Call for Action: improving dental services and oral health in India

Many of us left India and settled overseas but no matter how long ago we or our families left India the country has never quite left us. This report is part of a wider social movement to mobilise the global Indian Healthcare Diaspora to focus on the health needs of India

Professor Raman Bedi

Call for Action: improving dental services and oral health in India

This report and the discussions on the Facebook social networking group confirm that a call for action is needed to improve the dentistry in India and the widespread disparities between income groups. The call for action will develop over the next few years but for the present there are four actions points:

- ***A national and or state community programme to provide dental care for the underserved and health education to improve dental health literacy***

- ***Improvements in dental education at both the undergraduate and postgraduate level***

- ***The framework to allow senior members of the worldwide Indian Dental Diaspora to contribute to the above***

- ***Mentoring programmes from overseas Indian dentists to younger members of the dental profession in India***

Executive summary

The strategy to engage with the Worldwide Indian Health professional community has been developed over the past two years. The creation of the Global Association of Physicians of Indian Origin (GAPIO) in 2010 was supported by the American Association of Physicians of Indian Origin (over 40,000 members) and the British Association of Physicians of Indian Origin (over 8000 members). In its first year, Professor Bedi was GAPIO's Secretary General. In 2011 Pfizer provided King's College London and Professor Bedi a grant of US$100,000 to develop a framework for developing an Indian Health Diaspora. One outcome was the publication of the book "Indian health professionals around the world – a common agenda"

In 2012 it was decided to focus on dental professionals and in collaboration with Colgate-Palmolive a Facebook group was created and dentists in India were asked to engage. In the first three months 2000 members have joined and a weekly blog on caries management and prevention is uploaded. In September over 20 new members join per day. One outcome from this social networking group has been to create a depositary of voluntary dental projects being undertaken in India – Smile India programme. This website will allow dentists in India to showcase their projects, for potential funding, to the world wide dental community especially dentists of Indian heritage.

A questionnaire was sent to dentists in India during the summer of 2012 and this report provides the results of the survey. Some top headlines are that periodontal disease is the major concern and tooth sensitivity scores low on the respondent's priority concerns. In addition the major request from Indian dentists, to their worldwide counterparts, is for mentoring.

The development of this programme has led to discussions within King's College London to the value of establishing an Indian Dental Institute to take this work forward. The Indian Dental Institute would mirror the already established Indian Institute which was launched at KCL in 2011 but focuses upon the social sciences.

The concept that is being developed at King's College London is a campaign "*Bringing our sons and daughters back home*". This campaign will focus upon engaging with the Indian Health diaspora in both hearts and minds. Hearts – will be getting Indian dentists to support voluntary dental projects in India whilst Minds will be undertaken by supporting technical exchanges, lectures by prominent overseas Indian dentists, webinars, mentoring etc. KCL will approach dental corporate sponsors and also develop a similar medical strategy and seek support from the medical pharmaceutical industry.

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I would also like to express my personal thanks to Colgate-Palmolive, the Indian Dental Association and members of our facebook group who helped distribute the questionnaire. In addition, without the help and collaboration of Noorie Beeharry. Smitha Kakde and Professor Mahesh Verma this project would not have been possible.

The book "Indian Healthcare Professional's around the world – a common agenda" was dedicated to my parents and in the same spirit this report is also an acknowledgement to their tremendous support.

"This report is dedicated to my parents Mr Satya-Pal Bedi and Mrs Raj Bedi who left India in the 1950's to seek a better life for themselves and more importantly their four children. Although leaving India the country never quite left them"

Contents

1. Introduction

The Global Child Dental Fund (GCDFund) is a leading British dental charity for children that work to improve access to quality dental care for the world's poorest children through a number of programmes. The charity is well reputable for its investments in dentists chiefly by equipping them with essential leadership skills through both Senior and Young Dental Leadership Programmes. These programmes are aimed at improving child oral health, promoting public oral health agendas and developing social responsibility. The GCDFund also runs Smiles & Hopes projects in various parts of the world primarily amongst disadvantaged children who suffer from war and poverty. For instance, in Timor Leste, a place affected by civil war and severe poverty, the GCDFund has partnered with local charitable trusts as well as the Ministry of Health to raise much needed resources in terms of finance, manpower and dental equipment in order to address important issues including the lack of vital dental equipment and oral health professionals.

Professor Raman Bedi is currently the Chairman of the GCDFund and oversees all the programs undertaken by the charity. In addition, he is the Head of the Centre for International Child Oral Health at the King's College, London and was the former Chief Dental Officer in England.

The Indian Strategy Project was initiated in May 2012 and is a response to the findings of the book by Professor Raman Bedi, Dr Emma Davidson and Jing Jing Liu titled, "*Indian Health Professionals around the World: a Common Agenda*". This book was a joint venture by the GCDFund and GAPIO (Global Association of Physicians of Indian Origin) and focuses on health disparities faced by the Indian Diaspora while urging Indian healthcare Professionals, living in India and overseas, to work together towards a common goal of improving the health conditions amongst Indians. Having considered the findings of this book, the GCDFund decided to rise to the challenge and address vital issues to help tackle India's most pressing oral health needs. The Indian Strategy focuses specifically on the requirements of the people in India and aims to mobilise dental health professionals in India to improve oral health. This report briefly summarises the results generated from the Indian Oral Health Survey and the GCDFund's strategic programmes to remit and influence the current hurdles encountered in improving current oral health conditions in India.

2. Indian Oral Health Survey: A Needs Assessment Questionnaire

The Indian Oral Health Survey was designed by Richard Thorogood, VP Global Oral Care Insights at Colgate-Palmolive (New York) on the request of the GCDFund. The survey was finalised after a process of vigilant refining and modification by the Indian Strategy team and Jay Jayaraman (Colgate-Palmolive, New York). Considering the survey was intended for self-completion with limited expert support, it was kept simple with limited open-ended questions to facilitate better response collation.

The aim of this survey was to gain insight and learning on the perceived issues & challenges facing dental professionals within India and to provide guidance on how the wider Indian Diaspora may be able to help solve them. The survey was intended to be completed by dental professionals, at all levels, who are currently practicing within India, IDA members, members of Dentistry India, contacts of Colgate-Palmolive (India) and members of the Facebook group established by Professor Raman Bedi: "*Indian health professionals around the world – a common agenda*".

The survey looks to establish understanding and learning in 4 main areas

- Perception of the current state of Indian Oral Health & Importance of Improving
- Perception of the key issues in Oral Health & the barriers to resolving internally
- Perception on the current state of Dental Education
- Guidance on how the wider Indian Diaspora of Dental Professionals can help

Following an assessment of available options for setting up an online survey questionnaire (survey monkey, kwicksurveys.com etc.), the GCDFund decided to create a web link on the GCDFund website. After a period of pilot testing this online survey, the GCDFund published it in the summer of 2012. This survey was then widely advertised through the Facebook group, IDA, Colgate-Palmolive (India) and Mahesh Verma, editor of Dentistry India.

Additional measures were taken to ensure a large number of dentists took part in the survey. For instance, the GCDFund sent individual e-mails to all Facebook group members, posted the survey invitation on other Indian dental Facebook groups, articles – both as short communications and news posts, were published in the IDA Times and New Indian Express as well as journals including Dentistry United and Indian Journal of Multidisciplinary Dentistry. Furthermore, reminder e-mails and posts were sent to Facebook group members, IDA, Colgate-Palmolive (India) and Mahesh Verma.

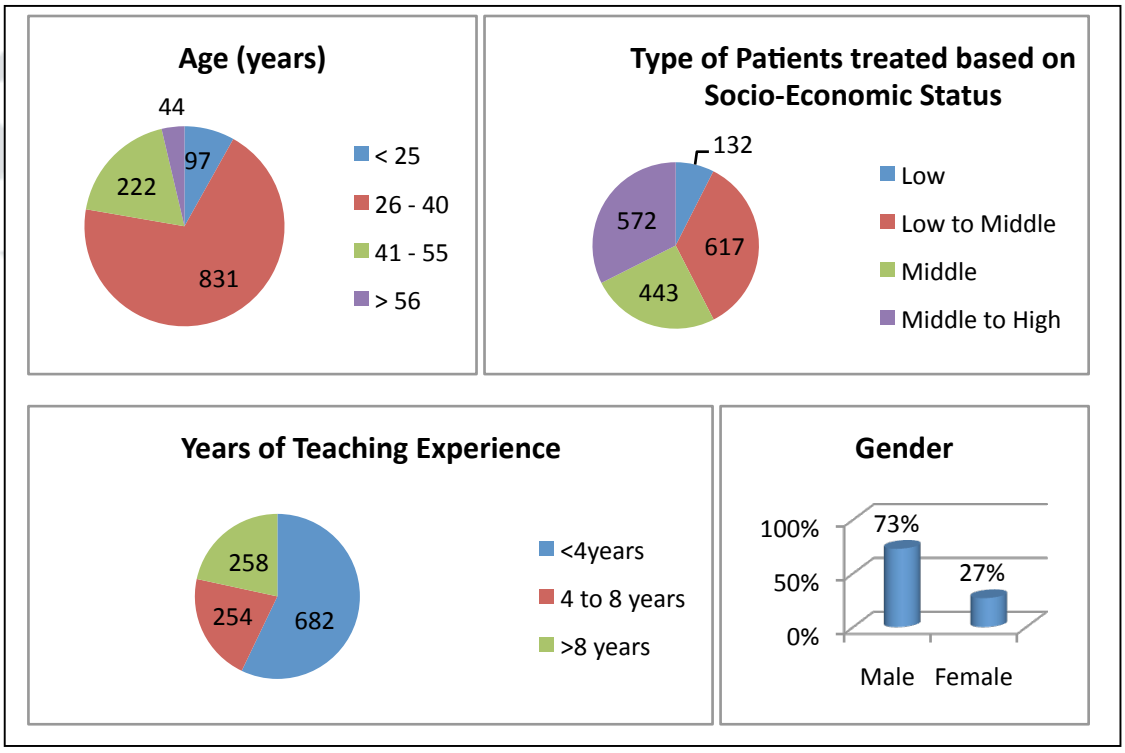
The GCDFund decided to close the "Indian Oral Health Survey: A Needs Assessment Questionnaire" on the 30th August 2012. During the 5 weeks when the survey was open, 1194 dentists completed the survey. The data generated from the survey was collected on Excel sheets and analysed by the GCDFund team. These results are displayed below. It should be noted that based on the methods employed for the distribution of the survey (stated above), response rate could not be established.

3. Results of the Indian Oral Health Survey: A Needs Assessment Questionnaire

Demographic Characteristics of dentists who completed the survey

Of the 1194 individuals who completed the survey, 73% were men; 70% were aged between 26-40 years; 97% are currently practising in India; 54% and 39% completed their B.D.S and M.D.S respectively with a small fraction that did their PhD. When asked what group of patients, dentists treated based on socio-economic status, 1764 responses were generated and unsurprisingly only 7.4% of individuals represented the low socio-economic status. Figure 1 below give further details on the demographic characteristics of individuals who completed the survey.

Figure 1: Demographic characteristics of dentists who completed the Indian Oral Health Survey

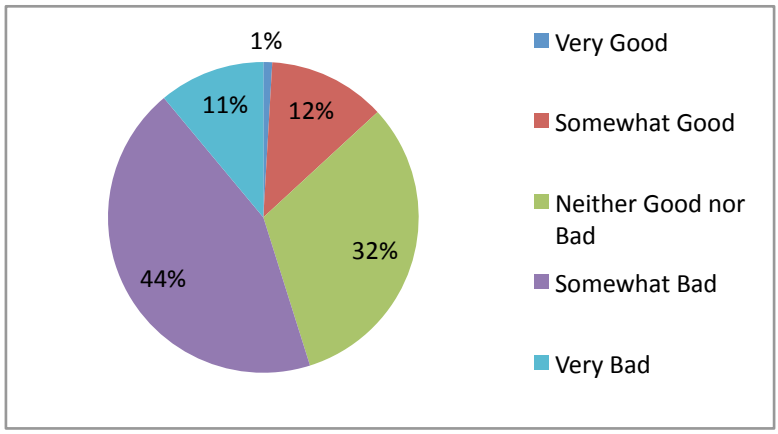


Q1: On average, how would you describe the Oral Health of the local Indian population?

What you told us

44% of the 1194 dentists described the oral health of the local Indian population as "*Somewhat Bad*" while a marginal 0.9% described it as "*Very Good*".

Figure 2: Response to Question 1

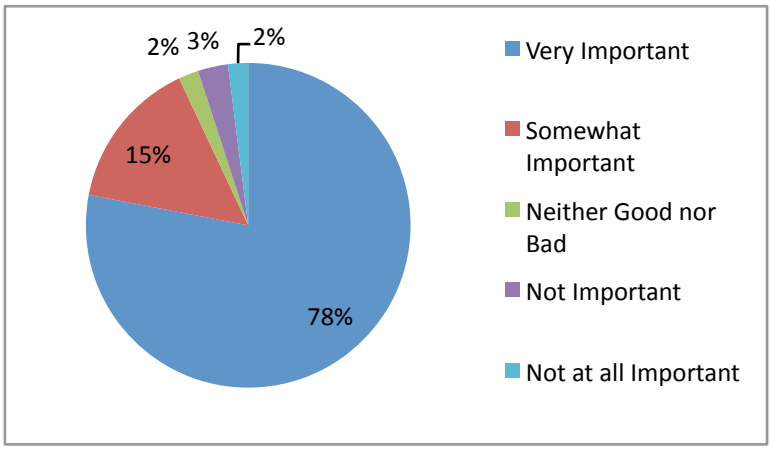


Q2: How important is it that the government (Federal and/or State) fund Community based Oral Health initiatives to improve the oral health of the local Indian population?

What you told us

A large majority of 78% were of the view that it was "*Very Important*" that the government of India funded community based oral health initiatives in order to improve the oral health conditions of the local Indian population.

Figure 3: Response to Question 2

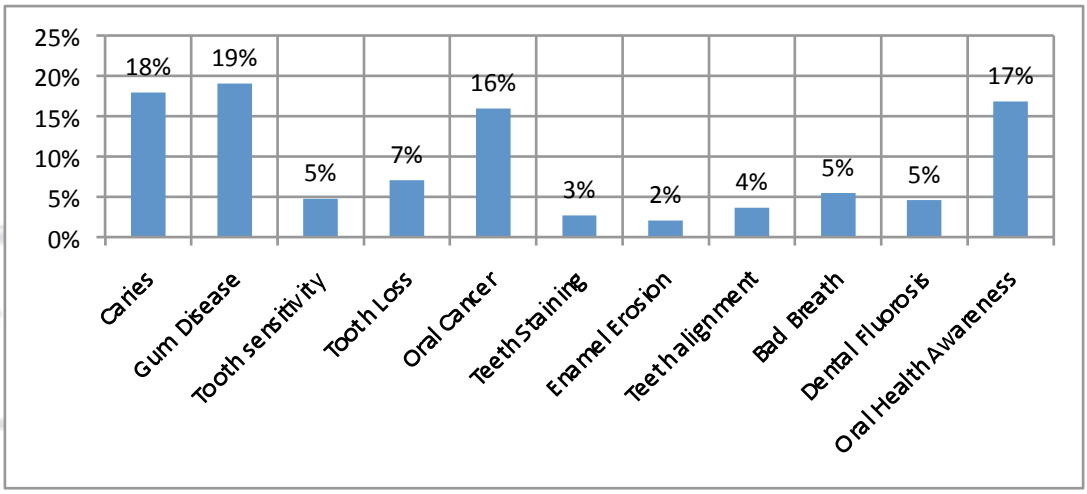


Q3: Across is a list of Oral Health Issues. Please identify those issues that you believe to be in need of improvement in the next 5 years

What you told us

Four thousand seven hundred and fifty-one responses were received for this question. Dentists thought it was essential to focus equally on gum disease (19%), dental caries (18%), oral health awareness (17%) and oral cancer (16%) in the next 5 years.

Figure 4: Response to Question 3



Additional comments from respondents for Question 3

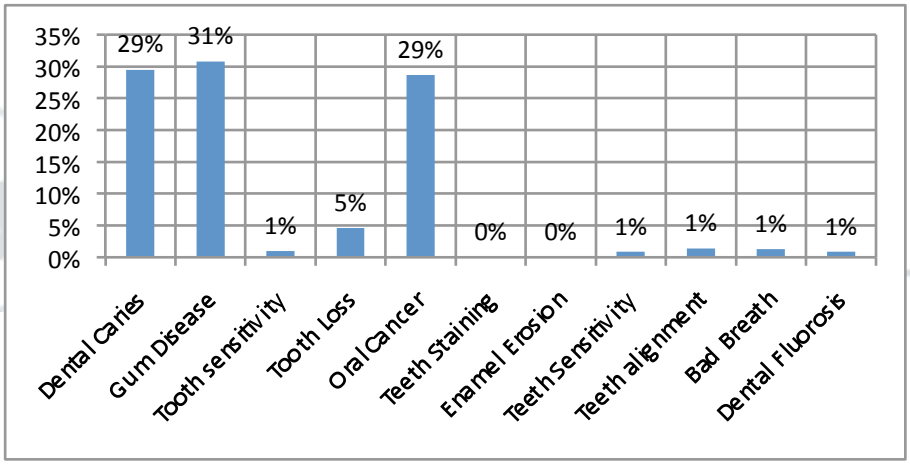
Some of the other issues raised by dentists were the importance of increasing awareness around tobacco use in particular, legislation as well as its associated conditions i.e. pre-cancerous lesions (Oral Sub mucous Fibrosis); attention to special populations including child and geriatric dental care; proper routine oral hygiene aids, techniques as well as the importance of visiting a dentist once every 6 months; and tempromandibular joint disorders.

Q4: And which is the one Oral Health Condition that you would most like to see become the main national focus for Oral Health Month

What you told us

We received one thousand one hundred and sixty-four responses for this question. Results dovetailed well with the responses from question 3 – dentists were keen to prioritise gum disease (31%), dental caries (29%) and oral cancer (29%) as key national focal points for the Oral Health Month.

Figure 5: Response to Question 4



Additional comments from respondents for Question 4

In addition to the above response, individuals considered it essential to address the importance of maintaining good oral health; tobacco use and its deleterious effect on health with a special reference on tobacco lobbying; and aspects around infection control and safety amongst practising dentists as this is thought to be low priority.

Q5: When it comes to your personal work, what obstacles do you believe exist that prevents you from being as effective as you would like in helping to solve Oral Health issues? (Please select as many options as you wish)

What you told us

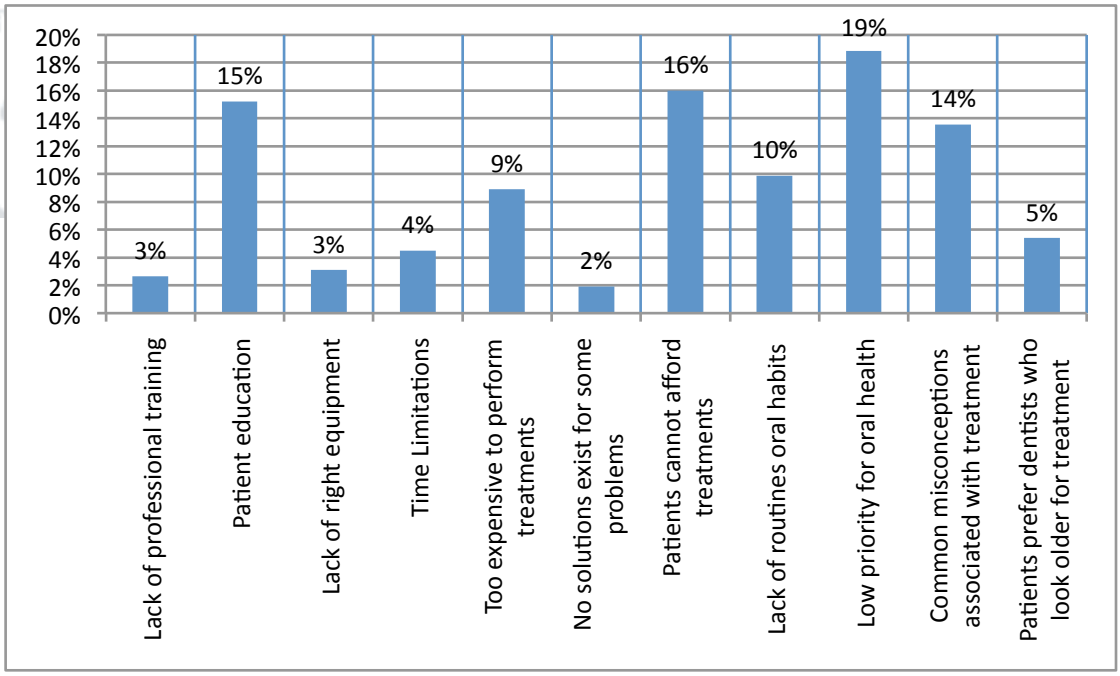
Four thousand eight hundred and seventy-five responses were received for this question. Some of the obstacles that currently prevent dentists from reaching their full potential include low priority

for oral health amongst patients (19%); patients cannot afford treatments (16%); low levels of patient education (15%); common misconceptions associated with routine procedures such as extraction and scaling (14%); lack of routine oral habits i.e. brushing flossing etc. (10%) and patient preference for dentists who look older irrespective of qualification and clinical skills (5%). Other reasons are further listed in figure 6 (below).

Additional comments from respondents for Question 5

Aside from the data above, dentists reported a range of obstacles when it came to achieving their full potential, in particular, the poor patient attitude in terms of a holistic approach to oral healthcare. Some of them were – limited patient knowledge, awareness, motivation and low priority for oral health; correcting and re-treatment done by "*quacks*" (unregistered individuals working as dentists); high treatment costs for patients and high cost of dental equipment i.e. RVG and microscope, for dentists; and the complete lack and/or limited government initiatives, bureaucratic hurdles, incompetent national level dental associations as well as the lack of effective policy implementation and foresight.

Figure 6: Response to Question 5

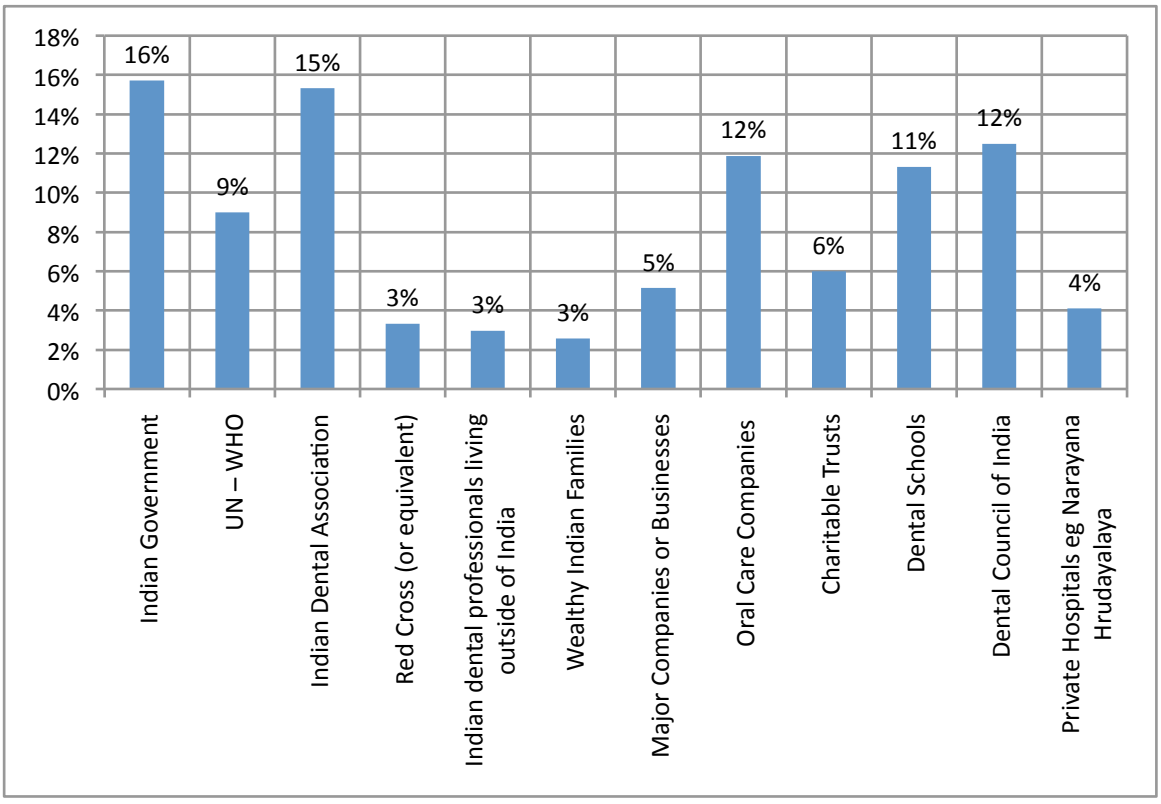


Q6: Which of the following organizations or people do you personally think could do more to help improve the Oral Health of the local Indian population?
(Please select as many options as you wish)

What you told us

A total of five thousand six hundred and fifty-two responses were generated from this question. While the majority of dentists thought that both the Indian Government (16%) and the Indian Dental Association (15%) could do more to improve the oral health conditions amongst Indians, respondents also felt that oral care companies (12%), the dental council of India (12%) and dental schools (11%) could also join forces to contribute towards enhancing current oral health status.

Figure 7: Response to Question 6



Additional comments from respondents for Question 6

A significant number of dentists believed that as a community of dental healthcare professionals, it was their duty and responsibility to improve the oral health status of the Indian population. It was reported that the key to convalescing current oral health conditions of the population was through

awareness programs, particularly in schools in order to emphasise the importance of oral health at a younger age, organising treatment and oral health camps via mobile dental clinics. Additionally,

dentists considered tapping resources from charitable organisations, i.e. lion's club and rotary club, as they were well-positioned and accepted widely in the community. Respondents were also of a view that dental insurance schemes would motivate individuals seek treatment at least in the urban population.

Q7: Please indicate your level of agreement or disagreement with each of the following statements, when it comes to continuing education for Dental professionals

What you told us

All 1194 dentists answered this part of the survey. Question 7 sought to gain the perceptions on the current state of dental education via 10 statements (as displayed in Table 1). Respondents could either "strongly agree"; "agree"; "neither agree nor disagree"; "disagree" or "strongly disagree" to each statement.

As displayed in figure 8, dentists revealed diverse opinions in terms of their perception to current training. While 33% reported that good training was easily available, 31% stated the contrary, 19% were indifferent and only 6% strongly agreed that good training was easily accessible. While 30% respondents strongly agreed that undertaking additional training was often expensive, an additional 48% also acknowledged this as true.

41% of the respondents also highlighted that individuals attending further training considered it to be current and up-to-date. Dentists also believed that training was relevant to clinical problems encountered during day-to-day practice. On average 50% of the respondents had time for new training and a unanimous 90% were of the opinion that ongoing training is essential and vital for all dental professionals, while a majority (72%) also highlighted that doing post-graduation alone was not adequate. Additionally, although 17% of the respondents were of the view that the best training is only available abroad, 51% disagreed.

Some of the statements generated mixed responses. Though 33% of dentists believed that oral care manufacturers provided useful training materials, 29% disagreed and 28% neither agreed nor disagreed. Furthermore, when enquired if it was easy to find the kind of training dentists are looking for online, 34% respondents stated this as true while 28% disagreed and 29% neither agreed nor disagreed.

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 paramedical 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) 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 1. Growth in number of graduates from Indian dental schools

1960	1,370
1970	8,000
1980	13,930
1990	20,000
2002	26,000

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.

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Dental Public Health! A Mistaken Identity

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Abstract – Public health dentistry in India is also known as community dentistry. Apart from few, most of the schools in India do not understand what community dentistry is about. Taken as means of increasing number of patients to dental schools; an advertisement agency for the schools. Who is to be blamed? Who is responsible for these misconceptions? Public health dentistry in India has become a moral science, both for students and faculty. The problem being faced is of mistaken identity or an identity crisis. The meaning of words public, health and dentistry all seems lost. Cynicism is not the answer. We as public health dentists still think things can change, but right kind of voices needs to be raised at the right platforms. Public health dentistry is not just a paper which undergraduates and postgraduates have to clear to obtain the degree. It is much beyond that. It is dentistry for the entire community and nation.

Keywords – Critical issues in Indian dental education; Dental public health; Leadership in dentistry; Policy issues in dental education

Introduction

The dental public health field has been expanding in scope & complexity with more emphasis being placed on the total dental care delivery system and its impact on oral health status.

A broadly accepted definition of "dental public health" has been given as "The science and art of preventing oral disease, promoting oral health and improving quality of life through the organized efforts and informed choices of society, organizations, public and private, communities and individuals".[1]

The purpose of an oral health care system is to influence the population's way of life so that oral health is promoted or maintained and oral disease prevented; and to promote adequate treatment to those members of the population affected by oral disease so that disease is arrested at an early stage and loss of function is prevented. These functions apply whether the service is in a developing or developed country.

Dental public health in Indian scenario

At the very basis of the system of oral health care are the goals and objectives-the purposes and expected outcomes of care. Some countries have neither clearly articulated oral health objectives nor a well defined system of care; others have oral health objectives that appear to have developed independently of the organization of care, with a system that is unresponsive to those objectives; yet others have clearly stated objectives and system designed to respond to those objectives, both of which are outdated. Often uncoordinated programmes and appearances of ambivalence about oral health care as a social good result when there is no clearly articulated policy.[2]

Master of Dental Surgery or MDS is a post graduate program offered by dental schools in India. The minimum qualification for the program is Bachelor of Dental Surgery (BDS). A five-year dental education leads to the B.D.S. degree in India, including one year of compulsory internship. Dental Council of India (DCI) is the regulatory body for these courses.[3]

In India, Public health dentistry is also known as Community dentistry. Apart from few, most of the schools in India do not understand what community dentistry is about. It is taken as means of increasing number of patients to dental schools. It is seen as an advertisement agency for the schools. These schools have developed, for various reasons, an attitude that patients to be treated in specialized departments. Role of Community dentist (MDS in Public health dentistry) is of a referring body.

Dental camps are organized to create awareness in the public so that the dental disease can be prevented and treated. Dental camps are helpful in providing dental health care to the poor, needy and rural population. Specialists (MDS in Public health dentistry) attend these programs along with BDS (dental graduates), but instead of providing preventive and treatment services, only referrals are made to the dental schools.

Oral health policy was drafted by Dental Council of India (DCI) way back in 1985. National oral health policy (1985) recommends public health dentists to be appointed

at primary and community health centers. Till present the policy has not be implemented.[4]

Dental public health as practiced in other diverse cultures

European countries

In UK, National Health Service (NHS) dentistry has produced one of the most cost efficient delivery systems in the world. Administration and delivery of health care service is divided into those that purchase health care and those that provide care. General practitioners (84%), hospital (9%) and Community Dental Service (6%) provide dental care. The Community Dental Service (CDS) forms a 'safety net' treatment service for those who are unable or unwilling to access care within the general dental service. These services are managed by dentists with training in public health. In addition to this role, the CDS monitors the oral health needs of the population through screening of children in schools and regular epidemiological surveys. In addition, the CDS has a health promotion role and provides referral service principally for general anesthesia and orthodontics.[5]
The community based dentist in UK has the following functions:

1. Manager: Leader of primary oral health care team; monitor and control the oral health subsystem, organize/coordinate preventive, treatment and treatment services; help data analysis research and information dissemination; help plan supervise and evaluate oral health activities.
2. Agent of Socioeconomic development: Development of community participation in oral health; participate in community meetings and development activities; liaison with public, politicians and other sectors, participate in intersetcoral projects.
3. Dental officer: Complex treatment of patients; promotion of oral health at community, family and individual level.
4. Educator: Continuing education of colleagues; training of lower level oral health workers; oral health education of families and communities.

The essence of welfare state is a government protected minimum standard of income, nutrition, health, housing, and education, assured to every citizen as a right, not charity. However the definition by Wilensky provides no indication of how far the government protection should go in terms of level of protection and in terms of equality.[6]

In Nordic countries all children aged 0-18 (Denmark), 0-18 (Norway) and 0-19 (Sweden) are provided free systematic preventive services and comprehensive treatment by the public dental services. In Norway and Sweden new groups of priority, i.e. disadvantaged, handicapped and institutionalized old age people were included as target groups of public dental services. The adult population of Nordic countries demands oral health care primarily from private practitioners. In Sweden, Finland and Norway the public service is dimensioned to provide services to the adult population on demand, particularly in districts particularly in districts where there is no or low availability of private practitioners.[7-8]

Compared to development of welfare legislation in other European countries, following elements can be said to be typical for the Nordic model: a greater government involvement in both financing and delivery of services; a high proportion of public employment in education and in health and social services; policies and services are universal and no selective; the eligibility is based on rights related to citizenship and to a small extent earned by employment and other merit; the political aims are to a larger extent a redistribution of wealth.

In Netherlands National Health Insurance (NHI) includes only preventive treatments (checkups, oral hygiene instruction and scaling). Young patients up to 19 years of age still have the right to full dental care. Adults have to pay for dental care not covered by the public health system or to arrange privately a supplementary insurance. Public health dentist provide complete range of services to children and preventive treatment to adults under NHI.[2]

Latin America

Health care, including oral health is closely related to social and economic situation of each country. All Latin countries have some sort of organized health care system. Its offer and delivery can be grouped into public and private sectors. 70% of Latin American population relies on public services which employ 25% of dentists. In spite of this, public services are poorly structured, offer limited services and usually their population coverage is low.[9]

The trends are not encouraging. The present unequal system of mainly private practice is directed to a minority of population. There is no sign of changes in model of high production of dentists for facing high prevalence of diseases. Increasing difficulties in finding jobs may lead to lower demand for places in dental school. Organized oral health promotion, including prevention has had a nominal role to date.

In future, public sector which tries to cover low income population may remain to close to what it is today in Latin countries. Largely this is due to the model adopted by majority of governments in region, implementing privatization and trying to reduce state participation in the economy.

Brazil

A classic study of Nadanovsky & Sheiham (1995) showed only 3% of reduction of cavity levels in 12 year-old-children with access to the oral care, while the same study showed 65% of reduction caused by macro social factors, including the public health politics.[10]

In Brazil, the DMFT (level of teeth lost, with restorations and with cavities) index fell from 6.65 in 1986 to 2.79 in 2003, representing a reduction of 58%. In the same period, the level of children with zero DMFT increased from 3.7% to 31.1%.[11] With this text, it is clear that Brazil has much to do, especially to modify the

model of dental treatment, based on restorations and surgery, for a model of health promotion, and this factor is the dependence of the policies of the public health system as inclusion. "Oral health care strategy" has been included in the Family Health Program (December, 2000), which has deployed 18,480 staff to promote health care for poor families in more than 4,000 cities in Brazil.[12] Number of dentists in Brazil reached nearly 220,000 and most of them (70,000) are employed by the federal government in the public health system.[13]

United States

In United States of America Public health dentists practice at the local, state and federal levels as well as in academic environments. The four major areas of public oral health are: health policy, program management and administration; research; oral health promotion and disease prevention; and delivery systems. Policy work includes such dissimilar concerns as developing dental programs for low-income communities and making recommendations for the state dental practice act. It is not just dentistry for the poor, although provision of care to persons who do not fit the private practice mode is part of it.[14]

People's Republic of China

During Mao Tse- tung's era in the People's Republic of China, policy guidelines were observed in the implementation of an oral health programme through provision of services such as fillings, extractions and stainless steel crowns to range of workers, peasants and soldiers using the counterpart of barefoot doctors, dental health workers.

Until recently, all health care workers in China were government employees and there was no private sector. At present, majority (over 80%) of health care personnel work in various health care facilities set up by government. In rural areas public health dentist work in a out -patient clinic at village level. Small general hospitals are set up at township level while larger general and some specialist hospitals are set up at country level. A corresponding structure is established in urban areas. Public health dentists provide the range of preventive and treatment services to the community. Complicated treatments are referred to specialist hospitals.[15]

Policy issues in Indian context

Ultimate responsibility for the performance of a country's health system lies with government. Those in posts of authority within dental schools have limited understanding of the subject; reason being limited or no exposure to the subject during graduation days. This gives rise to the subject being neglected and failing to develop and work to its potential. Public health dentistry in India has become a moral science, both for students and faculty. The problem being faced is of mistaken identity or an identity crisis. The meaning of words public, health and dentistry all seems lost.

The reason for these problems is that dental schools are being run for monetary gains. The management running these schools is not concerned with the health of the community. They require public health dentist because it is a post graduate subject for which admissions are taken each year on basis of huge amount of capitation fees. The government has not included oral health in public health politics, a change that could have led to improvement in the differences in health status of urban and rural population. It would have also brought down the dissatisfaction among the dental community by new jobs being created.

Dental camps in most part of India do little benefit to the people. They are being conducted for gaining publicity, such as for newspaper publications or for promoting dental schools. Therefore with time, number of patients attending these camps drops drastically, as they are aware that treatment is not being provided and only referrals are made.

Who is to be blamed? Who is responsible for these misconceptions? It is the managements running these schools and the dentists working in such schools. School children, elderly, socially disadvantaged, rural and poor population require dental treatment, which if provided at dental camp settings, mobile unit or other health care settings will reduce disparities in oral health between deprived and non deprived communities and improve overall oral health of the community. Public health dentistry is not just a paper which undergraduates and postgraduates have to clear to obtain the degree. It is much beyond that. It is dentistry for the entire community and nation.

Conclusion

To improve the picture in present scenario, MDS in Public health dentistry have to take a lead. The government and the management running the dental schools must understand the duties, function and role of a public health dentist. Apart from dental check up camps, dental treatment camp should also be conducted; the treatment being provided at the camp or health care settings. Dental schools and the management need to understand what public health dentistry is, and what it stands for. The government too must include oral health in family welfare programs as in countries like Brazil and China or can follow the NHS as in UK or NHI as in Netherlands.

Such outlook makes international support to national initiatives in public health tremendously important. Population strategies need to be implemented, in order to reverse the negative trends prevailing today. India is a developing country; we cannot afford to waste skills of our specialists (MDS in public health dentistry) and dental graduates. We have to reach to the people and practice what we are. We have to do public health dentistry.

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Vitae

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Utilization of dental care: An Indian outlook

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Abstract

Oral health has a significant impact on the quality of life, appearance, and self-esteem of the people. Preventive dental visits help in the early detection and treatment of oral diseases. Dental care utilization can be defined as the percentage of the population who access dental services over a specified period of time. There are reports that dental patients only visit the dentist when in pain and never bother to return for follow-up in most cases. To improve oral health outcomes an adequate knowledge of the way the individuals use health services and the factors predictive of this behavior is essential. The interest in developing models explaining the utilization of dental services has increased; issues like dental anxiety, price, income, the distance a person had to travel to get care, and preference for preservation of teeth are treated as barriers in regular dental care. Published materials which pertain to the use of dental services by Indian population have been reviewed and analyzed in depth in the present study. Dental surgeons and dental health workers have to play an adequate role in facilitating public enlightenment that people may appreciate the need for regular dental care and make adequate and proper use of the available dental care facilities.

Keywords: Access, awareness, dental care, India, utilization

INTRODUCTION

Oral health is a critical but an overlooked component of overall health and well-being among children and adults. Oral health problems such as dental caries, periodontitis, and oral cancers are a global health problem in both industrialized and especially in developing countries. Dental disease restricts activities in school, work, and home and often significantly diminishes the quality of life for many children and adults, especially those who are low-income or uninsured. Huge differences exist in health status including oral health between urban and rural population in India and other developing countries.[1] Although there have been impressive advances in both dental technology and in the scientific understanding of oral diseases, significant disparities remain in both the rates of dental disease and access to dental care among sub-groups of the population.

India has approximately 289 dental colleges with around 25,000 graduates each year [Figure 1]. Even with such a large work force, most of the people in India do not have access to basic oral health care.[2] The

dentist to population ratio is 1:10,000 in urban areas whereas it drastically falls to 1:150,000 in rural areas.[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. Patients are not covered under any type of insurance, and generally pay out of their pockets to get treatment from both public and private dentists. Utilization is the actual attendance by the members of the public at oral health care facilities to receive care. In regions where adequate dental manpower is available yet the utilization of oral health care services is low thereby widening the oral health differences across the social economic classes.[1] Various factors like demographic, behavioral, socio-economic, cultural, and epidemiogical, etc., contribute to people's decision to either forgo care or seek professional assistance for dental problems [Table 1].[4,5] The present paper focuses on the availability of dental care and the pattern of utilization of dental care facilities by the Indian population residing in different parts of the country.

Methods

A thorough review of literature was done which engaged most of the articles published in peer-reviewed journals relating to the subject of utilization of dental care among Indian population. The review itself began with the search of relevant key words linked with the dental care like utilization, access, barriers, dental care, India, etc., in various search engines including PubMed. Reports published only in English language were included in the review. The spotlight of the present review would not only be on the pattern of utilization of dental services by the Indian population but also on various hurdles that come across utilization. The search also targeted various socio-demographic characteristics and anxiety levels of the subjects that can influence the rate of dental service attenders. The present review also highlights important measures that can be undertaken to improve access for effective utilization of dental services.

Oral health care system in India

Oral health care in India is delivered mainly by the following establishments:[6]

- Government organizations
    - Government Dental Colleges
    - Government Medical Colleges and Dental Wing
    - District Hospitals with Dental Unit
    - Community Health Centers
    - Primary Health Centers.
- Non-governmental organizations
    - Private Dental Colleges
    - Private Medical Colleges with Dental Wing
    - Corporate Hospitals with Dental Units.
- Private practitioners
    - Private dental practitioners
    - Private dental hospitals
    - Private medical hospitals with dental units.
- Indigenous systems
    - Ayurveda
    - Sidda
    - Unani
    - Homeopathy.

Majority of dental services in India is being provided by the private dental practitioners, followed by non-governmental organizations. Various nation-wide surveys have conducted to study the pattern of utilization of dental services by Indian population. The main objective behind these surveys was to evaluate the

various factors that contributed towards utilization of dental services by the people residing in varied geographical regions of the country and factors predictive of this behavior.

Studies conducted in Northern India

A retrospective study was conducted to evaluate the type of patients, disease pattern, and services rendered in dental outreach programs in rural areas of Haryana, India.[7] A total of 1371 individuals attended the outreach program seeking the treatment. The results of the study indicated that utilization of dental services was found to be more in females than in males. The utilization of dental services was found to be influenced by the socio-demographic characteristics of the population like age, education, occupation, etc., The study concluded that there was need to motivate people giving them information but paying attention to the individual reasons which restricted their behavior.

A cross-sectional study was carried out in Chandigarh in the year 2008, over a period of 8 months, which had two components: Community survey and the Health Facility survey.[8] The main objective of the study was to determine the level of dental health care assess and associated factors, at various public health facilities of Chandigarh. The community survey included interviews of adult respondents at their homes and the health facility survey was initiated to interview the dentists at public health facilities to analyze the records in their clinics. In the community survey, a total of 203 persons were interviewed, 101 in urban areas and 102 in rural areas. Out of all the respondents who were having dental problems at the time of survey, 40% in the urban areas and 57.7% in the rural areas preferred to visit a dentist in the government set up for their problem. Giving less importance to dental problems, lack of time, and self-medicating were other reasons cited for not consulting the dentist. Time taken to reach a dentist was more for rural when compared with urban respondents. Therefore, specific efforts targeted to increase awareness toward oral health are required.

A three-phase survey was conducted in Delhi in 2003 by Maulana Azad Dental College and Hospital and supported by the Government of India WHO Collaborative Program. The main objectives of the study were to identify the oral health practices and patterns of utilization of dental services, to assess oral health status and treatment needs of the elderly population, and to test alternate strategies for controlling oral health problems among the elderly.[9] The rural areas of Delhi were included in the present study and a two stage sampling technique was adopted. Most of the subjects (80%) reported availability of dental services in their area, of which a major proportion was being provided by the private sector. One-fifth of the subjects reported having suffered from dental problems and 60% of these visited a dentist to avail dental care. Reasons given by the subjects as barriers to accessing oral health care were related to lack of priority for oral health (attitudes) and their dependent status (non-ambulatory/disabled elderly). Therefore it was emphasized to change patient perception on oral health through health education and incorporate domiciliary dental care in gerontology.

A study was conducted in a group of six villages in the district of Lucknow, Uttar Pradesh. A total of 227 individuals aged 50 years or above were interviewed and clinically examined.[10] An educational and motivational program to increase prosthodontic awareness was organized and results were evaluated before and after the program. Certain myths that proved to be a hurdle in utilization of dental services prevailed in the study population like tooth loss is an extension of old age, eating tobacco prevented caries, dental diseases can be cured by medicines alone, tooth extraction leads to loss of vision, and oral prophylaxis causes loosening of teeth.

Studies conducted in Western India

A survey was conducted in Udaipur city in 2008, which is located in south-eastern zone of Rajasthan state.[11] Dental anxiety is often reported as a cause of irregular dental attendance, delay in seeking dental care or even avoidance of dental care.[12,13] Therefore, the aim of the study was to examine relationship between regularity of dental attendance and other variables like dental anxiety, dental behavior of parents,

the dental upbringing of the respondents, education, socio-economic status, and sex. Many people all over the world are dentally anxious, but different studies show considerable results. According to the results of the present study, dentally anxious subjects are more irregular dental attendees than non-anxious people. Non-anxious who are regular dental attendees comprise 14.7%. Education, dental upbringing, regular dental attendance, socio-economic status, and interaction between education and anxiety were found to be importance for the prediction of regularity of dental attendance.

Another study which co-related anxiety level of the subjects with socio-demographic characteristics was conducted in Gujarat.[14] A total of 150 patients waiting in the outpatient Department of Oral Diagnosis of a Dental College in Vadodara were included in the study. Results of the study indicated that prevalence of dental anxiety among the study population was 46%. Females were found to be significantly more anxious than the males. Subjects residing in villages were more anxious when compared with the subjects residing in the city. Subjects with traumatic negative dental experience in the past showed higher anxiety scores. This can lead to the development of negative attitude toward dentist or dental treatment and consequently non-utilization of dental services.[15] It was emphasized to include behavior sciences in dental education and the integration of ethical considerations in the academic dental curriculum could help to improve the situation.

A descriptive cross-sectional study was conducted in Jaipur, Rajasthan to determine the association between socio-demographic factors and dental services use among patients visiting a dental college and hospital.[16] The study sample included 180 people, aged 15-65 years visiting the outpatient department of the hospital in a 5-day period. According to the results of the study, place of residence and income/month were significantly associated with dental service utilization as people residing in urban areas and economically sound visited the dentist more often when compared with people residing in rural areas and belonging to low-income groups. However, there was no significant difference between age, gender, and education level with dental service utilization. It is cited that this could be due to the fact that the dental college hospitals and most of the private dental clinics are situated within the city limits and very less or virtually no dental care services are available in the rural areas.

A cross-sectional survey was carried out among 427 randomly selected individuals in Udaipur in 2009 using a pre-tested questionnaire.[17] The objective of this study was to determine the barriers in regular dental care and home care and to assess their association with age, sex, education, and income. Results of the survey showed that the male group had more dental visits, but females experienced higher dental fear. The younger age group had more visits within 1 year in comparison to the older group. Increase in education decreases the barriers for regular dental care. Income had a significantly negative correlation with dental visit. This study also revealed the patient's perceived need that people visited the dentist only if they had symptoms which may be due to their belief that dental conditions are not serious or life threatening. It is suggested that to motivate people successfully, one not only has to give them information but also has to pay attention to the individual reasons which restrict their behavior.

Results of another cross-sectional survey[18] conducted to investigate and compare the influence of social and cultural factors as access barriers to oral health care amongst people from various social classes in Pimpri, Gujarat indicated that irrespective of the social class difference, 88% participants wished to seek only expert/professional advice for the dental treatment. Unavailability of services on Sunday, going to dentist only when in pain, trying self-care or home remedy, inadequate government policies, and budgetary constraints were among the major access barriers which proved to be an obstacle in utilization of dental care.

Surveys conducted on South Indian population

A house-to-house survey was conducted in the field practice in Mangalore, Karnataka where dental services are provided free of cost. The main objective of the survey was to determine the factors related to

the utilization of dental services.[19] The study sample comprised 195 adults to whom questionnaires were distributed. The results of the study depicted that nearly 30% of the study population had never visited a dentist although 44% of them had dental problems at the start of the study and majority of them were aware that free preventive dental procedures were provided nearby. Not having any problems with their teeth and lack of time were the two major barriers for dental visit reported by the study population. It is recommended that awareness of the people have to be improved and people be motivated to use the services available so that they can lead a socially and economically productive life.

A community-based cross-sectional study was conducted among 300 people aged 60 years and above in villages around Manipal, South India in 2008.[20] The objective behind the survey was to identify the various barriers to avail dental health services. A house-to-house interview was conducted on 300 individuals who comprised the study population. The available dental care agencies were private clinics and government hospitals. Among them 90% who utilized dental agency utilized private dental care. The remaining utilized traditional medicines for dental problems. A positive correlation was found between socio-economic status and readiness to avail free dental services. Age was cited as an important barrier to avail dental services even if services were given free of cost. As age increased, utilization of dental services decreased. Anxiety and fear of dental treatment was more common in women especially those of low-socio-economic status. Imparting preventive dental education and strengthening of the primary health centers can go long way in reducing these barriers.

A cross-sectional study was conducted among 11-12 year school children in Bangalore city. The aim of this study was to assess knowledge, attitude, and practice towards oral health.[21] The study group comprised 212 children (males and females). The survey found that pain and discomfort from teeth were common whereas dental visits were infrequent. Fear of the dentist was the main cause of irregular visit in 46% of the study participants. Findings of this study also show that utilization of dental service is mainly for pain relief with the mother being the prime person involved in the utilization of dental services. It is suggested that systematic community-oriented oral health promotion programs are needed to target lifestyles and needs of school children.

A study was conducted among the municipal employees of Mysore city in 2004 to assess the prevalence of dental caries, periodontal diseases, oral pre-malignant, and malignant lesions in relation to socio-economic factors.[22] According to the findings of the study, subjects who had caries were higher in the persons with lower socio-economic status. This can be attributed towards poor utilization of dental services which can be related to the cost and lack of awareness on the etiological factors for oral diseases.[23,24] During any dental program planning, priority should be given to lower class people having higher prevalence of diseases and unmet treatment needs.

Other studies

A study was conducted in Majuli, Assam to find out various medicinal plants used for dental care either in flowering or fruiting stage by common people.[25] During the survey a total number of 23 plant species belonging to15 family were recorded and use of plant parts are different to different localities. The traditional method of treatments and cares are still prevalent within different tribes of Majuli, Assam. The present trend of urbanization of the study areas also indicate that inspite of establishment of small health centers in the area, uses of plants and traditional practices will continue to play a significant role in the socio-cultural life of these village communities. The use of medicinal plants for curing oral health problems could be a major contributor for not utilizing available dental services by these people.

An oral care medicinal plants survey was conducted in different districts of Tamil Nadu during the period of 2000-2004 used by village people and ethic tribes of Tamil Nadu.[26] A total of 114 plant species were identified which were used to relieve toothache, used as toothbrush, mouthwash/gargle, and treat gum disorders. All these practices are a major barrier towards utilization of dental care services by these people.

Coverage for oral health

A World Health Survey (WHS) was conducted in India in 2003 and successfully implemented in six states in the country due to the collaborative efforts of the Evidence, Information and Policy Division of the WHO, Geneva; the WHO-WR office, New Delhi; Indian Institute of Population Sciences, Mumbai; and a number of state level research organizations and researchers in the area of population health. The World Health Survey covered six major states of India, namely, Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal, which comprise about 47% of the country's population. The WHS-India covered a representative sample for each state.[27]

Overall, 28% of respondents reported oral health problems in India. West Bengal (42%) has the highest proportion of respondents with oral health problems. Respondents treated for oral health problems ranges between 21% and 28%, except West Bengal. Prevalence of oral health problems does not systematically vary by residence, insurance status, and by income quintiles.[27]

Of those who were diagnosed with oral health problems, 51% have been treated. The percent of respondents treated for oral health problems is highest in Karnataka (72%) and lowest in Assam (26%). Prevalence of oral health problems is higher among females than in males. However, the percentage who received treatment for oral health problems do not vary much by sexes. A higher percentage of urban and higher income quintile respondents received treatment for oral health problems.[27]

Role of dental insurance in dental care utilization

Unlike most western countries, specific dental insurance plans are not common in India. Indian Dental Association has been striving to bring out a new all-inclusive oral and dental health care insurance scheme. However, it has been unable to achieve anything substantial in this front. We, as oral health care workers, are capable to reach every class and village across the country. Dental health insurance can also bring about dental health care awareness percolating at the gross root levels. It would serve as a good motivation to the people to regularly visit the dentist and this in turn serves as an effective preventive measure. If we have to create awareness and pass on the benefits of longevity of teeth across the society, dental profession should impress on to the policy makers to have beneficial dental insurance schemes for the masses.[28]

CONCLUSION AND RECOMMENDATIONS

Dental disease is a serious public health problem with universal distribution and affecting all age groups. However, despite this universal distribution, only a few seek dental care. Thus a wide gap is created between the actual dental needs of the population and the demand for dental care which is quite understandable from the cited literature. In India, people encounter various obstacles in utilization of dental services. These barriers can be removed by motivating people and making them aware about the oral health problems that remove anxiety and fear so that they develop positive attitude towards dental treatment. It is suggested that mobile dental clinics, dental camps, and dental outreach programs could be solutions to spread awareness and disseminate treatment. There is a need for reasonably priced, rural oral health centers to make dental care available to rural strata of the population. Unmet treatment needs of the people belonging to lower class should be addressed during conduction of dental programs. School-based screening and motivation programs significantly improve the percentage of children who seek free dental treatment at a dental school.[29] These programs can also target lifestyles and needs of the school children.

Studies regarding the utilization dental services by north-east Indian population are almost non-existent. Therefore it is the responsibility of the health sector to gather data on the utilization of dental services by people residing in this part of the country. Information about the population's use of dental services is both necessary and useful as the dental sector experiences the impact of changing forces which influence the number of people who visit the dentist and the type of services they consume. When such information is available, it can help dentists and planners more toward more optimal distributions of manpower and

money. In its absence, resources are less likely to be allocated to uses where they produce the greatest amount of additional benefits.

Footnotes

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Figures and Tables

Figure 1

Geographical distribution of dental colleges in India

Table 1

Consumer issues	Provider issues
Presence or absence of dental symptoms	Lack of specialists in area
Poverty	Complex consumer needs and issues
Geographical region	Paper work and reimbursement issues
Social status	Number of persons/dentist
Religion	Actual and perceived fees of dentist
Race or ethnicity	Waiting time
Occupation	Experience of the dentist
Income	Economic issues
Marital status	Type of dental service
Community type	Prevention vs. treatment services

Various factors influencing utilization of dental services