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High Burden of Dental Caries in India's Elderly Population: A Systematic Review

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ABSTRACT

Throughout life, oral health is crucial to overall wellness. Elderly people's quality of life may be significantly impacted by poor oral health and untreated oral illnesses. This study's goal was to calculate the incidence of dental caries among older people in India over the last 20 years. The existing literature was systematically reviewed. This evaluation had six articles from the local community. The STROBE checklist for observational studies was used to screen the chosen studies. The necessary components of observational studies were present in all of the investigations. Calculated was the weighted prevalence of dental caries experience. The Excel application was used to create the trend. The percentage of people who had dental caries ranged from 31.5 to 100%. For the periods 2000–2004 and 2005–2009, the weighted prevalence of dental caries experience was 83.6% and 82.3%, respectively. Dental caries affects a large portion of the older population. To solve this issue, therapeutic and reparative therapies must be offered.

Key words: Dental caries, Elderly, Geriatric, India

INTRODUCTION

One of the most common diseases in the world is dental disease. [1] Although not a significant cause of mortality, these may have a negative impact on people's general health, particularly as they age. Untreated dental problems and poor dental health can significantly lower quality of life and raise the chance of

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developing other chronic conditions, like cardiovascular diseases. [2-4] Poor nutrition is a direct result of poor dental health, and this vicious cycle may result in a decline in general health.

The population of the world is aging in a different way. The percentage of older people will increase globally due to improvements in technology and medicine as well as longer life expectancies. A rising concern for public health policy is the projected increase in both the absolute and relative size of the older population in many third-world nations. [5-7] Any comprehensive evaluation of senior people includes five fundamental factors: activities of daily living, mental and physical health, social and economic functioning, and physical functioning. [8]

The physical state of a person is directly tied to oral health. According to reports, the majority of senior people have disorders like respiratory issues, visual problems, anemia, and dental issues. [9] Even though oro-dental health issues rarely pose a life-threatening hazard, they can lower quality of life. Dental conditions are inexpensive to treat yet easy to avoid. The fourth most expensive condition to treat in the majority of industrialized nations is oral illness. [10] There aren't many research available from the community to quantify the impact of dental caries in India's older population.

MATERIALS AND METHODS

An electronic and manual review of the literature was conducted. For an electronic search of the literature pertaining to oral health issues affecting the elderly in India, different scientific publications and a web-based search engine were utilized, along with a specific search strategy or set of keywords.

Emails or personal visits to the writers were used to get in touch with experts for the literature. Studies on India's elderly population, defined as those who are 60 years of age or older, as well as publications written in the English language, were required for inclusion in this review. The time frame was restricted because we believed that information collected over the previous 20 years would show the prevalence of dental caries as it changed over time.

An electronic search for references on dental caries in the elderly turned up 25, of which 5 were kept. The other studies were disregarded because they were hospital-based or involved children or individuals under the age of 60.

STROBE checklist for observational studies was used to screen several studies. [11] The formula PiWi/Wi was used to calculate the point estimate, where Pi represents the prevalence of dental caries in a given study and Wi represents the weight given to that particular study. The weight of each study was determined using the following formula: 1/square of SD. The multicentric studies were given the most weight because they had the largest sample sizes [12, 13].

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RESULTS

This study contained five papers that were determined to be pertinent to older people with dental caries. [14-19] All five studies passed the STROBE checklist's inspection and were determined to have all the elements necessary for an observational study.

The review included a total of three published publications and two summaries of multicentric surveys, two of which were multicentric studies and three of which were carried out in Delhi. According to two research, the elderly are those who are 65 years of age or older, whereas the other studies define the elderly as those who are 60 years of age or older. The DMFT Index was employed in all of these investigations to determine the prevalence of dental caries. Thus, despite the fact that the investigations were conducted at various times, the diagnostic standards remained the same. The researchers in each study received training in conducting oro-dental examinations in accordance with best practices.

A multicentric study was carried out in 20 states of India in 2002–2003 by the Dental Council of India (DCI) in partnership with the Ministry of Health and Family Welfare, and it found that 85% of the population had dental caries on average. [18] Another multicentric study undertaken by the Government of India and the WHO cooperation program on oral health in eight states of the nation estimated the prevalence to be 67.8%. 14 These were the two most significant surveys on dental caries in India. The investigations also indicated that males and females were distributed similarly. [14-19] The 2007 multicentric study's DMFT score was 5.3, ranging from 2.4 in Rajasthan to 15.5 in Uttar Pradesh. [14] The Patro et al.15 study and the DCI's multicentric study both found similar DMFT scores (13.8) and (14.9) respectively. [18]

DISCUSSION

The current research demonstrates the substantial incidence of dental caries among India's older population, as seen by both individual studies and weighted prevalence.

The incidence varies throughout research, which may be explained by diverse study populations, different study settings, regional variations in dietary habits, mouth hygiene routines, water fluoridation levels, etc. A pooled estimate was not generated because of the differences between these studies.

According to either the 1997 criteria [20] or a modified version of the 1987 WHO oral health criteria, all studies reported the DMFT score. The amended 2004 WHO criteria for oral health examination were utilized by Patro et al.[15] and the multicentric oral health survey of 200714. [21] There were no discrepancies in the diagnostic criteria according to these WHO recommendations, despite the fact that these investigations used various versions of the WHO criteria. This has no impact on the prevalence of

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dental caries because the DMFT index was employed in all research to estimate it. According to the research included in the study, there is a significant rate of missing teeth, which suggests that restorative procedures are infrequently carried out on the senior population and that deteriorated teeth are typically pulled when discomfort or an abscess occurs.

There are certain restrictions with this study. It was based on an analysis of earlier research that was carried out in various study settings and at various times by various researchers. Although efforts were made to apply statistical methods to produce a weighted prevalence that gave studies with bigger sample sizes due weight, the generalizability may therefore be erroneous.

Second, the actual weighted prevalence determined here may not have been accurate because the analysis excluded the two multicentric investigations. Additionally, because all of the investigations were cross-sectional descriptive studies, they each had their own set of methodological, generalizability, and internal validity restrictions.

CONCLUSION

The current analysis demonstrates that dental caries affects a significant portion of India's elderly population. Simple precautions like regular oral hygiene and early treatment can readily avoid dental caries and its effects. As a result, the community's dental caries problem needs to be addressed. In addition to raising awareness, older people need access to the availability of treatment and restorative services.

REFERENCES

1. Petersen PE. The World Oral Health Report 2003. Continuous improvement of oral health in the 21st century - the approach of the WHO Global Oral Health Programme. Available from: http://www.who.int/oral_health/media/en/orh_report03_en.pdf. [Last accessed on 2011 Mar 3]

2. DeStefano F, Anda RF, Kahn HS, Williamson DF, Russell CM. Dental disease and risk of coronary heart disease and mortality. BMJ 1993;306:688-91.

3. Joshipura KJ, Rimm EB, Douglass CW, Trichopoulos D, Ascherio A, Willett WC. Poor oral health and coronary heart disease. J Dent Res 1996;75:1631-6.

4. Mendez MV, Scott T, LaMorte W, Vokonas P, Menzoian JO, Garcia R. An association between periodontal disease and peripheral vascular disease. Am J Surg 1998;176:153-7.

5. Kinsella K, Velkoff VA, Victoria A. An Ageing World. International Population Reports. U.S. Department of Health and Human Service and U.S. Department of Commerce; 2001. p. 95-101.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

6. India: The Challenge of Old Age Income Security. World Bank 2001. Finance and Private Sector Development: South Asia Region, Report No. 22034-IN.Available from: http:// www.silverinnings.com/docs/Finance/Pension/India%20%20challenge%20of%20Old%20age%20Security.pdf. [Lastaccessed on 2011 Jan 16].

7. United Nations. World Population Ageing, 1950-2050, Department of Economic and Social Affairs, Population Division, New York. United Nations (UN)-2002. Available from: http://www.un.org/esa/population/publications/worldageing19502050/index.htm. [Last accessed on 2011Jan 16].

8. Fillenbaum GG. The wellbeing of the elderly: Approaches to multidimensional assessment. World Health Organization, Geneva: WHO Offset Publication No. 84; 1984. p. 75-82.

9. Nandal DS, Khatri RS, Kadian RS. Ageing problems in the structural context. In: Shrma ML, Dak TM, editors. Aging in India. New Delhi: Ajanta Publications (India); 1987. p. 106-16.

10. Health care financing administration. National health expenditures, 1998. US Department of Health, Washington DC: Health Care Financing Administration. Available from: http://www.nidr.nih.gov/sgr/sgrohweb/ toc.htm. [Last accessed on 2011 Apr 16]

11. STROBE Statement. Strengthening the reporting of observational studies in epidemiology. Available from: http://www.strobe-statement.org/index.php?id=available-checklists.[Last accessed on 2011 Jan 16].

12. Misra P, Upadhyay RP, Misra A, Anand K. A review of the epidemiology of diabetes in rural India. Diabetes Res Clin Pract 2011;92:303-11.

13. Terr D. "Weighted Mean." From Math World - A Wolfram Web Resource. Available from: http://mathworld.wolfram.com/WeightedMean.html. [Last accessed on 2011 Apr 15].

14. Shah N, Pandey RM, Duggal R, Mathur VP, Parkash H, Sundaram KR. Oral Health in India. A report of Multi-centric study. Director General of Health Services, Ministry of Health and Family Welfare, Government of India and WHO collaborative programme. December 2007. Available from:http://www.whoindia.org/en/section20/Section30_1525.htm.[Last accessed on 2011 Jan 16].

15. Patro BK, Ravi Kumar B, Goswami A, Mathur VP, Nongkynrih B. Prevalence of dental caries among adults and elderly in an urban resettlement colony of New Delhi. Indian J Dent Res 2008;19:95-8.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

16. Goel P, Singh K, Kaur A, Verma M. Oral health care for elderly: Identifying needs and feasible strategies for service provision. Indian J Dent Res 2006;17:11-21.

17. Shah N, Sundaram KR. Impact of socio-demographic variables, oral hygiene practices, oral habits and diet on dental caries experience of Indian elderly: A community-based study. Gerodontology 2004;21:43-50.

18. DCI. National Oral Health Survey & Fluoride Mapping. Dental Council of India in collaboration with Ministry of Health and Family Welfare, Government of India;2002-2003.

19. Doifode VV, Ambadekar NN, Lanewar AG. Assessment of oral health status and its association with some epidemiological factors in population of Nagpur, India. Indian J Med Sci 2000;54:261-9.

20. World Health Organization (WHO). Oral health survey: Basic methods. 2nd ed. Geneva: Oral Health Department, WHO;1997.

21. Parkash H, Duggal R, Mathur VP, Petersen PE. Manual for multi-centric oral health survey. Directorate general of Health Services, Ministry of Health and Family Welfare and World Health Organization. Government of India and WHO India Biennium; 2004-05.