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Commentary

Addressing inequalities in oral health in India: need for skill mix in the dental workforce

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Abstract

Dentistry has always been an under-resourced profession. There are three main issues that dentistry is facing in the modern era. Firstly, how to rectify the widely acknowledged geographical imbalance in the demand and supply of dental personnel, secondly, how to provide access to primary dental care to maximum number of people, and thirdly, how to achieve both of these aims within the financial restraints imposed by the central and state governments. The trends of oral diseases have changed significantly in the last 20 years. The two of the most common oral diseases that affect a majority of the population worldwide, namely dental caries and periodontitis, have been proved to be entirely preventable. Even for life-threatening oral diseases like oral cancer, the best possible available treatment is prevention. There is a growing consensus that appropriate skill mix can prove very beneficial in providing these preventive dental care services to the public and aid in achieving the goal of universal oral health coverage. Professions complementary to dentistry (PCD) have been found to be effective in reducing inequalities in oral health, improving access and spreading the messages of health promotion across entire spectrum of socio-economic hierarchy in various studies conducted globally. This commentary provides a review of the effectiveness of skill mix in dentistry and a reflection on how this can be beneficial in achieving universal oral health care in India.

Keywords: Dentist, health systems, human resource, inequalities, oral health, skill mix

Healthcare systems are responsible for addressing the needs of respective populations without any discrimination. Estimates from Global Burden of Disease demonstrate that oral diseases affect 3.9 billion people and untreated dental caries (tooth decay) is the most prevalent morbid condition among all diseases.[1] Furthermore, oral diseases significantly affect quality of life and its associated healthcare has a catastrophic effect on the public health budgets.[1] Linkages between many oral diseases and chronic non communicable diseases are well documented[2-7] and tooth loss has been reported of being associated with pre-mature mortality.[1,8,9] Oral diseases may also impact social and psychological wellbeing, consequently leading to social isolation.[10]

A multi-center study in India reported caries prevalence among 35-44 year olds to be in a range of 48% in Orissa and as high as 86% in Delhi and Maharashtra.[11] This increase in prevalence of dental caries is observed parallel to the rapid nutrition transition in the recent decades[11-14] and may also be one of its consequences. A prevalence as high as 100% was reported for periodontal disease among 35-44 and 65-74 years old in Orissa and Rajasthan[11] confirming that the public health burden of oral diseases is not only limited to developed countries but a significant problem for a rapidly developing country like India.

The lack of regular national surveillance of oral diseases in India limits estimation of the current prevalence and the study of the trends of oral diseases. However, considering the strength of evidence on sugar intake and dental caries,[15] and the increasing sugar intake as a consequence of rapid urbanization and subsequent westernization of diet,[14] epidemic proportions of dental caries can be predicted in near future. Furthermore, India is called as the "oral cancer capital" of the world attributed to its high intake of both smoked and smokeless tobacco products, strongly associated with oral neoplasms.[16] Most of these highly prevalent oral diseases are largely preventable as they share common risk factors (tobacco, alcohol, unhealthy diet) with other life-threatening chronic diseases[17] which can

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be reduced through various health promotion and preventive measures.[18,19]

The expected rise in burden of oral diseases will pose a massive challenge to the health system in light of increasing unfair and unjust social inequalities in oral health, which have already raised global concerns. The demand for equitable distribution of oral health hence indicates the need to reflect on effective preventive strategies adopted in other countries. A comprehensive dental workforce with appropriate skill mix is one such strategy adopted to address these issues.[20-24] "Skill mix" is a term used for description of the mix of posts, grades or occupations in any organization. The dental workforce consists of dental surgeons, public health dentists and dental auxiliaries or professionals complementary to dentistry (PCDs). Barnes in his critical review of reorientation of oral health services stated that "*Dental services are now becoming polarized with need towards self-care and minimal intervention on one hand, and high technology care on the other, thus increasing the need to redefine the dentist to auxiliary ratio.*"[25]

The capacity to which PCDs have been utilized in other health systems is well documented in the literature.[20,21,23,24] A systematic review[26] identified five main themes of oral health and examined their competence across these areas. The five identified themes were diagnosis, technical competence, oral health promotion, acceptability and productivity. In regard to the diagnosis of oral diseases, the majority of the studies reported that PCDs who have received appropriate training could diagnose and screen the most prevalent oral diseases similar to a dentist. The review highlighted that 40 of 41 selected studies reporting quality of performing most technical procedures was similar between PCDs and dentists. The review further reported that patients found working by PCDs acceptable and employing of PCDs increased the productivity.[26] This shows that PCDs are competent to address the basic oral health needs at a population level.

Historically, the first dental college in India was established in 1920 and the recent statistics show that currently 301 colleges offer 25,270 student positions annually.[27] The underlying reason for such a massive expansion could be the objective of serving oral health care needs of phenomenally increasing Indian population. However, the alarming urban–rural inequalities in dentist to population ratio is quite evident and well documented in the literature.[27-32] This non-proportional distribution of dental workforce raises concerns as the healthcare needs of rural and severely deprived residents might be ignored while those of urban residents are satisfied. Consequently, social inequalities in oral health by area of residence may increase phenomenally.

PCDs provide a great opportunity to bridge this gap by both providing basic treatment needs and also by carrying out oral health promotion activities in rural areas. This becomes very vital as most of the oral conditions are largely preventable and can be well managed through effective health promotion and acting before they occur. However, this opportunity is untapped as not even one third of all dental colleges train PCDs reflecting the lack of an appropriate skill mix in India.[33,34] As dentistry is already an under-resourced profession in India, the ever increasing demands for oral health care is creating an unprecedented pressure on state and central governments to provide equitable health care. Preventive dental services like "atraumatic restorations," developing oral hygiene skills, tobacco cessation and the basic clinical procedures can be well delivered by PCDs, while the complex clinical procedures that require the presence of a dental surgeon can be taken care through a referral system.[20-24,26,34] These preventive services would not only reduce the burden of oral diseases, but would also reduce the increasing pressure on the dental profession in India.[35]

The inadequacy in primary care services for oral health is also highlighted in Universal Health Coverage report of the Planning Commission of India, which may affect the Indian ambition to have universal health coverage.[35] It is quite evident that a dental equivalent of "inverse care law" operates in India which means that those who require the dental health care most are the ones least likely to receive it.[36] In conclusion, an appropriate skill mix to carry out more preventative and therapeutic work and an increase in the number of dental auxiliaries is urgently required in India to provide more appropriate and cost-effective care to all population sub-groups across India.

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