



## Addressing geriatric oral health concerns through national oral health policy in India

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### Abstract

There is an escalating demand for geriatric oral healthcare in all developed and developing countries including India. Two-thirds of the world's elderly live in developing countries. This is a huge population that must receive attention from policy-makers who will be challenged by the changing demands for social and health services including oral health services. Resources are limited thus rather than being aspirational in wanting to provide all treatment needed for everybody, this critique presents a road map of how we might answer the present and future geriatric oral health concerns in a most efficient manner in a developing country. Viewing the recent Indian demographic profile and the trends in oral health, pertinent policy subjects have been discussed concerning the oral health needs of the elderly and also the associated challenges which include strategies to improve quality of life, strategies to train and educate the dental workforce and above all the role of healthcare systems towards realization of better aged society in India and other developing countries.

**Keywords:** Developing Country, Geriatric Dental Education, Health Services, Oral Health Policy

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The ageing phenomenon has transpired as a significant health issue of the twenty-first century. Across the world, declining fertility and increased longevity have collectively resulted in higher numbers and proportions of older persons 60 years and above. This trend will continue as the estimated 737 million older persons in 2009 are likely to increase to two billion by 2050; population aged 60 and above will outnumber children aged 14 and below (1,2). Population ageing was seen as a phenomenon occurring mainly in the developed countries. It is now recognized that while both developed and developing countries are experiencing growing proportions of elderly, developing countries currently are ageing faster than developed countries. A fact came into view in 2009 that two-thirds of the world's elderly lived in developing countries (55% in Asia) that are much less prepared to deal with this aspect of population dynamics compared to developed world (3). This is a huge population that must receive attention from policy-makers across the world who are or will be challenged by the changing demands for social and health services. The transforming population dynamics is expected to have a major impact on the oral health profession apart from the concerns on general health. A significant impact will also be noted on the delivery of oral health services to the elderly population, whose oral health needs differ from those of younger adults. This paper primarily reviews and assesses the oral health status of geriatric population in India. Examining the present day demographic profile and oral health trends, appropriate policy subjects addressing the oral health needs of the elderly has been discussed along with strategies to improve quality of life, train the dental workforce and most importantly the role of healthcare systems towards

recognition of better aged society.

### Socio-demographic trends and characteristics of Indian geriatric population

India has attained the tag of an ageing nation with the elderly population in 2013 being over 8% (100 million) and is anticipated to increase to 20% (325 million) by 2050. The elderly population was 20 million in 1951 and 57 million in 1991 followed by a sharp increase in 2001 (4). According to observed growth rates for this period, the growth of the 60+ population was more than that of the total population (5). The sex ratio among the elderly shows an increasing trend from 94 women per 100 men in 1991 to 105 in 2011. Eighty percent of the elderly population resides in rural areas. Nearly 75% of the elderly are economically dependent, with little difference between the urban and rural elderly. Three-fourths of the dependent elderly population is supported by their own family members. Thirty percent of the elderly are below the poverty line and only 28% of the elderly population is literate. Two salient features regarding the elderly population of India are that the rate of growth of the elderly population is much quicker than the growth of the total population and the feminization of the elderly population (6). Utilization of dental care services varies between genders; being higher among females (7). Apart from the masticatory needs, the aesthetic sense is higher among females. India's population is likely to increase by 60% between 2000 and 2050 but the number of elderly population who have attained 60 years of age will shoot up by 360% and the government should start framing policies now else its consequences are likely to take it by surprise (8).

### Oral health services in India

The health sector challenges in India, like those in other Low- and Middle-Income Countries (LMICs), are formidable. Public spending on medical, public health and family welfare in India is much lower than what is required. There is no specific allocation for oral health in the Indian budget. The low levels of spending have had an adverse impact on the creation of a preventative health infrastructure.

Also, the distribution of dental professionals across geographical regions is crucial for ensuring equality in physical access to oral healthcare. According to the World Health Organization (WHO), the provision of oral healthcare services is very little in rural parts of India where approximately 80% of the elderly reside. India has 306 dental colleges, almost one-third of the world's schools. Annually, more than 25,000 dentists graduate in India and more than 4,000 specialists graduate each year. There is a total workforce of approximately 200,000 dental practitioners in India at present, which is expected to soon swell to 350,000. Majority of the dental surgeons (~95%) work in private sector in urban and suburban areas. WHO recommends dentist-to-population ratio of 1:7500. Dentists-to-population ratio in India, which was 1:300,000 in the 1960's, stands at 1:10,000 today. Dentist-to-population ratio is 1:250,000 in rural areas (9). When dental professionals are disproportionately located in the private sector relative to a public sector that provides subsidized services, financial affordability also becomes a barrier to the care by the less well off.

### Oral health status in Indian geriatric population

Doifode *et al.* (10) conducted a cross-sectional survey of 5,061 elderly residents in urban Nagpur, India. Observations in the study revealed that dental caries (43.2%) and periodontal diseases (34.8%) were the most common dental disorders. Dental Council of India (DCI) conducted a National Oral Health Survey among 18,233 elderly subjects in 19 states of the rural and urban parts of the country and reported a prevalence of 85% and 80% among the 65–74 years old for dental caries and periodontal disease respectively (11). Thukral *et al.* (12), in a study conducted among all the institutionalized elderly in urban Delhi, found that 39.2% of the elderly were edentulous, 44.9% had decayed teeth and 57.9% had deep periodontal pockets, as high as 78.5% required dentures and 38.3% required either extraction or pulpal care. Goel *et al.* (13) reported dental caries level at 100% among 96 elderly subjects in rural Delhi. They also stated that 92.6% of the edentulous subjects were not having any oral prosthesis in the upper arch and 92.5% in the lower arch. Shah *et al.* (14) in another multicentric study reported a dental caries prevalence of 67.8% among 2,200 elderly subjects in seven urban and rural areas in India. Parto *et al.* (15) reported a prevalence of 91.2% dental caries in an urban settlement colony in Delhi among 123 elderly subjects. Shrivastav *et al.* (16) in a study conducted among 117 elderly residents in geriatric homes in Bhopal, reported that 86.3% and 88.0% of the subjects had no prosthesis in the upper and lower arch respectively and only 4.2% had complete dentures. Shenoy *et al.* (17) in a study conducted in geriatric homes in Mangalore, reported that 88% of the 133 subjects were fully edentulous, and only

12% had complete dentures; none of the study subjects had partial dentures. Bijjargi and Chowdhary conducted a study among 1,360 elderly subjects in urban Gulbarga, India. Complete edentulism in both the arches was highest in the middle socio-economic group, and was the lowest in the low socio-economic group. Less than 50% of edentulous elderly and only 10% of partially edentulous elderly were wearing dentures (18). Few studies have been conducted concerning the oral health conditions, prosthetic status and needs among elderly population in India. To draw any trend analysis from the limited number of studies available will be erroneous, although the available data suggests that the Indian geriatric population has poor oral health and prosthetic status with high unmet needs.

### Alleviating geriatric oral health predicament

#### *Policy formulation and integrated strategy*

Oral health policy formulation for the geriatric patients needs to be one of the major objectives to be worked at by Ministry of Health (MoH), Government of India. Ensuring that every elderly person receives quality oral care at affordable costs should remain a priority at the national level. A blue print needs to be outlined as to how the oral healthcare provision be deliberated for the anticipated growth in the older population. National oral health policy needs to be implemented and also integrated with the health policy with a special emphasis and an objective towards reducing geriatric oral health burden and improving the oral health-related quality of life of the elderly.

#### *Widening the national geriatrics oral health data bank*

Healthy geriatric policies can be formulated only if adequate and strong database exists for the population. Limited number of studies are available from the community to estimate the burden of oral diseases in elderly population in India; almost nil prior to the year 2000. Those at hand are not representative and are restricted in its generalizability. Research on oral healthcare of geriatric populations needs to be supported by a fraction of the healthcare budget. Research agencies, both government and private, should explore additional funding mechanisms to increase the number of geriatrician researchers. An oral health data bank needs to be created for the geriatric population in the country. Research that augments scientific understanding of ageing and the causes and treatment of illnesses that afflict older adults too needs to be engaged. Geriatricians should also collaborate with the media and engage in social marketing to represent a realistic picture of ageing and create a public voice for policy change (19).

### Implementing geriatric dental education

Despite demographic pointers indicative of the future volume of geriatric oral healthcare needs, no formal training on this subject has been introduced in the dental curriculum. Fifty-eight percent of dental schools supported geriatric dentistry with finances when a predoctoral geriatric dentistry education was evaluated in U.S. and Canadian dental schools. The impediments identified to extension of geriatric dentistry education were lack of trained manpower, packed curriculum,

and fiscal concern (20).

In developing countries, geriatric dentistry has not received the interest of dental professionals and policy-makers, though two third of the world population of elderly lives in the developing countries. In all the subjects of undergraduate and postgraduate dental curricula in India, geriatric dentistry does not figure anywhere, except brief mention of age changes in dental and oral tissues (21). Students at both the undergraduate and postgraduate levels are trained to provide oral healthcare at the community level to residents in remote areas, including elderly patients, through a mobile dental van and dental camps. However, no training is given for oral care provision to patients in long-term care facilities or for the homebound elderly.

The first and the most important step required to promote geriatric dentistry education is to change the mind-sets of policy-makers, students and academicians. Incorporating geriatric dentistry as a subject formally in the undergraduate dental curriculum, introducing a new speciality of geriatric dentistry similar to that of pedodontics for dental care in children, organizing workshops, conferences and symposiums on the subject, creating public awareness through media campaigns and lobbying by the state and dental council members to political parties to educate the politicians on the significance of the geriatric dentistry and its inclusion in the national oral health policy may be considered as few of the measures to change the mindset of dentists, policy-makers and academicians. Undergraduate teaching is essential to provide the academic and clinical training to enable students to provide oral healthcare to the elderly. A geriatric dentist needs to have a helpful attitude, expertise in behavioural management, and added knowledge of medicine and pharmacology. Geriatric dentists need to interact with elderly subjects many a time with various diseases like dementia, psychiatric illness, on palliative care, etc. Also, many of the geriatric patients have no one to look after them and are socially isolated. Understanding their states of mind and having better behaviour management skills will therefore be assets for geriatric dentists in providing the necessary treatment.

#### Gerodontology – future implications for developing countries

Geriatric oral health concerns continue to be a challenge in most of the countries as more people live longer. Resources are limited in every country although scarcity of resources is much more prevalent in developing countries in comparison to the developed countries. Rather than being over-ambitious in wanting to provide all treatment needed for everybody, this critique presents a road map of how we might address the present and future geriatric oral health concerns in a most efficient manner. Central and essential to oral health planning for a developing country is to have an implemented oral health policy. Only then, can we prioritize if sufficient resources are available for the whole population or for the high-risk groups. If financial resource is a constraint, then free geriatric treatment may be provided to elderly who fall below poverty line; developing a dental safety net. Cost-efficiency should be a major factor in deciding what scope of treatment to offer.

Presently, there is no oral health policy in India. What we do have is a policy which was drafted way back in 1985, although yet to be implemented. The policy rightly focuses on health promotion and prevention but overlooks the geriatric oral health concerns. Our suggestion is to have an implemented oral health policy which is well-articulated so that it addresses all target groups including the geriatric population.

Once an oral health policy is implemented, only then can we specifically focus on the geriatric oral health issues like budget, mission and goals of such services. Workforce earmarked through the national oral health policy at Primary Health Centres (PHCs) and Community Health Centres (CHCs) could be utilized for geriatric services. Dental hygienist is an operating auxiliary who is licensed and registered to practice dental hygiene in India. Dental hygienists are allowed to clean teeth, apply fluoride, screen patients and instruct on oral hygiene. Apart from a dental surgeon, a hygienist role is well-defined in public health programs and goes where dentist cannot. They can be also be utilized in geriatric oral health education programs. Surely the man power will be deficient but a generated blueprint will be available to work upon. Also, dental schools and volunteering clinicians may provide *pro bono* services at specified time and settings.

Geoffrey Rose, an epidemiologist, had advocated a health theory and now globally accepted that a large number of people at a small risk may give rise to more cases of disease than the small number who are at high-risk (22). Children comprise approximately 40% of the Indian population and should remain the priority in the oral health policy but that does not exclude the geriatric group as significant target group.

Causative or risk factors in oral disease are often the same as those implicated in the major general diseases. Oral health promotion and oral disease prevention should include targeting common risk factors which leads to the amalgamation of oral health promotion with broader health promotion. The justification behind such an approach is that directing action toward these common risks and their underlying social determinants will help to improve a range of chronic conditions. This approach provides a platform to build a partnership particularly in countries with uneven distribution of services (23).

The next most important step in the forward direction is provision of geriatric dental education to undergraduate students through formation of a separate specialty. The success of pediatric dentistry in focusing and improving the oral health of children can also be emulated among the elderly through the structuring of a new specialty. This distinctive creation will impart a voice to the health needs of the elderly both directly and indirectly through the organized conferences, seminars and other health educational meetings, all aiding in policy formulation and implementation for the aged. The starting point of the road map is the formulation of oral health policy with special emphasis on reducing geriatric oral health burden. Widening of national oral health data banks, implementing of geriatric dental education and development of appropriate infrastructure for dental clinics and hospitals need to be developed in a phased manner. The end point of the road map will be a policy which permits geriatric population to have access to oral health services at

an affordable cost thereby improving the oral health related quality of life in this population.

A national oral health policy addressing the concerns of all target groups including the geriatric subjects needs to be articulated and implemented at the earliest in India. At present, there is no specific funding for oral health since there is no implemented oral health policy. We do have a drafted oral health policy by the DCI but with no specific focus on geriatric groups. We would like to recommend a minimum of 5–10% health budget allocation towards oral health programs, implementation of a national oral health policy and also to address the geriatric oral health concerns. Specific fund allocation to geriatric dentistry can be earmarked. Primarily, at this juncture, include geriatric oral health concerns in the drafted national oral health policy which currently is lacking.

### Conclusion

There is an escalating demand for geriatric oral healthcare in all developed and developing countries including India. Oral health policy framed and implemented with a special focus for the elderly needs to be the foremost government initiative. Also, a comprehensive agenda for research to improve the oral health and healthcare of older persons and identifying areas of focus needs to be developed. Development of geriatric dentistry as a separate subject should be introduced in undergraduate teaching. Education in geriatric dentistry will enable dental professionals to understand, plan and deliver need-based oral healthcare to elderly population. Viewing the shift in the demographic profile, it becomes the responsibility of the policy framers and the dental profession to ensure that India has an adequate number of dentists with the appropriate knowledge and skills to treat the elderly.

### Ethical issues

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

### Authors' contributions

AS wrote the first draft, and BMP revised it critically. Both authors approved the final version.

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