The Global Aging Population and Its Implications on Oral Health

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KEYWORDS

ABSTRACT

Countries worldwide are observing an increase in the number and proportion of older individuals in their populations. Currently, over 703 million people worldwide are aged 65 or above. Multiple factors, both individual and environmental, impact on the health of older adults. Common issues range from physical to social and psychological challenges. Maintaining oral health in old age puts unique and significant challenges. It is important for dentists and healthcare workers to thoroughly understand age-related changes in the oral cavity, common medical conditions and their dental implications, and the complex relationship between oral and systemic diseases. Some characteristics of the older population can influence preventive and treatment protocols. The expansion of the dental healthcare system in Saudi Arabia reflects a journey towards modernization , significantly influenced by Saudi Arabia Vision 2030. Although real progress has been made, continuous efforts are necessary to address existing challenges and ensure effective oral health services delivery for the entire population.

Background:

The global population is aging at an unprecedented rate. According to the World Population Prospects 2022, the proportion of people aged 65 years and above is increasing more rapidly than younger age groups. This demographic is projected to rise from 10% in 2022 to 16% by 2050[1]. In 2019, there were 703 million individuals aged 65 or older worldwide. Eastern and Southeastern Asia had the largest number of older adults (260 million), followed by Europe and Northern America (over 200 million) [2]. In Saudi Arabia, although 63% of the population is currently under 30, a significant demographic shift is expected within the next decade, with increasing percentages of individuals aged above 40, 50, and 60[3].

Healthy aging is crucial for maintaining well-being in older age[4]. A significant portion of older adults (80%) have at least one chronic disease, and 68% have multiple chronic conditions[5]. The overall health status and oral conditions are closely linked, and comprehensive health cannot be achieved without adequate oral health. Aging often brings physiological changes, nutritional challenges, and diminished appetite. Adequate nutrition is essential for promoting the health of older adults. Poor nutrition can lead to accelerated physical and mental decline. Chronic diseases and medications can reduce salivary flow, causing difficulties in chewing and swallowing (dysphagia), impacting nutritional intake[6].

Impact of Medical Conditions and Medications on Oral Health

Many older adults suffer from conditions like diabetes mellitus (DM), hypertension (HT), hyperlipidemia (HL), and arthritis, among others. There is a strong association between diabetes mellitus and dental health issues, including periodontal disease, delayed wound healing, taste alterations, and dental infections. Diabetic individuals have a higher risk of periodontal diseases, especially if their diabetes is poorly managed. They are also more susceptible to dental infections such as stomatitis, which may or may not be related to candida infections. Diabetic denture-wearers are prone to traumatic ulcers in the denture-bearing area due to slower healing and delayed wound repair[7].

Stroke and dementia often lead to a diminished ability to perform self-care, necessitating assistance with basic daily activities. People with dementia frequently exhibit inadequate oral hygiene, gingival bleeding, periodontal pockets, mucosal lesions, and reduced salivary flow[8]. Stroke survivors may face challenges in chewing and swallowing, affecting their food intake. Some medications, including diuretics and antidepressants, can decrease saliva secretion, increasing vulnerability to oral diseases. Xerostomia, or dry mouth sensation, is a common complaint among older adults[9]. Those with xerostomia are at risk of dental caries and periodontal diseases and may experience difficulties in speaking and swallowing, burning mouth syndrome, and taste alterations.

Oral Diseases in Older Adults

Dental Caries: The incidence of coronal and root caries increases with age[10]. Older individuals are more prone to root caries due to gingival recession and bone loss. Caries can weaken teeth and restorative procedures, risking tooth fracture upon occlusal loading, making them unsuitable as abutments for dental prostheses.

Periodontal Diseases: Periodontal disease damages the supporting structures of teeth, leading to gingival recession, alveolar bone resorption, teeth mobility, and tooth loss. Over 60% of older adults are affected by periodontal disease, possibly due to decreased immunity, poor manual dexterity, and impaired vision or oral hygiene practices[11].

Oral Cancer and Precancerous Lesions: Oral cancers, including those of the cavity, tongue, lips, and oropharynx, are among the most common cancers worldwide, with an annual incidence of approximately 500,000[12]. Older adults may have less resilient oral mucosa, making them more susceptible to toxic materials and disease, increasing the risk of cancerous and precancerous lesions. Reduced salivary flow is common when salivary glands are damaged.

Tooth Loss and Edentulism: Tooth loss is the result of severe dental caries and periodontal disease. Post-extraction, adjacent teeth may drift towards the extraction sites, and opposing teeth may over-erupt. Tooth loss affects aesthetics, speech, and chewing function. It also impacts nutritional intake, potentially causing malnutrition. Additionally, tooth loss affects social status, self-esteem, and oral health-related quality of life[13]. Dental designs for older adults should avoid requiring high manual skills for care.

Preventive Dentistry for Older Adults

Reports indicate that the use of professional dental health services is low among older people, particularly those who are socio-economically disadvantaged[14]. Dental professionals should provide tailored oral hygiene instructions and dietary advice. Saliva substitutes or hydrating mouthwash can alleviate xerostomia symptoms[15]. Fluoride is an effective anti-caries agent, aiding in the remineralization of enamel and dentine[16]. Rigorous oral hygiene practices are essential to prevent oral infections. For edentulous individuals, implant-supported mandibular complete overdentures based on two implants have been shown to be significantly more stable and comfortable, enhancing chewing efficiency and speech compared to conventional complete dentures. This has been recommended as the standard of care[17].

A supportive periodontal therapy routine, including improved oral hygiene practices and extraction of noticeably mobile teeth or those with poor prognosis, should be considered to focus oral hygiene efforts on the remaining healthy dentition. Chlorhexidine rinse is particularly useful for treating elderly patients, especially those with physical and mental disabilities. It reduces oral mucositis and candidiasis in immunosuppressed patients, such as those undergoing intensive chemotherapy[18]. Oral health services should be organized to ensure early detection, prevention, and treatment of oral health problems for all elderly individuals, whether they live at home, in hospitals, or in institutions[19]. Achieving such services requires the involvement of other health professionals and caregivers of the elderly. This collaborative approach can assure a good quality of life and reduce dental expenses for elderly patients.

Aging Population and Oral Health in Saudi Arabia

Few epidemiological studies on oral health among older adults have been conducted in developing countries. The growing elderly population in Saudi Arabia will lead to increased demand for dental care services. The Saudi dental healthcare system, which includes government and private sector services, faces challenges. Limited access to oral health services often results in tooth extractions due to pain, discomfort, or lack of necessary treatment materials[20]. Studies have shown that cost is a barrier to utilizing dental services among adults and the elderly in Saudi Arabia[21]. Despite the government covering basic dental care, the prevalence of caries has increased dramatically in the past decade, from 68% to 96% among children, adults, and older individuals ([22-24]).

A study found that nearly three-fifths of adult patients visited dentists annually, 22% had visited within the previous two years, and 14% had not visited a dentist for more than two years. The most common reason for dental visits was tooth or gum problems[25]. The evolution of the dental healthcare system in Saudi Arabia reflects a journey towards modernization and inclusivity, significantly influenced by Vision 2030. While progress has been made, ongoing efforts are essential to overcome existing challenges and ensure effective and equitable oral health service delivery for the entire population[26]

Conclusion: Improving the dental care of older adults is vital. We need to increase the number of public health campaigns promoting the importance of oral health among older adults. Additionally, implementing programs for oral health care for older adults by both governmental and private sectors is important. Financial support for oral care will improve the quality of care and reduce treatment costs. Oral health services should be organized and developed to secure adequate early detection, prevention, and treatment of oral health problems for all elderly people, whether living at homes, in hospitals, or in institutions. The evolution of the dental healthcare system in Saudi Arabia reflects a journey toward modernization and inclusivity, significantly influenced by Vision 2030. While significant progress has been made, ongoing efforts are essential to overcome existing challenges. Furthermore, new models for dental care delivery, such as mobile technology, tele-dentistry, and integration with geriatric and primary care, offer better opportunities for care.

-Abbreviations: (DM): diabetes mellitus, hypertension (HT), Hyperlipidemia (HL)

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