentage is much higher: in Japan, it is 40 percent; in China, 43 percent; in Russia, 44 percent; and in the United States, 45 percent.

The expansion of the number of women in dentistry has been one of the major dental workforce trends during the last quarter of the past century and will continue during the initial decades of this century. This is reflected in the greater number of female than male applicants to dental schools. Since 1999 there has been an increase in the female students, more so in 2000, and this trend is continuing today.

As suggested previously, there is no significant difference between the productivity of men and women dentists on an hourly basis. Also, full-time women dentists work as many hours as male dentists, as do those in the category of part-time dentists.

Challenges

Numerous challenges exist for expanding oral health care in India. The biggest challenge is the need for dental health planners with relevant qualifications and training in public health dentistry. There is a serious lack of authentic and valid data for assessment of community demands, as well as the lack of an organized system for monitoring oral health care services need to guide planners. Human resource planning and utilization should be based on the aim for sustained development along with a system of monitoring and evaluation of programs. It is against this backdrop of change and uncertainty on the demand side of the market that the assessment of future dental workforce strategies must be developed. These strategies are further complicated by the multiple factors on the supply side of the market that will affect the capacity to provide dental services. Thus both demand and supply influence the ability of the dental workforce to adequately and efficiently provide dental care to an Indian population growing in size and diversity.

Since there are no dentists in government decision making bodies, dentistry is at the mercy of medical professionals who usually take for their own profession the major share in the meager amount sanctioned by the government. Also, unless we develop dental health planners, growth will be haphazard, which is equivalent to no growth. Thus it is essential to have a group who have adequate foresight to project the workforce requirements in the future. The dental curriculum should have a holistic and community-oriented approach to training students.

Another important challenge is to produce a high-quality workforce for future generations. Due to widespread commercialization of colleges, dental education has become a business, and the ethical core of the profession has declined. With passing time there has been a gradual decline in the moral values of the workforce, with the majority of the workforce concentrating on making money. Care for the patient has taken a back seat. Various reasons have been cited as to why the workforce should have its own code of ethics such as the unprecedented growth in some specialties, the mushrooming of continuing education courses, and the maintenance of their standards.

Also, well-qualified and high caliber students should be encouraged to enter the profession. Many of the students entering the dental schools have taken admission simply because they wanted a dental education, not unlike the dentists who preceded them. The unprecedented mass of students entering the dental schools over the years represents a bulge in the enrollment trends. And when they begin to graduate, they find the world of dentistry moving at an increasingly competitive clip.

The world is changing at enormous speed. The workforce should be able to keep pace with the fast-changing society so that it is not left behind in its service and is able to cope with the desires of the society. The goal of the workforce should be based on a commitment to prevention. Health education and the development of an effective health care system with proper communication are a must.
Conclusion

To provide adequate, respectable, and attractive employment opportunities to the workforce while maintaining a balanced geographical distribution is the main challenge and the root of all the issues facing the dental profession in India. Unsatisfactory employment opportunities in various areas now lead to migration to major cities and towns, which disturbs the balance of the dentist to population ratio and further aggravates employment opportunities in these cities and metropolitan areas. This further leads to immigration to other nations, leading to reduced dentist to population ratios again. This vicious cycle has to be stopped to get at the root of the problem and begin providing sufficient employment opportunities in a well-distributed manner.