

Oral Health Status of Institutionalized Elder's: A Systematic Review

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ABSTRACT

Studies on oral health status of elderly have showed a poor oral health condition and increased treatment needs. But information regarding institutionalized elders is being sparse across the globe. Thus purpose of this article was to summarize the available information regarding oral health status and treatment needs of elderly in various residential homes and to discuss barriers in delivering oral health care. Data from original scientific papers published in PubMed, PubMed Central and Google Scholar were taken for review. Search was accompanied with keywords like Aged, Geriatrics, Oral health, Institutionalized persons etc and non-MeSH terms like Treatment needs, Residential homes. Articles published in English language only were included. References from the identified publications were manually searched to identify additional relevant articles. The systematic search resulted in 379 papers, of which 23 were suitable for the present review. Thus oral health status of elderly resident was poor with more oral disease like caries, gingivitis, periodontitis and most of the residents were edentulous with no dentures.

KEYWORDS: Elders; Residential homes; Oral health status; Treatment needs.

INTRODUCTION

The world population has been experiencing significant ageing, the process that results in rising proportions of older persons in the total population since the mid-twentieth century. Ageing had started earlier in the more developed regions and was beginning to take place in some developing countries.¹

Life expectancy at birth is projected to continue to rise in the coming decades in all major regions of the world. Life expectancy was 65 years in 1950 in the more developed regions compared to only 42 years in the less developed regions in the same year. By 2010-2015, it is estimated to be 78 years in the more developed regions and 68 years in the less developed regions. The gap between the more developed regions and the less developed regions has narrowed and it is expected to continue to get smaller in the coming decades. By 2045-2050, life expectancy is projected to reach 83 years in the more developed regions and 75 years in the less developed regions. Thus longer life spans will contribute to future ageing in all major regions of the world.¹ So this life expectancy raises elderly cohorts to carry more retained teeth into their old age due to advancement in medical field for which proper dental care is needed.

The epidemiological literature on oral health in the elderly is not very encouraging, and it indicates profound imbalances among countries and regions and as a function of institutionalization.^{2,3} This disparity is mainly attributable to differences in socioeconomic conditions and in the availability and access to oral health services.⁴

On the other hand economical and socially disadvantaged elder's and the physically impaired elder's were more likely to experience tooth loss, edentulism, untreated dental decay and periodontal diseases.⁵ Most surveys indicate that the elderly living in residential homes have the worst oral health condition.⁶⁻⁸

Dental care and treatment is a greater problem for the institutionalized elderly than for people in the same age group who are not in institutions, which sets them at a greater risk of deterioration in dental and oral health. This is due to a combination of difficulties which include the costs incurred, the lack of oral hygiene offered by homes, the complications of transporting the elderly and the fear of the participants themselves. Added to this there is lack of interest and competence in this field on the part of dental medical science, the nonexistence of organised dental care for the institutionalised and the difficult psychological and social conditions prevailing in residential homes.⁹

Elderly people in residential homes are been frequently prevented from achieving good dental and denture hygiene due to lack of information, failing eyesight and impaired dexterity.¹⁰ However, severely dependent elderly individuals may require nursing as well as personal care. Many individuals in this latter category are admitted to nursing homes where all their care needs are assumed to be met. However, studies have indicated that residential home resident's oral health is worse than that of similarly aged community dwellers, and that an

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emergency rather than a routine dental check is the usual reason for requesting a dentist's services for a resident.¹¹ Though studies were available in past literature regarding the oral health status of residential elders no such review were made regarding the oral health status of elders in residential homes so the present review was undertaken to summarize the available information regarding oral health status and treatment needs of elderly in various residential homes and to discuss barriers in delivering oral health care.

METHODS

A thorough literature review was made which engaged most of the articles published in peer reviewed journals relating to Geriatric oral health. The review itself began with the search of relevant Medical subject heading (MeSH) terms like Aged, Geriatrics, Oral health, Institutionalized persons etc and non-MeSH terms like Treatment needs, Residential homes in various search engines including PUBMED, PUBMED CERNTRAL & GOOGLE SCHOLAR. Articles published in English language only were included in the review. The spotlight of the present review will be among elders population residing in residential homes and articles published between the years 2000 to 2015 were only reviewed. The present review also highlights the barriers in delivering oral health care for those elderly residents. Finally of 379 citations, 23 studies met study criteria and were reviewed.

RESULTS

Table 1: Summary of articles published from 2000 - 2015

Authors	Year	Study place	Sample size	Significant findings
Frenkel H, Harvey I and Newcombe RG ⁷	2000	United Kingdom	412	Unable to clean denture – 82% Denture related stomatitis – 33% Root caries – 63%
Saub R, Evans RW ⁶	2001	Australia, Melbourne	175	DMFT - 24.9 Mean root caries – 2.3 Treatment needs Restoration for coronal caries-46% Restoration for coronal caries – 30%
Vucicevic-Boras V, Bosnjak A, Alajbeg I, Cekic-Arambasin A, Topic B ¹²	2002	South Croatia	274	Edentulous – 70% Edentulous in one jaw – 14.2%
Chalmers JM, Hodge C, Fuss JM, Spencer AJ, Carter KD ⁸	2002	Australia, Adelaide	224	Edentulous -66%
Stubbs C, Riordan PJ ¹³	2002	Australia, Perth	348	Edentulism – 52% Oral mucosal lesion in edentulous elders – 45% DMFT – 24.7 Root caries Mean untreated decayed root – 1.3 Mean root covered with plaque – 1.9
Montal S, Tramini P, Triay	2003	France	321	Edentulism – 27% Treatment needs: Restorative need –

JA, Valcarcel J ¹⁴				30.6% Extraction – 45.1% Prosthetic need – 53%
Carter G, Lee M, McKelvey V, Sourial A, Halliwell R, Livingston M ¹⁵	2004	New Zealand	210	Treatment needs: Restorative need – 51.5% Extraction – 38.2% Scaling – 82%
Lo EC, Luo Y and Dyson JE ¹⁶	2004	Hong Kong	3153	Edentulous – 20% Mean DMFT – 23.0
Comfort AO, King T, Moveni M, Tuisuva J ¹⁷	2004	Fiji	125	Medically compromised – 37.2% DMFT – 23
Simunkovic SK, Boras VV, Panduric J and Zilic IA ¹⁸	2005	Zagreb, Croatia	139	Average oral health status per persons Carious tooth – 1.03 Tooth extracted – 6.9 Filled tooth – 0.74 Root caries – 0.17
Murray PE, Ede – Nichols D, Garcia – Godoy F ¹⁹	2006	South Florida	265	Edentulousness – 20.4% Oral health status Oral problems – 50.6% Gingivitis – 36.6% Caries – 26% Tooth fracture – 15.9%
Unluer S, Gokalp S and Dogan BG ²⁰	2007	Turkey	216	Edentulousness – 67.4% Mean DMFT - 29.3 ± 5.8 Mean root caries - 2.2 ± 3.1
Tramini P, Montal S, Valcarcel J ²¹	2007	France	321	Edentulousness – 26.9% No denture – 12.6%
Sharifa A.M Al – Shehri ²²	2009	Saudi Arabia	129	Treatment needs: Restorative need - 63% Prosthetic need Complete denture – 40% Partial denture Upper – 38% Lower – 48%
Gaiao LR, Almeida MELD, Filho JGB, Leggart P and Heukellbach J ²³	2009	Brazil	167	Edentulous – 58.1% Mean DMFT – 29.7 Mean missing teeth – 28.4
Basnal V et al. ²⁴	2010	India, Haryana	152	Edentulous – 47.4%
Gluhak C, Arnetzl GV, Kirmeyer R, Jakse N and Arnetzl G ²⁵	2010	Austria	409	Treatment needs: Prosthetic need – 81% Acute inflammation of Periodontium – 84%
Hopcraft MS, Morgan MV, Satur JG and Wright FA ²⁶	2012	Australia	510	Dentate – 53.9% Dentate residents had 14.4 teeth and 2.66 untreated decayed teeth.
Hopcraft MS, Morgan MV, Satur JG, Wright FA, Darby IB ²⁷	2012	Australia	275	Periodontal pocket of 4mm – 35.6% Periodontal pocket of 6mm – 10.2%
Petelin M, Cetic J, Perkic K and Pavlic A ²⁸	2012	Slovenia	296	Caries - 3.59 ± 4.70 Filled tooth - 1.94 ± 3.63 Treatment needs: Scaling & root planning – 56.7% Periodontal surgery – 21.6%
Chhabra A, Chhabra N, Kabi D, JainA ²⁹	2013	India, New Delhi	412	Edentulism – 75% Treatment needs: Prosthodontics need – 50% Extraction – 60%

				Restorative treatment – 25%
Naidu GM et al ³⁰	2014	India, Vijayawada	182	Treatment needs: Complete denture – 12.1% Partial denture – 60.4%
Gaszynska E, Szatko F, Godala M, Gaszynski T ³¹	2014	Poland	259	Edentulous – 46% Requires treatment – 59.8%

DISCUSSION

The oral health status in the elderly population has been addressed increasingly in the past years across the globe, but the oral health of institutionalized elder's had not received a proper attention.³²⁻³⁵

The institutionalized residents are the group of elders who are unable to maintain independence. The residents in old age homes have a dramatic contrast to those who live independently. Some of the reasons for poor oral health among elderly residents were cognitive problems associated with old age, forgetfulness, lack of motivation and physical disability.³⁶ Moreover they are also been frequently prevented from achieving good dental and denture hygiene due to lack of information, failing eyesight and impaired dexterity.⁷

However, many elderly are not able to clean their mouths and eventually removable dentures by themselves, and most of them were dependent on nurses and managers of residential homes for their daily oral hygiene care. The importance of the oral health of residents is often misunderstood and neglected by nurses and nurse aides.¹⁹ A lack of oral health knowledge and oral health care skills of qualified nurses is an important inhibiting factor in preventing proper oral health care among elderly residents.³⁷

The home manager and the services offered by them have a significant influence on dental utilisation by the residents. Taylor³⁸ suggested that liaison between residential home managers and health care teams are important as most patients who are homebound or in long-term facilities with multiple health problems require the co-operation of many different types of providers. Oral health education programmes offered to care staff can positively affect their ability to perform oral hygiene procedures. Apart from this practical training to care staff can also be included.¹¹ However, Simons et al.³⁹ highlighted the rapid turnover rate of poorly paid nursing assistants as a barrier to providing training in care establishments.

Dental diseases are among the widest spread diseases around the globe. It is still an important oral health problem in most of the industrialized countries, affecting most of the adults & having tooth loss as its main outcome.⁴⁰ Although not an important cause of mortality, these may adversely affect the general health of the people, especially in old age. Poor dental health & untreated dental conditions, can have a significant impact

on quality of life, & also increases the risk of other chronic conditions such as cardiovascular disease.^{40,41}

Root caries is now been considered as a major dental public health problem for the elderly. There are three main interrelated arguments supporting this statement. Firstly, life expectancies at both birth and age 65 have been increasing markedly in industrialised societies. Secondly many studies in past literature had showed, periodontal disease increases with age due to its cumulative nature. Gingival recession and alveolar bone loss can occur due to traumatic tooth brushing, periodontal disease or periodontal treatment which may lead to more tooth root surfaces with risk of developing root caries which shall predispose the elders to suffer from root caries.⁴²

Root caries is a preventable disease. However, available population-based prevention methods (e.g. water fluoridation, fluoridated dentifrices) are not effective on all people equally. Office- and home-based intensive root caries prevention measures are more effective than current population-based prevention measures, but access to care, compliance issues, and cost preclude the use of many of the existing intensive prevention measures on the entire population.⁴²⁻⁴⁴ Restorative treatment of root caries is notoriously difficult. Post-treatment pain and hypersensitivity are very common complications which lead to, increased tooth loss in elders with root caries. So, prevention of root caries among elders is an important issue in clinical practice.⁴⁵

In elderly population, tooth loss is an indicator of poor oral health and may impair physical, psychological, and social functioning and influence self-esteem and communication. Elderly People with tooth loss may avoid conversations or avoid laughing or smiling.^{32,46} Loss of teeth can occur due to, either tooth are extracted by oral care providers, or lost spontaneously due to the progression of periodontal diseases or other events like dental trauma.⁴⁷

The main reasons for tooth extractions were dental caries and periodontal disease, apart from this socio-economic-, behavioural- and attitudinal characteristics of elderly individual tend to influence the tooth retention profile. Studies have shown that elder's with low income and education are more likely to be edentulous than their counterparts of higher income and education.⁴⁸ Tobacco use is a risk factor in tooth loss particularly in people having a high consumption over several years.⁴⁹ The number of retained teeth has an impact on oral health-related quality of life, and elderly people may be affected by dietary imbalance too, if their oral condition is not adequate.⁴⁹ Thus oral rehabilitation, including the utilization of dentures, has long been advocated as an effective measure in reducing the burden associated with tooth loss.

The distribution and prevalence of complete and partial edentulous between developed and less – developed

countries may be associated with a complex interrelationship between cultural, individual access to care, and socioeconomic factor. According to the world health organization, adults having minimum of 21 functional teeth can experience a good dietary intake without the need for the denture.⁵⁰

Clinical factors, like number and location of absent teeth, age, gender, impaired function, discomfort and dissatisfaction with appearance, and other sociodemographic, cultural and financial determinants are known to be an important ingredients of perceived treatment needs and, as consequence, essential aspects of clinical decision making.⁵¹

Elderly residents who are not covered under any type of insurance are generally had to pay money from their pockets to get treatment from both public and private dentists. 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 various socioeconomic classes.

Various factors like behavioural, social, economic, cultural and epidemiological factors, etc may contribute their decision to either forgo care or seek professional assistance for a dental problem. Research in this area is also important to health professionals and policy makers alike, advocating on modifying existing policies and programs can better target at risk subgroups and remove barriers to accessing oral health care.

According to Geiger⁵², students have misunderstandings and misconceptions about the aged persons and about the ageing process. He also stated many students lack knowledge about the most basic facts concerning about aging and do not give their first preference to work with the elder's.⁵³ Moreover the lack of knowledge can create serious problems in the delivery of dental health care to the older population.⁵⁴

Financing dental care is a key barrier for many seniors.⁵⁵ Dental health programs are not funded in most care facilities placing the onus to pay for dental services on seniors and/or their family. With limited funds and no dental insurance coverage, many low-income seniors living in the community also face challenges in accessing professional dental services.

Attitudes about old age among health professionals and students may reflect society's stereotypes towards the elderly.⁵⁶ consequently, health professionals often refuse to treat elderly patients or perform mutilating dental procedures rather than using conservative approaches on such patients.⁵⁷

Moreover, studies carried out in different parts of the world had showed, dentists had a low degree of knowledge regarding the physiological, pathological and psychological alterations inherent in the ageing process. Many authors had suggested, inclusion of geriatric dentistry in dental curriculum will increase the knowledge and attitudes of health professionals regarding elderly care.^{58,59} The limited studies published over years

indicate that there is a high unmet need in this population. Oral health assessments and education on general oral health and hygiene could be made cost-effective by training the dental hygienists, non-dental medical professionals, or even trained nonclinical providers. On the public health level, health education programs focusing on the special needs of these populations are mandatory. An integrated approach is needed, and oral health education should include all stakeholders. Additionally, it is necessary to implement curative and rehabilitation measures in these populations to reduce the need for future dental treatment.⁶⁰ Finally, the dental team has an important role to play in residential elderly home care. They can contribute to and facilitate improvement in resident's quality of life by helping them to maintain or regain optimum oral health and function, which contributes to well being and general health by furthering nutrition, alleviating pain, discomfort, increasing personal esteem and social acceptability. Articles published only in English language and those indexed in few databases were been reviewed, so future work should be carried out involving articles of other languages and various other databases.

CONCLUSION

Thus it was clearly evident that the oral health status of the elderly resident was poor with a more oral disease like caries, gingivitis, periodontitis and most of the residents were edentulous with no dentures. Thus the oral health of the elderly becomes potentially more complicated as they become frail, homebound or institutionalized or when their access to oral health care is limited.

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