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## Scientific article

# Oral health status and complete denture status of independent-living Singaporean elderly residing in a community home



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### ABSTRACT

**Aim:** Past studies have examined the oral health status of elderly Singaporean adults residing in long term care facilities and living in residential housing but no oral health research has been conducted on elderly Singaporeans residing in community homes. The aim of this paper is to report on the oral health status and complete denture status of a group of free living (community dwelling) elderly in Singapore from the AWWA Community Home for Senior Citizens, and investigate the relation between the clinical findings and demographic data.

**Materials and methods:** This research used a cross-sectional design and was conducted in the month of December 2011. Consenting residents of the AWWA home who were over the age of 60 participated in this study. Sampling strategy was census. Two calibrated interviewers collected demographic information from the participants and four calibrated dentists conducted extra-oral and intra-oral soft tissue examinations along with assessment of dentition, periodontal and denture status.

**Statistical analysis:** All data were input into Microsoft Excel 2010™ and analysed in SPSS 21.0™. Descriptive analysis and bivariate analysis were performed on the demographic factors and other variables of interest. The Spearman's test, Mann-Whitney U and Chi-Square test were used to examine the correlation between the clinical findings and age, gender and education level respectively.

**Results:** Among the 70 participants, two subjects (2.9%) had complete dentition, 34 (48.6%) were partially dentate, and 34 (48.6%) had no teeth. The mean number of teeth among the partially dentate participants was 11.28 while the mean number of anterior, posterior and total occlusal contacts were 1.61, 2.17 and 3.78 respectively. The mean number of decayed teeth (DT) and filled teeth (FT) were 2.81 and 0.25, giving a mean DFT score of 3.06. The mean Root Caries Index was 0.13. Periodontal examination revealed that only 5 (13.9%) individuals had healthy periodontal tissues, while 2 (5.6%) had the highest score of 1, 9 (25.0%) had the highest score of 2, 11 (30.6%) had the highest score of 3 and 7 (19.4%) had

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the highest score of 4. Amongst the partially dentate, 14 had dentures and 20 had none. There were 34 edentulous participants and 23 had at least one denture while 11 did not have any complete dentures. The most frequent unsatisfactory finding for complete dentures was inadequate retention of the mandibular dentures. When the dentures were grouped into those that were satisfactory and those that had at least one unsatisfactory factor, 11 of the 26 maxillary dentures and 17 of the 23 mandibular dentures fell to the latter category. Analysis revealed that there was a correlation between age and the number of teeth with a correlation coefficient of  $-0.43$  ( $p=0.01$ ) and age with the mean DFT,  $-0.33$  ( $p=0.05$ ).

**Conclusion:** The findings of this study revealed a high treatment need for this group of elderly.

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## Introduction

Singapore has one of the world's fastest ageing populations, with the proportion of elderly adults rising from 10.5% of the total population in 2013 to almost 20% of the total population by 2030 [1]. By 2030, it is estimated that the number of seniors above 65 in Singapore will increase to almost one million. One of the challenges with an ageing population is ensuring that the needs of the elderly, including their oral health needs are well provided for. Studies have shown that oral health can have a significant impact on the general health and quality of life of individuals; therefore, public health policies need to take into consideration the oral health status and needs of the elderly population [2,3]. This will encourage active and healthy ageing amongst the elderly population.

Peer-reviewed reports on the oral health of the elderly in Singapore date back to the 1990s. Soh et al. examined the status of the dentition, soft tissue and periodontium of 479 institutionalized elderly living in long-term care facilities and found that the mean DMFT for the cohort was 27.0 [4]. Fifty-six percent of the elderly were edentulous and 78.8% were without dentures. They also found that 52.2% of the subjects presented with a dental condition that required immediate care. Loh et al. studied the oral health of 891 elderly residential residing adults and found that the percentage of edentulous individuals was 27.3% and there was a significant difference in the percentage of edentulous individuals in the different age groups [5]. The mean DMFT of the elderly in their study group was 19.4 and showed an upward trend with each increasing age cohort. Thean et al. found the treatment needs of 184 nursing home residents to be high [6]. More than half the complete dentures examined were unsatisfactory and untreated decay and retained roots were prevalent.

Currently, there is not any information on the oral health status of elderly Singaporeans residing in community homes. In 2011, about 97 per cent of the elderly population resided in residential housing, while the remaining were living in institutions such as community and nursing homes [7]. Community homes, also known as sheltered homes, provide residential care for ambulant destitute or low-income elderly who are without family support and can live independently while nursing homes provide care for the elderly with medical conditions who need nursing care. This paper reports on

the oral health status and complete denture status of a group of elderly Singaporeans residing in the AWWA Community Home for Senior Citizens, and investigates the relation between the clinical findings and demographic data.

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## Materials and methods

This research used a cross-sectional design and was conducted in the month of December 2011. The participants of this study were free-living residents of the Asian Women's Welfare Association (AWWA) Community Home for Senior Citizens. Sampling strategy was census, as all the residents over the age of 60 years were invited to participate. The study was explained to the residents and written consent was obtained from all volunteer participants. Those unable to answer the questionnaire were excluded from the study. The participants were given an oral care kit as a token of gratitude for their participation. Ethical approval to conduct this research was received from the National University of Singapore Institutional Review Board, Reference Code 10-155.

Two calibrated interviewers collected demographic information and four calibrated dentists performed the clinical examinations on the participants. Demographic data collected included information regarding age, gender, level of education, number of years in Singapore, and monthly income. Clinical examinations were carried out on location using portable headlamps, mouth mirrors, CPI probe with 0.5 mm ball end, magnifying loops (Heine HR 2.5 × S frame), with the participants reclining on portable dental chairs. Clinical examination included extra-oral and intra-oral soft tissue examination along with assessment of dentition, periodontal and denture status.

Dentition status included the presence of natural teeth, the number of posterior and anterior occlusal contacts and presence of caries. The number of occlusal contacts was observed by asking the participant to bite in maximum intercuspation. The number of posterior contacts counted the presence of contacts on mandibular premolars and molars while the number of anterior tooth contacts was counted by observing the number of contacts achieved on the mandibular anterior teeth. Dental caries was assessed using criteria described in ICDAS-2 with mouth mirrors, CPI

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